STATE OF CALIFORNIA

Energy Resources Conservation
and Development Commission

Application for Certification for the IVANPAH SOLAR ELECTRIC GENERATING SYSTEM	)	Docket No. 07-AFC-5

OPENING BRIEF OF IVANPAH SOLAR PROJECT

ELLISON, SCHNEIDER & HARRIS L.L.P.
Jeffery D. Harris
Greggory L. Wheatland
Samantha G. Pottenger
2600 Capitol Avenue, Suite 400
Sacramento, California 95816
Telephone: (916) 447-2166
Facsimile: (916) 447-3512

Attorneys for Ivanpah Solar Project

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Pursuant to the Committee's "Notice Of Additional Evidentiary Hearing, Revised Briefing Schedule, And Ruling On Environmental Intervenors' Motion To Compel Prehearing Conference, Set Briefing Schedule And Clarify Other Procedural Matters (the Briefing Order) Solar Partners I, LLC; Solar Partners II, LLC; Solar Partners VIII, LLC, the owners of the three separate solar plant sites collectively referred to as the Ivanpah Solar Electric Generating System or Ivanpah Solar Project (Applicant)[1] hereby files the following Opening Brief regarding the Application for Certification (AFC) for the Ivanpah Solar Electric Generating System (the "Ivanpah Solar Project").

The Brief is divided into two sections. Section I addresses what the Applicant understands to be the uncontested issues in this proceeding, at least as between the Applicant and the Commission Staff (Staff).

Section II addresses those topics where there is some disagreement between the Staff and Applicant. These topics are Biology, Cultural Resources, Land Use, Traffic/Transportation, Recreation and Visual Resources. Cumulative Impacts, Alternatives and Overrides are also addressed in Section II. In Attachment A, we propose Findings of Fact and Conclusions of Law which accurately describe the evidentiary record in this proceeding relevant to each topic area. In Attachment B to this Brief, we set forth the proposed Conditions of Certification, if any, which are applicable to each topic area.

I. UNCONTESTED ISSUES

Applicant is mindful that there is no need to repeat or restate matters that are of record in this proceeding. Nevertheless, Applicant hereby provides the following brief discussion of the uncontested issues in order to assist the Committee in drafting its proposed decision.

A. AIR QUALITY

The air quality analysis focuses on whether the construction and operation of a project has the potential to cause significant, adverse impacts as a result of emission of criteria air pollutants. In determining whether a project has the potential to cause such adverse impacts, the Commission must evaluate the project's compliance with applicable laws, ordinances, regulations, and standards ("LORS") relating to air quality.

[1] These three companies are Delaware limited liability companies. BrightSource Energy Inc. (BSE), a Delaware corporation, is a technology and development company, and the parent company of the Solar Partners entities.

For the reasons set forth below, the Commission should reach the conclusion that with the following Conditions of Certification, the Ivanpah Solar Project is safe, and will meet all of the air quality standards under all operating conditions, under all meteorological conditions and at all locations, based on conservative assumptions regarding background or existing air quality, operating levels, emission rates and meteorology. Staff and Applicant are in agreement with all of the Conditions of Certification set forth in the Staff's FSA Addendum (Exhibit 315).

1. The Project has No Significant Impacts on Local Air Quality.

The Ivanpah Solar Project analyzed potential effects to local air quality using three different types of analyses: (1) pollution control technologies, (2) air quality impacts analysis, and (3) preparation of a health risk assessment.[2]

a. Air Emissions from the Project's Boilers Are So Low that MDAQMD BACT Requirements Are Not Triggered.

For large emission units, Best Available Control Technology (BACT) is the fundamental cornerstone of any licensing process, and requires that new facilities use the cleanest technologies available. By insuring that projects use the cleanest technologies available, potential impacts on local air quality are avoided or minimized.[3]

However, BACT is not required for emission units with emissions below the regulatory threshold. Specifically, additional review is not required to determine if further controls are necessary or feasible for emission units with emissions below the regulatory threshold.

In this case, the Ivanpah Solar Project's boilers were determined by the MDAQMD as not subject to BACT. This finding by the MDAQMD was confirmed in the district's Final Determination of Compliance ("FDOC")[4] for the Ivanpah Solar Project, dated December 3, 2008. Staff has concurred in this conclusion.[5]

In particular, emissions of criteria air pollutants from the Project will be controlled in the following manners. Nitrogen oxides (NOx) will be controlled through a combination of two technologies: (1) the use of low-NOx combustors and (2) the use of a technique called "flue gas

[2] Ex. 65, pp. 27-37, 86-87.

[3] Ex. 65, p. 31-32.

[4] Ex. 141.

[5] Ex. 300, p. 6.1-37.

recirculation." Each boiler is designed to meet a NOx emission concentration limit of 9 ppmvd NO_x @ 3% O_2, averaged over 1 hour, during all operating modes.[6]

Carbon monoxide will be controlled through use of good combustion practices that minimize incomplete fuel combustion.[7] The Applicant has agreed to a CO emission limit of 25 ppmvd @ 15% O_2.[8]

Precursor organic compounds (POCs) will also be controlled through the exclusive use of clean-burning natural gas as a fuel.[9] The Applicant has agreed to a VOC emission limit of 12.6 ppmvd @ 3% O_2.[10]

Emissions of sulfur dioxide (SO_2) and particulate matter (PM_{10}) are controlled through the use of natural gas as a fuel. The Project will use natural gas exclusively, with an expected annual average sulfur content of 0.25 grains per 100 scf.[11] Similarly, particulate matter (PM_{10}) emissions are controlled through the use of clean burning natural gas for the combustion turbines and the HRSG units, which will result in minimal PM_{10} emissions and minimal formation of secondary PM_{10}.[12]

b. The Project's Air Impacts Analysis Confirms That There Will Not Be Significant Local Air Quality Effects.

Mr. Rubenstein and Mr. Hill testified that a thorough air quality impact analysis, often referred to as a modeling analysis, has been performed for the Ivanpah Solar Project.[13] The air quality impact analysis used dispersion models approved by USEPA and the MDAQMD, and evaluated a number of worst-case assumptions and worst-case operating scenarios for the Project.[14] Based on the analyses of these worst-case assumptions, the maximum allowable emissions from the plant were calculated.[15] After the worst-case operating scenarios were

[6] Ex. 300, p. 6-1-26.

[7] Ex. 300, p. 6-1-26.

[8] Ex. 300, p. 6-1-26.

[9] Ex. 300, p. 6-1-26.

[10] Ex. 300, p. 6-1-26.

[11] Ex. 1, p. 5.1-29.

[12] Ex. 300, p. 6-1-26.

[13] Ex. 65, p. 32.

[14] Ex. 65, p. 32.

[15] Ex. 65, p. 32.

calculated, worst-case weather conditions were superimposed upon those results.[16] Thus the air quality impacts analysis assumes (a) the worst-case operating assumptions; (b) worst-case emission factors; and (c) worst-case weather conditions, even if it was impossible for all conditions to physically occur at the same time.[17]

For example, the worst case of emissions from a powerplant might occur during winter conditions when the ambient temperatures are lowest, and the mass flow is highest. The worst-case meteorological conditions for dispersion might occur in the summer. The air quality impacts analysis nonetheless assumes that those worst-case emissions aspects of the wintertime apply during the summer meteorological conditions, even though it is physically impossible for those conditions to occur simultaneously.[18]

The purpose of all of those conservative assumptions is to ensure that the Project will not, at any time, cause any violations of any state or air quality standards under any weather conditions, and under any operating conditions.[19] The air quality impacts analysis confirms that the Project will not cause any violations at any time under any conditions.[20] Furthermore, the analysis shows that although the region currently experiences violations of the state ozone standard, and of the state particulate matter or PM_{10} standard that occurs from time to time, the impacts from the project are below Significant Impact Levels (SILs). Therefore, the project's contribution to any existing concentrations is not significant.[21]

c. The Project's Air Impacts Analysis Confirms That There Will Be No Significant Cumulative Local Air Quality Effects.

Applicant consulted with the MDAQMD to identify nearby projects that had the potential to cause a significant cumulative effect when considered in conjunction with the Project. The District determined that there were no known projects, either proposed or recently constructed, that would have a direct impact on the area around the Project.[22] As a result, no additional air

[16] Ex. 65, p. 32.

[17] Ex. 65, p. 32.

[18] Ex. 65, p. 32.

[19] Ex. 65, p. 32.

[20] Ex. 65, p. 32.

[21] Ex. 65, p. 31; Ex. 1, p. 5.1-41.

[22] Ex. 300, p. 6.1-33.

dispersion modeling was needed to confirm that there would be no significant cumulative local air quality effects.

d. The Health Risk Assessment Performed for the Project Confirms That There Are No Adverse Local Air Quality Impacts.

The Ivanpah Solar Project's Health Risk Assessment ("HRA") confirms that there will be no significant adverse local air quality impacts associated with the Project. The HRA is discussed in detail in the Public Health section of this Brief. The results of the HRA show that the health risk is not significant at any location, at any time, under any operating conditions.

2. The Project Will Have No Significant Impacts on Regional Air Quality.

The Project will have no significant impacts on regional air quality. This finding of no significant impact is confirmed by the determination by the MDAQMD that the project is not subject to District offset requirements.

a. The Project Will Not Cause Any Significant Unmitigated Cumulative Air Quality Impacts.

Emissions offsets are one of the most misunderstood aspects of the air quality regulatory program. Emission offsets are not intended to protect local air quality. Instead, emission offsets are part of a regional mitigation program designed to ensure that new plants of any type can be constructed, while ensuring that progress towards cleaner air is maintained. Emission offsets are not an option that can be elected by a project applicant to avoid any other requirements. Emission offsets are mandated by local regulations, state law, and federal law.[23]

In California, emissions offsets are required under a regulatory program that was established in the late 1970s to replace a program that had been based on dispersion modeling and was shown simply not to work. The emissions offset program was intended to ensure that improvements in air quality could be achieved without completely shutting down industrial growth. The emissions offsets program was also intended to mesh economic growth with air quality objectives. Air quality data trends for the last 20 years throughout California show that the program has been working.

The state offset program requires facilities with emission increases above certain thresholds to provide offsets for those emissions. When offsets are required, the amount of

[23] Ex. 65, p. 32.

offsets provided is at least equal to, and usually more than, the amount of the emission increase. This is to ensure that emission levels in the region from stationary sources continue to go down.

Emission offsets from smaller sources (i.e., facilities with emissions below the offset thresholds) are handled programmatically by the District under a component of the offset program called No Net Increase. Under this program component, smaller facilities do not provide offsets directly. Emission increases are matched, in the long run, by emission reductions at other facilities, both large and small, that are not claimed for use as offsets. The District manages emission increases and decreases from these smaller facilities as part of its ambient air quality compliance planning process. Compliance with the District's new source requirements ensures that the Project will be consistent with the strategies and future emissions anticipated under the District's air quality attainment and maintenance plans.[24]

The Project is exempt from offsets under MDAQMD regulations.[25]

B. COMPLIANCE/GENERAL CONDITIONS

Public Resources Code Section 25532 requires the Commission to establish a post-certification monitoring system. The purpose of this requirement is to assure that certified facilities are constructed and operated in compliance with applicable laws, ordinances, regulations, and standards, as well as the specific Conditions of Certification to be adopted as part of the Committee's Proposed Decision.

The evidentiary record contains a full explanation of the purposes and intent of the Compliance Plan ("Plan"). The Plan is the administrative mechanism used to ensure that the Ivanpah Solar Project is constructed and operated according to the Conditions of Certification. It describes the respective duties and expectations of the project owner and the Staff Compliance Project Manager ("CPM") in implementing the design, construction, and operation criteria set forth in the Proposed Decision. Compliance with the Conditions of Certification contained in the Committee's Proposed Decision will be verified through mechanisms such as periodic reports and site visits. The Plan also contains requirements governing the planned closure, as well as the unexpected temporary and unexpected permanent closure, of the project.

[24] Ex. 300, p. 6.1-35.

[25] Ex. 60, p. 11.

The FSA/DEIS recommends that 14 Conditions of Certification be adopted to address general conditions including compliance monitoring and closure plan issues: COMPLIANCE-1 through COMPLIANCE-14.[26] These are acceptable to the Applicant.

C. FACILITY DESIGN

The facility design analysis for the project encompasses civil, electrical, mechanical and structural engineering elements related to the design, construction, and operation of the proposed project and its component systems.

The Applicant's AFC and related materials describe the facility design aspects of the project.[27] The evidence in the record is uncontroverted and supports the conclusion that the powerplant and linear facilities are described with sufficient detail to assure that the project can be designed and constructed in accordance with applicable engineering laws, ordinances, regulations, and standards.

The evidentiary record supports the Commission's adoption of Staff's proposed Conditions of Certification.

D. GEOLOGY, PALEONTOLOGY, AND MINERALS

In this section, the Commission considers the project's potential impacts to significant geological and paleontological resources and to surface water hydrology during construction and operation. The California Environmental Quality Act (CEQA) directs the lead agency to consider whether a project will cause adverse impacts to a unique geological feature or paleontological resource.[28] CEQA also requires an analysis regarding project impacts that may potentially expose persons or structures to geologic hazards.[29]

Applicant's and Staff's analyses examined construction, operation and closure impacts to significant geological and paleontological resources and surface water hydrology.[30] Staff and

[26] Ex. 300, pp. 9-5 to 9-14.

[27] Ex. 1, § 2.2; Ex. 65, p. 10.

[28] Cal. Code of Regs., tit. 14, § 15000 et seq., App. G.

[29] *Id.*

[30] Ex. 65, p. 65; Ex. 300, p. 6.15-1.

Applicant additionally examined seismic, and geologic hazards, and erosion potential from project construction and operation.[31]

Staff has proposed several monitoring and mitigation measures to be followed during the construction and operation of the powerplant and related linear facilities so as to ensure that there will be no significant adverse impacts to significant geological and paleontological resources and surface water hydrology during project construction, operation and closure.[32] The Applicant concurs with these proposed measures.

Staff properly noted that project is currently not used for mineral production, nor is it under claim, lease, or permit for the production of locatable, leasable, or salable minerals.[33] Sand and gravel resources are present at the site and could potentially be a source of salable resources; however, such materials are present throughout the regional area such that the Ivanpah Solar Project would not have a significant CEQA or NEPA impact on the availability of such resources.[34] Applicant concurs with these conclusions.

Based on the evidence of record, the Commission should conclude that the implementation of the proposed Conditions of Certification will not cause adverse impacts to either surface water hydrology, geological, paleontological resources, or mineral resources or expose the public to geologic hazards. Additionally, with the implementation of the proposed Conditions of Certification, the Commission should find that the project will conform with all applicable laws, ordinances, regulations and standards relating to geology, paleontological and mineral resources. Implementation of Staff's proposed Conditions of Certification will ensure that project activities do not cause adverse impacts to either geological or paleontological resources or expose the public to geological hazards.

E. HAZARDOUS MATERIALS MANAGEMENT

The Commission's analysis considers whether the construction and operation of the Ivanpah Solar Project will have a significant impact on public health and safety resulting from the use, handling, transportation or storage of hazardous materials at the facility.

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[31] *Id.*

[32] Ex. 300, pp. 6.15-28 to 6.15-35.

[33] Ex. 300, p. 6.15-26.

[34] Ex. 300, p. 6.15-26.

Staff and Applicant agree that with the adoption of Staff's proposed Conditions of Certification (as set forth in Exhibit 303), the proposed Project will comply with all applicable laws, ordinances, regulations and standards.[35] Additionally, these proposed Conditions of Certification will ensure that the storage, use, transportation and management of the Project's hazardous materials will pose no potential for significant impacts to the public.[36]

Hazardous materials to be used at the Ivanpah Solar Project during construction and operation were evaluated for hazardous characteristics. Some of these materials will be stored at the Project site continuously. Others will be brought onsite for the initial startup and maintenance. Some materials will be used only during startup. Hazardous materials will not be stored or used in the gas supply line, water supply line, or electric transmission line corridors during operation of the plant.[37]

During construction of the project and linear facilities, regulated substances, as defined in California's Health and Safety Code, Section 25531, will not be used. Hazardous materials to be used during construction of the Project and its associated linear facilities will include gasoline, diesel fuel, motor oil, hydraulic fluid, solvents, cleaners, sealants, welding flux, various lubricants, paint, and paint thinner. There are no feasible alternatives to motor fuels and oils for operating construction equipment. The types of paint required are dictated by the types of equipment and structures that must be coated and by the manufacturers' requirements for coating. The quantities of hazardous materials that will be onsite during construction are small and similar to the quantities used during operation. Construction personnel will be trained to handle the materials properly. The most likely possible incidents will involve the potential for fuels, oil, and grease dripping from construction equipment. The small quantities of fuel, oil, and grease that might drip from construction equipment will have relatively low toxicity and will be biodegradable. Therefore, the expected environmental impact is minimal.[38]

Small fuel spills may also occur during onsite refueling. The potential environmental effects from fueling operations are expected to be limited to small areas of contaminated soil. If a

[35] Ex. 303, pp. 12-16; Ex. 65, p. 69.

[36] Ex. 65, p. 69.

[37] Ex. 65, p. 67.

[38] Ex. 65, p. 68.

fuel spill occurs on soil, the contaminated soil will be placed into barrels or trucks for offsite disposal as a hazardous waste.[39]

The quantities of hazardous materials that will be handled during construction are relatively small. Personnel working on the project during the construction phase will be trained in handling of and the dangers associated with hazardous materials. Therefore, the potential for environmental effects is expected to be small.[40]

During the Ivanpah Solar Project operation, one regulated substance - sulfuric acid - will be stored onsite. Sulfuric acid has a very low vapor pressure and will not readily volatilize upon release. Therefore, the potential for harm to humans offsite is minimal. The sulfuric acid that will be used at the Ivanpah Solar Project does not contain more than 100 pounds of sulfur trioxide or meet the definition of oleum. In addition, it will not be stored in a container with flammable hydrocarbons. Therefore, sulfuric acid is not subject to the RMP requirements under CalARP. If a spill involves hazardous materials equal to or greater than the specific reportable quantity all federal, state, and local reporting requirements will be followed.[41]

F. NOISE

The construction and operation of any powerplant project will create noise. The character and loudness of the noise, the times of day or night during which it is produced, and the proximity of the project to sensitive receptors combine to determine whether project noise will cause adverse impacts to the environment. In the licensing process, the Commission evaluates whether noise produced by project-related activities will be sufficiently mitigated to comply with applicable noise control laws and ordinances.

1. With the Implementation of the Proposed Noise Mitigation Measures and the Conditions of Certification, the Project Will Comply With Applicable LORS and Will Mitigate All Potential Impacts to a Level of Less Than Significant.

Staff and Applicant examined the likely construction and operation noise impacts from the Project's construction, operation, linear facilities and tonal and intermittent noises.[42] This

[39] Ex. 65, p. 68.

[40] Ex. 65, p. 68.

[41] Ex. 65, p. 68.

[42] Ex. 1, § 5.7; Ex. 300, § 6.6.

examination included an analysis of the effects that noise levels will have on the community and workers.[43] Staff and Applicant have concluded that the Staff's proposed Conditions of Certification, with modifications agreed to by the Applicant and Staff, will be sufficient to mitigate these noise impacts to a level of insignificance.[44]

Given the solar nature of this Project, activity at night will be limited and primarily maintenance-related and would not represent significant noise sources. The power plant will operate an average of about 10 hours a day, 7 days a week throughout the year, with the exception of a scheduled shutdown in late December for maintenance. The solar field and power generation equipment will be started up each morning after sunrise and insolation buildup, and shut down in the evening when insolation drops below the level required to keep the steam turbine on line. Nighttime activities include mirror washing, water pumping and water treatment. Operational noise from the Ivanpah Solar Project is predicted not to exceed 30 dBA in Primm, Nevada and to be less than the County's residential daytime standard of 55 dBA at the golf club.[45]

Construction of the Ivanpah Solar Project is expected to be similar to other power plants in terms of schedule, equipment used, and other types of activities. The noise level will vary during the construction period, depending upon the construction phase. Construction noise is not anticipated to be noticeable in Primm, with the potential exception of pile driving, which (if required) is not anticipated to exceed current noise exposure levels.[46]

Staff and Applicant also performed a cumulative impacts analysis of the project. Both Staff and Applicant concluded that the Ivanpah Solar Project will not have a significant cumulative noise impact.[47]

The FSA proposed seven Conditions of Certification be adopted to address noise issues. The Applicant proposed slight modifications to Conditions NOISE-4, NOISE-6 and NOISE-7.[48] The Staff has agreed to these revisions, except that Staff does not agree to delete the approval

[43] *Id.*

[44] Ex. 65, p. 80; Ex. 300, 6.6-1.

[45] Ex. 65, p. 80.

[46] *Id.* at 79.

[47] *Id.* at 80; Ex. 300, p. 6.6-13.

[48] Ex. 65, pp. 80-83.

authority of Bureau of Land Management (BLM) authorized officer.[49] The Noise Conditions of Certification, as agreed to by the Applicant and Staff, are set forth in Attachment B to this Brief.

G. POWERPLANT EFFICIENCY

The Commission examines the efficiency of a powerplant to determine if the project's consumption of energy may create a significant adverse impact on the environment, and if so, what measures may be taken to mitigate the impact through increased efficiency of design and operation. The Commission therefore reviews a project to determine if, compared to current state-of-the art projects, inefficient fuel consumption is likely and, if so, how it can be mitigated.

Under CEQA, a project causes significant environmental impacts if it uses large amounts of fuel, water, or energy in a wasteful, inefficient, and unnecessary manner.[50] In accordance with CEQA guidelines, Applicant and Staff considered whether the project will result in: 1) adverse effects on local and regional energy supplies and energy resources; 2) depletion of energy supply capacity; 3) wasteful, inefficient, and unnecessary consumption of fuel or energy; or 4) noncompliance with existing energy standards.[51]

The evidentiary record demonstrates that the Ivanpah Solar Project would decrease reliance on fossil fuel, and would increase reliance on renewable energy resources. It would not create significant adverse effects on fossil fuel energy supplies or resources, would not require additional sources of energy supply, and would not consume fossil fuel energy in a wasteful or inefficient manner.[52]

No efficiency standards apply to this project. The Applicant, BLM and Staff therefore conclude that this project would present no significant adverse impacts on fossil fuel energy resources.[53] In addition, the Ivanpah Solar Project will occupy approximately nine acres per MW of power output, a figure about double that of some other solar power technologies.[54]

The receiving boiler is a traditional high efficiency boiler positioned on top of the solar power tower (SPT). The boiler converts the concentrated energy of the sun reflected from the

[49] The issue of the approval authority of BLM and the CEC is addressed in Attachment B of this brief.

[50] Cal. Code of Regs., tit. 14, § 15126.4(a)(1).

[51] *Id.* § 15000 et seq., App. F.

[52] Ex. 300, p. 7.2-1.

[53] *Id.*

[54] *Id.*

heliostats into superheated steam. The boilers will be supplied by conventional boiler manufacturers providing performance warranties and industry best practices, and will comply with standard boiler design parameters. The boiler's tubes are coated with a material that maximizes energy absorbance. The boiler has steam generation, superheating, and reheating sections and is designed to generate superheated steam at a pressure of 160 bars and a temperature of 550 degrees Celsius (°C).[55]

The power block system proposed for this project is the same as that used in traditional power generation facilities to convert steam to electricity. The power block consists of a conventional Rankine-cycle STG with a reheat cycle, and auxiliary functions of heat rejection, water treatment, water disposal, and grid interconnection capabilities. The integration of high efficiency pre-existing turbine technologies provides performance warranties and enables the system to maximize thermal-to-electricity efficiencies.[56]

No Conditions of Certification are proposed.[57]

H. POWERPLANT RELIABILITY

The Warren-Alquist Act requires the Commission to examine the safety and reliability of the proposed powerplant, including provisions for emergency operations and shutdowns.[58] There are presently no laws, ordinances, regulations or standards that establish either powerplant reliability criteria or procedures for attaining reliable operation. However, the Commission must determine whether the project will be designed, sited, and operated to ensure safe and reliable operation.[59] In this regard, the Commission considers whether the proposed project will degrade the reliability of the utility system to which it is connected.

The project is expected to achieve an equivalent availability factor in the range of 92 to 98 percent.[60] The project is anticipated to normally operate at high average annual capacity factors during periods of sunlight.[61] This project will help serve the need for renewable energy in

[55] Ex. 65, p. 12.

[56] *Id.*

[57] Ex. 300, p. 7.2-12.

[58] Public Resources Code § 25520(b).

[59] Cal. Code of Regs., tit. 20, § 1752(c)(2).

[60] Ex. 1, §2.3.2.1; Ex. 300, p. 7.3-3.

[61] Ex. 1, § 2.3.2.1.

California, as 95 percent of the generated electricity would be produced by a reliable source of solar energy that is available during the hot summer afternoons, when power is needed most. Small natural gas-fired boilers will be used to bring the system up to operating temperature in the morning and periodically to keep system temperatures up when clouds briefly block the sunlight. These boilers are expected to contribute to no more than 5 percent of the Ivanpah Solar Project's average annual energy.[62]

Based on a review of the proposal, Staff agrees that the plant would be built and operated in a manner consistent with industry norms for reliable operation. This should provide an adequate level of reliability.[63]

No Conditions of Certification are proposed.

I. PROJECT DESCRIPTION

This Brief's discussion of "Project Description" is divided into two parts. The first section immediately below describes the location of the Project, its major components, and the major system employed in electric generation. The second section summarizes the Project proponents' basic objectives in devising the Project Description.

1. Location and Major Components.

The Commission's certification proceeding is not a static process where an Applicant submits a proposal and the Commission votes up or down on the project exactly as proposed. Instead, an AFC proceeding is a dynamic, public oriented process that entails a series of information gathering and analytical phases. When the process works well, the Applicant and Commission incorporate the input they receive from the Staff, other agencies and the general public to refine and enhance the project, in order to maximize project objectives while minimizing impacts on the environment.

In this proceeding the Applicant has listened carefully to the input from the Staff, BLM and other parties and has refined the Project Description as proposed in the original Application of August 31, 2007. Most recently, as a result of listening to the input from all of the parties, the Applicant has filed a Biological Mitigation Proposal.[64] This proposal provides a reduced

[62] Ex. 300, p. 7.3-6.

[63] Ex. 300, p. 7.3-7.

[64] Ex. 88.

footprint configuration that focuses on the northernmost portion of the site, where Ivanpah 3 will be located, because it is the Project area of most concern to the Parties.[65]

The following discussion of the Project Description describes the Ivanpah Solar Project as refined by the Biological Mitigation Proposal.[66] A site plan is provided in Figure 2-1 of the Biological Mitigation Proposal.[67] A rendering of the new layout is provided in Figure 2-2.[68] As configured under the Biological Mitigation Proposal, the size of the three units is provided in Table 2-1.[69]

The Applicant proposes to develop the Ivanpah Solar Project in the Ivanpah Valley about 4.5 miles southwest of Primm, NV. The Ivanpah Solar Project will consist of Ivanpah 1 through 3, three independent solar thermal electric generating facilities (or plants) that will be co-located approximately 1.6 miles west of the Ivanpah Dry Lake, in San Bernardino County, California. The Project site will be located on federal property managed by the BLM. The three Ivanpah Solar Project facilities will have a combined nominal net rating of 370 megawatts (MW) or 392 MW on a gross basis. The project is planned to be constructed in three phases: Ivanpah 1 (nominal 120 MW), Ivanpah 2 (nominal 125 MW), and Ivanpah 3 (nominal 125 MW).

The total Ivanpah Solar Project area will affect approximately 3,582.4 acres inclusive of 90.4 acres of land used by SCE for the El Dorado-Ivanpah Transmission Project (EITP). Ivanpah 1 will require about 913.5 acres (1.43 square miles) and Ivanpah 2 will require about 1,097 acres (1.71 square miles), while Ivanpah 3, originally proposed to occupy approximately 1,836.3 acres (2.9 square miles), has been reduced by the Biological Mitigation Proposal, to occupy approximately 1,227 acres (1.92 square miles). The project boundary for Ivanpah 1, 2, and 3 will

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[65] Ex. 88, *passim*. This Biological Mitigation Proposal includes the following key changes to the original project description:
- Removes approximately 433 acres from the northern portion of the Ivanpah 3 and more than 40,000 heliostats,
- Reduces the number of power towers in Ivanpah 3 from five to one, and of the entire Ivanpah project from seven to three,
- Relocates the power block for Ivanpah 3,
- Realigns the boundary between Ivanpah 2 and 3 and optimizes the heliostat fields
- Realigns some roads and utilities within the project footprint
- Relocates the administration building and water supply wells within the Construction Logistics Area (CLA)
- Removes approximately 109 acres from construction use within the CLA.

[66] Ex. 88, pp. 1-1, 1-2.

[67] Ex. 88, p. 2-3.

[68] *Id*. at 2-5.

[69] *Id*. at 2.2.

cover a total of 3,237.5 acres (5.1 square miles). Additionally, there will be a common area between Ivanpah 1 and 2 (approximately 377.5 acres), called the Construction Logistics Area (CLA), that will include the Southern California Edison (SCE) substation and shared facilities (administration/storage building, groundwater production wells, and portions of the linear facilities). At least 50 acres of the CLA will be completely avoided, and up to 66 acres may be utilized as nurseries for succulents and "rare" plants. Portions of the 66 acres currently designated for nursery use, if not required, would be avoided all together. Additionally, the substation and transmission line corridor will be utilized specifically for SCE to construct and operate the new EITP. Portions of this common area will be used during construction for staging, laydown, and temporary offices. An additional, approximately 20.5 acres outside the solar plants will be used for construction of the gas tap station and gas line, and the widening and paving of a portion of Colosseum Road.[70]

A Low-Impact Design ("LID") approach will be used for the Ivanpah Solar Project. This approach focuses on preserving undeveloped land and minimizing stormwater generation. In the *Review of Low Impact Development Policies: Removing Institutional Barriers to Adoption,* the Low Impact Development Center (LIDC) states:

> *The underlying principle of LID is that undeveloped land does not present a stormwater runoff or pollution problem. The evolved natural hydrology of any given site manages water in the most efficient manner. This most often translates to high rates of infiltration, vegetative interception, and evapotranspiration.*

Use of LID attempts to offset the inevitable consequences of development and changes in land cover by preserving or mimicking natural hydrology. It is a source control option that minimizes stormwater pollution by recognizing that the greatest efficiencies are gained by minimizing stormwater runoff generation. This is a process that begins with functional conservation of watershed resources, reducing impacts of development, and then using innovative management practices to meet the stormwater objective; it is not the use of the management practices alone.

a. Project Design Elements.

Each of the three proposed solar plants will consist of heliostat fields surrounding a power block, which is supplied with the necessary utilities through a utility corridor. Each of the solar plants will be connected to SCE's planned step-up substation, which will in turn tie into

[70] The 20.5 acres when offset by the existing trails that run through the project (6.96 acres) and the existing Colosseum Road (2.91 acres) yields a net amount of 10.6 acres for external features.

SCE's electric-power transmission network (or grid) through an existing (115-kilovolt [kV]) transmission line that runs across the project area.

b. Heliostat Fields.

Ivanpah 2 and 3 will have heliostat arrays consisting of approximately 60,000 heliostats. Ivanpah 1 will have about 53,500 heliostats. The heliostat arrays will be arranged around a single centralized solar power tower ("SPT"). The heliostats will automatically track the sun during the day and reflect the solar energy to the boiler on top of the SPT.

Each heliostat mirror is 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). Each heliostat consists of two mirrors mounted on a single pylon, along with a computer-programmed aiming control system that directs the motion of the heliostat to track the movement of the sun. Communication cables connecting the heliostats between one another will be strung aboveground.

The aiming control system and the layout of solar fields are optimally designed to focus sunlight on to the SPT in a manner that maximizes steam output. The aiming control system uses optimization software to instruct the solar field controller where each heliostat should aim to maximize solar energy collection and output. This patent-pending software system accounts for the light flux intensity and distribution required for the SPT boiler, and various other conditions such as sun radiation, wind, air pressure, and the number of heliostats available for tracking. When computing the optimal aiming policy, the aiming control system factors in the differences between heliostats with respect to their tracking accuracy, the intensity of the beam they reflect (both of these factors depend mainly on the distance to the receiver), the shape of the beam, and other relevant aspects. The optimization software will also prevent the mirrors from being aimed toward the freeway or the golf club at an angle that will reflect sunlight near the ground surface.

c. Power Block.

Each solar power plant (Ivanpah 1 through 3) will have a power block located in the approximate center of the heliostat array. The power block will include an SPT, a receiver boiler, a steam turbine generator (STG) set, air-cooled condensers, and other auxiliary systems. This section describes the SPTs and receiving boilers, and the power block systems to be installed in each plant.

i Solar Power Tower and Receiving Boiler.

The SPT is a metal structure designed specifically to support the boiler and efficiently move high-quality steam through a STG at its base. The SPT (i.e., the support structure) will be about 120 meters high (approximately 393 feet). The receiving boiler (which sits on top of the support structure) will be 20 meters tall (approximately 66 feet) including the added height for upper steam drum and protective ceramic insulation panels. Overall, the tower height will be 140 meters (approximately 459 feet). Additionally, a Federal Aviation Administration (FAA)-required lighting and a lightening pole will extend above the top of the towers approximately 5 to 15 feet. The height of the SPT allows heliostats from significant distances to accurately reflect sunlight to the receiving boiler. The receiving boiler is a traditional high-efficiency boiler positioned on top of the SPT. The boiler converts the concentrated energy of the sun reflected from the heliostats into superheated steam. The boilers will be supplied by conventional boiler manufacturers providing performance warranties and industry best practices, and will comply with standard boiler design parameters. The boiler's tubes are coated with a material that maximizes energy absorbance. The boiler has steam generation, superheating, and reheating sections and is designed to generate superheated steam at a pressure of 160 bars (approximately 2400 psig) and a temperature of 550 degrees Celsius (°C) (1000 degrees F).

ii Power Block System.

The power block system proposed for this project is the same as that used in traditional power-generation facilities to convert steam to electricity. The power block consists of a conventional Rankine-cycle STG with a reheat cycle, and auxiliary functions of heat rejection, water treatment, water disposal, and grid interconnection capabilities. The integration of high-efficiency pre-existing turbine technologies provides performance warranties and enables the system to maximize thermal-to-electricity efficiencies. To minimize water use, air (rather than water) will be used to cool the steam. Each plant will have a backup diesel generator to provide power to operate boiler recirculation pumps, firewater pumps, and other small consumers in the event of an emergency when power might otherwise be unavailable.

d. Water Supply and Treatment.

Two new groundwater production wells will be drilled and developed to provide raw water for the Ivanpah Solar Project. The two wells will be located within the CLA south of

Ivanpah 2 between the administration/warehouse building and the substation. The wells, and their respective pumping systems, will be sized for 100-percent redundancy. Groundwater will be used to supply domestic and industrial water needs. These wells are anticipated to supply water to all three plants to be used as make-up water. Make-up water for the steam system will be treated by means of a mixed-bed ion-exchange system to produce feedwater-quality water for use in the boiler system. The ion exchange resins will be sent offsite for regeneration. Drinking water will either be brought onsite or a small filter/purification system will be used to provide potable water for sanitary uses (sinks, showers, and toilets) within the plants.

e. Wastewater Management.

A package treatment plant will be used at the administration and maintenance complex to treat wastewater. Portable toilets will be placed in the power block areas of each of the three solar facilities. Portable toilets will be serviced by a waste management firm on a regular basis, depending on the number of toilets and staff at each facility.

f. Utility Corridors.

Due to the size of the facilities, it will be necessary to route several utilities between the individual facilities (internal utility corridors) and the combined facilities (external utility corridors). This section describes the utility corridors—specifically, the internal and external utility corridors, electrical transmission system, natural gas system, and water supply system—and how they will function at each Ivanpah Solar plant.

i Internal Utility Corridors.

Within each Ivanpah Solar Project facility there will be a utility corridor required for the high voltage electrical lines and fiber-optic cables from the switchyard to the SCE substation. Additionally, a separate underground utility corridor will contain water and natural gas lines. These underground corridors will run parallel to the local access roads between the facilities and the common area.

The two groundwater production wells will be located within the CLA due south of Ivanpah 2. These wells will be connected via a less than 400-foot-long underground water line to the main trunk line going to the administration/warehouse building and water storage tanks, and then from there to Ivanpah 1, 2, and 3.

The internal electrical transmission interconnections will link each plant to the power grid by connecting the plant switchyard to the new SCE substation (Ivanpah substation). The substation will be located between Ivanpah 1 and Ivanpah 2 on the northwest side of the existing transmission corridor.

ii External Utility Corridor(s).

External to the Ivanpah Solar Project, utilities including natural gas pipelines, telecommunications, and transmission lines will require upgrades or new construction. These utilities will either provide services to the facilities (natural gas pipeline and telecommunications), or transmit the electrical energy generated at the facilities (transmission lines).

iii Electrical Transmission and Telecommunication Systems Gen-tie Lines.

Ivanpah 1, 2, and 3 will be interconnected to an existing SCE grid through an upgraded SCE 115-kV line passing between Ivanpah 1 and 2 on a northeast-southwest utility corridor. SCE will upgrade the existing 115-kV transmission line between the new Ivanpah substation and the El Dorado substation to 220 kV. This SCE upgrade is designed to serve other projects planned in the general vicinity and is not being built specifically for the Ivanpah Solar Project. It will provide sufficient capacity for the Ivanpah Solar Project and other projects anticipated by SCE. A substation will be constructed between Ivanpah 1 and 2 that will be used to connect the Ivanpah Solar Project to the electrical grid.

The 115-kV transmission generation tie line (gen-tie line) from the edge of the Ivanpah 1 solar field to the substation will be approximately 2,870 feet long. The Ivanpah 2 and 3 gen-tie lines extend approximately 2,300 feet and 12,680 feet, respectively, from their switchyards before coming together. The combined gen-tie line (double-circuit) will then extend approximately 1,900 feet from the southern end of Ivanpah 2 overhead to the substation.

Each circuit will be supported by single-pole structures at appropriate intervals with final heights as determined during detailed design. The shared gen-tie line for Ivanpah 2 and 3 will be carried on a double-circuit pole. The lines will be insulated from the poles using porcelain insulators.

iv Substation and Switchyard.

Ivanpah 1, 2, and 3 will be interconnected to the existing SCE grid through an upgraded El Dorado–Baker–Coolwater-Dunn Siding-Mountain Pass 115-kV line passing between Ivanpah 1 and 2 on a northeast-southwest utility corridor. A 115/220-kV substation will be constructed between Ivanpah 1 and 2 that will be used to connect the Ivanpah Solar Project to the electrical grid. The substation dimensions will be about 870 feet wide by 905 feet long (including shoulders) — approximately 18.1 acres. Additionally, a 24-foot-wide asphalt road about 1,800 feet long will be needed to connect the substation to the re-routed Colosseum Road (on the south side of Ivanpah 2).

v Telecommunication Line.

The proposed Ivanpah substation will also require new telecommunication infrastructure to be installed to provide protective relay circuit, Supervisory Control and Data Acquisition (SCADA) circuit, data, and telephone services. The telecommunication path from Ivanpah substation to local carrier facility interface in the Mountain Pass area consists of approximately 8 miles of fiber-optic cable to be installed overhead on existing poles and new underground conduits to be constructed in the substation and telecom carrier interface point. This fiber-optic route consists of two segments. The first segment is from Ivanpah substation to Mountain Pass substation using the existing Nipton 33-kV distribution line poles built along the transmission line corridor that crosses between Ivanpah 1 and 2. The second segment will be from Mountain Pass substation to the telecommunications facility approximately 1.5 miles away at an interface point to be designated by the local telecommunication carrier. The fiber-optic cable will be installed on the existing Earth 12-kV distribution line poles.

g. Natural Gas System.

Natural gas will be used as a supplementary fuel for Project operation. Each phase of the Project includes a small package natural gas-fired start-up boiler to provide heat for solar plant start-up and during temporary cloud cover. Natural gas will be obtained by the construction of a new approximately 6-mile-long, 4- to 6-inch distribution pipeline from the existing Kern River Gas Transmission (KRGT) pipeline to the Ivanpah 1 power block. A permanent gas metering station and a temporary construction area will be located at the point of connection. From the tap station, the natural gas line will run south about 0.5 mile to the previous border of the Ivanpah 3

project and then veer southeasterly about 1 mile to the new northeast corner of the mitigated Ivanpah 3 project boundary. The gas line will follow the eastern boundaries of Ivanpah 3 and Ivanpah 2 with individual gas line lateral takeoffs that will follow the planned maintenance roads to access the power blocks for those two projects. The gas line will continue south from the eastern boundary of Ivanpah 2 through the CLA and then proceed through the solar field for Ivanpah 1 along the main access road to the Ivanpah 1 power block. Although the gas line will be within the area that was surveyed, they will be located outside the Project's fenced heliostat fields and under the dirt peripheral security road. This road and the maintenance roads in Ivanpah 2 and 3 and the main access road in Ivanpah 1 will provide access to the pipeline for maintenance. Each project will have a separate gas meter station located on its individual gas line lateral, at a specific location to be determined during detailed design.

A gas-metering station will be required at the KRGT tap point to measure and record gas volumes. Additionally, facilities will be installed to regulate the gas pressure and to remove any liquids or solid particles at each of the three projects. Construction activities related to the tap and metering station and metering sets will include grading a pad and installing above- and below-ground gas piping, metering equipment, gas conditioning, pressure regulation, and pigging connection facilities. Either a distribution line or photovoltaic cells and batteries will be used for metering station operation lighting and communication equipment. Perimeter chain-link fencing for security will also be installed.

h. Access Roads and Trails.

Project access will be from Colosseum Road to the Project entrance road. Colosseum Road is an existing dirt road, which will be paved (24 feet wide, two lanes) for approximately 1.6-mile length from the Primm Valley Golf Club to the Project site. The Project will re-route a portion of Colosseum Road around the southern end of the Ivanpah 2 plant site for a distance of 0.8 miles to the intersection with the asphalt road leading to the Ivanpah 2 power block, which will also be a 24-foot paved, two-lane road. From that point, the rerouted Colossuem Road will continue as a 20-foot-wide paved road for approximately 2,450 feet to connect to the point where the existing Colosseum dirt road will exit the Ivanpah 2 site boundary. By paving approximately 2 to 3 miles of the existing dirt Colosseum Road, the Project will significantly reduce dust emissions during construction and operation of the facility. Additionally, these newly established paved access roads will be available for public access and use, subject only to such

restrictions required for security and public safety. Existing dirt trails that traverse the site will be re-routed, around the Project site via the perimeter security roads, and the paved access road. Each re-routed dirt trail will be 8 to 12 feet wide (to match the existing trail) except where the rerouting requires usage of the rerouted paved Colosseum Road described above or the portion of the main access road that serves the Ivanpah 3 project along the western boundary of Ivanpah 2, and will be reconnected to the original dirt trail on the other side of the project site. Permanent tortoise gates will be installed to prevent tortoises from entering internal roads. These newly rerouted trails and paved roads will result in at least equivalent and in some cases much improved quality of access by the public to this portion of the Ivanpah Valley and the Mojave National Preserve beyond.

Within the heliostat fields, paths will be located concentrically around the power block to provide access to the heliostat mirrors for maintenance and cleaning. It is anticipated that the paths will be located between every fourth row of heliostats and will not be graded. There also will be a maintenance path on the inside perimeter of the Project boundary fence. These paths will be used for plant security, heliostat maintenance, and to monitor and maintain the perimeter and tortoise fencing.

Additionally, graded dirt roads will be installed diagonally through the heliostat fields and used for access to the heliostat maintenance paths. These dirt roads will generally follow existing topography.

i. Administration and Maintenance Complex.

An administration, warehouse, and maintenance complex will be located along the relocated Colosseum Road and near the entrance to the Ivanpah 2 solar plant. It will include parking and landscape areas. The complex will require about 8.9 acres and will likely be served by power from the 33-kV system that is located within the existing transmission line corridor.

2. Basic Project Objectives.

The Applicant will enter into a ROW agreement with BLM for the use of the land at the proposed site. This location was selected to meet the basic objectives of the Project, including, but not limited to the following:

- To safely and economically construct and operate a nominal 370 MW (or 392 MW on a gross basis), solar generating facility in California capable of selling competitively priced renewable energy consistent with the needs of California utilities.
- To demonstrate the technical and economic viability of Bright Source's proprietary Distributed Power Tower technology in a commercial-scale project.
- To locate the facility in areas of high solarity with ground slope of less than 5 percent.
- To minimize infrastructure needs and reduce environmental impacts by locating the plant near existing and planned infrastructure, including: California Independent System Operator (CAISO) transmission lines, a source of natural gas, and an adequate water supply.
- To avoid siting the plant in areas that are highly pristine or biologically sensitive (e.g., a Desert Wildlife Management Area [DWMA]).
- To locate the Project consistent with existing land use plans. If on public land, to comply with the multiple use objectives of the Federal Land Policy and Management Act (FLPMA), which includes renewable energy development, and the objectives of the California Desert Conservation Area (CDCA) Resource Management Plan (RMP), which allows for solar energy development in some areas including the proposed Project area.
- To assist California in repositioning its generation asset portfolio to use more renewable energy in conformance with state policy, including the policy objectives set forth in SB 1078 (California Renewable Portfolio Standard Program) and AB 32 (California Global Warming Solutions Act of 2006).[71]
- To comply with provisions of the power sales agreements that have been executed with PG&E and SCE.
- To qualify for and obtain federal stimulus benefits for the Project and for California under the 2009 American Recovery and Reinvestment Act (ARRA).

The discussion above is, by no means, an exhaustive list of the basic project objectives that factored into the Applicant's decision to select the proposed Ivanpah Solar Project site. Section 6 of the AFC (Exhibit 1) presents a detailed summary of the range of alternatives considered by the Applicant as part of the companies' due diligence in considering alternative sites and technologies for the Ivanpah Solar Project. As discussed more fully in Section II.A of

[71] Ex. 1, Section 1.2.1.

this Brief (Alternatives), when these multiple Project objectives are considered and applied to the evidence of record in this proceeding, it is evident that the Ivanpah Solar Project site, as modified by the Biological Mitigation Proposal, is the only location that meets all of the Project objectives.

J. PUBLIC HEALTH

1. The Project's Risk Assessment Analysis Demonstrates That There Are No Significant Increases in Human Health Risks Associated with the Project.

The Project will comply with all applicable federal, state, and local laws, ordinances, regulations, and standards relating to public health. Any potential public health impacts, if any, will be mitigated to a level of less than significant.[72] Mr. Rubenstein and Mr. Hill testified that even using extremely conservative assumptions in analyzing the Project, they found that the facility will not result in any significant increases in risks to human health.[73]

2. The Project will Not Result in any Significant Cancer Risks.

According to the results of the Applicant's risk assessment analysis, the maximum individual excess lifetime cancer risk for emissions during operation of the facility is 0.013 in one million.[74]

Staff also performed a screening-level risk assessment analysis, using a default meteorological data set, which resulted in conservative estimates of ground-level impacts.[75] To model pollutant dispersion, Staff used HARP version 1.3, which uses ISC, a dispersion model no longer approved for use by USEPA.[76] As a result of Staff's calculation of a screening-level risk assessment instead of a refined risk assessment, Staff's estimate of risk was much higher than the Applicant's. Although the Staff's estimate of cancer risk at the point of maximum impact was 2.9 in a million, Staff concluded that this risk level complied with all applicable LORS, and does not represent a significant risk.[77]

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[72] Ex. 300, p. 1-25.

[73] Ex. 65, p. 87.

[74] Ex. 300, p. 6.7-13, 14.

[75] Ex. 300, p. 6.7-13.

[76] Ex. 300, p. 6.7-13.

[77] Ex. 300, p. 6.7-24.

3. The Project Will Not Result in Any Significant Non-Cancer Human Health Risks.

The emissions from the Project will likewise not result in other systemic health effects, such as non-cancer risks to the respiratory system or other organ systems.[78] This finding is based on a comparison of facility impacts to levels of exposure of sensitive individuals to the most sensitive health effects; or, in other words, the lowest levels of exposure that would be associated with health effects in humans.[79]

The risk assessment addressed the health risks associated with multiple chemical exposures.[80] Staff concluded that emissions of multiple chemicals from the facility would not result in either long-term or short-term non-cancer health effects.[81] Thus, based on the results of the risk assessments conducted by both Staff and Applicant, the Project will not cause any adverse significant impacts on public health, and will fully comply with all applicable LORS.

K. SOCIOECONOMICS

The Applicant and Staff agree that the project has no significant adverse socioeconomic and no significant adverse cumulative socioeconomic impacts. Staff and Applicant also agree that the Ivanpah Solar Project will be in compliance with Guidances and the Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low Income Populations (1994), because local minority and low-income populations will not be exposed to disproportionately high and adverse impacts from the project.[82]

1. The Construction and Operation of the Project Will Have Positive Socioeconomic Impacts.

The overall construction period for all three phases will be approximately 48 months. Total construction personnel requirements will be approximately 6,654 person-months for Ivanpah 1; 6,584 person-months for Ivanpah 2; and 9,496 person-months for Ivanpah 3. When considering the overlap of all phases, the workforce will peak at 959 workers in month 32.

[78] Ex. 300, p. 6.7-24.

[79] Ex. 300, p. 6.7-24.

[80] Ex. 300, p. 6.7-16.

[81] Ex. 300, p. 6.7-24.

[82] Ex. 1, § 5.10.6.

The Ivanpah Solar Project's initial capital cost is estimated to be about approximately $1.1 billion. The estimated value of materials and supplies that will be purchased locally during construction is approximately $77 million. The total local sales tax expected to be generated during construction is approximately $6 million. The Ivanpah Solar Project will provide about approximately $197 million in construction payroll, at an average salary of $50 per hour (including benefits).

In addition to the direct impacts of the project, construction activity will result in secondary beneficial economic impacts (indirect and induced impacts) within San Bernardino and Clark counties. The estimated indirect and induced impacts result from the approximately $41 million in annual local construction expenditures as well as about $137.9 million (disposable portion of this $197 million in annual spending – here assumed to be 70 percent) in spending by local construction workers.

The Ivanpah Solar Project is expected to employ up to 90 full-time employees: 35 with Ivanpah 1, 20 with Ivanpah 2, and 35 with Ivanpah 3, an average annual salary of $60,000, resulting in an annual payroll of about $5.4 million. In addition to the payroll, there will be an annual operations and maintenance budget of about $4 million, of which approximately $540,000 will be spent locally, within San Bernardino or Clark counties.

The operation of the proposed project will result in secondary beneficial economic impacts (indirect and induced impacts) that would occur within San Bernardino and Clark counties. These indirect and induced impacts represent permanent increases in the county's economic variables. The estimated indirect and induced impacts would result from the annual $5.4 million in operations payroll as well as the $540,000 in annual operations and maintenance (O&M).

L. SOIL AND WATER RESOURCES

The California Constitution mandates that the water resources of the State "be put to beneficial use to the fullest extent of which they are capable."[83] A "right to water or to the use or flow" of State waters, while limited, extends to "such water as shall be reasonably required for the beneficial use to be served."[84] The CEQA Guidelines provide several criteria to guide the

[83] California Constitution, Article X, § 2.

[84] California Constitution, Article X, § 2.

Commission's evaluation of a project's potential impacts to soil and water resources. For example, the Commission must consider whether a project would: (1) substantially alter the existing drainage pattern of the site or area; (2) create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems; (3) violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality; (4) substantially deplete groundwater supplies or interfere substantially with groundwater recharge; and (5) result in substantial soil erosion or loss of topsoil.[85]

Staff and Applicant are in agreement that the Project will be in compliance with all applicable laws, ordinances, regulations, and standards ("LORS").[86] Furthermore, as explained in further detail below, Staff and Applicant are in agreement that with mitigation, the Ivanpah Solar Project will not cause significant impacts to soil and water resources in the Ivanpah Valley.[87]

With the implementation of Conditions of Certification SOIL & WATER-1 through 8, as revised and agreed to by Staff and Applicant, and based on the evidence of record in this proceeding, the Commission should conclude that the Project will not result in significant impacts to soil and water resources, and will comply with all applicable LORS.

1. The Project Will Not Cause Significant, Unmitigated Impacts to the Existing Drainage Pattern of the Project Site.

Staff and Applicant are in agreement that with mitigation, impacts to surface drainages and stormwater flows and runoff will be less than significant.[88] For example, the implementation of Applicant's *Drainage, Erosion, and Sediment Control Plan* ("DESCP") will reduce or eliminate soil loss due to erosion during construction and operations.[89] The DESCP, in combination with Applicant's *Stormwater Pollution Prevention Plan* ("SWPPP"), will ensure that any impacts to soils from project operations are minimized or avoided.[90]

[85] 14 C.C.R. Appendix G, Sections VI, VIII.

[86] 1/13 RT 115.

[87] 1/13 RT 115.

[88] Ex. 65, p. 130-132; 1/13 RT 115.

[89] Ex. 65, p. 94.

[90] Ex. 65, p. 94.

A beneficial feature of Applicant's Low Impact Design ("LID") is the implementation of a stormwater control design that promotes sheet flow and greater infiltration, rather than channelization and concentration of stormwaters.[91] As noted by Staff, a feature of LID design is to "maintain natural drainage features and patterns to the extent feasible."[92] For example, a stormwater diversion channel will be constructed to direct storm flows around the substation and power blocks to protect those structures, and channel outlets will be designed to facilitate sheet flow.[93] Staff and Applicant are in agreement that the implementation of Condition of Certification SOIL & WATER-5, as set forth in Exhibit 312, will mitigate potential effects of the Project from erosion and storm water flow to less than significant.[94]

2. The Project's Use of Groundwater Will Not Result in Any Significant Impacts Because the Project Will Not Affect Groundwater Quality, Substantially Deplete Groundwater Supplies, Or Interfere with Groundwater Recharge.

Applicant and Staff are in agreement that impacts to groundwater supply and quality would be less than significant.[95] As noted in the FSA, potential impacts to groundwater were analyzed by considering the groundwater recharge through precipitation and groundwater loss through well pumping.[96] Groundwater recharge estimates for the Ivanpah Valley watershed was estimated by Staff to be between 5,221, to 6,538 acre-feet per year. Groundwater pumping by the Project during operations is estimated at less than 100 acre-feet per year.[97] Staff concluded that "even with current pumping, project pumping, and foreseeable future project pumping, there is still a net gain in recharge" to the Ivanpah Valley Groundwater Basin.[98] Thus, the Project's use of groundwater will not result in significant impacts to groundwater in the Ivanpah Valley Groundwater Basin.

[91] Ex. 65, p. 93.

[92] Ex. 300, p. 6.9-23.

[93] Ex. 65, p. 94.

[94] 1/13 RT 115.

[95] Ex. 300, p. 6.9-49; 1/13 RT 117; Ex. 65, p. 131.

[96] Ex. 300, p. 6.9-49.

[97] Ex. 65, p. 131.

[98] Ex. 300, p. 6.9-49.

Additionally, the Project will not significantly impact groundwater uses at a local level. As noted in the FSA, the "estimated contribution" of pumping by the Project over the life of the Project "should not contribute to significant impacts" in the Ivanpah Valley Groundwater Basin.[99] Groundwater modeling conducted by the Applicant and "sensitivity analysis" by Staff confirms this assessment.[100]

Condition of Certification Soil & Water-6, as revised by Staff and Applicant, requires that Applicant develop a Groundwater Level Monitoring and Reporting Plan, to ensure that impacts from the Project remain less than significant.[101] As noted above, Applicant concurs with Condition of Certification Soil & Water-6 as set forth in Exhibit 303.

3. The Project Will Not Result In Any Significant Unmitigated Impacts On Soil Resources.

Staff and Applicant are in agreement that there are no significant, unmitigated impacts to soil resources associated with either the construction or the operation of the Ivanpah Solar Project.[102] For example, while some soil disturbance will occur during construction, site rehabilitation and revegetation will be conducted as soon as practical upon completion of construction.[103] The Ivanpah Solar Project's LID ensures that potential impacts to soil resources are further reduced using measures such as taking advantage of the natural permeability of the alluvium at the site by minimizing compaction and decompacting soils where necessary, implementing a revegetation and rehabilitation program to accelerate the return of vegetation to temporarily disturbed areas.[104] Other impacts will be mitigated to less than significant through the use of best management practices ("BMP"), compliance with applicable LORS, erosion control measures, and implementation of Conditions of Certification SOIL & WATER 1 and 2.[105]

[99] Ex. 300, p. 6.9-35.

[100] 1/13 RT 117.

[101] Ex. 303, p. 26.

[102] 1/13 RT 114-115.

[103] Ex. 65, p. 93.

[104] Ex. 65, p. 93.

[105] Ex. 65, p. 95; Ex. 1, p. 5.11-14, 15; 1/13 RT 116.

M. TRANSMISSION LINE SAFETY AND NUISANCE

The project transmission line must be constructed and operated in a manner that protects environmental quality, assures public health and safety, and complies with applicable law. This analysis reviews the potential impacts of the project transmission line on aviation safety, radio-frequency interference, audible noise, fire hazards, nuisance shocks, hazardous shocks, and electric and magnetic field exposure.

Applicant and Staff agree that the Ivanpah Solar Project transmission line system will conform with all established requirements to ensure aviation safety, prevent radio and television interference, limit audible noise, eliminate fire hazards, and prevent hazardous and nuisance shocks.[106] The Commission should also conclude that the line will pose no danger from EMF exposure because the estimated exposures from the project transmission line are significantly below accepted levels associated with lines of the same voltage, current carrying-capacity, and field levels established by states with regulatory limits for such fields.[107]

The proposed Ivanpah Solar Project transmission interconnection will be designed to meet all national, state, and local code clearance requirements. The minimum ground clearance for a 115-kV transmission line per the NESC is 23.06 feet, based on the road-crossing minimum. This is the design clearance for the maximum operating temperature of the line. Under normal conditions, the line operates well below maximum conductor temperature, and thus, the average clearance is much greater than the minimum.

While the State of California does not set a statutory limit for electric and magnetic field levels, the CPUC, which regulates electric transmission lines, mandates EMF reduction as a practicable design criterion for new and upgraded electrical facilities. As a result of this mandate, the regulated electric utilities have developed their own design guidelines to reduce EMF at each new facility. The CEC, which regulates transmission lines to the first point of connection, requires generators to follow the existing guidelines that are in use by local electric utilities or transmission-system owners.

In keeping with the goal of EMF reduction, the interconnections of Ivanpah 1, 2, and 3 will be designed and constructed using the principles outlined in the SCE publication, “EMF Design Guidelines for Electrical Facilities” (EMF Research and Education, 2004). These

[106] Ex. 65, pp. 21-23; Ex. 300, p. 6.11-12, 13.

[107] Ex. 300, p. 6.11-11.

guidelines explicitly incorporate the directives of the CPUC by developing design procedures compliant with Decision 93-11-013 and General Orders 95, 128, and 131-D. That is, when the transmission line structures, conductors, and rights-of-way are designed and routed according to the SCE guidelines, the transmission line is consistent with the CPUC mandate.

Both Applicant and Staff conclude that the public exposure to EMF and audible noise levels due to the proposed interconnection of the Ivanpah Solar Project are well within accepted levels. The effect of the added EMF and corona noise would be well below the levels produced by the existing LADWP 500-kV line. SCE has stated that the existing 115-kV El Dorado-Baker-Cool Water-Dunn Siding-Mountain Pass line passes under the existing 500-kV and 230-kV transmission lines 22 times along its routing. The Ivanpah 1 crossing with the 500-kV LADWP line is not expected to contribute any additional significant EMF effects over existing conditions. There are no residences within two miles of the proposed Ivanpah Solar Project site; therefore, no extended EMF exposure to the public is likely.

The Staff proposed four Conditions of Certification pertaining to Transmission Line Safety and Nuisance. The Applicant proposed minor modifications to Conditions of Certification TLSN-1, -3 and -4, and Staff has accepted these changes. The TSLN Conditions, as agreed to by Applicant and Staff, are set forth in Attachment B to this Brief.

N. TRANSMISSION SYSTEM ENGINEERING

Staff and Applicant are in agreement that the Ivanpah Solar Project transmission system will be in compliance with all applicable LORS related to the design, construction, and operation of the facility. With the implementation of the proposed mitigation measures and Conditions of Certification, as set forth in Attachment B to this Brief, the project will have no negative impacts on the transmission system.

SCE, the CAISO and Staff have all concluded that the proposed interconnection will comply with all laws ordinances, regulations and standards, and will have no negative impact on the rest of the system.[108]

Staff proposed six conditions of certification relating to Transmission System Engineering. The Applicant proposed modifications to TSE-5 and TSE-6. Staff has accepted some of the Applicant's proposed changes to TSE-5, and all of the changes to TSE-6. The

[108] Ex. 300, pp. 7.4-9, 10.

Applicant agrees to the Staff's modifications, except as to TSE-5. Therefore the Applicant and Staff are in Agreement with respect to TSE conditions 1-4, 6, and 7. The Commission should conclude that with the implementation of the Conditions of Certification the proposed interconnection will comply with applicable federal, state and local laws, ordinances, regulations, and standards relating to transmission system engineering

O. WASTE MANAGEMENT

The Commission's analysis examines the impacts from hazardous and nonhazardous waste generated during the construction and operation of the project. Applicant and Staff examined Applicant's waste management plans to reduce the risks and environmental impacts associated with the handling, storing and disposal of the project-related wastes. The evidence is uncontroverted that hazardous and nonhazardous wastes generated by the project will be managed in accordance with applicable Federal, state and local laws, ordinances, regulations, and standards.[109]

Staff proposed seven Conditions of Certification relating to waste management. Staff has accepted the Applicant's proposed revision to Waste-7a. With the Staff's acceptance of this revision, the Applicant and Staff are in agreement regarding the Conditions of Certification for Waste Management, as set forth in Attachment B to the Brief.

Both hazardous and non-hazardous waste will be generated during the construction and operating phases of the facility. During construction, the primary waste generated will be solid nonhazardous waste. Nonhazardous wastewater will be generated, including sanitary wastewater, equipment washwater, stormwater runoff, and wastewater from pressure testing the gas supply line. Most of the hazardous waste generated during construction will consist of liquid waste, such as flushing and cleaning fluids, passivating fluid (to prepare pipes for use), and solvents. Some hazardous solid waste, such as welding materials and dried paint, may also be generated. Small quantities of solvents, paints, and welding materials will also be generated.

The construction contractor will be considered the generator of hazardous waste and will be responsible for proper handling of the waste in compliance with all applicable federal, state, and local laws and regulations including licensing, training of personnel, accumulation limits and times, and reporting and record keeping.

[109] Ex. 300, p. 6.13-14.

During facility operation, the primary waste generated will be nonhazardous solid waste. The majority of nonhazardous waste will be sanitary sewer sludge, from the small sewage treatment unit, that will be shipped offsite to landfill and water treatment filters (granular activated carbon [GAC] vessels), mixed bed vessels, and the de-ionization trailer from the onsite water treatment unit.

The Ivanpah Solar Project will also produce maintenance and generating facility wastes, typical of power generation operations. These will include rags, broken and rusted metal and machine parts, defective or broken electrical materials, empty containers, the typical refuse generated by workers and small office operations, and other miscellaneous solid wastes.

General facility drainage will consist of plant raw water use such as area washdown, equipment leakage, and drainage from facility equipment areas. If cleaning chemicals are not used, water from these areas will be collected in a system of drains, hub drains, sumps, and piping and routed to the oil/water separator, and then to the waste collection tank. From there, the water will flow through a filter system and be sent back to the raw water storage tank for additional treatment prior to use at the facility. The sanitary wastewater collection treatment systems will collect sanitary wastewater from sinks, toilets, and other sanitary facilities and pass it through package treatment plants with the liquid waste being used for landscape irrigation.

Hazardous waste generated at the Ivanpah Solar Project will be stored at that facility for less than 90 days. The hazardous waste will then be transported by a licensed hazardous waste transporter to a TSD facility.

As supported by Staff's and Applicant's testimony, the Commission should find that the Applicant's waste management practices and the Staff's Conditions of Certification, with the revision noted herein, will reduce construction and operational impacts from the Project's hazardous and nonhazardous wastes to a level of insignificance.[110] The Commission should also conclude that with the implementation of these measures, the Project will comply will all applicable laws, ordinances, regulations and standards governing waste management and disposal.[111]

[110] Ex. 300, 6.13-16.

[111] Ex. 300, 6.13-14.

P. WORKER SAFETY AND FIRE PROTECTION

The worker safety and fire protection analysis examines whether the proposed project adequately addresses worker safety during the plant's construction and operation phases. It also examines fire protection and the ability of local law enforcement and fire department personnel to respond in case of an emergency at the project site. Specifically, the Commission determines whether the measures to be contained in the Project's Health and Safety Plans will comply will all applicable safety laws, ordinances, regulations and standards designed to protect industrial workers.

Applicant agrees to Staff's proposed Conditions of Certification regarding worker safety and fire protection, as set forth in Attachment B to this Brief. The evidence is uncontroverted that Applicant and Staff's recommendations to the Commission ensure worker safety during the Project's construction and operation in accordance with applicable laws, ordinances, regulations and standards.[112] The Applicant will implement a Fire Protection and Prevention Program that will describe what has to be done to protect against and prevent fires. This will include equipment required, such as alarm systems and firefighting equipment, and procedures to protect against fires. The Emergency Action Program/Plan will describe escape procedures, rescue and medical procedures, alarm and communication systems, and response procedures for very hazardous materials that can migrate. The programs or plans are contained in written documents that are usually kept at specific locations within the facility.[113]

Each program or plan will contain training requirements that are translated into detailed training courses. These courses are taught to plant construction and operating personnel, as needed. For example, all plant operating personnel will receive training in escape procedures under the Emergency Action Program/Plan, but only those working with flammables will receive training under the Fire Protection and Prevention Program.[114]

To protect the safety and health of workers during the construction and operation of the Ivanpah Solar Project, health and safety programs designed to mitigate hazards and comply with applicable regulations will be implemented. Periodic audits will be performed by qualified individuals to determine whether proper work practices are being used to mitigate hazardous

[112] Ex. 300, 6.14-14; Ex. 65, p. 69.

[113] Ex. 65, p. 661.

[114] Ex. 65, pp. 661-662.

conditions and to evaluate regulatory compliance. Upon completion of construction and commencement of operations at the Ivanpah Solar Project, the construction safety and health program will transition into an operations-oriented program reflecting the hazards and controls necessary during operation.[115]

To ensure that employees recognize and understand how to protect themselves from potential hazards, comprehensive training programs for construction and operation will be implemented. Each of the safety procedures developed to control and mitigate potential site hazards will require some form of training. Training will be delivered in various ways, depending on the requirements of Cal-OSHA standards, the complexity of the topic, the characteristics of the workforce, and the degree of risk associated with each of the identified hazards.[116]

Because of the remote and rural area of the Ivanpah Solar Project, services are limited and spread out. San Bernardino County Firefighters receive specialized training to address emergency responses to industrial hazards. The response time to the Project site, with full resource capabilities, would be 3 to 4 hours. There are roughly 150 members (10 Registered Environmental Health Specialists and the rest firefighters) and the organization is a full Level A response team, capable of handling all types of Chemical, Biological, Radiological, and Nuclear responses. Hazardous materials service is provided out of the County station in Fontana, Station #78.[117]

Law enforcement is provided by the San Bernardino County Sheriff. The closest county sheriff location to the Project site would be the Baker Resident Post. Two deputies staff this post and there is at least one officer available to respond to calls 24 hours a day. Response time would be the drive time from the City of Baker to the Project site (approximately 45 minutes).

Ambulance service is provided by Baker Ambulance Medical Service, Station #53. The closest hospitals with an emergency room are Saint Rose in Henderson, CA and University Medical Center, Las Vegas (UMCLV). Saint Rose is approximately 40 miles from the proposed Project site. Specialty services at the hospital include intensive care unit, emergency/trauma, labor and delivery, cardiac care, orthopedics, surgery, and transplant. University Medical Center

[115] Ex. 65, p. 662.

[116] Ex. 65, p. 662.

[117] Ex. 65, p. 662.

is approximately 50 miles distance and roughly 55 minutes drive time. In summary, the evidence also supports the conclusion that the Applicant's proposed procedures and policies and Staff's proposed Conditions of Certification will pose no potential for significant impacts to Applicant's workers and the existing fire and emergency service resources, and that the Ivanpah Solar Project will comply with the applicable laws, ordinances, regulations and standards governing industrial worker safety, and minimize the exposure of workers to industrial accidents or hazards to levels of insignificance.

II. CONTESTED ISSUES

A. ALTERNATIVES

Public Resources Code Section 21002.1(a) requires the lead agency "to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided." Section 15126.6 of Title 14 of the California Code of Regulations describes in detail the information that must be considered in identifying alternatives to a project:

> An EIR shall describe a *range of reasonable* alternatives to the project, or to the location of the project, which would *feasibly attain most of the basic objectives* of the project but would *avoid or substantially lessen any of the significant effects* of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a *reasonable range of potentially feasible alternatives* that will foster informed decisionmaking and public participation. An EIR is not required to consider alternatives which are *infeasible* (Emphasis added).[118]

Thus, CEQA requires the consideration of a reasonable range of alternatives to the project that would feasibly obtain most of the basic project objectives, but also avoid or substantially lessen any significant effects of the project. Furthermore, CEQA provides that alternatives that (1) are infeasible; (2) fail to avoid or substantially lessen any of the significant effects of the project; or (3) fail to meet most of the basic project objectives are not within the range of reasonable alternatives and may be eliminated from detailed consideration.[119]

[118] 14 C.C.R. § 15126.6(a).

[119] 14 C.C.R. § 15126.6(c).

The range of reasonable alternatives that must be considered by a lead agency must include the "specific alternative of 'no project'".[120] Analysis of the no project alternative should not "create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment"[121] or assume that "project denial will somehow protect the site or resources in question."[122]

CEQA does not mandate that a specific number of alternatives be considered or proposed, or that every conceivable alternative be identified and analyzed.[123] Indeed, agencies "cannot be expected to read the minds of project opponents who [demand] analysis of vague alternatives without specifying what they have in mind."[124] Additionally, the feasibility of the alternative is the vital consideration: "CEQA does not require the examination of alternatives that are so speculative, contrary to law, or economically catastrophic as to exceed the realm of feasibility."[125] Simply put, infeasible alternatives are "not appropriate for inclusion" in an EIR.[126]

1. The Commission's Alternatives Analysis Must Consider the Full Range of the Applicant's "Basic Project Objectives" for the Ivanpah Solar Project.

Section 15126.6(a) of the CEQA Guidelines requires the reviewing agency to focus on "a range of reasonable alternatives to the project, or to the location of the project, *which would feasibly attain most of the basic objectives of the project."* (Emphasis added) As noted above, failure of an alternative to meet most of the basic project objectives is a proper basis to eliminate an alternative from detailed consideration[127] Thus, the project proponent's basic project objectives form the foundation for the consideration of alternatives.

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[120] 14 C.C.R. § 15126.6(e).

[121] 14 C.C.R. § 15126.6(e)(3)(B).

[122] Remy, Guide to CEQA, p. 596.

[123] 14 C.C.R. § 15126.6(a).

[124] Remy, Guide to CEQA, p. 568, citing to *Save Our Residential Environment v. City of West Hollywood*, 9 Cal. App. 4th 1745, 1754.

[125] *Save San Francisco Bay Association v. San Francisco Bay Conservation and Development Commission*, 10 Cal. App. 4th 908, 922 (Cal. Crt. Appl. 1st Dist. 1992) citing to *Citizens of Goleta Valley v. Board of Supervisors*, 52 Cal.3d, 553, 565 (Cal. 1990).

[126] *Save Our Residential Environment v. City of West Hollywood*, 9 Cal. App. 4th 1745, 1753.

[127] 14 C.C.R. § 15126.6(c).

The basic project objectives for the Project are identified in extensive detail in the Ivanpah Solar Project's Application for Certification. Key project objectives included:

- To safely and economically construct and operate a nominal 372-MW, solar generating facility in California capable of selling competitively priced renewable energy consistent with the needs of California utilities.

- To demonstrate the technical and economic viability of BrightSource's technology in a commercial-scale project.

- To locate the facility in areas of high solarity with ground slope of less than 5 percent.

- To minimize infrastructure needs and reduce environmental impacts by locating the plant near existing and planned infrastructure, including: transmission lines, a source of natural gas, and an adequate water supply.

- To avoid siting the plant in areas that are highly pristine or biologically sensitive (e.g., a Desert Wildlife Management Area).

- To locate the project consistent with existing land use plans. If on public land, to comply with the multiple use objectives of the Federal Land Policy and Management Act (FLPMA), which includes renewable energy development, and the objectives of the California Desert Conservation Area (CDCA) Resource Management Plan (RMP), which allows for solar energy development in some areas.

- To assist California in repositioning its generation asset portfolio to use more renewable energy in conformance with State Policy, including the policy objectives set forth in Senate Bill (SB) 1078 (California Renewable Portfolio Standard Program) and Assembly Bill (AB) 32 (California Global Warming Solutions Act of 2006).

- To comply with provisions of the power sales agreements that have been executed with PG&E and SCE.[128]

- To qualify for and obtain federal stimulus benefits for the Project and for California under the 2009 American Recovery and Reinvestment Act (ARRA).[129]

Thus, an alternative is a "reasonable alternative" to the Project under CEQA only if it can feasibly attain most of these basic Project objectives.[130]

[128] Ex. 1, p. 1-4, 5.

[129] 1/12 RT 145-146.

[130] 14 C.C.R. § 15126.6(a)

2. The Alternatives Identified in the FSA and PSA Were Properly Eliminated From Consideration Pursuant to the CEQA Guidelines.

For an alternative to be within the range of reasonable alternatives, the alternative must avoid or substantially lessen a significant effect of the project. Specifically, Section 15126.6(f)(2)(A) of the CEQA Guidelines offers the following "key question" regarding alternative site locations:

> Key Question. The key question and first step in analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. *Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR* (Emphasis added).

CEQA requires that the Commission consider only those alternatives that avoid or substantially lessen significant environmental effects.[131] Put another way, if there are no significant unmitigated impacts associated with a project, then, by definition, no alternative can avoid or lessen such significant effects.

The CEQA Guidelines also require that the potential significant effects of alternative projects be described in the environmental documentation for the project. Specifically, Section 15126.6(d) states the following:

> If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed.[132]

In this case, the impacts associated with the Ivanpah Solar Project are not significant or are mitigated to a level of less than significant. Therefore, the consideration of significant impacts is not relevant to the Commission's consideration of a reasonable range of feasible alternatives. However, even assuming a finding of significant impacts of the Ivanpah Solar Project (as alleged in the FSA), the alternatives considered in the FSA have impacts equal to or greater than the Ivanpah Solar Project, or have significant impacts in areas where the Project's impacts are less than significant. Therefore, these Alternatives do not avoid or substantially lessen any potential significant effects.

[131] Public Resources Code § 21002.1; 14 C.C.R. § 15126.6.

[132] *County of Inyo v. City of Los Angeles*, 124 Cal.App.3d, 1 (1981).

3. The Alternatives Identified in the FSA Were Properly Considered and Eliminated From Consideration as Infeasible.

Prominent among the factors set forth in CEQA Guidelines related to the elimination of alternatives is the concept of "infeasibility." Specifically, Section 15126.6(c) of the CEQA Guidelines examines the "infeasibility" of a proposed alternative. "Infeasibility," or the defined term, "feasibility," includes seven broad-ranging feasibility factors:

> Feasibility. Among the factors that may be taken into account when addressing the feasibility of alternatives are (1) site suitability, (2) economic viability, (3) availability of infrastructure, (4) general plan consistency, (5) other plans or regulatory limitations, (6) jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and (7) whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.[133]

CEQA requires a balancing of these factors; that is, the test is not whether the proposed project is in complete conformity with each of the seven factors discussed above. [134]

The FSA's Alternative's Analysis is extremely detailed and rigorous. Twenty-three (23) alternatives were considered in the document.[135]

The FSA unintentionally mischaracterizes the nature and scope of the Alternatives analysis. Specifically, the FSA's Alternatives analysis repeatedly uses the phrase that an alternative was "eliminated from further consideration" in a manner that suggests that the alternatives were not fully vetted per CEQA and NEPA requirements. This is simply incorrect.

As used in the FSA, alternatives "eliminated from further consideration" means that each Alternative was fully analyzed, but would not satisfy most of the Applicant's basic project objectives, would not avoid or minimize impacts of the Project, or could have significant environmental impacts of their own. The Commission should recognize this rhetorical turn of phrase for what it is: confirmation that a complete and through alternatives analyses was performed in satisfaction of CEQA and NEPA.

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[133] *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d, 553; see *Save Our Residential Environment v. City of West Hollywood* (1992) 9 Cal.App.4th 1745, 1753, fn. 1; 14 C.C.R. § 15126.6(f)(1); internal numbering added.

[134] 14 C.C.R. § 15126.6(f)(1).

[135] Ex. 1, pp. 4-2 to 4-3.

As will be explained in further detail below, the Alternatives considered in both the FSA and the PSA were properly eliminated based on the following reasons: (1) the alternative is infeasible; (2) the alternative would not avoid or substantially lessen significant effects of the Project; and/or (3) the alternative failed to meet most of the basic Project objectives.

4. A Detailed Comparison of the Ivanpah Solar Project to the Alternatives Reveals that the Ivanpah Solar Project is Superior and that None of the Alternatives is a Reasonable or Feasible Alternative.

To provide the Commission with additional perspective as to why the Alternatives that were extensively analyzed in the FSA and PSA are not feasible alternatives to the Project, it is important to compare the Alternatives to the Ivanpah Solar Project.

a. The I-15 Alternative Fails To Avoid The Potentially Significant Impacts Of The Project That Are Alleged In The FSA And Is Infeasible.

The I-15 Alternative was designed by Staff to address a letter from the Sierra Club requesting consideration of an alternative location for the Project that "relocates the Project's three power blocks closer to the areas adjacent to Interstate 15 currently mapped as [relocation/]translocation sites."[136] CEQA requires that only locations that would avoid or substantially lessen any of the significant effects of the Project need be considered for inclusion as an alternative in an EIR.[137] As we explain below, even assuming that the Ivanpah Solar Project would have a significant effect on visual resources, biological resources, and land use, the I-15 Alternative is not a reasonable alternative to the Ivanpah Solar Project because it does not avoid or substantially lessen any of the alleged significant effects of the Project.

b. The I-15 Alternative Would Have Greater Impacts To Visual Resources.

The FSA concluded that the I-15 Alternative "would be more visible to traffic along I-15," and potential effects from glare "would also be as pronounced or greater" than the

[136] Letter from the Sierra Club to Tom Hurshman, BLM, Regarding *Draft Environmental Impact Statement for the Ivanpah Solar Electric Generating System* (June 22, 2009) *available at* http://www.energy.ca.gov/sitingcases/ivanpah/documents/others/2009-06-22_Sierra_Clubs_Proposed_Alternative_for_the_Draft_Environmental_Impact_Statement_TN-52105.PDF

[137] 14 C.C.R. § 15126.6(f)(2)(A).

Project.[138] Furthermore, as the power towers for the I-15 Alternative would be located in "closer proximity to I-15… the level of solar radiation would be greater for the I-15 alternative than for the Project.[139] In fact, the I-15 Alternative was "less preferred" than the Ivanpah Solar Project due to the impacts on visual resources. Therefore, as the I-15 Alternative would not avoid or substantially lessen significant effects to visual resources, the I-15 Alternative is not a reasonable alternative to the Ivanpah Solar Project.[140]

c. The I-15 Alternative Would Not Avoid or Substantially Lessen Impacts to Biological Resources.

The FSA notes that the I-15 Alternative would be "located on high quality, relatively undisturbed habitat for desert tortoises" and "would not reduce the impact to special-status plant species."[141] For example, Staff witness Carolyn Chainey-Davis testified that the Project and the I-15 Alternative were essentially "different points on the same habitat.[142] As testified by Staff witness Dick Anderson, "neither one [is] a significant improvement over the other."[143] The FSA concluded that the I-15 Alternative would have "*similar impacts*" to biological resources due to the impacts to the desert tortoise, special-status plants, and animal species found at the I-15 Alternative site.[144]

Furthermore, as stated by Scott Cashen, the Sierra Club's biologist, "[t]he southern portion of the alternative site (i.e., near Nipton Road) posses [sic] an extremely high diversity and abundance of plant and animal resources that should be avoided by the Project."[145] Mr. Cashen described a gradient of habitat value, decreasing from the southern portion of the site to the northern portion of the site, which roughly corresponds to the elevation change in the site.[146] Yet, he declined to indicate how much of this gradient should be off-limits to the Project.[147]

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[138] Ex. 300, p. 4-49.

[139] Ex. 300, p. 4-48.

[140] 14 C.C.R. § 15126.6(c).

[141] Ex. 300, p. 4-45.

[142] 1/14 RT 227.

[143] 1/14 RT 226.

[144] Ex. 300, p. 4-49.

[145] Ex. 611, p. 20.

[146] 1/12 RT 345.

[147] 1/12 RT 344-347.

Other experts agreed with the conclusions regarding the higher elevation lands. For example, Ms. Chainey-Davis described that there is a distinct change in vegetation richness at around 2,700-2,800 feet, making for "top notch habitat."[148] The CEC Staff witnesses testified that, above 2,800 feet, the quality of habitat on the I-15 Alternative site and the Ivanpah Solar Project site is "all pretty good [habitat]."[149] Accordingly, the overwhelming weight of the evidence supports the conclusion that the I-15 Alternative overall would have impacts "*similar*" to that of the Ivanpah Solar Project.

As the I-15 Alternative would have impacts "similar" to that of the Project, CEQA's mandate that alternatives "avoid or substantially lessen" the impacts caused by a project is not met. Therefore, as the I-15 Alternative would not avoid or substantially lessen significant impacts to biological resources, the I-15 Alternative is not a reasonable alternative to the Ivanpah Solar Project.[150]

d. The Sierra Club "Concept" Fails To Avoid The Potentially Significant Impacts Of The Project That Are Alleged In The FSA and is Infeasible.

There is no Sierra Club "alternative".

There is, instead, only a Sierra Club "concept." The Sierra Club's own witness confirmed that instead of a fully developed alternative that would meet the requirements of CEQA and NEPA, the Sierra Club has offered instead a "concept":

> My understanding of the alternative as it was presented by the Sierra Club was that this is *a concept*, the *concept* of moving the site closer to the freeway. The Sierra Club in my understanding *never provided a map* of where that project would go. There have not been any hard lines established at the *boundaries* of where this alternative would occur. (Emphasis added)[151]

Both CEQA and NEPA require more than a concept for project alternative to fall within the reasonable range of feasible alternative to the project. While the Staff's "I-15 Alternative," developed in large part to respond to the Sierra Club's concept, is fully developed and sufficiently detailed as to all of the relevant environmental and engineering disciplines that are

[148] 1/12 RT 332-336.

[149] 1/14 RT 198-199.

[150] 14 C.C.R. § 15126.6(c).

[151] 1/14 RT 315. The Sierra Club did finally provide a map with its filings related to the Biological Mitigation Proposal, but did not otherwise fully define the Sierra Club Concept. Ex. 612.

regularly examined by the Commission as required by CEQA and NEPA, the Sierra Club's Concept is not, and on that basis is not a feasible alternative to the Ivanpah Solar Project.

5. The Private Lands Alternative Fail To Meet Most Of The Project's Basic Objectives And Suffer From Numerous Constraints That Make Them Infeasible.

Both Applicant and Staff evaluated and analyzed several private lands alternatives.[152] In addition, Staff evaluated and extensively analyzed a specific Private Lands Alternative in both the PSA and the FSA.[153] This Private Lands Alternative "would be located on private land with a few BLM parcels included," and would potentially require removal of houses or other structures."[154] Approximately 70 parcels of land would have to be acquired, and would require separate negotiations with "multiple landowners" in order to acquire control of the site.[155]

a. The Private Lands Alternative Are Infeasible.

As explained in detail above, the infeasibility of an alternative may be used to eliminate an alternative from detailed consideration in an EIR.[156] When considering the feasibility of an alternative, the Commission must balance seven factors: (1) site suitability; (2) economic viability; (3) availability of infrastructure; (4) general plan consistency; (5) other plans or regulatory limitations; (6) jurisdictional boundaries; and (7) whether the proponent can reasonably acquire, control or otherwise have access to the alternative site.[157]

Here, a balancing of the factors illustrates the infeasibility of the Private Lands Alternative. The Private Lands Alternative would require Applicant to acquire control of 70 different parcels.[158] Not only would this be an unreasonably difficult task given that

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[152] Ex. 1, Ex. 300, pp. 4-19-4-21; Ex. 309, p. 7-65.

[153] Ex. 300, p. 4-20.

[154] Ex. 300, p. 4-21.

[155] Ex. 300, p. 4-21.

[156] 14 C.C.R. § 15126.6(c).

[157] *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553; see *Save Our Residential Environment v. City of West Hollywood* (1992) 9 Cal.App.4th 1745, 1753, fn. 1; 14 C.C.R. § 15126.6(f)(1); internal numbering added.

[158] Ex. 300, p. 4-23.

Applicant would not have eminent domain power, and the owners would not be required to sell the property, the economic viability of purchasing land from so many different owners is overly burdensome and unreasonable. The sheer infeasibility of acquiring 70 separate parcels in an economically viable manner conclusively demonstrates that the Private Lands Alternative is not a reasonable alternative to the Ivanpah Solar Project.

b. The Private Lands Alternative Would Result in Significant Impacts in Areas Where the Project's Impacts Are Less Than Significant.

The Private Lands Alternative would result in potentially significant impacts in the following areas: agriculture, cultural resources, noise, and transmission system engineering.[159] Notably, these are all areas in which the Ivanpah Solar Project has been found to have less than significant impacts, therefore the Private Lands Alternative would have greater environmental impacts than the Project in the following areas. Two of these additional environmental impacts are discussed in further detail below.

A total of nearly 650 acres of land "actively used" for agricultural purposes would be removed from production for the Private Lands Alternative, including approximately 320 acres of Prime Farmland and 150 acres of Farmland of Statewide Importance.[160] As testified by Staff witness Susan Lee, the "loss of ag[ricultural] land is considered a significant impact."[161] In comparison, the Ivanpah Solar Project is located on "undeveloped public lands in unincorporated San Bernardino County,"[162] will not have an impact with respect to farmland conversion, and will not cause impacts to agriculture.[163] Consequently, unlike the Ivanpah Solar Project, the Private Land Alternative results in significant impacts to agriculture.

The Private Lands Alternative will also result in impacts to cultural resources that "far exceed" those of the Project.[164] For example, the Private Lands Alternative "has the real

[159] Ex. 300, pp. 26-43.

[160] Ex. 300, p. 4-31; also *see* pp. 4-30 through 4-32.

[161] 1/14 RT 244.

[162] Ex. 300, p. 6.5-11.

[163] Ex. 300, p. 6.5-10.

[164] Ex. 300, p. 4-29.

potential to wholly or partially destroy a number of significant prehistoric archaeological sites."[165] Specifically, Staff found that the Private Lands Alternative would:

> … appear likely to destroy one whole known prehistoric archaeological site, and part of a second, and may destroy components of a third, and has the further potential to wholly or partially destroy a number of other prehistoric archaeological sites on portion s of the alternative that have not yet been subject to pedestrian survey.[166]

Staff concluded that although the historical significance of the site itself had to be confirmed, given the location of the Private Lands Alternative in an area of "historic significance," the likely destruction of "significant prehistoric archaeological deposits" would require "treatment" under Federal and state regulatory programs.[167] In contrast, no National Register of Historic Places or California Register of Historic Resources eligible prehistoric or historical archaeological resources were found on the entire Ivanpah Project Site, which was subject to a pedestrian survey and records search.[168] Given the potentially significant impacts to cultural resources from the Private Lands Alternative, the Private Lands Alternative is not a reasonable alternative to the Ivanpah Solar Project.

6. Rooftop Photovoltaic ("Rooftop PV") Fails to Meet Most of the Project's Basic Objectives and Suffers from Numerous Constraints that Make It An Infeasible Alternative.

The FSA considered the installation of 400 megawatts of distributed solar PV as an alternative technology to the Ivanpah Solar Project and found the technology to be infeasible.[169]

In response to arguments advanced by the Center for Biological Diversity, the Applicant provided additional information as to why rooftop PV is not within the reasonable range of feasible alternatives to the Ivanpah Solar Project.

a. Central Station Solar Is Necessary Because Rooftop PV Alone Will Not Allow California to Satisfy its GHG or RPS Objectives.

California's renewables "gap" for meeting 33% RPS by 2020 has been variously cited at

[165] Ex. 300, p. 4-29.

[166] Ex. 300, p. 4-28.

[167] Ex. 300, p. 4-28.

[168] Ex. 300, pp. 4.12-42, 43.

[169] Ex. 300, p. 4-64.

between 59,000 GWh (RETI Phase 1b Report) and 75,000 GWh (CPUC 33% RPS Implementation Analysis). In order to make the blanket determination that the Ivanpah Solar Project is not needed solely because it is a central station and not a distributed technology like Rooftop PV, the Commission must find that it is technically feasible, economically feasible and in the public interest for distributed PV (DPV) to meet all of the state's renewable resource gap of 59-75 TWh. That is, the Commission must determine that central station generation is no longer necessary to meet California's RPS and GHG goals. As long as there is a need for at least some central station generation, then the Ivanpah Solar Project must be compared to other central station alternatives and not to a generic, hypothetical and unsubstantiated DPV alternative.[170]

A finding that central station generation is no longer needed is so broad as to change nearly every aspect of energy planning in California. Important implications of the Commission making such a finding are:

- Central station solar thermal development would come to an immediate halt, since no solar thermal developer would be able to obtain financing to pursue project development if investors are not confident that it is possible to permit and site solar thermal projects in California.
- Renewable power emissions goals, including AB 32 projections to achieve greenhouse gas objectives, would have to be reevaluated and the "net short" increased to attain existing levels, as the variable output of DPV, particularly in coastal areas, would necessitate additional conventional generation and operation of conventional generation in inefficiently halting fashion, increasing overall energy system emissions.
- Transmission needs would be completely changed, focusing on supporting reliability when rooftop power varied. The Commission's efforts to support the Renewable Energy Transmission Initiative and the California Transmission Planning Group would be for naught, and all of their work would have to be reconceptualized and reinitiated.
- The Commission's generation siting function itself would become obsolete, since DPV is not required to obtain site licenses from the Commission.
- There would be no more need to do energy planning in California because DPV would always be the preferred resource option under Powers' recommendation.

[170] Ex. 85, p. A-9.

- The only remaining task of energy planners and policymakers would be to determine the most appropriate mechanisms to procure and pay for DPV.[171]

It would be inappropriate for the Commission to make such a broad determination at this time. It is far too early for the Commission to determine that central station generation is no longer necessary, for the following reasons:

1. It is unlikely that there is sufficient DPV potential in California to reliably meet a resource gap of 59,000-75,000 GWh.
2. No technical studies have been conducted to indicate that it is feasible to integrate 59,000-75,000 GWh of DPV in California.
3. While the news of recent price drops in the PV industry is exciting, there is not enough data on actual PV costs at this time to determine the long-term price trend with any degree of certainty.
4. Current DPV pricing in the United States is heavily dependent on federal policy support in the form of a 30% Investment Tax Credit and accelerated depreciation benefits via a 5-year Modified Accelerated Cost Recovery System.[172]

Because there is still so much uncertainty about the feasibility, reliability impacts and cost of a DPV-only strategy, it would be far too risky for the Commission to determine that central station generation is no longer necessary at this time.

The CPUC 33% RPS Implementation Analysis 33% Reference Case includes 3,235 MW of central station renewable resources based on bids submitted through IOU renewables solicitations.[173] It is imperative that the state continue to develop central station technologies such as wind, geothermal, solar thermal as well as large solar PV (UPV) plants if it wishes to have any hope of meeting its 2020 renewable and greenhouse gas reduction goals.[174]

b. Rooftop PV Faces Technological Uncertainty that Makes Investing Solely In Rooftop PV to the Exclusion of Central Station Renewable Power Uncertain and Risky.

While well-designed and implemented rooftop PV installations can avoid some of the

[171] Ex. 85, p. A-10.

[172] Ex. 85, p. A-10.

[173] Ex 85, p. A-13.

[174] Ex. 85, p. A-10.

transmission and distribution system (T&D) losses and, secondarily, defer transmission and distribution system upgrades in some circumstances, there is no reliable count at this time of the potential MW that could be installed at locations where there would be significant T&D benefits.[175]

From a regulatory perspective CPUC Rule 21 limits the aggregate quantity of distributed generation that can be located on a given distribution feeder to 15% of the peak load on that feeder, before a "Supplemental Review" must be performed for each interconnection request and additional upgrades or protections potentially required to ensure that the facility would not have a negative impact on utility operations.[176]

The CPUC assessed the availability of suitable sites to install PV on each IOU distribution feeder, subject to a limit of 30% of the peak feeder loading. That analysis estimated 6,000 MW of DPV potential using a relatively aggressive assumption that two-thirds of identified roof space would be utilized. However, even that number is contested by the IOUs as too aggressive. For example, PG&E submitted the following comments on the DG potential assumptions:

> The estimates for roof-top capacity appear to be very aggressive. Deployment of these volumes by 2020 will require significant changes to current manufacturing, installation, land use, permitting and electric distribution engineering practices. Also, the source of the data (analysis of available roof space based on satellite photos) does not take into account many roof constraints. This includes structural integrity, since many roofs are not designed to hold the weight and would need to be reinforced. This will likely limit the deployment potential. Further, the usable space may be below the 65% threshold the study assumed due to required access space for firefighting, equipment access, need for space around other roof structures (such as air conditioning units, ventilation, etc.) and layout of the panels themselves." ("Pacific Gas and Electric Company's Comments on the Energy Division's 33% RPS Implementation Analysis Preliminary Results. August 28, 2009. Page 6) [Exhibit 75].[177]

As the record demonstrates, distributed technologies such as Rooftop PV face significant technological hurdles. Relying solely on rooftop to the exclusion of central station renewable resources like Ivanpah is uncertain and risky. Both distributed and central station resources must be in the resource mix.

[175] Ex. 85, p. A-14.

[176] Ex. 85, p. A-14.

[177] Ex. 85, p. A-14, citing PG&E report referenced.

c. Rooftop PV Faces Economic Constraints that Limit the Technology.

Rooftop PV proponents tout the economic viability of the technology. Unfortunately, those claims tend to be based on numbers cited as a "target" prices, not the result of actual installations. The RETI thin-film sensitivity case values are engineering estimates and are not the result of actual installations.[178]

The most recent comprehensive public data on the installed cost of distributed PV systems in the United States is a report released in October, 2009 by Lawrence Berkeley National Laboratory ("Tracking the Sun II: The Installed Cost of Photovoltaics in the U.S. from 1998-2008" Wiser, R., G. Barbose, C. Peterman, and N. Darghouth. LBNL-2674E. October 2009)[179] The data were obtained from 27 solar incentive programs across 16 states; the primary samples include about 52,000 grid-connected PV systems installed from 1998 - 2008, totaling 566 MW. The capacity-weighted average cost in 2008 was $7.50/WDC. While this value represents a 4.6% reduction from 2007 a 31% reduction from 1998, it is substantially higher than the $2.70/WAC - $3.50/ WDC that CDB quotes.[180]

There is anecdotal evidence that PV prices have dropped significantly in 2009. However, there is as of yet very little public data that shows the effect of reduced panel prices on the cost of actual PV systems. Moreover, there is substantial uncertainty about whether this trend stems from a temporary oversupply resulting from the global recession or a more lasting change in the industry's cost structure.[181]

d. Rooftop PV Does Not Provide the Substantial Reliability Benefits of Central Station Renewable Power like the Ivanpah Solar Project.

In terms of reliability and related benefits, rooftop PV behaves very differently than central-station solar generation. Rooftop PV has substantially different impacts on the electrical system than central-station solar generation and cannot be considered a one-for-one substitution of central station solar generation like the Ivanpah Solar Project.[182]

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[178] Ex. 85, p. A-16.

[179] Ex. 80.

[180] Ex. 85, p. A-16.

[181] Ex. 85, p. A-17.

[182] Ex. 85, p. A-20.

Furthermore, from a planning and operating perspective, no utility should endanger reliability and customer costs by relying solely on one technology, whether that technology is central station solar, wind, nuclear gas, coal, conservation or rooftop PV. As the penetration of variable or "intermittent" resources increases in the electrical system, reliability can only be maintained either through multiple renewable technologies in multiple geographic locations reinforcing each other, or through conventional peaker plants, often located in low income areas where environmental justice is a concern. As discussed in further detail below, when renewable energy variability increases, as can be expected from rooftop PV in coastal areas,[183] these peakers and other conventional resources would have to respond to avoid under- or over-generation reliability problems, increasing and decreasing their own output and thereby decreasing their efficiency and increasing their costs and emissions.[184] It is not viable from a planning or operating perspective to meet RPS goals of 20 to 33% by relying on a single technology. It is not a matter of the Ivanpah Solar Project "or" distributed PV. For California to meet its goals, it must rely on central station solar power and distributed PV and many other resources.[185]

e. Unlike Central Station Power Connected to the Bulk Transmission System, Rooftop PV Is Not Dispatchable and Not Scheduled, Creating Reliability Issues.

Distributed Rooftop PV "masks" electric demand or consumption when it is operating, but the underlying demand is still there. That underlying demand still needs to be served if the Rooftop PV output goes away, even for a few moments.[186] From a planning and operating perspective it is necessary for utilities to incorporate both types of resources (distributed and central) because they are not direct substitutes for each other. Rooftop PV behaves like a negative load since it masks load from the transmission and distribution system. However, the load will still be there, whether or to what extent the Rooftop PV continues to provide power. In contrast, a 400 MW central station plant provides the transmission system operator with

[183] Ex. 85, p. A-21.

[184] Katzenstein & Apt, "Air Emissions Due to Wind and Solar Power." 43 Environ. Sci. Technol. 253–258 (2009).

[185] Ex. 85, p. A-20.

[186] Ex. 85, p. A-21.

flexibility to move the power to where it is needed on an integrated utility system. Distributed PV cannot provide this system flexibility.[187]

Rooftop PV and other distributed technologies can result in or exacerbate a variety of reliability problems, including lack of voltage regulation, reverse power flow, unintentional islanding, false inverter trips, reactive power control needs, fault contribution, protection, communications, and intentional islanding operation.[188]

In marked contrast, central station plants including solar thermal plants are necessary for reliable system operation because they contribute both real power (in MWH), but also help by providing other important utility requirements such as reactive power, voltage and frequency support, reserves and other such requirements.[189]

Unlike central-station solar power, Rooftop PV is neither dispatchable nor does it have a scheduling coordinator communicating with the grid operator. Central station solar thermal resources such as the Ivanpah Solar Project are, of course, subject to solar variation, but the thermal nature of the Ivanpah Solar Project makes the Ivanpah Solar Project a partially dispatchable resource with less volatile output than Rooftop PV. The Ivanpah Solar Project and other central-station solar power will have scheduling coordinators required to forecast their operation, including weather impacts, so that the grid operator is constantly informed of what the central-station solar power plant will be doing and why, so the grid operator can react appropriately. Central station plants (solar or otherwise) are designed to be able to move power across the grid through the integrated transmission system. Distributed generation, including Rooftop PV, is much more localized and interconnected at lower voltages, and without major changes in the distribution and transmission systems would have very limited transmissibility.[190]

There will be times when the load on a distribution circuit may range from very light to very heavy loading all within an hour. Depending on the amount of Rooftop generation power flow direction may actually change direction. For example, on hot days when heat has built up into buildings, there will be large air conditioning driven loads. Rooftop PV output will vary both by time of day and cloud cover- again, much more so than central-station solar in desert

[187] Ex. 85, p. A-22.

[188] Ex. 85, p. A-26.

[189] Ex. 85, p. A-22.

[190] Ex. 85, p. A-21.

areas with lesser weather impacts. Within a given hour typical AC driven loads are not nearly as volatile due to the thermal mass. However, Rooftop PV output can and does vary substantially. This is why modern distribution circuits designed to handle growing amounts of Rooftop PV (or other distributed generation) may need to be "two-way" rather than "one-way" circuits.[191]

With today's system of small amounts of distributed generation, the main transmission and distribution system concerns are safety (e.g. backfeed of power). When intermittent resources such as Rooftop PV are an extremely small portion of the resource mix the challenges are manageable. However, as Rooftop generation grows energy management challenges dramatically increase from a planning and operating standpoint.[192]

f. Rooftop PV Requires Additional Reserves to Ensure Reliability.

As penetration of Rooftop PV increases, utility operators will be required to carry increased levels of operating reserves in the form of very quick response generation that is typically either hydro-electric or gas-fired turbines. This is because the underlying demand must still be served when Rooftop PV resources turn off due to clouds, or fails for any other reason. In addition to seasonal and daily fluctuation of solar output, minute- to-minute output variations are also an important consideration to a system operator.[193]

When Rooftop PV output is suddenly reduced, other resources will have to respond instantaneously to serve the underlying demand; when the Rooftop PV output suddenly resumes, the resources that have already responded will have to be adjusted downward to avoid the dangerous conditions that result from too much power being injected into the system. These adjustments are both costly to ratepayers and cause resources to operate inefficiently, and increasing emissions (both greenhouse gas and other air pollutants). [194] Central-station solar power, by contrast, would be informing the grid operator of forecasted weather conditions and the power plant's planned response, including informing the grid operator of when the plant will be returning to full output. The grid operator would not have the same surprise with central-station solar power, either when output is reduced or when output resumes, than it would with Rooftop PV. Additionally, solar-thermal generation output is not as volatile due to location in

[191] Ex. 85, p. A-21.

[192] Ex. 85, p. A-21.

[193] Ex. 85, pp. A-21 to A-22.

[194] Katzenstein & Apt, "Air Emissions Due to Wind and Solar Power." 43 Environ. Sci. Technol. (2009).

areas with less varied weather, and due to thermal mass, possible storage and/or supplemental gas firing.[195]

Commitment of dispatchable and flexible resources to back up volatile or intermittent resources such as Rooftop PV may therefore actually crowd out the ability to bring on additional renewable resources to provide highly reliable, readily available reserve power, particularly if utilities rely on a single technology or single resource regions. Diversity in both technologies and resource regions is important from a reliability perspective for system stability, allowing the grid operator to balance variability across the system instead of having to commit conventional peakers.[196]

7. Utility-Scale Photovoltaic Does Not Avoid Or Minimize Potentially Significant Impacts.

The issues associated with the Ivanpah Solar Project relate to size of the Project footprint, not the technology. Substituting a PV technology for the Ivanpah Project's Power Tower Technology would require a similar Project footprint. In fact, the vast majority of the proposed PV projects are utility-scale projects proposed for similar sites to the Ivanpah Solar Project with many of the same environmental and grid impacts.[197]

There are many thousands and likely hundreds of thousands of MW of potential PV sites in California. However, the vast majority of the sites are not located in places where the transmission and distribution (T&D) benefits of distributed generation are likely to be significant. Rather, they are located in remote areas far from load centers where they would be subject to siting and environmental constraints, would be required to submit interconnection requests to the California ISO, would impose additional flows on the transmission system, and would incur transmission and distribution system losses. In short, these would be utility-scale PV projects in similar locations to the Ivanpah Solar Project.[198]

Thus substituting utility-scale PV for utility scale concentrating solar would not avoid or minimize potential impacts associated with the Project. The FSA considered four alternative solar technologies to the Ivanpah Solar Project solar tower technology at the Ivanpah Solar

[195] Ex. 85, p. A-22.

[196] Ex. 85, p. A-22.

[197] Ex. 85, p. A-12.

[198] Ex. 85, p. A-15 to A-16.

Project site, including utility-scale solar PV technology, and concluded that "these technologies would not substantially reduce visual impacts or biological resources impacts."[199] Applicant agrees with this conclusion.

8. The No Project Alternative Would Sacrifice the Many Significant Benefits of the Ivanpah Solar Project and May Result in Significant Impacts.

Section 15126.6 of the CEQA Guidelines, subsection (e), provides details on the No Project Alternative. The purpose of the No Project Alternative is described as follows:

> The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project.[200]

For development projects such as the Ivanpah Solar Project, the No Project Alternative is defined as "the circumstance under which the project does not proceed." [201] The No Project alternative should "compare the environmental effects of the property remaining in its existing state against environmental effects which would occur if the project is approved," and "identify the practical result of the project's nonapproval," including "predictable actions by others, such as the proposal of some other project."[202]

a. The No Project Alternative Would Forgo the Greenhouse Gas Reduction Benefits of the Ivanpah Solar Project.

The Ivanpah Solar Project would avoid more than 13 million tons of CO_2 emissions over the lifecycle of the Project.[203] Electricity produced by the Ivanpah Solar Project will displace fossil-fuel derived power and reduce the need to operate peaking power plants.[204] As noted by Staff, if the Ivanpah Solar Project was not constructed, "California would not benefit from the reduction in greenhouse gases that this facility would provide."[205] Thus, the No Project

[199] Ex. 1, p. 4-82.

[200] 14 C.C.R. § 15126.6(e).

[201] 14 C.C.R. § 15126.6(e)(3)(B).

[202] 14 C.C.R. § 15126.6(e)(3)(B).

[203] Ex. 65, p. 7.

[204] Ex. 65, p. 8.

[205] Ex. 300, p. 4-8.

Alternative would forego the substantial greenhouse gas reduction benefits of the Ivanpah Solar Project.

b. The No Project Alternative Results in the Loss of the Substantial Economic Benefits of the Ivanpah Solar Project.

The Ivanpah Solar Project provides substantial economic benefits during both construction and operation of the Project. Construction of the Ivanpah Solar Project will include the following socioeconomic benefits:

- Creation of nearly 1,000 construction jobs;
- Approximately $197 million in construction payroll;
- An average salary of $50 per hour, including benefits;
- $77 million in estimated revenue from *locally purchased* construction materials and supplies; and
- Approximately $6 million generated in *local sales tax* from construction purchases.[206]

Other additional benefits of the construction of the Ivanpah Solar Project include local spending by construction workers, and increased local employment.[207]

Operation of the Ivanpah Solar Project will include the following economic benefits:

- Creation of 90 full time positions;[208]
- Approximately $5.4 million in annual operations payroll;
- An average annual salary of $60,000;
- Approximately $2.2 million in property taxes from the Project;
- Approximately $540,000 per year spent locally to support operations and maintenance; and
- Annual sales tax revenues to local communities.[209]

Thus, as noted by Staff, the Ivanpah Solar Project will have a "positive effect on the local and regional economy," as a result of the "increase in local expenditures, payrolls, and taxation

[206] Ex. 65, p. 88, 89.

[207] Ex. 65, p. 88, 89.

[208] Ex. 65, p. 88, 89.

[209] Ex. 65, pp. 88, 89; Ex. 300, p. 6.8-13.

during construction and operation of the facility."[210] The No Project Alternative would result in the loss of these substantial economic benefits.

c. From a Land Use Perspective, the No Project Alternative May Have Significant Impacts Associated with Current Uses of the Project Site.

A "predictable" and "practical result" [211] of the No Project Alternative is the continuance of current uses of the Project site, including off-road vehicle use and cattle grazing. The Project site is located within the BLM Clark Mountain Allotment Grazing Lease,[212] and is currently utilized for grazing. Dr. Geof Spaulding testified during hearings that as recently as January 9, 2010, there was "evidence of cattle grazing" in several locations in the Project site and common trampling, "particularly in the washes [and] on preexisting trails."[213] Staff witness Dick Anderson confirmed the use of the Project area for grazing.[214] As Dr. Michael Connor stated in his testimony, cattle grazing is a "threat" to Desert Tortoise habitat.[215] The coincidence of grazing may one of the contributing factors for the low tortoise census on the Project site. The Project site is also used for off-road vehicles, and continued use of this area for that purpose would also pose a continued threat to Desert Tortoise habitat.[216] Thus the No Project Alternative, which would continue the existing use of the Project site as a grazing allotment, has potentially significant impacts to the Desert Tortoise, without the benefits of mitigation.

d. From a Land Use Perspective, the No Project Alternative May Have Significant Impacts Associated with Other Potential Development at the Project Site.

Another "predictable" and "practical result" [217] of the No Project Alternative is the construction of "other renewable or gas-fired power plants" given that the Ivanpah Solar Project site is located in an area "not protected for specific wildlife species or for its wilderness

[210] Ex. 300, p. 6.8-19.

[211] 14 C.C.R. § 15126.6(e)(3)(B).

[212] Ex. 1, p. 5.6-4.

[213] 1/12 RT 87.

[214] 1/14 RT 211.

[215] 1/11 RT 468.

[216] 1/12 RT 87; Ex. 1, p. 5.6-4.

[217] 14 C.C.R. § 15126.6(e)(3)(B).

values."[218] In addition, the Ivanpah Solar Project site is located on BLM lands designated as Class L and Class M. The BLM land designation will not change if the No Project alternative is selected. Therefore, all uses currently allowed in Class L and Class M lands will continue, or have the potential to occur.

For example, permitted uses in both Class L and Class M lands include electrical generation facilities, transmission facilities, distribution facilities, fire management, vegetation harvesting, livestock grazing, motorized vehicle access and transportation (including railroads and airports), and organized competitive vehicle events.[219] Each of these activities would likely have significant impacts similar to, or potentially greater, than the Ivanpah Solar Project. Therefore, the No Project Alternative, as a result of the foreseeable implementation of the permitted uses in Class L and Class M lands, is not an environmentally superior alternative to the Project.

B. BIOLOGICAL RESOURCES

1. LAKE AND STREAMBED ALTERATION AGREEMENT (BIO-20)

a. The CEC Stands in the Shoes of CDFG For Approval of the Lake and Streambed Alteration Agreement for the Project, Post-Certification.

Lake and Streambed Alteration Agreements ("LSAA") are governed by Fish and Game Code Section 1600, et seq., the Lake and Streambed Alteration statute. Absent the Commission's preemptive authorities under Public Resources Code Section 25500 et seq., the process of issuance of a Lake and Streambed Alteration Agreement (the "LSAA Agreement Process") would be administered by the California Department of Fish and Game ("CDFG"). However, in the case of a thermal powerplant within the Commission's jurisdiction, the Commission "stands in the shoes" of CDFG, issuing the LSAA pursuant to the Commission's certified regulatory program.

CDFG agrees that the Commission stands in the Department's shoes:

> MR. HARRIS: So, in a sense, or in reality the Commission is standing in the shoes of the department in the issuance of that lake and streambed alteration agreement, is that correct?

[218] Ex. 300, p. 4-8.

[219] California Desert Conservation Area Plan. pp. 14-20, 71 found at: http://www.blm.gov/pgdata/etc/medialib//blm/ca/pdf/pdfs/cdd_pdfs.Par.aa6ec747.File.pdf/CA_Desert_.pdf.

MR. FLINT: That's correct.[220]

What is the process for the Commission to stand in CDFG's shoes in the LSAA Agreement Process? As discussed below, the LSAA Agreement Process requires compliance with applicable laws and regulations, which require that (1) the LSAA is an "Agreement," not a Condition and (2) the LSAA can only be issued post-certification.

b. Compliance with Section 1600 and the LSAA Agreement Process is a LORS Compliance Issue.

The Commission has extraordinary powers related to its in lieu permitting powers set forth in Public Resources Code Sections 25500, et seq. The Commission's approval is "in lieu of" all other state, local, regional, and to the extent allowed by federal law, federal permits and approvals.

These extraordinary powers also come with at least two significant extraordinary duties. First, the Commission must comply with the substantive requirements of CEQA by implementing its certified regulatory program. Second, the Commission must determine whether the proposed project is consistent with all applicable laws, ordinances, regulations, and standards ("LORS," also known as "LORS Compliance").

The LSAA Agreement Process is found in the California Fish & Game Code and thus is a CEQA requirement as those requirements are set forth in the Public Resources Code. Accordingly, it is undisputed that the Commission's in lieu permitting authority relative to LSAAs is part of the Commission's LORS Compliance duties.

In carrying out its LORS Compliance obligations, the Commission "stands in the shoes" of the preempted entity. By virtue of standing in those shoes, the Commission must ensure consistency with the preempted agencies' LORS. To be clear, the Commission's in lieu authority does not create new powers or new regulations; instead, it is the Commission's legal obligation to ensure consistency with those preempted agencies' LORS by applying those LORS to the project.

In this case, the CDFG, like all other agencies with State law authorities, is preempted by the Commission. In exercising its preemptive authorities, the Commission always seeks the recommendations of the preempted entities. Nevertheless, the legal authority and responsibility

[220] 1/11 RT 260:21-25.

to ensure LORS consistency rests with the Commission, and the Commission must apply existing LORS to the facts in this case.

c. Contrary to Applicable Law, BIO-20 Seeks to Convert the LSAA Agreement Process into a Unilaterally Imposed "Condition".

The FSA's Proposed Condition BIO-20 purports to implement the requirements of Fish and Game Code Section 1600, et seq., the Lake and Streambed Alteration Agreement statute. In this case, however, the law is clearly misconstrued: *the LSAA is an "Agreement", not a Condition*.

Staff further misconstrues the law in asserting that the LSAA Agreement Process determination can be made prior to the Commission Decision. Instead, as CDFG testified, the LSAA Agreement Process can only be negotiated post-certification -- after the Commission's certified regulatory program has a final and non-appealable CEQA-equivalent document. For the reasons set forth below, Staff's proposed BIO-20 must be rejected in whole in favor of a LSAA Agreement Process condition that meets the requirements of the law.

d. Rather than Converting the LSAA Agreement Process into a "Condition," the CEC Must Implement the Existing LSAA Statute and Regulations.

Until the most recent series of solar projects came before the Commission, the Commission regularly included obtaining the LSAA as a post-certification approval, incorporated into the BRMIMP.[221] For the reasons set forth herein, the Commission should use this established post-certification approach in this case.

At the heart of the Applicant's disagreement with BIO-20 is the Staff's effort to convert the LSAA Agreement Process into a unilaterally imposed Condition. As discussed above, the Commission, in ensuring LORS Compliance, must follow the existing LORS of the preempted agency. The substantive requirements of the LSAA Agreement Process are described below.

The Legislature enacted Fish & Game Code Sections 1600 *et seq.* to provide conservation for fish and wildlife resources, which are declared to be of utmost public interest.[222] Section 1602 contains the statute's main requirement, providing: "An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel,

[221] 1/11 RT 359:6 – 360:20.

[222] California Fish & Game Code § 1600.

or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake" unless the department receives written notification regarding the activity. Once the notification is deemed complete and the applicable fees paid, CDFG determines whether the activity may substantially adversely affect an existing fish or wildlife resource.[223]

If CDFG determines that the activity may substantially adversely affect an existing fish and wildlife resource, it must provide a draft agreement to the entity within 60 days.[224] The draft agreement shall describe the fish and wildlife resources and the measures to protect those resources.[225] The entity has 30 days to notify CDFG whether those measures are acceptable.[226] If the measures are not acceptable, the department and the party are directed to reach mutual agreement or submit the dispute to a panel of arbitrators.[227] In particular, the right to seek arbitration is essential to keeping the LSAA Agreement Process as an "Agreement." CDFG's witness confirms that the right to arbitration is a regular practice in the LSAA Agreement Process:

> MR. HARRIS: And in that typical non preempted process, is there a process for arbitration if, in this case the example the housing development, decides that they don't like or agree with the proposed conditions for that [LSAA] agreement?
>
> MR. FLINT: That's correct.

In marked contrast to this clearly defined path to reach "Agreement", BIO-20 seeks to unilaterally impose a permit "Condition." This unilateral conversion of the Agreement process to a prescriptive Condition is contrary to law and contrary to the Commission's legal duty pursuant to its LORS Compliance obligations.

The practice of requiring the LSAA Agreement Process post-certification should be maintained. Because it is contrary to applicable law, BIO-20 must be rejected in whole and replaced with a condition that is compliant with the law.

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[223] California Fish & Game Code § 1603(a).

[224] California Fish & Game Code § 1603(a).

[225] California Fish & Game Code § 1603(a).

[226] California Fish & Game Code § 1603(a).

[227] California Fish & Game Code § 1603(b).

e. The LSAA Agreement Process Cannot Begin Until After the Commission's CEQA-Equivalent Decision is Final and Non-Appealable.

As a matter of law, the LSAA Agreement Process cannot even begin until the CEQA process is completed. The Commission will complete its responsibilities for compliance with CEQA once the Commission's Final Decision is final and non-appealable. The fatal flaw in Staff's BIO-20 is that it attempts to issue the LSAA before the requirements of CEQA have been satisfied.

California Fish & Game Code Section 1602 sets forth the requirements for a LSAA application to be deemed "complete." Completeness is the start of the LSAA Agreement Process. To begin the LSAA Agreement Process, Section 1602 requires, among other things, proof of compliance with CEQA. Specifically, Section 1602(a) (1)(D) requires "A copy of any document prepared pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code." This provision specially requires proof of compliance with CEQA, whether through an Exemption, Negative Declaration, Mitigated Negative Declaration, or an EIR. Accordingly, the LSAA Agreement Process cannot even begin, let alone conclude before the CEQA approvals are final and non-appealable.

The expert witness for CDFG agrees that the LSAA Agreement Process requires compliance with CEQA before an application can be filed:

> MR. FLINT: When the department issues the streambed alteration agreement, that is an action under CEQA that the department must comply with CEQA for.[228]

Thus, CDFG confirms that the LSAA Agreement Process requires a final and non-appealable CEQA document to initiate the Agreement.

There is no dispute that the LSAA Agreement Process cannot even begin without the final, non-appealable CEQA-equivalent document. Accordingly, BIO-20 must be re-written to satisfy the requirements of the Fish & Game Code.

[228] 1/11 RT 358, lines 4-7.

f. BIO-20 Should Be Replaced with a Condition that Complies with Applicable Law and Regulation.

Staff's BIO-20 must be rejected in whole, and the imposition of a unilateral Condition replaced with the LSAA Agreement Process. Accordingly, BIO-20 should be replaced with the following:

> **BIO-20: LAKE AND STREAMBED ALTERATION AGREEMENT PROCESS**
>
> Prior to commencement of construction in areas that affect the dry ephemeral washes on the Project site, the Project Owner shall obtain the final Lake and Streambed Alteration Agreement (LSAA) for the Project.
>
> **Verification**: The Applicant shall prepare and file with the CPM an Application for a Lake and Streambed Alteration Agreement satisfying the requirements of Fish & Game Code Section 1602. The CPM will notify the project owner that the Application is complete within 30 days of receipt. If the CPM determines, based upon the Application and the Commission's Decision, that the activity may substantially adversely affect an existing fish and wildlife resource, the CPM shall provide a draft agreement to the entity within 60 days.[229] The draft agreement shall describe the fish and wildlife resources and the measures to protect those resources.[230] The project owner then has 30 days to notify the CPM whether those measures are acceptable.[231] If the measures are not acceptable, the CPM and the Project owner are directed to reach mutual agreement or submit the dispute to a panel of arbitrators.[232]
>
> Please note that the footnotes in this draft would be removed from the final version.

They are included here for the convenience of the Committee to confirm compliance with the applicable requirements of the LSAA Agreement Process statue and regulation.

g. The Committee Must Reject As Inapplicable and Overstated the Staff's Recommendations Related to Impacts to Waters of the State.

There are no federal "Waters of the United States" associated with the Ivanpah Solar Project. The US Army Corps of Engineers made this determination.[233] Under the guise of being

[229] California Fish & Game Code § 1603(b).

[230] California Fish & Game Code § 1603(b).

[231] California Fish & Game Code § 1603(b). .

[232] California Fish & Game Code § 1603(b).

[233] Ex. 300, p. 6.9-65.

a LSAA Agreement Process and impacts to "Waters of the State," Staff's recommendations in proposed Condition of Certification BIO-20 require compensation for impacts to 198 acres of waters of the State. This requirement is not supported by the record and must be rejected.

i The Low Impacts Design Preserves the Natural Storm Water Flows and Thus Preserves the "Waters of the State".

As a factual matter, the Waters of the State that exist on site will continue to exist once the project is constructed. Specifically, the Applicant's Low Impact Development design ("LID") means these 198 acres of state water are not lost. Indeed, it is clear that the Staff still considers the washes "Waters of the State", even after the installation of the heliostats through the Low Impact Design. If Staff insists that the 198 acres of washes be treated as "State water" after construction of the project using the LID design, these State waters are not "lost" and thus there is no loss to mitigate. Not one acre is lost and not one acre needs to be replaced because they still exist and function as a result of the LID design.

ii Staff Has Failed To Make the Required Link Between Proposed Mitigation and Any Actual Impacts On Fish And Wildlife Resources Caused By The Project.

The LSAA process is intended to protect "fish and wildlife resources." Indeed, Section 1600 of the Fish & Game Code begins with this statement: "The Legislature finds and declares that the protection and conservation of the fish and wildlife resources of this state are of utmost public interest." (Emphasis added.) The phrase "fish and wildlife resources" is repeated in Sections 1600, 1602, 1603, 1605, 1614, and 1615. Clearly, the LSAA process is focused on impacts to "fish and wildlife resources."

CDFG's expert witness agrees with the focus on fish and wildlife: "[T]he purpose of the section [Section 1600 of the Fish & Game Code] is to insure that the fish and wildlife resources impacted by the projects that affect bed, bank and channel are protected."[234] It is undisputed that there are no fish on the Ivanpah site. In fact, these are desert washes; there is only occasionally water on site as a result of precipitation – rain. Since there are no fish, the jurisdictional connection to the Ivanpah Solar Project site with regards to the LSAA Agreement Process, if any, must be "wildlife."

[234] 1/11 RT 277:20-23.

However, contrary to the focus on "fish and wildlife" resources, Staff has instead focused the recommended BIO-20 mitigation on plants. Staff stated that the biological values it seeks to protect via its proposed BIO-20 is plant life. Staff testified that they did indeed focus on plants, not wildlife: "Desert washes collect water and keep it longer than other surrounding areas. They have higher diversity and density of annuals, which are important for forage." Instead of focusing on "fish and wildlife", CEC Staff focused on annual plants and other forage which, in this area, is not supported by any data gathered on the site. Active desert washes here are often devoid of any plant life; washes that have not channeled flow in the recent past seldom evidence any plant growth in excess of the areas around them.

Staff consistently emphasized the linkage to plant life, not wildlife resources. In response to the question of whether desert washes are habitat for wildlife or as a means of providing water to grow plants that the wildlife feeds upon, Staff stated:

> MS. SANDERS: When you say provide water, they [desert washes] hold water for longer periods of time. And so you'll get more vegetation growing there. You'll get more annuals growing there which are important forage for many species.[235]

Botany does not fall within the LSAA requirements related to protection of "fish and wildlife resources." Staff's reliance on botanical values in desert washes is not based in law and must be rejected.

iii Staff Proposed BIO-20 Would Impose Double Mitigation for the Desert Tortoise.

The LSAA Agreement process is a process separate and apart from CESA and impacts to threatened, endangered or candidate species. As the CDFG witness testified.

> What is required [by Section 1600 of the Fish & Game Code] -- again, this is an independent section of the Fish and Game Code, and what's required by it is spelled out there. But it was essentially it's -- the purpose of the section is to insure that the fish and wildlife resources impacted by the projects that affect bed, bank and channel are protected. Impacts minimized and/or mitigated as necessary. So that [Section 1600 of the Fish & Game Code], again, is separate from CESA, separate from CEQA. It's a separate requirement under statute.[236]

Unfortunately, the Staff's rationale for BIO-20 relies on CESA and impacts to Desert Tortoise:

[235] 1/11 RT 386:4-11.

[236] 1/11 RT 277:17-25 – 278:1-2.

> They [desert washes] provide many beneficial and useful functions for desert tortoise. And that's part of the reason we insisted that there be mitigation for impacts to those desert washes at the Ivanpah site. [237]
> * * *
> MS. SANDERS: * * * You also find burrows in the banks of desert washes. They provide a place to burrow into.
> MR. HARRIS: I'm sorry, burrows for what particular species?
> MS. SANDERS: For desert -- I'm sorry, what?
> MR. HARRIS: For which species, desert tortoise?
> MS. SANDERS: For desert tortoise.[238]
> * * *
> MS. SANDERS: The dry desert washes at the Ivanpah site provide valuable wildlife habitat for desert tortoise, as well.[239]

Staff is asking for (1) mitigation under CESA for Desert Tortoise and (2) a second, distinct and additional mitigation under the LSAA statutory scheme for the same Desert Tortoise, notwithstanding the fact that no state waters will be removed. This additional mitigation for an impact to State waters that will not occur must be rejected.

2. DESERT TORTOISE

a. The Biological Setting.

The Commission's consideration of the potential impacts on Biological Resources must begin with an accurate and objective description of the environmental setting.

Unfortunately, the FSA's description of the setting is not an accurate or objective description of the environmental setting. Instead, the FSA paints the project setting as "undisturbed" and the Project site as "relatively undisturbed".[240] This is simply incorrect.

Subsection 1) describes – in objective terms – the environmental setting. Subsection 2) sets forth the facts that support the conclusion that the Project site and the surrounding environment are not undisturbed or pristine.

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[237] 1/11 RT 383:10-1.

[238] 1/11 RT 384:3-17.

[239] 1/11 RT 382:25–383.

[240] Ex. 300, p. 6.2-9 and 6.2-94 to 6.2-95," ..eliminating a broad expanse of relatively undisturbed Mojave Desert habitat."; Ex. 1, p. 6.2-9 "The ISEGS site is located on and surrounded by undisturbed, natural land, with the exception of the Primm Valley Golf Club and I-15 to the east and a transmission line and associated unpaved roads."

i The Ivanpah Site Is Previously Disturbed and Includes Existing Infrastructure.

The Commission's Decision should include an accurate description of the environmental setting. Such a description follows.

The Project[241] is proposed to be developed in unincorporated San Bernardino County in the Mojave Desert approximately 0.8 mile to the west of I-15 at its closest point (southeast corner of Ivanpah 1), and approximately 3.1 miles south of the California/Nevada border. The physical setting consists of an area that is vegetated with grasses and low-lying scrub bushes. The area is currently used for cattle grazing, off-road vehicle ("OHV") racing, transmission lines, and related maintenance.[242]The elevation of the property ranges from 3,525 feet at the northwest corner, sloping to 2,800 feet elevation at the southeast corner of the property.

Overhead electric transmission lines are located in the Project vicinity and cross the Project site. One transmission line corridor with three transmission lines is oriented in a southwest-northeast direction, passing between Ivanpah 1 and Ivanpah 2.

The Project site is traversed by dirt roads and trails that the Applicant will be required to rebuild to provide continued public access to the west of the Project site. The Primm Valley Golf Club is located approximately 0.5 mile east of the Ivanpah 1 property boundary, and is approximately 1.5 miles east of the Ivanpah 2 plant boundary. The northeast corner of the Ivanpah 1 plant boundary is adjacent to the Golf Club's southwest property boundary. The Golf Club is located on an approximately 500-acre parcel of land, and consists of two golf courses: the Desert Course and the Lakes Course. Each course has 18 holes, and is approximately 150 acres.

Located to the northeast are casinos in Primm, Nevada on the east and west sides of I-15, apartments for casino employees located behind (east of) the casinos on the east side of I-15 (described below), and a power plant (Reliant's Bighorn Generating Station) is located on the east side of I-15. To the east of Ivanpah 1, on the east side of I-15 and the Yates Well Road exit, is a residence (described below) and additional buildings that appear to be abandoned along with a communications tower. Paralleling I-15 on its east side are railroad tracks.

[241] Ex-1, § 5.13.3.2, Regional Setting.

[242] Ex. 300, p. 6.2-9.

The Mescal and Ivanpah Ranges are located to the west of the Project area, and the Clark Mountain Range forms the valley's northwestern border. The nearest topographical feature is a metamorphic outcrop located east of Ivanpah 2 and Ivanpah 3. In addition, a limestone ridge outcrop is located to the west of Ivanpah 3. Both surface and subsurface active mining claims exist in and around the area of the limestone ridge. The New York Mountains, Providence Mountains, and the Granite Mountains are located to the southeast, south, and southwest of the Project area. The Mojave National Preserve is located to the southwest of the Project area. The nearest residence to the Project site is one trailer located on the east side of I-15 at the Yates Well Road exit. This residence is located approximately 1.4 miles east of the Ivanpah 1 project facility boundary. In addition, there is a casino employee apartment complex located approximately 5 miles northeast of the Project, to the east of the hotels/casinos that are situated on the east side of I-15 in Primm, Nevada..

The Ivanpah Dry Lake is situated to the east of the three Project sites, and is bisected by I-15. The lake covers an area of approximately 35 square miles. It is a popular place for kite buggying, land sailing, long-distance archery, and kite demonstrations. The North American Buggy eXpo, a week-long event, recently occurred in April 2007 at the lake. The lake area is open to non-motorized vehicle access only; it is closed to motorized vehicles without a permit.

ii Lands Within the Vicinity of the Ivanpah Site Are Previously Disturbed and Developed.

The Ivanpah Project site is the result of a rigorous, methodical, systematic, and logical site selection process. This site is in a Renewable Energy Transmission Initiative (RETI) zone that received favorable environmental and economic ratings.[243] The site is not located in an area that RETI identified as either inappropriate for renewable energy development (a prohibited, or "black" area), nor one where policy would limit or restrict renewable energy development (a restricted, or "yellow" area).[244]

The environmental baseline, or the "status quo," for the Ivanpah site is that the site is currently used for cattle grazing, off-road vehicle use and other activities. While the FSA/DEIS describes the project site as "eliminating a broad expanse of relatively undisturbed Mojave Desert habitat," and describes the Project site as being "surrounded by undisturbed natural

[243] Ex. 72, p. 26.

[244] Ex. 72, p. 26.

land"[245] these characterizations are disproved by the preponderance of evidence in this record. When one stands on Colosseum Road in the center of the Project site, one does not see a broad expanse of undisturbed habitat. Instead, one sees, among other things:

- Access roads leading to mines that cross through the site;
- Three transmission lines that cross through the middle of the site;
- Four LADWP transmission lines are approximately 1.5 miles to the north of Ivanpah 3 property boundary: (1) the 500-kV direct current (DC) Intermountain-Adelanto; (2) the 287-kV Mead-Victorville; (3) the 500-kV McCullough-Victorville I; and (4) the 500-kV McCullough-Victorville II.
- Off road vehicles, racing across the site, on and off the roads;
- Active cattle grazing on the site;
- Primm Valley Golf Club, featuring "two award-winning courses, the Lakes Course and the Desert Course;"[246]
- Interstate 15 (I-15) , the major interstate freeway linking Las Vegas and Los Angeles;
- The Kern River Natural Gas Line Corridor;
- The Bighorn Generating Station, a 598-megawatt natural gas-fired, combined-cycle power plant;
- Terrible's Primm Valley Casinos,[247] featuring Buffalo Bill's,[248] Primm Valley Resort and Casino,[249] Whiskey Pete's Hotel and Casino;[250]

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[245] Ex. 300, pp. 1-17, 6.2-1, 6.2-94, and 8-1.

[246] The Lakes Course is described as featuring "lush greens," "Breathtaking water features," "dense groves of tall pine trees," and "an extensive lakes and river system (in play on 11 holes)." http://www.primmvalleygolf.com/

[247] http://www.primmvalleyresorts.com/

[248] "Kick Back & Stay Awhile - Combining Old West style with New West fun, Buffalo Bills Resort and Casino gives you the perfect place to kick up your heels, or hang your hat. Located on the northbound exit ramp for I-15, it boasts two towers and 1,242 guest rooms and luxurious suites adorned with everything under the sunset to make you feel at home." http://www.primmvalleyresorts.com/hotel_buffalobill.php

[249] "If class is what you want, Primm Valley Resort and Casino is the place to be. Located opposite Whiskey Pete's at the northbound exit ramp off the I-15, Primm Valley offers 624 rooms and suites that wrap you in elegance and style with the feel of a private country club. Find yourself in the center of the action with 1,510 slot machines, 33 table games, a keno lounge, and a race and sports book, or relax with a martini in our Piano Bar. Add to the experience by dining in one of our three fabulous restaurants: GP's, which combines American and European cuisines to bring you one great place to eat; The Gallery Café offering great food in a fun atmosphere around the clock, or The Greens Buffet serving up all you can eat food from around the world." http://www.primmvalleyresorts.com/hotel_primmvalley.php

[250] "A Castle in the Desert - Come to the "Castle in the Desert" known as Whiskey Pete's along the I-15, rumor has

- Outdoor amusement park rides and features, including the Desperado roller coaster,[251] the Turbo Drop,[252] the Adventure Canyon Log Flume,[253] and a Monorail, crossing I-15;[254] and
- The Primm Outlet Mall.[255]

The project site is far from "relatively undisturbed" and it is not "surrounded by undisturbed, natural land."

b. The Federal Endangered Species Act ("ESA").

The federal ESA was enacted in 1973 "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, [and] to provide a program for the conservation of such endangered and threatened species."[256] The ESA defines endangered species as "any species which is in danger of extinction throughout all or a significant portion of its range,"[257] and threatened species as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant

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it that Ol' Whiskey Pete himself is buried out there and has watched over the property throughout the years. Amenities - This 1800's mining town boasts two castle towers holding 777 rooms and suites, and will never have you digging for fun. You can enjoy headliner entertainment in our showroom or dine in any of our fabulous restaurants. Strike it rich playing the latest slots and table games, and be part of all the action at Whiskey Pete's! http://www.primmvalleyresorts.com/hotel_whiskey.php

[251] "Get a breathtaking view of the valley from 209 feet upight before you plunge at tremendous speed into a succession of twist, turns and unexpected surprises. Ranking among the top ten roller coasters in North America and one of the tallest and fastest in the U.S., the Desperado is 2.43 minutes of pure heart pounding fun." http://www.primmvalleyresorts.com/family.php

[252] "Ah, the law of gravity: what goes up must come down. Straight down, from 170 feet in the air, at an intense 45 miles per hour! That's the Turbo Drop, where you and eleven other brave souls can get your hearts and adrenaline soaring as you experience negative one G, and then 4.5 Gs of force. Go ahead, take the plunge!" http://www.primmvalleyresorts.com/family.php

[253] "You can't be afraid to get wet where the rapids rule. The Adventure Canyon Log Flume offers swirling rapids and treacherous waterfalls. Throw in some fast target shooting with state-of-the-art laser light pistols and you'll have the time of your life." http://www.primmvalleyresorts.com/family.php

[254] http://www.primmvalleyresorts.com/hotel_amenities.php

[255] "Fashion Outlets of Las Vegas - If shopping is what you love, you'll be head over heels the second you step foot in the Fashion Outlets of Las Vegas. Browse through hundreds of name brand stores such as BCBG, Vanity Fair, Reebok and William Sonoma, for a shopping experience you aren't soon to forget. Get the name and the quality without the original price tag." http://www.primmvalleyresorts.com/shopping.php

[256] 16 U.S.C. § 1531(b).

[257] *Id.* at § 1532(6).

portion of its range."[258] The ESA provides a process for species to become "listed" as endangered or threatened.[259]

The ESA prohibits the "take" of endangered fish and wildlife[260] and prohibits the removal or destruction of endangered plants on federal lands.[261] The ESA authorizes the Secretary of the Interior ("Secretary") to extend these protections to threatened species through regulations.[262] The Secretary has fully protected threatened fish and wildlife species subject to exemptions.[263] "Take" is defined in the ESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."[264] The ESA allows an agency to authorize a taking that is incidental to an otherwise lawful activity if certain conditions are met and impacts are mitigated.[265]

The federal ESA provides two processes that may authorize an incidental take, known commonly as the Section 7 and Section 10 processes.[266] Under the Section 7 process, any agency responsible for approving a project must consult with the United States Fish and Wildlife Service ("USFWS") or the National Marine Fisheries Service ("NMFS") on the potential impacts to endangered or threatened species.[267] The Services may then issue an Incidental Take Statement ("ITS") authorizing the take with conditions.[268] All Federal agencies are required by the ESA:

> …in consultation with and with the assistance of [UFWS and NMFS], insure that any action authorized, funded, or carried out by such agency (hereinafter referred

[258] *Id.* at § 1532(20).

[259] *Id.* at § 1533.

[260] *Id.* at § 1538(a)(1)(B).

[261] *Id.* at § 1538(a)(2)(B).

[262] *Id.* at § 1533(d).

[263] 50 C.F.R. § 17.31(a).

[264] 16 U.S.C. § 1532(19).

[265] *Id.* at § 1539(a)(2).

[266] A Section 10 Incidental Take Permit ("ITP") is issued where the Services approve an incidental taking by issuing an ITP pursuant to a Habitat Conservation Plan ("HCP"). Section 10(a) of the ESA allows for consultation between a project proponent and USFWS/NMFS in the absence of a "federal nexus." A lack of federal nexus means that there is no federal permitting action and thus no federal agency to enact Section 7 consultation. Section 10(a) requires the preparation and approval of a Habitat Conservation Plan ("HCP") before federal agencies can approve a project or issue an ITP. Because the Ivanpah project has a federal nexus, the Section 10 process is inapplicable.

[267] 16 U.S.C. § 1536(a)(2).

[268] *Id.* at § 1536(b)(4).

> to as an 'agency action') is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat.[269]

An "applicant," or anyone seeking any form of authorization or approval from a federal agency,[270] may request and participate in a consultation "if the applicant has reason to believe that an endangered species or a threatened species may be present in the area affected by his project and that implementation of such action will likely affect such species."[271]

After conclusion of such consultation, the Secretary must provide a written opinion on the impact. "If jeopardy or adverse modification is found, the Secretary shall suggest those reasonable and prudent alternatives" that the agency can implement to avoid jeopardy or adverse modification.[272] Federal regulations define this written opinion as a Biological Opinion ("B.O.").[273] Reasonable and prudent alternatives ("RPAs") must be implemented in a manner consistent with the purpose of the action and within the scope of the agency's authority, must be economically and technologically feasible, and avoid jeopardy or adverse modification.[274]

If the action can proceed (whether as originally proposed or with RPAs) without jeopardy or adverse modification of critical habitat, but will nevertheless result in an incidental taking, then the Secretary must provide a written statement that specifies the impact and "those reasonable and prudent measures that the Secretary considers necessary or appropriate to minimize such impact, [and] sets forth the terms and conditions… that must be complied with."[275] This written statement is an Incidental Take Statement ("ITS").[276]

An ITS authorizes the taking subject to the Service's terms and conditions.[277] The reasonable and prudent measures ("RPMs") must actually minimize the amount or extent of the

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[269] *Id.* at § 1536(a)(2).

[270] 51 Fed. Reg. at 19,930.

[271] 16 U.S.C. § 1536(a)(3).

[272] *Id.* at § 1536(b)(3)(A).

[273] 50 C.F.R. § 402.02.

[274] *Id*.

[275] 16 U.S.C. § 1536(b)(4).

[276] 50 CFR § 402.14(i).

[277] *Bennett v. Spear*, 520 U.S. 154, 170 (1997).

anticipated take but cannot alter the basic design, location, scope, duration or timing of the action and can only make minor changes.[278]

c. The only plant or wildlife species present that is protected by either the State or the Federal Endangered Species Act is the Desert Tortoise.

There is only one federal and state threatened or endangered species on the Ivanpah site, the Desert Tortoise. The Desert Tortoise is listed as Federally Threatened and California Threatened. No other federal or state threatened or endangered animals are on the site. No other federal or state threatened or endangered plant species are on the site.

i The Facts Regarding Desert Tortoise Are Not in Dispute; Only Questions of Law Regarding Mitigation Exist.

While there are legal disputes among the Parties regarding how much mitigation is required by law, the underlying facts related to the Desert Tortoise are not in dispute.

The Ivanpah Solar Project site is not located within critical wild lands nor is it located within one of the last habitats of any endangered species. The only wildlife species present that is protected by either the State or the Federal Endangered Species Act is the Desert Tortoise. The U.S. Fish and Wildlife Service is the federal agency responsible for protecting this species and its habitat. One primary tool for protection is the designation of critical habitat. On February 8, 1994, the USFWS **designated 6.4 million acres** as critical habitat within 12 critical habitat units for the Desert Tortoise in portions of California, Nevada, Arizona, and Utah. Critical habitat is designated to identify the key biological and physical needs of this species and key areas for recovery. Conservation actions are focused within these areas. The Ivanpah Solar Project is not located within those 6.4 million acres, and is by no means in an area critical to the survival of this species.

In 1990, USFWS developed the Desert Tortoise (Mojave Population) Recovery Plan. As part of this plan, six population units, called "recovery units," were identified using published and unpublished data on genetic variability, morphology, and behavior patterns of populations as well as ecosystem types. The location of the proposed Ivanpah Solar Project is not within protected habitat for the Desert Tortoise nor does it contain a dense population of Desert Tortoises within its 6.3-square-mile boundary. Although the BLM and USFWS have considered

[278] 50 CFR § 402.14(i)(2).

the Northern Ivanpah Valley Unit to be good tortoise habitat, they have not found it suitable for inclusion in a Desert Wildlife Management Area (DWMA), designation as an Area of Critical Environmental Concern (ACEC), or critical habitat primarily due to isolation by I-15 and the surrounding highlands, the small size of the area, existing development (e.g., the Primm Valley Golf Club), and development pressure.

At the time of its inception, the Ivanpah DWMA (located south of I-15 and outside of the Project site) was determined to contain between 5 and 250 tortoises per square mile. About 20 square miles of that area supported densities of 200 to 250 tortoises[279] compared to the Project site, which has a density of less than 5 per square mile.

ii BLM's In Lieu Fee Program and the Commission's Conditions Requiring Compliance with the Biological Opinion Fully Satisfy the Federal Endangered Species Act.

To begin, the FSA/DEIS concludes that with the implementation of mitigation, there are no significant, unmitigated impacts associated with the Ivanpah Project related to the Desert Tortoise.[280] This is not surprising, given the decades of experience associated with moving Desert Tortoise. Relocation and translocation are common mitigation, as is Desert Tortoise fencing and other measures that are included in the Biological Opinion issued pursuant to Section 7 of the federal ESA.

The nature and extent of mitigation required for Desert Tortoise under the ESA is controlled by the BLM's existing "in lieu" fee program for mitigation for projects on federally-managed lands. The FSA describes the BLM's "in Lieu" fee program as follows:

> In contrast to CDFG's mitigation approach, BLM does not require an endowment fee or creation of a management plan to undertake habitat improvements on the acquired mitigation lands. However, guidelines for BLM stewardship and enhancement actions to protect and enhance habitat for Desert Tortoise are provided by the NEMO and the CDCA Plan. The BLM also undertakes all feasible management actions recommended by the Desert Tortoise Recovery Plan (USFWS 1994) on their lands. Similarly, the National Park Service utilizes its General Management Plan for the Mojave National Preserve (2001) to guide management of acquired lands.
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> * * *

[279] Desert Tortoise (Mojave Population) Recovery Plan, Appendix F, p. F13, found at: http://ecos.fws.gov/docs/recovery_plans/1994/940628.pdf.

[280] Ex. 300, p. 6.2-55.

> BLM proposes compensatory mitigation at a 1:1 ratio, consistent with their guidance from NEMO. BLM has indicated that the current per acre mitigation fee established by the BLM California State Director should be updated to reflect current land value and recent purchase prices (BLM 2009). BLM will work with CDFG and the applicant to establish an updated value (BLM 2009). Until a land value is re-evaluated, BLM would likely continue to use $500/acre for acquisition of lands in the Eastern Mojave Recovery Unit, and this per acre fee is consistent with prices for land sales in the Eastern Mojave (CDFG 2009a). Other per acre costs would include an additional 15 percent acquisition cost, a 17.1 percent indirect cost rate (2009 rate), as well as funding for appraisals, environmental site assessments, property cleanup, and an inflation contingency. The BLM's first priority for land acquisition would be private lands outside of the Mojave Preserve that are within the Desert Wildlife Management Area (DWMA) portion of the Eastern Mojave Recovery Unit. Remaining funds would be spent acquiring private lands within the Mojave National Preserve and on additional management and enhancement projects that would benefit the Desert Tortoise. BLM staff will develop the specifics of Desert Tortoise acquisition and enhancement actions in collaboration with Energy Commission staff, CDFG and USFWS in accordance with guidance in the Desert Tortoise Recovery Plans (USFWS 1994, 2008a).[281]

This is a sufficiently accurate description of the BLM's "in lieu" fee program of Desert Tortoise. Nothing more is required.

While the CEC generally has no authority to enforce Federal laws, the CEC has as a matter of practice incorporated into its Conditions of Certification a requirement that the Applicant comply with the requirements in the Biological Opinion to be issued by the USFWS pursuant to Section 7 of the ESA. These steps ensure that the Project will fully satisfy the avoidance and minimization measures for Desert Tortoise under the ESA.

iii The Mitigation Measures To Be Funded by the BLM's In Lieu Fee Program Have been Identified with Specificity.

As discussed immediately above, the BLM will use the In Lieu fees paid by the Applicant to, among other things, "undertake[] all feasible management actions recommended by the Desert Tortoise Recovery Plan (USFWS 1994) on their lands."[282] BLM will implement the required mitigation at a 1:1 ratio, consistent with guidance from the Final EIS for the NEMO. BLM staff will develop the specifics of Desert Tortoise acquisition and enhancement actions in collaboration with Energy Commission staff, CDFG and USFWS in accordance with guidance in

[281] Ex. 300, pp. 6.2-54 to 6.2-55.

[282] Ex. 300, pp. 6.2-54 to 6.2-55.

the Desert Tortoise Recovery Plans (USFWS 1994, 2008a).[283] The BLM has a concrete specific plan for the recovery of the Desert Tortoise. The entire focus of the BLM's In Lieu fee program is to implement the Recovery Actions already identified with great specificity by BLM in the 1994 Desert Tortoise Recovery Plan, the 2008 Draft Recovery Plan, and the CDFG's list of recommended mitigation measures. That specificity is explained below in examining the 1994 Desert Tortoise Recovery Plan, the 2008 Draft Desert Tortoise Recovery Plan, and BLM's recommendations for Desert Tortoise mitigation.

BLM will use the Applicant's In Lieu mitigation fees in furtherance of the Recovery Actions specified in the 1994 Desert Tortoise (Mojave population) Recovery Plan.[284] A list of "recommended management actions" is set forth on pages 58, 59, and 61 of the 1994 Plan, including the following:

- Control vehicular access in DWMAs;
- Enforce regulations;
- Restore disturbed areas;
- Sign and fence DWMAs as needed;
- Implement appropriate administration;
- Modify ongoing and planned activities;
- Control use of landfills and sewage ponds by Desert Tortoise predators;
- Establish environmental education programs and facilities.

It is important to recall that the Ivanpah Solar Project is not in the Ivanpah DWMA. Regardless, the proposed mitigation measures summarized in the FSA/DEIS are consistent with and further each of these management actions.[285]

[283] Ex. 300, pp. 6.2-54 to 6.2-55.

[284] U.S. Fish and Wildlife Service. 1994. Desert Tortoise (Mojave population) Recovery Plan. Portland, Oregon.

[285] Again, the Ivanpah Solar Project is outside the Ivanpah DWMA. Nevertheless, the mitigation and management measures set forth in the FSA/DEIS are consistent with these DWMA practices. For example, on page 60 of the 1994 Plan, Table 7 Actions recommends specific management actions for DWMAs: Modify planned and ongoing actions; Withdraw grazing; Withdraw mining; Develop DWMA management plans; Develop education program; Secure habitat; Modify/control landfills; Sign and fence boundaries; Halt unauthorized ORV use; Halt vandalism of Desert Tortoises; Halt colleting of tortoises; Halt releases of captive Desert Tortoise; Control vehicle access. See Appendices, Page F14, **Specific Management Actions** for the Ivanpah DWMA and other DWMAs.

The 2008 Desert Tortoise Recovery Plan is in draft form.[286] Nevertheless, the mitigation and management plans set forth in the FSA/DEIS for the Ivanpah Solar Project are consistent with the 2008 draft Plan. For example, Appendix C-6 of the 2008 Plan, "Post-action Risk Reduction Model," encourages measures like those to be employed at the Ivanpah Solar Project: Close Roads; Control Ravens; Designate Roads; Environmental Education; Fence Roads; Install Railroad Barriers; Install Urban/Other Barriers; Law Enforcement; Manage Burros/Horses; Manage Grazing; Manage Landfills; Remove Toxicants/Unexploded Ordnance; Restore Habitat; Restrict Competitive/Organized Events; Secure Habitat; Sign/Fence Boundaries; and Withdraw Mining. [287]

CDFG also made numerous recommendations on how to use the In Lieu fees paid to BLM. Those recommendations include the following:

- Acquire private parcels containing Desert Tortoise habitat in the Ivanpah Valley or Shadow Valley portions of the BLM DWMA;
- Acquire private in-holdings in critical habitat portions of the Mojave National Preserve;
- Acquire private parcels containing Desert Tortoise habitat in the Piute Valley portion of the BLM's DWMA;
- Acquire private parcels containing Desert Tortoise habitat in other priority areas of the Mojave Desert (Ivanpah, Shadow and/or Piute Valley areas and West Mojave Desert area);
- Desert Tortoise Fencing: I-15 from Nipton Road to Ivanpah Dry Lake;
- Desert Tortoise Fencing: U.S. Highway 95 through Piute Valley from the CA/NV line to Goffs Road;
- Desert Tortoise Fencing: Nipton Road between CA/NV border and I-15;
- Desert Tortoise Fencing: Fence boundary for the community of Nipton;
- Desert Tortoise Fencing: Fence boundary for the community of Goffs;

[286] U.S. Fish and Wildlife Service. 2008. Draft revised recovery plan for the Mojave population of the Desert Tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service, California and Nevada Region, Sacramento, California.

[287] *Id*.

- Habitat Restoration: Provide funding for restoration, including vertical mulching, of closed routes in Shadow Valley, Piute Valley, and Ivanpah Valley; or other important habitat areas for Desert Tortoise;
- Habitat Restoration: Exotic plant removal (e.g. tamarisk from washes/springs);
- Habitat Restoration: Identify and clean up destroyed or damaged habitat areas, which may include illegal dumpsites, illegal routes, etc., in Shadow Valley, Piute Valley, and Ivanpah Valley. Critical habitat portions of the Mojave National Preserve, or other important habitat areas for Desert Tortoise;
- Retire Grazing Allotments/Removal of Burros; and
- Removal of Burros from the Clark Mountain and Dead Mountain Herd Management Areas to be included in this analysis.

The 1994 Desert Tortoise Recovery Plan, the 2008 Draft Desert Tortoise Recovery Plan and the CDFG's list of proposed mitigation measures provide specificity with regard to mitigation. Clearly, there is no lack of specificity regarding measures that the BLM can select from to utilize the Applicant's In Lieu fee payment in the most cost effective manner, and more importantly, to the greatest benefit of the species.

iv The Ivanpah Solar Project -- Located Entirely on Federal Lands -- Will Be Required to Post a Bond For Site Restoration.

There is no dispute that the Ivanpah Solar Project is located entirely on federal lands managed by the United States Bureau of Land Management. There has never been any state obligation or authority to manage these lands.

A right-of-way grant is an authorization to use a specific piece of public land for a specific use or a specific project, such as electric generation, for a specific period of time. According to federal regulations, a right-of way includes the "Federal lands BLM authorizes a holder to use or occupy under a grant."[288] A right-of-way grant authorizes rights and privileges for a specific use of the land for a specific period of time, generally a term appropriate for the life of the project. (*See* BLM "Obtaining a Right-of-Way on Public Lands" Pamphlet, revised Feb. 5, 2008.)[289]

[288] 43 C.F.R. § 2881.5.

[289] The BLM Pamphlet is available at http://www.blm.gov/pgdata/etc/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/c

The BLM established policies for the processing of right-of-way applications for solar energy development projects through its Instruction Memorandum.[290] According to the BLM's Instruction Memorandum, applications for a solar energy project will be processed under Title V of the Federal Land Policy and Management Act ("FLPMA"), which details the requirements for a federal right-of-way grant,[291] and Title 43, Part 2804 of the Code of Federal Regulations ("CFR"), which details the process to apply for a FLPMA grant.

The FLPMA provides that certain requirements must be satisfied before a right-of-way is approved. Applicants must submit a plan of construction, operation, and rehabilitation for the right of way, and all other information reasonably related to the use, or intended use, of the right-of-way.[292] The BLM's Instruction Memorandum states that a bond "will be required for solar energy development right-of-way grants." Therefore, under the FLPMA, a solar generation facility on public lands like the Ivanpah Solar Project will be required to post a bond as a condition to the grant of a BLM right-of-way.

Consistent with the bonding requirement, right-of-way approvals include site restoration requirements. Once a right-of-way grant terminates, the right-of-way area must be remediated. According to the Federal Regulations:

> (a) Subject to § 2886.11, after your grant or TUP terminates, *you must remove any facilities within the right-of-way* or TUP area within a reasonable time, as determined by BLM, unless BLM instructs you otherwise in writing, or termination is due to non-payment of rent (*see* § 2885.17(c) of this part).
> (b) *After removing the facilities, you must remediate and restore the right-of-way* or TUP area to a condition satisfactory to BLM, including the removal and clean-up of any hazardous materials.
> (c) If you do not remove all facilities within a reasonable period, as determined by BLM, BLM may declare them to be the property of the United States. *However, you are still liable for the costs of removing them and for remediating and restoring the right-of-way* or TUP area.[293]

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ost_recovery.Par.62768.File.dat/ObtainingaROWPamphlet.ss04-08-05.pdf.

[290] The BLM Instruction Memorandum is available at http://www.blm.gov/pgdata/etc/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/row-cr.Par.64799.File.dat/IM%202007-097,%20Solar%20Energy%20Development%20Policy.htm.

[291] 43 U.S.C. § 1764.

[292] 43 U.S.C. §§ 1761(b)(1) and 1764(d).

[293] 43 C.F.R. § 2886.19.

After expiration of the right-of-way grant, the Ivanpah Solar Project will be under a federal mandate to remediate the site. It will not remain a solar project site in perpetuity and the bonding assures restoration post-project. BLM requires a bond on these lands for restoration at the end of the project life. The bond will be posted as required by federal law.

Therefore, the Applicant will fully mitigate the temporary impacts of the Project on the Desert Tortoise two times. First, Applicant will mitigate impacts by payment of the BLM "in lieu" fees in full satisfaction of the ESA. Second, Applicant will mitigate impacts by fully remediating the site to its prior conditions immediately following the expiration of the right-of-way grant. The Applicant respectfully suggests that it would be manifestly unjust and unreasonable to require the Applicant to mitigate these impacts more than two times. As we explain in the next section of this Brief, the Commission should reject this invitation.

v The Committee Must Respect the Determination of Its Federal Partner, the BLM, In the Final EIS for the NEMO, Finding that Mitigation At 1:1 Fully Mitigates the Impacts of the Project on the Desert Tortoise.

In the Final EIS for the NEMO, the BLM has designated the Ivanpah Solar Project site as Category III, the lowest habitat value. BLM classifies Desert Tortoise habitat based on management goals as Category I (most valuable habitat), Category II (moderately valuable habitat) and Category III (least valuable habitat).[294] It is true that the Ivanpah Valley contains some areas of high-value Desert Tortoise habitat. However, it is important to distinguish between (1) this general statement about the entire Ivanpah Valley and (2) the specific statements in the NEMO regarding the Ivanpah Solar Project site.

The site was selected by the Applicant because it was categorized by BLM as having the lowest value habitat for Desert Tortoise, Category III. If BLM had placed the site in a higher value category of Desert Tortoise habitat, the company would not have picked this site. Unlike other projects, BrightSource is committed to not building in Desert Wildlife Management Areas (DMWAs) or Areas of Critical Environmental Concern (ACECs). If there had been a multitude of threatened or endangered species on-site instead of just one, the company would likely have looked elsewhere.

[294] Ex. 65, p. 42.

For areas like the Ivanpah Solar Project site that are located outside of Areas of Critical Environmental Concern and outside "critical habitat" for endangered species, the BLM's Final EIS for the NEMO calls for a 1:1 mitigation ratio, indicating the lowest quality habitat:

> ***Compensation shall be required by BLM for disturbances of Desert Tortoise habitat at the rate of 1 acre for each acre disturbed [a 1:1 ratio]***; this is the same as the current requirement in BLM's Desert Tortoise Statewide Management Policy. Funds collected from project proponents shall be directed to habitat enhancement, rehabilitation or acquisition in the Eastern Mojave Recovery Unit. Proponents may also implement enhancement or rehabilitation projects or donate lands directly, at BLM discretion.

As a matter of law, the proper mitigation ratio for this specific Project site has been determined in the final EIS for the NEMO to be 1:1. There is no basis in law for the Commission to ignore this legally binding determination. In fact, to require anything different is contrary to the Final EIS for the NEMO.

A principle that has long guided Commission in siting cases is that it will "respect its federal partner in the siting process." The Commission must respect the determination of its federal partner, the BLM, in the Final EIS for the NEMO and find that mitigation as required by BLM at a 1:1 ratio is all that is required as a matter of law to fully mitigate the project impacts on the Desert Tortoise.

vi Applicant's Compromise Settlement Offer of Mitigation at a 3:1 Ratio Was Rejected by the Staff, CDFG and the Intervenors and Was Therefore Withdrawn.

The determination that these federal lands should be mitigated at a 1:1 was affirmed in the unsuccessful judicial challenges to the NEMO Final EIS and ROD. Having successfully withstood legal challenge, the BLM's actions with regards to the NEMO Final EIS and ROD are legally binding precedent, subject to, among other precedential value, the principles of *res judicata* and collateral estoppel. Accordingly, as a matter of law, the Final EIS for the NEMO, which specifically imposed a 1:1 mitigation ratio for this very Project site, is binding, and the Commission does not have, as some have suggested, the discretion to ignore that legal effect.

In addition to the legally binding effect of unsuccessful challenges to the NEMO FEIS and ROD, the Commission has asserted time and again the need to respect its federal partners, the BLM, and must defer both to the law and that valued relationship.

Applicant has maintained from the inception of this proceeding that the 1:1 mitigation ratio mandated by the BLM is legally binding and fully satisfies both federal and state law. However, in the hopes of securing a compromise to settle these issues in this proceeding, on August 17, 2009, the Applicant offered a compromise. Specifically, in August 2009, the "Applicant's Comprehensive Settlement Proposal" was put before the parties:

> As stated during the [July 31, 2009 Staff Issues Resolution] workshop, regarding Ivanpah Solar Project's overall Biological Resources plan, it is important to distinguish between: (1) what the law requires [the BLM's In Lieu Mitigation at 1:1 ratio] and (2) what additional measures the Applicant may be willing to agree to contribute towards California's environmental interests and in order to resolve the issues related to biological mitigation. The following discussion reflects the settlement framework we first presented to CDFG and the Resources Agency in December of 2008. [Exhibit 63, p. 1.]

Applicant's Comprehensive Settlement Proposal was intended to reach settlement with the Parties, the CEC Staff, and CDFG and included, among other things, an offer to mitigate at a total of 3:1, not the 1:1 required by the NEMO. The Applicant's Comprehensive Settlement Proposal was presented to all parties first orally at the July 31, 2009 Staff Issues Resolution Workshop and then in writing on August 17, 2009 as set forth in Exhibit 63. There was no ambiguity about the offer.

Unfortunately, the Parties, the CEC Staff, and CDFG rejected this offer to compromise. To ensure that the Commission has a clear record, in the absence of acceptance of the offer by these Parties, the Applicant's Settlement offer of 3:1 mitigation and all other aspects of the Applicant's Comprehensive Settlement Proposal have been withdrawn and remain withdrawn.

Instead, the Commission should follow what the law requires and implement the 1:1 mitigation ratio set forth in the judicially-confirmed Final EIS for the NEMO.

vii The BLM has a Long History of Protecting Desert Tortoise in the Ivanpah Valley that the CEC Should Embrace.

In 1990, USFWS developed the *Desert Tortoise (Mojave Population) Recovery Plan*. As part of this plan, six population units, called "recovery units," were identified using published and unpublished data on genetic variability, morphology, and behavior patterns of populations as well as ecosystem types.[295] The location of the proposed Ivanpah Solar Project is not within

[295] Ex. 65, p. 41.

protected habitat for the Desert Tortoise nor does it contain a dense population of Desert Tortoises within its 6.3-square-mile boundary. Although the BLM and USFWS have considered portions of the Northern Ivanpah Valley Unit located within the DWMA to be good tortoise habitat, they have not found the Ivanpah Solar Project site suitable for inclusion in the Ivanpah DWMA or designation as a Desert Wildlife Management Area (DWMA), Area of Critical Environmental Concern (ACEC), or critical habitat. As noted above, this is primarily due to isolation by I-15 and the surrounding highlands, the small size of the area, existing development (e.g., the Primm Valley Golf Club), and development pressure.

viii The Ivanpah Site Is in the Lowest Management Category, Category III.

In considering the Ivanpah site, it is critical to focus on (1) the site specific determinations made by BLM in the NEMO Final EIS and (2) all other areas in the Ivanpah Valley. In the Final EIS for the NEMO, the BLM has designated the Ivanpah Solar Project site as having the lowest value in terms of management categories, Category III.

One primary tool for protection of the species is the designation of critical habitat. On February 8, 1994, the USFWS designated ***6.4 million acres*** as critical habitat within 12 critical habitat units[296] for the Desert Tortoise in portions of California, Nevada, Arizona, and Utah. Critical habitat is designated to identify the key biological and physical needs of this species and *key areas* for recovery.[297] Conservation actions are focused within these areas. The Ivanpah Solar Project is not located within those 6.4 million acres and is by no means in an area critical to the survival of this species. [298]

ix The FSA/DEIS Properly Analyzed the Project as Part of the Northeastern Mojave Recovery Unit.

The FSA/DEIS properly analyzed the Project as part of the Northeastern Mojave Recovery Unit.[299] In terms of planning for the recovery of the species, the USFWS subdivided the range of the Mojave population of the Desert Tortoise into six evolutionarily significant units

[296] Federal Register, Vol. 59, No. 26, Feb. 8, 1994: 5820-5866; HTTP://ECOS.FWS.GOV/DOCS/FEDERAL_REGISTER/FR2519.PDF.

[297] Ex. 65, p. 41.

[298] In fact, BLM considers Category III desert tortoise habitat as areas that are "least important" to the "survival and recovery" of the species. 59 Fed. Reg. 5820, 5828 (Feb. 8, 1994).

[299] Ex. 85, pp. B-1 to B-2.

or ESUs.[300] These ESUs consist of populations or groups of populations that show significant differentiation in genetics, morphology, ecology, or behavior. The ESUs were then identified as Recovery Units for purposes of designing a reserve system. The reserves are known as Desert Wildlife Management Areas ("DWMAs"). The Project area is within the Northeastern Mojave Recovery Unit ("RU") but not within a DWMA.[301]

The broadly delineated RU encompasses southern Nevada (all but the southernmost tip), southwest Utah, and the Arizona strip (Arizona north of the Colorado River). The Ivanpah Project, on the western edge of this RU, encompasses a very small portion of this Recovery Unit as a whole. Per the GIS, the Northeastern Mojave Recovery Unit is about 9 million acres in size. The DWMAs within that RU comprise about 1,215,000 acres (4,917 km^2).[302] Not only is the Ivanpah Solar Project not in a DWMA, it only comprises about 3/10 of one percent (0.003) of the total area within the DWMAs. Obviously, it is not a significant portion of this "evolutionarily significant unit." The fact that the range of this ESU (Recovery Unit) extends into a relatively small portion of California (a political boundary) is of no biological significance. Based on the designations of the RUs, tortoises at the Ivanpah Solar Project site are similar in terms of genetics, morphology and ecology to expansive areas in Nevada, Utah, and Arizona. Sufficient critical habitat and designated DWMAs in southern Nevada, southwestern Utah, and the Arizona strip provide for the recovery of this ESU (i.e., Northeastern Mojave recovery unit).

Within the Ivanpah Valley, the BLM has designated the Ivanpah DWMA as part of the overall recovery efforts for the species. The Ivanpah DWMA comprises approximately 58 square miles. The Ivanpah DWMA is located well south of the Project site and is separated from the Project site by Interstate-15. Tortoise densities in the Ivanpah Valley DWMA range up to 250 adult tortoises per square mile at the time of the Recovery Plan. At the Project site (6.25 square miles) the 25 Desert Tortoises estimated to occupy the site represents approximately 4 tortoises per square mile. This is a valid comparison with the Ivanpah DWMA densities given the similarity of estimates based on surveys or extrapolated from permanent study plots in the case

[300] Ex. 85., Figure BIO-1.

[301] *Id*., Figure BIO-2.

[302] 1 USFWS. 2009. "Range-Wide Monitoring of the Mojave Population of the Desert Tortoise: 2007 Annual Report," October. Table 8, Available at: http://www.deserttortoise.gov/documents/RPT_2007_Rangewide_DT_Population_Monitoring_AllisonL_102709.pdf.

of the DWMA estimates. The FSA/DEIS properly analyzed the Project as part of the Northeastern Mojave Recovery Unit, and properly considered the six ESUs.

d. The California Endangered Species Act (CESA).

i The FSA/DEIS Improperly Seeks to Treat Non-Threatened and Non-Endangered Animals and Plants As If They Are Listed Under the Federal ESA and CESA.

The FSA/DEIS variously refers to certain plant and animal species as "rare," Federal Species of Concern (FSC), California Species of Special Concern (CSC), or, generically, as "special status" plant and animal species. These terms are imprecise and misleading. These are ***not*** species protected ("listed") by either the Federal of California Endangered Species Act.

The effect of referring to these non-listed species as "special status" or otherwise improperly intermingles non-listed species mitigation with listed species mitigation. For example, consider BIO-11, Impact Avoidance and Minimization Measures, which seems to be aimed at elevating the status of non-threatened, non-endangered species. In simplest terms, while there are arguments for additional mitigation under NEPA and CEQA for non-listed species, the Committee must be wary of attempts to "bundle" (1) non-threatened, non-endangered, non-listed species mitigation under NEPA or CEQA with (2) federal and state Endangered Species Act mitigation requirements.

It is vitally important that the Committee recognize this fact: the only plant or animal listed under the Federal Endangered Species Act and the only plant or animal listed under the California Endangered Species Act is the Desert Tortoise. Mitigation requirements must be shaped with this important fact at the fore of the Committee's reasoning.

ii There are No Substantive Differences Between the Federal ESA and CESA Regarding Incidental Take.

While there are some differences in terminology, there are few substantive differences between the federal ESA and California's Endangered Species Act ("CESA"). The California Legislature passed the CESA in 1984, declaring: "it is the policy of the state to conserve, protect, restore, and enhance any endangered species or any threatened species and its habitat."[303] The

[303] Cal. Fish & Game Code § 2052.

CESA was modeled on the federal ESA.[304] The CESA contains similar definitions of endangered species, threatened species, and take.

Under the CESA, a native species is considered endangered when it "is in serious danger of becoming extinct throughout all, or a significant portion, of its range, due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease,"[305] and threatened when it "is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by the CESA."[306] "Take" is defined in the CESA as to "hunt, pursue, catch, capture, or kill, or attempt" to do any of these activities.[307] Similar to the ESA, the CESA allows an agency to authorize an incidental taking provided impacts are mitigated.[308]

Both the Federal ESA and the CESA prohibit the take of listed threatened and endangered species except if authorized pursuant to an incidental taking permit.[309] CESA and the ESA allow the agencies to authorize takings "incidental" to an otherwise lawful activity, both require the impacts of the taking to be minimized and mitigated, and both require adequate funding. The requirements of the two statutes are mostly identical. The following chart summarizes the parallel provisions.

CESA	ESA
"take is incidental to an otherwise lawful activity" for an ITP – Cal. F&G Code § 2081(b)(1)	Requiring the take to be "incidental" for an ITP – 16 U.S.C. § 1539(a)(2)(B)(i)
"the impacts are minimized and fully mitigated" – Cal. F&G Code § 2081(b)(2)	"to the maximum extent practicable, minimize and mitigate the impacts" – 16 U.S.C. § 1539(a)(2)(B)(ii)
"applicant ensures adequate funding to implement and monitor compliance" – Cal. F&G Code § 2081(b)(4)	"applicant will ensure that adequate funding for the plan will be provided" – 16 U.S.C. § 1539(a)(2)(B)(iii)

[304] *San Bernardino Valley Audubon Society v. City of Moreno Valley* (1996) 44 Cal. App.4th 593, 603.

[305] Cal. Fish & Game Code § 2062.

[306] *Id.* at § 2067.

[307] *Id.* at § 86.

[308] *Id.* at § 2081(b).

[309] 16 U.S.C. § 1539(a)(2); Cal. Fish & Game Code § 2081(b).

CESA	ESA
"measures or alternatives required shall be roughly proportional in extent to any impact" – Cal. F&G Code §§ 2081(b)(2), 2052.1	RPMs imposed in an ITS must "actually minimize the amount or extent of the anticipated take" – 50 CFR § 402.14(i)(2)
"measures or alternatives required shall maintain a person's objectives to the greatest extent possible consistent with this section" – Cal. F&G Code §§ 2081(b)(2), 2052.1	RPAs suggested in a B.O. must be "implemented in a manner consistent with the purpose of the action" – 50 CFR § 402.02 RPMs imposed in an ITS "cannot alter the basic design, location, scope, duration or timing of the action" – 50 CFR § 402.14(i)(2)
"required measures or alternatives shall be capable of successful implementation" – Cal. F&G Code §§ 2081(b)(2), 2052.1 In determining this, the director shall consider "whether measures are legally, technologically, economically, and biologically practicable." – 14 CCR § 783.4	RPAs suggested in a B.O. "must be economically and technologically feasible" – 50 CFR § 402.02
No permit may be issued if it would "jeopardize the continued existence of the species" – Cal. F&G Code § 2081(c) State agencies should not approve projects "which would jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat essential… if there are [RPAs]" – Cal. F&G Code § 2053 RPAs shall be developed "consistent with conserving the species, while at the same time maintaining the project purpose to the greatest extent possible" – Cal. F&G Code § 2053	All Federal agencies must consult under Section 7 to insure that any agency action is "not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of [critical] habitat" – 16 U.S.C. § 1539(a)(2) RPAs suggested in a B.O. "must be implemented in a manner consistent with the purpose of the action… and avoid jeopardy or adverse modification of critical habitat" – 50 CFR § 402.02

As set forth above, the CESA and the federal ESA have essentially identical standards for incidental take and mitigation measures, despite some minor differences in terminology.

iii Both the Federal ESA and CESA Require Incidental Take Permits.

Because the two Acts contain such similar definitions of threatened and endangered species, species are often jointly listed under both Acts. The Desert Tortoise is one such jointly listed threatened species.

To avoid unnecessary duplication and conflict between the two acts, the CESA provides a process to allow a project to rely on an incidental taking authorization under the ESA without further authorization or approval.[310]

The Commission has two basic options to authorize the incidental taking of a jointly listed species. First, if the Commission finds that the federal authorization is "consistent" with the state requirements for an incidental taking, it makes a "Consistency Determination." Second, and in the alternative, if CDFG finds that the federal authorization is inconsistent with the state requirements for an incidental taking, then the CDFG will make a finding of "inconsistency" and the applicant must obtain a separate state authorization from the CDFG for the incidental take, an "Incidental Take Permit" or "ITP."[311]

As discussed below, the Commission should follow the first course and make a "Consistency Determination."

iv The Argument that CESA Requires Additional Mitigation Above that Required to Satisfy the Federal ESA is Incorrect.

Staff's request for mitigation above that required by the BLM to fully mitigate for the impacts of the Project on the Desert Tortoise is premised solely on the argument that CESA requires something more. This undefined "something more" is pure fiction.

The fundamental problem with the Intervenor's arguments is that they read only a portion of the CESA statute. Specifically, the Intervenors stop reading the statue after the words "fully mitigate." In order to appropriately carry out the legal responsibilities set forth in CESA, the Commission must implement the entire subsection.

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[310] Cal. Fish & Game Code § 2080.1.

[311] *Id.* at § 2081(b).

Section 2081(b) allows the CDFG to authorize, by permit, the taking of listed species if all of the following conditions are met:

> (1) The take is incidental to an otherwise lawful activity;
>
> (2) The impacts of the authorized take shall be minimized and ***fully mitigated***. The measures required to meet this obligation shall be ***roughly proportional*** in extent to the impact of the authorized taking on the species. Where various measures are available to meet this obligation, the measures required ***shall maintain the applicant's objectives to the greatest extent possible***. All required measures shall be capable of successful implementation. For purposes of this section only, impacts of taking include all impacts on the species that result from any act that would cause the proposed taking;
>
> (3) The permit is consistent with any [recovery implementation plans]; and
>
> (4) The applicant shall ensure adequate funding to implement the measures required by paragraph (2), and for monitoring compliance with, and effectiveness of, those measures.[312]

The regulations adopted to implement Section 2081[313] largely reiterate its requirements. Although Section 783.4 of the regulations promises "Incidental Take Permit Review Standards," it simply restates Section 2081, subsections (b) and (c), and provides that an ITP may only be issued if the director finds all the conditions in those sub-sections are met.[314]

The Intervenor's legal arguments fail because they simply stop reading at the words "fully mitigate." As discussed below, reading the subsection in its entirety leads to a clearer understanding of the term "fully mitigate."

a) CESA Mitigation Must Be "Roughly Proportional" to Impacts.

Section 2081(b)(2) clearly explains what is meant by the term "fully mitigate." First, full mitigation measures must be "roughly proportional" to impacts. The court in *Environmental Protection and Information Center v. California Dept. of Forestry and Fire Protection*, 44 Cal. 4th at 510, read the roughly proportional language to define the scope of the "fully mitigate" requirement. The court explained that "reading the 'roughly proportional' language together

[312] Cal. Fish & Game Code § 2081(b).

[313] 14 C.C.R. §§ 783.0-783.8.

[314] *Id.* at § 783.4.

with the 'fully mitigate' language leads to the conclusion the Legislature intended that a landowner bear no more – but also no less – then the costs incurred from the impact of its activity on listed species."[315]

The court in *Environmental Council of Sacramento v. City of Sacramento*, 142 Cal. App. 4th at 1039, used the roughly proportional language *to limit* the amount of mitigation required to the extent of the impact, upholding a mitigation ratio requiring purchase of a half-acre for every acre developed. The court found that the mitigation ratio was more generous and conservative than plaintiffs claimed because the area to be developed had relatively low to moderate habitat value.[316]

The Staff and Intervenor's arguments that CESA "full mitigation" requires ratios of 3:1 or more, do not properly consider the requirement of rough proportionality. Under the BLM's In Lieu fee program, full mitigation for this federally listed species on federal lands that will be fully restored at the end of the grant, is approximately $3 to $3.5 million. The CEC Staff argues that CESA requires an additional $25 million to mitigate for the same impacts that will be fully mitigated under the ESA. Clearly, CESA mitigation seven to eight times greater than the federal mitigation for the same impacts on the same species by the same project on federally managed lands is the antithesis of "rough proportionality."

b) CESA Mitigation Must Maintain Applicant's Objectives.

Section 2081(b)(2) further provides that mitigation measures required *"shall maintain the applicant's objectives to the greatest extent possible."* The court in *Environmental Protection and Information Center v. California Dept. of Forestry and Fire Protection*, 44 Cal. 4th at 511, explained this language "does not diminish the extent of a landowner's obligation under CESA… but merely provides that when that obligation can be met in several ways, the way most consistent with a landowner's objectives should be chosen. It does not relieve the landowner of the obligation to fully mitigate its own impacts."

As discussed below, there are several means available – beyond mere acquisition of lands – to fully mitigate for the potential impacts of the project. Contrary to this principle, Staff assigned zero value to the Applicant's proposed mitigation measures. Staff and Intervenors also

[315] *Id.*

[316] *Id.* at 1040.

assign zero value to the BLM's judicially-tested In Lieu fee program for this project located entirely on federal lands. Instead, the Staff and Intervenors request that the Project be required to acquire 8000 acres. In addition to failing to be close to "roughly proportional," as we explain below, this is a mitigation measures that does not satisfy the Applicant's basic project objectives.

c) CESA Mitigation Must Be Capable of Successful Implementation.

Sections 2081(b)(2) requires that mitigation measures be capable of successful implementation. Regulations implementing Section 2081 state that "the Director shall consider whether the measures are legally, technologically, economically and biologically practicable."[317]

There is no indication whatsoever that the CEC Staff has considered whether mitigation measures other than money are legally, technologically, economically and biologically practicable. In particular, the Staff and CDFG have not been able to provide any evidence that it is legally, technologically, economically and biologically practicable to obtain 8,000 acres of mitigation lands. Clearly such lands do not exist in the Ivanpah Valley, and some Intervenors insist that mitigation must occur in the Ivanpah Valley.[318]

Applicant's evidence shows that $25 million in mitigation for twenty-five Desert Tortoise as "California-only" mitigation will make it difficult for the Ivanpah Solar Project to compete in a market that features out-of-state projects that will not bear the economic burden of this California-only mitigation.

d) The Project Will Ensure That Mitigation of the Desert Tortoise is Adequately Funded.

Section 2081(b) of the California Fish and Game Code requires that an applicant ensure that mitigation measures will be adequately funded. The court in *Environmental Council of Sacramento v. City of Sacramento*, 142 Cal. App. 4th at 1044, upheld the Department's finding of adequate funding, explaining "[n]othing more is necessary" where "[t]he Department relied on economic analyses that indicated that these funding mechanisms, farming revenues, hunting

[317] 14 CCR § 783.4.

[318] For example, *see* Letter from Carrie Hyke, AICP, Principal Planner to John Kessler, California Energy Commission, Project Manager, Regarding San Bernardino County Comments on the Ivanpah Solar Electric Generation System (07-AFC-05), Final Staff Assessment and Draft Environmental Impact Statement (Feb. 11, 2010), *available at* http://media.lasvegassun.com/media/pdfs/blogs/documents/2010/02/11/sanbern0210.pdf.

revenues, endowments, and contingency funds would adequately fund the implementation of the mitigation plan."

The Ivanpah Solar Project's mitigation measures for the desert tortoise are adequately funded. This is precisely what the BLM's judicially-tested In Lieu fee program provides – the certainty of adequate funding to implement Desert Tortoise Recovery measures. CEC Staff and CDFG express concerns about the adequacy of funding but in doing so they fail to recognize the substantial bonding requirements placed on this Project on federal lands. As discussed above, in addition to payment of the in-lieu fees, the Applicant must provide bonding for site restoration at the end of the Project life.

v The Words "In Perpetuity" Do Not Appear in CESA Statute or Regulation.

The CEC Staff and CDFG requests funding "in perpetuity." [319] This "in perpetuity" request is just that – a request. The words do not appear in CESA, in general, or in Section 2081, in particular. Similarly, CESA's implementing regulations do not require funding "in perpetuity."[320]

The S request for funding and mitigation "in perpetuity" ignores the bonding and site restoration obligations of the Applicant. It also ignores the fundamental fact that these lands will remain federal lands and will not be "lost" in perpetuity.

vi If CESA Requires More Mitigation Than ESA, the Proper Ratio Is Not Eight Times More.

Even assuming, arguendo, that CESA somehow requires more mitigation than ESA for the same impacts by the same project on the same species, no rational reading of the federal ESA and CESA can lead to the conclusion that the "something more" under CESA is eight times the mitigation funding for a federally listed species on federally managed lands. Yet, this is precisely what Staff requests.

Specifically, while BLM's In Lieu fee requires approximately $3.5 million in mitigation fees, CEC Staff seeks an additional $25 million in "California-only" mitigation fees. $3.5

[319] Ex. 300, p. 6.2-96.

[320] See 14 C.C.R. § 783 *et seq.*

million for ESA mitigation to the BLM versus $25 million for "California-only" mitigation makes a mockery of the argument that CESA requires "something more."

vii The Commission Can and Should Make a Consistency Determination at the BLM's 1:1 Mitigation Ratio for the Desert Tortoise as a Jointly Listed Species.

The State of California has separate responsibilities under the CESA for jointly listed species like the Desert Tortoise. Once the federal agencies have made their determination, if the Commission finds that the federal authorization is "consistent" with the state requirements for an incidental taking, it makes a "Consistency Determination." Specifically, Section 2080.1(a) of the California Fish and Game code states:

> [I]f any person obtains… an incidental take statement pursuant to Section 1536 [known as Section 7 of the ESA] or an incidental take permit pursuant to Section 1539 [known as Section 10 of the ESA] that authorizes the taking of an endangered species or a threatened species that is listed [under the ESA] and that is an endangered species, threatened species, or candidate species pursuant to this chapter, no further authorization or approval is necessary under [the CESA].[321]

To obtain the benefit of this provision, the person must provide the director with notice and a copy of the Federal authorization. Within 30 days of that notice, the director must determine whether the ITP is consistent with the CESA.[322] If the Commission finds that the federal authorization is inconsistent with the CESA, the applicant must obtain a separate CESA take authorization pursuant to Section 2081(b).[323]

The Commission determines consistency by evaluating whether the federal authorization meets the standards in Fish and Game Code Sections 2081(b) and (c) for issuance of a State ITP. In other words, if the federal authorization meets the requirements of Sections 2081(b) and (c), the Commission must find it is consistent with the CESA and issue a Consistency Determination.

viii Out of an Abundance of Caution That Provides More Than Full Mitigation, the Applicant Will be Subject to the Additional Mitigation, Above and Beyond that Required by the Federal ESA and CESA.

[321] Cal. Fish & Game Code § 2080.1(a).

[322] Cal. Fish & Game Code § 2080.1(c).

[323] *Id.*

Even assuming, arguendo, that the Commission find that CESA requires more mitigation than ESA for the same impacts of the same project on the same species, the Commission should find that the Applicant will provide additional mitigation beyond payment of the BLM in lieu fee and full remediation of the site. These additional mitigation and avoidance measures, as discussed below, fully satisfy the Federal ESA and CESA for this jointly-listed species exclusively on federal lands managed by the BLM. This additional mitigation avoids and minimizes potential impacts to the Desert Tortoise. Significantly, the Commission must find that based on the uncontested satisfaction of the federal ESA and this additional mitigation, the potential impacts to Desert Tortoise have been "fully mitigated" under the ESA and CESA and all potential significant impacts have been mitigated to a level of less than significant.

a) Applicant Will Pay the BLM's In Lieu Mitigation Fees.

First, and foremost, the Applicant will pay the BLM's judicially-tested in lieu fee for Desert Tortoise mitigation. As discussed above, the nature and extent of mitigation required for Desert Tortoise is controlled by the BLM's existing "in lieu" fee program for mitigation for projects on federally-managed lands. The FSA describes the BLM's "In Lieu" fee program.[324] Nothing more is required.

b) Site Selection: Avoiding and Minimizing Impacts to Desert Tortoise and Other Biological Resources.

As discussed above, the BLM rated the Ivanpah Solar Project site as being in the lowest management category, Category III. While the Intervenors' seek to discount this Category III fact to zero, it is certain that if the Project had been sited in a Category I or Category II site, the Intervenors would have skewered the Applicant's site selection process. Fortunately, the Committee can look at this issue dispassionately and recognize the biological value of the Applicant's commitment to locate the Ivanpah Solar Project on a site in BLM's Category III.

The Applicant's project objectives are described in more detail in the AFC.[325] Some of the basic project objectives will avoid or minimize impacts include the following:

[324] Ex. 300, pp. 6.2-54 to 6.2-55.

[325] Ex 1, pp. 1-4 to 1-5.

- To minimize infrastructure needs and reduce environmental impacts by locating the plant near existing and planned infrastructure, including: CAISO transmission lines, a source of natural gas, and an adequate water supply.
- To avoid siting the plant in areas that are highly pristine or biologically sensitive (e.g., a Desert Wildlife Management Area).
- To locate the Project consistent with existing land use plans.
- To comply with the multiple use objectives of the Federal Land Policy and Management Act (FLPMA), which includes renewable energy development, and the objectives of the California Desert Conservation Area (CDCA) Resource Management Plan (RMP), which allows for solar energy development in some areas.

While these are just some of the site selection criteria employed by the Applicant, each one is supportive of avoiding and minimizing potential impacts on Desert Tortoise and other biological resources.

Similarly, the Applicant's Project site selection approach focused on identifying potential project sites that satisfy most of its basic project objectives, are consistent with existing LORS, and have a low potential for environmental impacts.[326] Among the site selection criteria relevant to avoiding and minimizing potential impacts on the Desert Tortoise and other biological resources are the following:

- Proximity to infrastructure: The site should be located in close proximity to high voltage transmission lines with adequate existing and planned capacity, to a gas transmission system with adequate capacity, and it must have an adequate water supply.
- Environmental sensitivity—The site should have few or no environmentally sensitive areas and should allow development with minimal environmental impacts.

Again, the Applicant's site selection purposefully avoided and minimized potential impacts to Desert Tortoise and other biological resources by locating the Project on a site close to existing infrastructure, avoiding undisturbed areas, and having just one federal or state listed species, the Desert Tortoise.

[326] Ex 1, pp. 1-5 to 1-6.

c) The Applicant has Over the Course of this Three-Year Process Continued to Reduce the Project's Footprint, Culminating in the Mitigated 3 Configuration.

As described in the AFC, the initial Plan of Development was for 7,040 acres. Over time, the Applicant reduced the requested Right of Way grant lands to approximately 4,062 acres. The reduced footprint associated with Mitigated Ivanpah 3 and the reduction of the acreage of the CLA are both substantial: 433 acres reduced at Ivanpah 3 and 109 acres removed from construction in the CLA for a total reduction of approximately 542 acres. The 542 acre reduction represents an approximately 12 percent reduction in acreage of the entire 4,062 acre Project footprint. With the Mitigated Ivanpah 3 arrangement, the 3,520 acre Mitigated Ivanpah 3 project would be half the size of the original 7,040 acre proposed property boundary.[327]

d) The Low Impact Development Design Both Avoids and Minimizes Impacts to Desert Tortoise and Other Biological Resources.

A Low Impact Development Design (LID) approach will be used for the Ivanpah Solar Project. The LID design will leave vegetation and natural features in place. Despite the construction costs and operational complexities involved with the LID design, the Project is not leveling the site and pouring concrete, like other sites in the West. Heliostats are placed individually on pylons. This single pole placement allows us to follow the "natural contours" of the site to the greatest extent possible. By following the natural contours of the land with individual-heliostat placement, the project more closely mimics existing storm water patterns. It also avoids plants or other natural features by careful heliostat placement.

This LID approach focuses on preserving undeveloped land and minimizing stormwater generation. In the *Review of Low Impact Development Policies: Removing Institutional Barriers to Adoption*, the Low Impact Development Center (LIDC) states:

> The underlying principle of LID is that undeveloped land does not present a stormwater runoff or pollution problem. The evolved natural hydrology of any given site manages water in the most efficient manner. This most often translates to high rates of infiltration, vegetative interception, and evapotranspiration.

[327] Ex. 88, p. 2-2.

Use of LID attempts to offset the inevitable consequences of development and changes in land cover by preserving or mimicking natural hydrology. It is a source control option that minimizes stormwater pollution by recognizing that the greatest efficiencies are gained by minimizing stormwater generation. This is a process that begins with functional conservation of watershed resources, reducing impacts of development, and then using innovative management practices to meet the stormwater objective; it is not the use of the management practices alone.[328]

Implementing LID measures such as minimizing ground disturbance and erosion potential through restricting site grading will ensure that stormwater passes through the site, protecting the existing habitat both on-site and off-site, to the benefit of the Desert Tortoise and existing plant species.

e) Desert Tortoise Relocation/Translocation Plan Avoids and Minimizes Potential Impacts.

A project-specific Desert Tortoise Relocation/Translocation Plan has been developed for the Ivanpah Solar Project. The Desert Tortoise Relocation/Translocation Plan, as approved by the agencies, will be implemented during construction of the Ivanpah Solar Project.

The USWFS provided the following definition of relocation and translocation for the Ivanpah Solar Project:

> In this document, we refer to both translocation and relocation activities and the specific instances when each is appropriate. For the purpose of this guidance, a translocation is required when a desert tortoise must be moved more than 1000 meters to clear it from the project site, while a relocation requires a movement of less than 1000 meters.[329]

This Relocation/Translocation Plan will be incorporated into the Ivanpah Solar Project Biological Resources Mitigation, Implementation and Monitoring Plan (BRMIMP) and enforceable as part of that approved BRMIMP. This Plan incorporates the Guidelines for Clearance and Relocation/Translocation of Desert Tortoises from the Ivanpah Solar Project prepared by the Service's Ventura Office as technical assistance for the Project on December 12, 2008 (Service 2008), provided in "Appendix A."[330] This Plan, in turn, conforms to the

[328] Ex. 65, p. 10.

[329] Ex. 41, Appendix A to Attachment BR5-1B.

[330] Ex. 41, Appendix A to Attachment BR5-1B.

Translocation Guidelines specified in Appendix B of the Desert Tortoise Recovery Plan (Service 1994).[331] The BRMIMP details how the Applicant would implement any protection measures or conditions of permits developed to ensure that actions authorized, funded, or carried out by state or federal lead agencies are not likely to jeopardize the continued existence of endangered or threatened species. The BRMIMP is enforceable via Condition BIO-7, " Biological Resources Mitigation Implementation & Monitoring Plan." The Relocation/Translocation Plan is enforceable via Conditions BIO-9, "Desert Tortoise Relocation/Translocation Plan" and BIO-10, "Desert Tortoise Compliance Verification."

f) Permanent Desert Tortoise Fencing Avoids and Minimizes Impacts.

Prior to relocation/translocation activities the site boundary of the unit being developed would be permanently fenced with an 8-foot-high chain link fence for security purposes and permanent Desert Tortoise exclusionary fencing would either be attached to the base and subsurface of the security fence or installed outside the security fence for construction of linear facilities. In areas where a security fence is not required, such as along Colosseum Road or the access road along the west side of the Project going from Colosseum Road to the power blocks in Ivanpah 2 and 3, only a tortoise exclusion fence would be installed. A permanent I-beam design Desert Tortoise guard would be installed to allow equipment access to the fenced sites and exclude Desert Tortoises.[332] The specifications for the proposed Desert Tortoise guard are included in Appendix C to the Desert Tortoise Relocation/Translocation Plan.[333]

The boundaries of all areas to be disturbed would be flagged before beginning any activities, and all disturbances would be confined to the flagged areas. All Project vehicles and equipment would be confined to the flagged areas. Survey crew vehicles would remain on existing roads. To reduce the potential for tortoise strikes by vehicles, a 35 mph speed limit will be enforced on paved roads and 20 mph speed limit on dirt roads. Disturbance beyond the construction zone would be prohibited except to complete a specific task within designated areas or emergency situations.[334]

[331] Ex. 41, Appendix B to Attachment BR5-1B.

[332] Ex. 41, Attachment BR5-1B, p. 5.

[333] Ex. 41, Appendix C to Attachment BR5-1B.

[334] Ex. 41, Attachment BR5-1B, pp. 4-6.

Once flagged, the next step prior to any site clearance work is fencing the perimeter of the area to be cleared. Within 24 hours prior to the initiation of construction of the Desert Tortoise-exclusion fence, a Desert Tortoise survey would be conducted using techniques providing 100-percent coverage of the construction area and an additional transect along both sides of the fence line transect to provide coverage of an area approximately 90 feet wide centered on the fence alignment. Transects would be no greater than 10 feet apart and will be conducted by trained, agency-approved biologists.[335]

Two passes of complete coverage would be conducted. All Desert Tortoise burrows, and burrows constructed by other species that might be used by Desert Tortoises, would be examined to determine occupancy. Any burrow within the fence line would be collapsed after confirmation that it is not occupied by a Desert Tortoise, or if occupied, the Desert Tortoise has been removed.[336]

Next, an approximate 10-foot-wide linear swath of vegetation along the entire outer edge of the area to be developed would be cleared to create an internal perimeter path for installation of either the tortoise fencing, or combined tortoise and security fence. All fencing will be constructed with durable materials (i.e., 11 gauge or heavier) suitable to resist desert environments, alkaline and acidic soils, wind, and erosion. Tortoise exclusionary fence material will consist of 1-inch horizontal by 2-inch vertical, galvanized welded wire, 36 inches high. This fence material will be buried a minimum of 12 inches below the ground surface, leaving 22 to 24 inches above ground. A trench will be dug to allow 12 inches of fence to be buried below the natural level of the ground.[337]

Where a combined security/tortoise fence is needed, 6-foot-high standard chain link fencing will be placed above the tortoise fence with about 1 inch overlap creating a combined security/tortoise fence about 8 feet tall. The top end of the tortoise fence will be secured to the security fence with hog rings at 12- to 18-inch intervals. Distance between posts will not exceed 10 feet. Concrete footings for metal posts will not be required. The fence is to be perpendicular to the ground surface, or slightly angled away from the road, towards the side encountered by tortoises. After the fence has been installed, excavated soil will be replaced and compacted to

[335] Ex. 41, Attachment BR5-1B, p. 5.

[336] *Id.*

[337] *Id.*, pp. 5-6.

minimize soil erosion. Fence installation will be monitored by a desert Tortoise Monitor (TM) and an Authorized Biologist (AB) would be available at all times to move any Desert Tortoises that are within the path of the fence line work.[338]

Areas requiring permanent fencing include: Colosseum Road from the golf club to the Construction Logistics Area (CLA) where the road will be widened and paved; the portion of the Construction Logistics Area that will be used for construction; the substation and the Administration/warehouse building; the individual heliostat fields; and gas tap station and gas metering sets. The location of all permanent tortoise exclusion fencing will be identified on construction drawings and preapproved by the permitting agencies prior to the start of construction activities. The installation of permanent tortoise fencing along roadways (e.g., Colosseum Road) would occur as described below for the installation of temporary construction fencing, except that permanent fencing would be installed.[339] The Desert Tortoise fencing requirements are enforceable via Condition BIO-8, "Desert Tortoise Clearance Surveys and Fencing."

g) Tortoise-Proof Fencing of I-15 to Stop Ongoing Loss of Tortoises.

Prior to relocation/translocation activities, the Applicant will fence the north side of I-15 with Desert Tortoise-proof fencing from Nipton Road to the Primm Valley Golf Club. The Applicant will work with Caltrans regarding the appropriate location for this fencing along the I-15.[340] The Applicant will also coordinate the location of the proposed Joint Port of Entry in locating this fencing. A record of conversations with Caltrans is provided as Appendix D.[341]

Similarly, in its project-specific "Guidelines For Clearance And Translocation Of Desert Tortoises From The Ivanpah Solar Electric Generating System (ISEGS) Project" the USFWS makes the following recommendations regarding fencing Interstate 15: "BrightSource should work with CalTrans regarding the appropriate location for this fencing along the I-15 if it is required. To effectively prevent movement of Desert Tortoises onto I-15 the fence should at least cover the distance between Nipton Road and the Ivanpah Lake. BrightSource should also

[338] *Id*., p. 6.

[339] *Id*.

[340] *Id*.

[341] Ex. 41, Appendix C to Attachment BR5-1B.

consider the location of the proposed Joint Port of Entry in this area when planning this fencing."[342]

The Permanent Desert Tortoise fencing described above will provide extraordinary protection, avoiding and minimizing impacts on Desert Tortoise. How effective is Desert Tortoise fencing? According to one authority cited by Intervenors, two miles of Desert Tortoise fencing would conservatively save the lives of more tortoises, over the life of the Project, than inhabit the entire 4,000 acre project site.[343]

h) Temporary Construction Fencing Avoids and Minimizes Impacts to Desert Tortoise.

Temporary fencing, such as chicken wire, snow fencing, chain link, and other suitable materials will be used in designated areas to reduce encounters with tortoises on short-term projects. The fencing material will be attached to metal posts with a minimum of 12-gauge steel wire. The grid opening of the wire will not exceed 1 inch by 2 inches and the fence height will be no less than 30 inches. Posts will be metal and not less than approximately 40 inches long. Concrete footings for metal posts will not be required. Because of the short duration of the work, the fencing need not be buried but any high or low points along the wire mesh fence line will be hand-excavated to maintain integrity with the ground.[344]

Areas that would require temporary construction fencing include: construction of the gas line from the Kern River Gas Transmission tap station to the power block at Ivanpah 1; construction of the tap station and gas metering set construction areas; construction of any trails or temporary access roads outside of the fenced heliostat fields; construction of any transmission lines, other utilities or access roads located outside of the permanently fenced areas that are specifically attributable to the Ivanpah Solar Project. The location of temporary construction fencing will be identified on construction drawings and approved by the permitting agencies prior to the start of construction activities.[345] The Desert Tortoise fencing requirements are enforceable via Condition BIO-8, "Desert Tortoise Clearance Surveys and Fencing."

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[342] Ex. 41, Appendix A to Attachment BR5-1B.

[343] Boarman and Sazaki (1996) reported a conservative estimate of one tortoise killed per 3.3 km (2 mi) of road surveyed per year. A common mitigation for the impacts of roads and highways is a barrier fence, which has been shown to be highly effective at reducing mortality in tortoises and other vertebrates in the west Mojave.

[344] Ex. 41, Attachment BR5-1B, p. 7.

[345] *Id.*

i) Active Supervision of Construction Work Avoids and Minimizes Impacts to Desert Tortoise.

The proposed Conditions ensure active supervision of Desert Tortoise related activities during construction and operation of the Project. This active supervision is legally enforceable via proposed Conditions:

- BIO-1 Designated Biologist Selection and Qualifications;
- BIO-2 Designated Biologist Duties;
- BIO-3 Biological Monitor Selection and Qualifications;
- BIO-4 Designated Biologist Duties;
- BIO-5 Designated Biologist and Biological Monitor Authority.

The Applicant is also committed to active supervision on the Project. For example, within 24 hours prior to the initiation of construction of the temporary Desert Tortoise exclusion fence, a Desert Tortoise survey would be conducted using techniques providing 100-percent coverage of the construction area and an additional transect along both sides of the fence line transect to provide coverage of an area approximately 90 feet wide centered on the fence alignment. Transects would be no greater than 10 feet apart. Two passes of complete coverage would be conducted. All Desert Tortoise burrows, and burrows constructed by other species that might be used by Desert Tortoises, would be examined to determine occupancy. Any burrow within the fence line would be collapsed after confirmation that it is not occupied by a Desert Tortoise, or if occupied, the Desert Tortoise has been removed by an AB.[346]

An AB or TM will be onsite during installation of the temporary Desert Tortoise fence. If installation of temporary fencing, surveying or clearing is occurring at more than one location, more than one AB may need to be onsite to provide appropriate supervision. After installation of this temporary fencing and prior to initiation of construction activities, an AB and/or TM will perform a pre-construction sweep for Desert Tortoises. An AB will relocate any Desert Tortoises found in the project impact area. Desert tortoises will be moved to suitable habitat outside the impact area and placed in a natural or artificial burrow or under a shrub, depending on time of day and year. An AB will also be available to relocate any Desert Tortoises that may wander into the impact area during construction.[347]

[346] *Id*.

[347] *Id*., pp 7-8.

To avoid any additional disturbance beyond what is proposed, the undisturbed areas outside the temporary Desert Tortoise exclusion fence will be designated Environmentally Sensitive Areas. All construction activities will be confined within the fenced project impact area. Equipment or personnel will not be allowed within the Environmentally Sensitive Areas.[348]

Prior to performing onsite work, all personnel involved in the construction project will participate in Worker Environmental Awareness Program (WEAP) training that includes Desert Tortoise protection training approved by the permitting agencies. The WEAP program is enforceable via Condition BIO-6, "Worker Environmental Awareness Program."

At a minimum, training will include discussion of the fragility of desert habitats, the importance of the Desert Tortoise to the environment, the protections afforded to the Desert Tortoise by the Endangered Species Act, locations of Environmentally Sensitive Areas, and the correct protocol to follow should a Desert Tortoise be encountered.[349]

At the end of each working day, the contractor will inspect the integrity of all temporary Desert Tortoise fencing to ensure that Desert Tortoises are prohibited from entry. If the fence is compromised, repairs must be completed at that time. Extra fencing material will be kept onsite during periods when construction requiring the use of temporary fencing is occurring. Prior to the start of work each day the AB or TM will re-check the site to ensure that it is clear of tortoises. Open trenches, auger holes, or other excavations that may act as pit-fall traps will be inspected by an AB before back filling. Any Desert Tortoise found will be safely removed and relocated out of harm's way by an AB. For open trenches, earthen escape ramps will be maintained at intervals of no greater than 0.25 mile. The open trenches will be inspected three times per day (four times per day during the summer) by a qualified biologist. Other excavations that remain open overnight will be covered to prevent them from becoming traps.[350]

Project personnel will carefully check under parked vehicles and equipment for Desert Tortoises before operation. An AB will move Desert Tortoises found within the parking, staging, construction or other traffic areas to a location away from danger and only as specified in the Biological Opinion. At water and trash sources, measures will be implemented by the AB to preclude access by common ravens (*Corvus corax*). Trash will be placed in sealed containers and

[348] *Id.*

[349] *Id.*

[350] *Id.*

emptied at the close of business each day. Each water source will be caged. Fencing and netting will prevent Desert Tortoises and common ravens from accessing water sources in construction areas.[351]

j) Clearance Surveys of Permanent Exclusion Areas Avoids and Minimizes Impacts to Desert Tortoise.

Within 72 hours after the area to be cleared is fully enclosed with combined security and/or tortoise fencing, a Desert Tortoise clearance survey would be performed per Service protocol (Service 1992)[352] and recent Guidelines.[353]

Two complete passes with complete coverage would be conducted as described above. If no Desert Tortoises are observed during the second survey, a third survey would not be conducted. Each separate survey would be walked in a perpendicular direction to allow opposing angles of observation. If a Desert Tortoise is located on the second survey, a third survey would be conducted. Once the area surveyed is deemed free of Desert Tortoises the areas may be open to a vegetation salvage program, if the BLM desires to do so.[354]

A TM would monitor initial clearing and grading activities to find and relocate any tortoises missed during the initial tortoise clearance survey. Should a tortoise be discovered, then the AB would be responsible for relocating it outside the fence or translocating it. The specific instructions for handling and processing of tortoises as outlined in the Guidelines for Handling Desert Tortoises During Construction Projects (Desert Tortoise Council, 1999) will be followed.[355]

The ABs will maintain a record of all Desert Tortoises encountered and relocated or translocated during project surveys and monitoring. This information would include for each individual: the location (narrative, vegetation type, and maps) and dates of observations; burrow data; general conditions and health; measurements; any apparent injuries and state of healing; if

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[351] *Id*., pp. 8-9.

[352] U.S. Fish and Wildlife Service (Service). 1992. Field Survey Protocol for Any Federal Action That May Occur within the Range of the Desert Tortoise. January.

[353] Ex. 41, Appendix A to Attachment BR5-1B, "Guidelines for Clearance and Translocation of Desert Tortoises from the Ivanpah Solar Electric Generating System (Ivanpah SEGS) Project USFWS, Ventura Office. December 12, 2008.

[354] *Id*., p. 9.

[355] Ex. 41, Appendix E to Attachment BR5-1B.

moved, the location from which it was captured and the location in which it was released (whether animals voided their bladders); and diagnostic markings (i.e., identification numbers).[356]

All potential Desert Tortoise burrows located would be excavated by hand by an AB, Desert Tortoises removed, and collapsed or blocked to prevent occupation by Desert Tortoises. The AB would also search for Desert Tortoise nests/eggs, which are typically located near the entrance to burrows. All Desert Tortoise handling and removal, and burrow excavations, including nests, would be conducted by ABs in accordance with the Service-approved protocol (Desert Tortoise Council 1994, revised 1999). If the Desert Tortoise Council releases a revised protocol for handling of Desert Tortoises before initiation of project activities, the revised protocol would be implemented for the Project.[357] The Desert Tortoise fencing and clearance requirements are enforceable via Condition BIO-8, "Desert Tortoise Clearance Surveys and Fencing."

k) Transportation and Release of Desert Tortoises to be Relocated Will Minimize Impacts.

The relocation/transportation of Desert Tortoise would follow agency approved protocols. All potential Desert Tortoise burrows within the fenced area would be searched for presence. In some cases, a fiber optic scope may be used to determine presence or absence within a deep burrow. Burrows inhabited by tortoises would be excavated by ABs or by TMs supervised by an AB using hand tools. To prevent reentry by a tortoise or other wildlife, all burrows would be collapsed once absence has been determined. Tortoises excavated from burrows would be relocated or translocated to unoccupied natural or artificial burrows outside the fenced site immediately following excavation. Prior to excavating and transporting a tortoise, a suitable burrow will have been located, or an artificial burrow constructed, to expedite the process and minimize handling time. The receiving burrow will be of the same size and orientation as the original burrow.[358] Tortoise excavation, handling, artificial burrow

[356] Ex. 41, Attachment BR5-1B, p. 9.

[357] *Id*., p. 10.

[358] *Id*.

construction, egg handling and other procedures would follow those described in the *Guidelines for Handling Desert Tortoise During Construction Projects.*[359]

l) The Relocation/Translocation Areas Identified Will Minimize Impacts.

Tortoises will be relocated/translocated in the Ivanpah Valley adjacent to the site areas or in areas depicted in Figure BR5-3 generally to the west of the Project boundaries.[360] This area meets the Guidelines provided by the Service.[361] Tortoises excavated from burrows would be relocated to unoccupied natural or artificial burrows outside the fenced sites immediately following excavation. Prior to relocation/translocation activities this area will be surveyed to locate suitable unoccupied burrows and/or construction of a sufficient number of artificial burrows. Ideally all tortoises would be relocated to within 1000 meters of the site(s) where the tortoise was located. The primary constraint is that resident and relocated Desert Tortoises do not exceed 39 individuals per square kilometer.[362]

m) Post-Relocation Monitoring and Reporting Will Verify the Effectiveness of the Relocation/ Translocation Plan.

To monitor for survivorship and health, for a period of 3 years following their relocation/translocation, the Desert Tortoises will be located at least monthly by the AB. In order to locate all relocated/translocated tortoises, it will be necessary that they be marked and fitted with radio transmitters. Tortoises would be marked with Passive Integrated Transducer (PIT) tags (Gibbons and Andrews 2004) (e.g., Biomark model TX1400L); 2) fitted with an external label (ASIH 2004), and 3) have a light-weight radio transmitter attached with a battery life of at least one year (e.g., Holohil model AI-2F). This redundant method of marking tortoises ensures that tortoises are easily identified by field workers, even in the case of predation or shell wear. Transmitters will be attached using methods similar to those described in Boarman et al. (1998).[363] All transmitters would be removed at the end of this monitoring period.

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[359] Desert Tortoise Council, 1994 (Revised 1999), included as Appendix E to Attachment BR5-1B of Exhibit 41.

[360] Ex. 41, Attachment BR5-1B, p. 15.

[361] *Id.*, p. 12.

[362] *Id.*

[363] Ex. 41, Attachment BR5-1B, p. 13.

Juvenile tortoises located during clearance surveys would be treated differently than adult tortoises. Before being released, all juvenile tortoises located would be affixed with specially designed radio transmitters that are small enough to minimize stress. Due to the small size of these transmitters and the subsequent short battery life, these juvenile transmitters will have to be exchanged out approximately every 10 weeks. Juveniles will also be marked using either a Passive Integrated Transducer (PIT) tag and/or fitted with an external label using appropriate standards (ASIH 2004) (adapted from Esque et al. 2005).[364]

Upon locating the translocated/relocated tortoises, all pertinent information will be recorded, such as behavior, physical characteristics, health characteristics, as well as any potential anomalies the individual Desert Tortoise might display. All ABs and TMs performing examinations for health characteristics would be required to have experience identifying the clinical signs of URTD, herpes virus, and cutaneous dyskeratosis in tortoises. The AB will remove and quarantine any Desert Tortoises showing clinical signs of disease. The AB must then contact the Service within 24 hours to determine the disposition of these individuals. Quarantined tortoises will be kept in a temperature-controlled area away from all other tortoises that are being processed for relocation/translocation. The AB will be responsible to ensure that quarantined tortoises have adequate food. If blood testing is warranted, a licensed veterinarian in the Las Vegas area will be used to draw blood and ship it to an appropriate laboratory for testing.[365]

All observations will be reported to the AB who will record the following information for the monthly compliance report: (1) species name; (2) location (global positioning system coordinates, narrative and maps) and dates of observations; (3) general condition and health, including injuries and state of healing; (4) diagnostic markings, including identification numbers or markers; and (5) locations moved from and to.

n) The Raven Management Plan Will Minimize the Effect on Desert Tortoise by Managing a Major Predator.

Applicant's Raven Management Plan has been developed as a measure to minimize the effects of the project construction and operation on the Desert Tortoise by

[364] *Id.*

[365] *Id.*, pp. 13-14.

minimizing the introduction of anthropomorphic subsidies that could attract and benefit the common raven (Corvus corax) and result in the increased probability of tortoise predation.[366]

The objective of this Raven Management Plan is to reduce potential direct and cumulative effects of raven predation on Desert Tortoise and other native wildlife species in the Ivanpah Valley as a result of construction activities, increased human presence, the addition of potential roost and nest site structures, and facility operation. This Raven Management Plan was submitted to the Commission, the BLM, the California Department of Fish and Game, and the U.S. Fish and Wildlife Service for review, and will be a component to the Biological Opinions issued for Desert Tortoise. As stated in the BLM Northern and Eastern Mojave (NEMO) Planning Area Boundary Desert Tortoise Conservation Strategy, the BLM is compelled to review the design and operation features of the proposed Ivanpah Solar Project to reduce or eliminate the opportunity for proliferation of ravens.[367]

The goal of the Raven Management Plan is to implement non-lethal measures to deter raven depredation of hatchling and juvenile Desert Tortoise such that overall numbers of Desert Tortoise and the recruitment of young tortoises into the local breeding population do not decrease due to conditions enabled by the construction or operation of the Ivanpah Solar Project.[368] As the Plan explains:

> Raven management measures were designed to discourage ravens by limiting the availability of subsidized food and water resources as well as roost and nest site opportunities. Lethal methods of raven control, such as shooting or poisoning, will be avoided to the greatest extent due to public and government agency concerns and associated implementation risks. The non-lethal measures outlined below are primarily based on guidance from the preferred Alternative B in the USFWS Draft Environmental Assessment to Implement a Desert Tortoise Recovery Plan Task: Reduce Common Raven Predation on the Desert Tortoise (FWS 2007), Summary of Predation by Corvids on Threatened and Endangered Species in California and Management Recommendations to Reduce Corvid Predation (Liebezeit. and George 2002), and Boarman's extensive research and guidance for reducing raven predation on Desert Tortoises (Boarman 2003). (*Id*.)

[366] Ex. 11, pp 1-53.

[367] *Id.*, Attachment DR29-1A, p. 1.1 to 1-2.

[368] *Id.*, Attachment DR29-1A, p. 3-1.

Thus, the Raven Management Plan is another mitigation measure designed to avoid and minimize impacts on Desert Tortoise. The Raven Management Plan is enforceable via BIO-12, "Raven Management Plan."

o) The Federal Bonding Requirement Provides Financial Security for Closure, Rehabilitation, and Revegetation.

As discussed above, after expiration of the right-of-way grant, the Ivanpah Solar Project will be under a federal mandate to remediate the site. That obligation is secured by the Bonding Requirements set forth in the BLM's Right of Way Regulations (discussed above). It will not remain a solar project site in perpetuity and the bonding assures restoration post-Project.

p) The Closure, Rehabilitation, and Revegetation Plan Will Minimize the Effect on Desert Tortoise, Avoiding Impacts "In Perpetuity."

The Applicant has an obligation to restore the Project lands at the end of the Right of Way Grant term. The Applicant's site restoration obligations are spelled out in detail in the Closure, Rehabilitation, and Revegetation Plan. The purpose of this site closure, rehabilitation, and revegetation plan (Plan) is to set forth the procedures and practices that will be employed by the project owner to meet federal and state requirements for the revegetation of sites temporarily affected during construction of the Ivanpah Solar Project and for the rehabilitation and revegetation of the project site after decommissioning.[369]

The Closure, Rehabilitation, and Revegetation Plan is enforceable via Condition BIO-14, "Closure, Revegetation and Rehabilitation Plan." Some of the major features of this comprehensive Plan are discussed in the sections that follow.

q) Site Rehabilitation Will Occur After the End of the Project.

Rehabilitation of the Ivanpah Solar Project site refers to the removal of temporary or long-term structures, mechanical recontouring of the surface, mechanical measures to enhance soil conditions such as compaction or decompaction, and surface stabilization through

[369] Ex. 30, Attachment R125-3B, p. 1-1.

revegetation. The rehabilitation activities address the three major periods of the Ivanpah Solar Project: construction, operations, and ultimate decommissioning.[370]

During construction, temporary disturbance areas are those areas that receive short-term, construction-related disturbance, but soils will be not covered with impervious surfaces. After construction is completed, these areas will be rehabilitated and revegetated, as necessary, to return the areas to pre-project conditions to the extent practicable.[371] The cacti and yucca (collectively termed "succulents") on the Project site will be salvaged and reused.[372]

Rehabilitation activities during the operational phase of the Ivanpah Solar Project will include the rehabilitation of areas that have been affected by erosion and sedimentation resulting from flood events that are a dominant geomorphic element on this bajada and weed management per criteria and requirements of the Weed Management Plan.[373]

Decommissioning of the facility will likely require coverage under the State's General Construction Permit, since the area of ground disturbance will be more than one acre. A decommissioning logistics area will be required, and likely the CLA will be used for that purpose. Site rehabilitation will include the following general activities (not necessarily in the order listed below).

- Access roads that are no longer required by the land management agencies will be rehabilitated. Asphalt will be removed, soils will be decompacted, and the roadway areas will be revegetated.
- Physical components of the generation facilities and appurtenant utilities will be removed using practicable methods that are least disruptive to soils and surrounding habitat to a depth that will not impede growth of vegetative cover.
- Poles and wiring will be removed with the transmission wiring spooled for transport to the recycler. Transmission pole foundations will be removed to a depth of approximately 4 feet.
- Heliostat command and control wiring will be aboveground and will simply be picked up for recycling.

[370] *Id*., p. 2-1.

[371] *Id*.

[372] *Id*., pp. 4-1 to 4-11.

[373] *Id*., p. 2-5.

- Water supply wells will be closed in place in accordance with applicable state standards and pipelines will be sealed off and abandoned in place.
- Rehabilitated shallow soils will be graded to approximate their original contours and those areas will be revegetated with native species following established protocols.
- Temporary disturbance areas from decommissioning activities will also be rehabilitated and revegetated.
- The revegetated areas will be monitored for noxious weeds, for unacceptable densities of invasive species, and for reasonable progress in the vegetation succession.[374]

r) The Additional Mitigation Provided More Than Satisfies CESA.

As established above, federal ESA mitigation and CESA mitigation are one and the same. Both ESA and CESA mitigation must be roughly proportional to the impacts. If, notwithstanding this legal conclusion, the Commission finds that CESA requires more mitigation for the same impacts of the same project on the same species, the mitigation measure described in this subsection clearly more than satisfy whatever additional mitigation requirements CESA might impose.

3. RARE PLANTS

a. "Rare" Plants: A Misnomer.

The term "rare" plants is used rather loosely. Some have substituted the term "special-status" plants for rare, but this is misleading and legally incorrect.

As a matter of law, plants that are "rare" fall into one of two categories

1. Federal ESA and CESA Listed Plants: There are no such plants on the Ivanpah Solar Project site.
2. Plants that Meet the CEQA Definition of Rare: There is arguably only one plant that meets this CEQA Guidelines definition, discussed below, the Rusby's desert mallow. However, it is unclear whether even the Rusby's desert mallow meets the definition

[374] *Id.*, pp. 2-5 to 2-6.

of rare, given that the California Natural Diversity Database ("CNDDB") classified the Rusby's desert mallow as "Apparently Secure" and "Uncommon but not rare."[375]

3. All Other Plants: All other plants on the Ivanpah site are subject to the requirements of CEQA but they enjoy no "special status" in the eyes of the law.

It is important for the Committee to focus on the legal definition of rare, not the colloquialisms sometimes assigned by other parties.

"Special status," "Species of Special Concern Species," and often just "sensitive" species: all of these are without legal significance.

What matters are the plant species that fall into the categories above. As discussed below, with the exception of one plant species, all of the other plant species are common and are thus afforded protection under CEQA, but absolutely no elevated protection status.

b. Only One Plant Species on the Ivanpah Site That Arguably Meets the Legal Definition of "Rare".

There is only one plant on the Ivanpah Solar Project site that arguably meets the CEQA legal definition of "rare". While many other plant species identified are of interest to botanists, to make a determination of potentially significant effects under CEQA, only one species is arguably rare, as that term is used in CEQA.

As discussed in detail below, only one plant species arguably meets the CEQA definition of "rare," the Rusby's desert mallow (*Sphaeralcea rusbyi var. eremicola*). Rather than rely on the argument that the plant does not meet the legal definition of rare, *the Applicant has proposed an avoidance plan that will protect one hundred percent (100%) of the Rusby's desert mallow previously recorded on the site* .

Notwithstanding the Applicant's plan to avoid one hundred percent of the Rusby's desert mallow, it is important to note that CEQA does not require one hundred percent avoidance, instead, CEQA requires that the Applicant avoid *or* minimize potential impacts.[376] Nevertheless, the Applicant's plan completely avoids impacts to the Rusby's desert mallow.

In the sections that follow, the Applicant lays out the factual basis for the Committee to confirm that only the Rusby's desert mallow arguably meets the CEQA legal definition of "rare."

[375] Ex. 300, p. 6.2-148.

[376] 14 C.C.R. § 15021.

On the basis of these facts, the Commission should find that there are no significant effects on rare plants associated with the Ivanpah Solar Project.

Notwithstanding the fact that there are no significant impacts on the one plant species that may be rare on the Project site, the Applicant is proposing substantial additional measures to mitigate potential impacts to these plants. Therefore, the Applicant asks the Commission to make the following findings, in the alternative: (1) the Ivanpah Solar Project will have no significant impacts on rare plants as defined by CEQA; and (2) in the alternative, even assuming, arguendo, that the Applicant's plan has the potential to cause significant effects, those effects are clearly less than significant with the implementation of the Applicant's proposed Plant Avoidance and Mitigation Plan.

c. The FSA Violates the Spirit and Letter of CEQA by Limiting the Analysis of Impacts on Plant Species Based Upon Political Boundaries.

The FSA states that the analysis of potential impacts of the Project on plants must be limited to the borders of the State of California. It is clear legal error and a serious misapplication of ("CEQA") to limit the examination of impacts based upon State borders or other political boundaries. Any "California-centric" analysis that is parochially limited by political rather than an ecological boundary is deeply flawed and must be rejected by the Commission.

The Ivanpah Solar Project is located in California, but very close to the Nevada border. In fact, the Ivanpah Valley itself is located in both California and Nevada. The ecological connection within the Valley is recognized, in part, by the fact that both the California and the Nevada portions of the Ivanpah Valley are within the same "Recovery Unit" for the Desert Tortoise. The Ivanpah Project is only a few miles from the Nevada border.

Despite the regional location of the Project site, and the fact that *all* populations of a species should be included in an assessment of that species' commonness or rarity, and in an assessment of effects to that species, the FSA arbitrarily limits its consideration of the Project's impacts to the California-only distribution of six plant species. Based on this truncated and parochial view of the species' distribution, the FSA "consider[s] impacts to five of these [plant species] (Mojave milkweed, desert pincushion, nine-awned pappus grass, Parish's club-cholla, and Rusby's desert-mallow) to be significant...because the project would eliminate a substantial

portion of their documented *occurrences in the state."* [377] The BLM, in contrast, applies a regional perspective to the analysis of these species and finds only one species to be "BLM sensitive," the Rusby's desert mallow.[378]

In interpreting the scope of CEQA's applicability, it is important to bear in mind the legislative intent that CEQA "be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language."[379] Likewise, in determining the scope of the environmental impact study, it is best to resolve all doubts in favor of affording the fullest protection to environmental considerations.[380]

CEQA mandates that public agencies must concern themselves with the environment which is located both within and without the boundaries of the state. The term "project" includes "activities directly undertaken by any public agency."[381] It also means "*the whole of an action*, resulting in physical impact on the environment, directly or ultimately. . . ."[382]

The clearly expressed legislative intent of CEQA, as declared in sections 21000 and 21001, is to halt the deterioration of the environment and to preserve and enhance the quality of the environment.[383] The legislative concern for the environment includes both the environment of California and the environment in general. Subdivisions 21000 (a), (c) and (d) and subdivisions 21001 (a), (b) and (c) specifically mention preserving and enhancing the quality of the "environment in California." The other subdivisions of sections 21000 and 21001 refer simply to the "environment." The sections which mandate EIRs for state and local agencies, Sections 21100 and 21151, similarly do not restrict the environment to that of California. Neither the definition of environment, Section 21060.5, nor that of environmental impact report, Section 21061, is geographically restricted.

Section 21060.5 of the CEQA guidelines defines the term "environment" in broad terms as the "physical conditions which exist within the area which will be affected by a proposed

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[377] FSA 6.2-95, emphasis added.

[378] Ex. 300, p. 6.2-19.

[379] *Friends of Mammoth v. Board of Supervisors*, 8 Cal. 3d 247, 259 (1972); *No Oil, Inc. v. City of Los Angeles*, 13 Cal. 3d 68, 83 (1974); *Bozung v. Local Agency Formation Com.*, 13 Cal. 3d 263, 274, 118 Cal. Rptr. 249 (1975).

[380] *People ex rel. Dept. Pub. Wks. v. Bosio*, 47 Cal. App. 3d 495, 530 (1975).

[381] Pub. Res. Code § 21065.

[382] 14 C.C.R. § 15037, Subd. (a), emphasis added.

[383] *Friends of Mammoth v. Board of Supervisors*, supra at 271.

project."[384] This definition does not narrow the scope of legislative concern to preserving and enhancing only the environment of California nor does it restrict the applicability of CEQA to environmental consideration of projects or parts of projects occurring solely within California. *This definition extends consideration for the environment to whatever areas will be impacted by the project.* The project thus defines the scope of consideration and the limits of applicability of CEQA.[385] These environmental considerations apply to the "whole of the proposed project"[386] and to the physical conditions existing within the area which will be affected by the proposed project. According to the California Attorney General:

> It would be *inconsistent* with the declared intent of CEQA (§§ 21000 and 21001) and the very specific mandate of section 21151 in conjunction with section 21060.5 *to restrict this consideration of the environment just to those impacts occurring within California*. Thus, *the scope of consideration extends, regardless of location, to the environment which will be affected by the proposed project.*[387]

Under CEQA, the Commission is clearly required to consider those environmental impacts of a project which occur beyond the boundaries of the state. As the California Attorney General has noted,

> The California Legislature, in enacting CEQA, could not have been so parochial in its thinking as to encourage California agencies to export their pollution by exempting those agencies from responsibility for out-of-state pollution occasioned by the California agencies' demands. Also, the success of preserving and enhancing the environment of California is dependent on other states respecting California's environment and not permitting their state and local agencies to degrade the quality of California's environment. Absent such mutual respect and dependence, the goal of preserving the environment of this state becomes much more difficult.[388]

Thus, the environmental setting for the Project - the context under which the impacts are evaluated - does not end at the State border.

As the California Attorney General has advised, both CEQA and NEPA impose "certain duties of considering environmental effects of agency-sponsored projects. As long as the agency

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[384] 14 C.C.R. § 21060.5.

[385] 58 Ops. Cal. Atty. Gen. 616, emphasis added.

[386] 14 C.C.R. § 15037.

[387] 58 Ops. Cal. Atty. Gen. 616, emphasis added.

[388] 58 Ops. Cal. Atty. Gen. 617.

is regulated by NEPA or CEQA, compliance in terms of consideration is required. *The location of the projects bears no relevance to the scope of consideration*."[389]

Federal courts have rejected the proposition that NEPA should be limited to an examination of the impacts of a project on only United States citizens. The District Court in *People of Enewetak v. Laird*, 353 F. Supp. 811 (D. Hawaii 1973), stated that:

> Moreover, NEPA is framed in expansive language that clearly evidences a concern for all persons subject to federal action which has a major impact on their environment -- not merely United States' citizens located in the fifty states. . . .[390]

By the same reasoning, CEQA is framed in expansive language that clearly evidences a concern for all species - not merely the subpopulation of species located within California. "The fact that a local or state agency responsible for preparing an EIR may have limited or minimal jurisdiction in undertaking or approving a project or parts of a project does not excuse such agency from preparing a complete and legally adequate EIR on the proposed project."[391]

Clearly, where the FSA limits its examination of the distribution of plant species to those on the California side of the border, it has failed to include the full regional perspective required by CEQA.

The court in *Environmental Defense Fund, Inc. v. Coastside County Water Dist.*, described this scope of consideration when it stated:

> Those who prepare the EIR may not limit their vision by the boundaries of the district, nor by purely physical auxiliaries or obstacles to a project's success which may be found beyond the borders. . . . [392].

As the California Attorney General has noted, the legislative history of CEQA is also instructive of the scope of environmental considerations. Public Resources Code Section 21100, as enacted in 1970, at that time read in part as follows:

> All state agencies, boards, and commissions shall include in any report on any project they propose to carry out which could have a significant effect on the environment of the state a detailed statement by the responsible state official setting forth the following. . . ."[393]

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[389] 58 Ops. Cal. Atty. Gen. 619, emphasis added.

[390] Supra at 816.

[391] *Environmental Defense Fund, Inc. v. Coastside County Water District*, supra at 704.

[392] *Environmental Defense Fund, Inc. v. Coastside County Water Dist.*, n11 Supra at 704.

[393] Stats. 1970, ch. 1433, § 1 (emphasis added).

However, in 1972, the Legislature amended Section 21100 by deleting the words "of the state."

> All state agencies, boards, and commissions shall include in any report on any project they propose to carry out which could have a significant effect on the environment ~~**of the state**~~ a detailed statement by the responsible state official setting forth the following. . . ."[394]

From this change, the courts determined, "It would be reasonable to conclude from this amendment that the Legislature amended this section to eliminate whatever limitation of applicability or consideration may have been suggested by it."[395]

As the California Attorney General has stated, the applicability of CEQA and the scope of the consideration in an EIR are not limited just to "the environment" within the boundaries of the state – it is the environment without regard to political subdivisions:

> The applicability and scope of consideration extends to the environment which will be impacted, directly or ultimately, by the proposed project -- whether that environment is located within or outside the boundaries of the state.[396]

In regard to the impacts of the Ivanpah Solar Project on plant species, CEQA applies to the impact of the Project on the ecological distribution of the species and not just to the documented occurrences within the State. Any finding regarding the impact of the Project that is parochially limited to occurrences within the State of California violates both the spirit and the letter of CEQA. The impacts on plant species must be framed, as BLM has done, on an ecological basis. In this context, BLM concludes that there is only one "BLM Sensitive" plant species, the Rusby's desert mallow.

In summary, limiting the evaluation of the Project on plant species solely within California would be plain legal error, nor is it defensible from a biological standpoint. A "California-centric" approach to botany must be rejected.

d. With the Possible Exception of the Rusby's Desert Mallow, No Other Plants on the Ivanpah Project Site Meet the CEQA Definition of "Rare" Species.

Rare plants are not protected by CESA which focuses on endangered, threatened, and

[394] Stats. 1970, ch. 1433, § 1 (emphasis added). Stats. 1972, ch. 1154, § 2.5.

[395] *Koenig v. Johnson, 71 Cal. App. 2d 739, 753 (1945).* n12.

[396] 58 Ops. Cal. Atty. Gen. 621.

candidate species.[397] The designation of a species as "rare" has legal significance under CEQA; however, to be afforded this additional protection, the plant species must meet the legal definition of "rare" under CEQA.

As discussed in the subsections below, only the Rusby's desert mallow arguably meets the CEQA definition of rare. Moreover, as discussed later below, by completely avoiding impacts to Rusby's desert mallow, the Project's potential impacts on this species are less than significant.

Under CEQA, a species not listed as endangered, threatened or a candidate species may be considered rare if the species can be shown to meet the criteria in subdivision (b) of Section 15380 of the CEQA Guidelines.[398] Specifically, Section 15380(b)(2)(A) provides that plant species may be considered rare under these circumstances: "Although not presently threatened with extinction, the species is existing in such small numbers *throughout all or a significant portion of its range* that it may become endangered if its environment worsens".[399]

Significantly, the provision does not say throughout all or a significant portion of its range "in California." The "range" of a species is the environment within which it is found, without regard to artificial political boundaries.

By definition, for a plant to be considered "rare" under CEQA, it must be potentially adversely affected throughout all or a significant portion of its range. Only the Rusby's desert mallow arguably meets this definition.

e. The Rusby's Desert Mallow is listed as BLM "Sensitive", Indicating that this Plant Has Been Analyzed by the BLM Throughout its Range.

The Rusby's desert mallow is the only plant species on the Ivanpah site considered "BLM sensitive". Since BLM has responsibilities West-wide for management of federal lands, the BLM has assessed the status of plants throughout this West-wide range and found only the Rusby's desert mallow deserves elevated consideration.

[397] Cal. Pub. Res. Code § 2080.

[398] 14 C.C.R. § 15380.

[399] Emphasis added.

Of the plant species identified in the FSA , "only one [] is considered sensitive by the Bureau of Land Management (BLM)," the Rusby's desert mallow.[400]

> BLM Manual §6840 defines sensitive species as"…those species that are (1) under status review by the FWS/NMFS; or (2) whose numbers are declining so rapidly that Federal listing may become necessary, or (3) with typically small and widely dispersed populations; or (4) those inhabiting ecological refugia or other specialized or unique habitats.
> www.blm.gov/ca/pdfs/pa_pdfs/biology_pdfs/SensitiveAnimals.pdf .[401]

The Rusby's desert mallow is the only plant species on the Ivanpah site that meets BLM's definition as "sensitive".

f. The California Native Plant Society Lists Confirm that only the Rusby's Desert Mallow is Arguably Rare.

As discussed above, a focus on impacts only within the State boundaries is contrary to CEQA. Nevertheless, the FSA relies on California-only databases and resources for information on plant species: the California Natural Diversity Database ("CNDDB"), lists maintained by the California Native Plant Society ("CNPS"), and the Consortium of California Herbaria.[402]

Setting aside the limitations of these California-only resources, careful review of these materials demonstrate that except for the Rusby's desert mallow which is arguably rare, none of the other plants meet the legal definition of "rare" as defined by CEQA.

The following table summarizes the CNPS status of the six plants that are identified in the FSA. With the exception of the Rusby's desert mallow, each of the five remaining plant species is characterized by the CNPS as "more common elsewhere," that is throughout its range:

Plant Species	CNPS LIST STATUS
Rusby's desert mallow	1B.2 1B – Plants rare, threatened, or endangered in California and elsewhere .2 -- Fairly endangered in California

[400] Ex. 1, p. 6.2-1.

[401] Ex. 1, p. 6.2-18.

[402] *See generally* Ex. 300, pp. 6.2-18 through 21.

Mojave milkweed	CNPS – 2.3 2 – Plants rare, threatened, or endangered in California, but more common elsewhere .3 -- Not very endangered in California
Desert pincushion	CNPS – 2.2 2 – Plants rare, threatened, or endangered in California, but more common elsewhere .2 -- Fairly endangered in California
Parish's club-cholla	CNPS – 2.3 2 – Plants rare, threatened, or endangered in California, but more common elsewhere .3 -- Not very endangered in California
Nine-*awned pappus* grass	CNPS – 2.3 2 – Plants rare, threatened, or endangered in California, but more common elsewhere .3 -- Not very endangered in California
small-flowered androstephium	List 2.2 2 – Plants rare, threatened, or endangered in California, but more common elsewhere .2 -- Fairly endangered in California

Using the CNPS terminology, three of the six species are "not very endangered in California" and "common" elsewhere. Two of the six species are "fairly endangered in California" but "more common elsewhere." Even the Rusby's desert mallow is not "rare", but is "fairly endangered" in California. Accordingly, five of these six plants are certainly not rare across their range, but are in fact, common within their range.

g. The CNDDB Rankings Show that these Plants, Including the Rusby's Desert Mallow, are Not Rare.

Just as the CNPS ranking demonstrated these plants are not rare, the CNDDB ranking for most of these plant species show they are not rare at all. Two of the six plants are ranked G5: "Secure—Common; widespread and abundant." Three more plants are ranked G4: "Apparently Secure—Uncommon but not rare."

Plant Species	CNDDB RANKING
Rusby's desert mallow	G4T1[403], S1.3 G4 = Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors. S1— **Critically Imperiled**
Mojave milkweed	G4G5, S1.3 G4 = Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors. G5 = **Secure**—Common; widespread and abundant. S1— **Critically Imperiled**
Desert pincushion	G2G3, S2.2 G2 = Imperiled—At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors. G3 = Vulnerable—At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors. S2— **Imperiled**
Parish's club-cholla	G3G4, S2.3? G3 = Vulnerable—At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors. G4 = Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors. S2— **Imperiled**
Nine-*awned pappus* grass	CNDDB – G5, S2? G5 = **Secure**—Common; widespread and abundant. S2— **Imperiled**
small-flowered androstephium	G5; S1.2 G5 = **Secure**—Common; widespread and abundant. S1— **Critically Imperiled**

Interestingly, based on the CNDDB ranking, the Rusby's desert mallow is not rare. Instead, the Rusby's desert mallow is ranked G4: "Apparently Secure—Uncommon but not

[403] Some of the G-ranks above are expressed as a range. Subspecies receive a T-rank attached to the G-rank The G-rank refers to the whole species range, but the T-rank refers to the global condition of variety eremicola only.

rare." Based on the CNDDB ranking, these plants should not be considered rare.

h. Notwithstanding the Lack of Potentially Significant Impacts to Rare Plants, the Applicant has Proposed a Plant Avoidance and Mitigation Plan That the Commission Should Adopt.

The evidence of record is clear that there are no significant unmitigated impacts associated with the Ivanpah Solar Project. Nevertheless, Applicant has proposed a draft Plant Avoidance and Mitigation Plan, Exhibit 81[404] as modified by the Applicant's Biological Mitigation proposal, Exhibit 88, "that the Commission should accept as part of its findings that the impacts to plants have been mitigated to a level of less than significant."

The purpose of the Plant Avoidance and Mitigation Plan is to identify the steps and procedures that will be implemented to avoid identified plant localities and minimize the extent of plant impacts to the maximum degree practicable while achieving energy generation objectives.[405]

The purpose of the Plant Avoidance and Mitigation Plan is to identify the steps and procedures that will be implemented to avoid identified plant localities and minimize the extent of plant impacts to the maximum degree practicable while achieving energy generation objectives. The intent over the long term is to have the Ivanpah Solar Project site support healthy, self-sustaining populations of the avoided identified plants with local distributions similar to pre-project conditions. The Plant Avoidance and Mitigation Plan will be finalized and submitted to the California Energy Commission Compliance Project Manager (CPM) and the Bureau of the Land Management no later than 60 days prior to the start of ground-disturbing activities.[406]

Both engineering and biological constraints were considered in developing the Plant Avoidance and Mitigation Plan. Engineering constraints include: pre-construction site modifications, facility layout constraints, and operations constraints. The Plant Avoidance and Mitigation Plan includes the following components that would occur before construction begins. These preconstruction components include the following:

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[404] Ex. 81. This pan was referred to as the "Draft Special-Status Plant Avoidance and Protection Plan" in Exhibit 81. Given the mischaracterization of "special status" species, as discussed in this brief, the revised plan should be called the "Plant Avoidance and Mitigation Plan" or in CEC parlance, the "PAMP".

[405] Ex. 81, p. 1-1.

[406] 1/12 RT 81-82.

- Initial selection and mapping of identified plant localities that can potentially be avoided in open areas or through minor modifications in project design;
- Project design changes to accommodate avoided identified plant localities;
- Relocation, mapping and fencing of avoided identified plant localities and identified plant individuals before starting on the ground pre-construction or construction activities; and
- Salvage of identified plants that can't be avoided, including relocation to the onsite Plant Transplantation Area.

The Plant Avoidance and Mitigation Plan also includes post-construction components:

- A post-construction baseline survey to verify which identified plant localities and individuals have been avoided and protected from direct impacts during construction;
- Removal of construction fencing and demarking of avoided localities; these will be completed at the same time as the post-construction baseline survey;
- Use of performance standards for actions needed to avoid the identified plants as the Plant Avoidance and Mitigation Plan describes; for example, marking and protecting plant localities identified for avoidance prior to ground-disturbing activities, regular scheduling of periodic maintenance actions that could affect avoided identified plant localities during operations; and others;
- Use of biological success criteria to determine whether avoided identified plants survive and grow over the long-term; and
- Delineation of Plant Avoidance Zones (PAZs) as the geographic units within which biological success criteria will be applied.

The Plant Avoidance and Mitigation Plan will be developed concurrent with the final design and it will be submitted to the CEC and BLM for review and approval. The final plan will be included in a condition of approval. The engineering team has made a commitment to avoid identified plant localities identified in the final plan.

The Plant Avoidance and Mitigation Plan also includes a long-term monitoring program to assess long-term persistence of each identified plant species. In addition, the plan uses an adaptive management approach, and includes remedial measures that can be considered, should long term monitoring determine that the success criteria have not been attained.

The impacts to plant species are already less than significant. With the implementation of the Applicant's Plant Avoidance and Mitigation Plan, the potential impacts to plant species are even less significant.

i. The Mitigated Ivanpah 3 Configuration Further Avoids And Minimizes Potential Impacts To Plants By Completely Avoiding The Most Densely Populated Plant Communities In The Northernmost Portions Of Ivanpah 3.

The Mitigated Ivanpah 3 configuration further avoids and minimizes potential impacts to identified plants by completely avoiding the most densely populated plant communities that are of concern to Staff in the northernmost portions of Ivanpah 3.

The Mitigated Ivanpah 3 arrangement would result in the establishment of three plant mitigation areas located in two general areas onsite,[407] in addition to establishing several smaller avoidance areas for two of the six identified plant species for which mitigation is recommended by Staff. The plant avoidance and mitigation approach proposed for the Mitigated Ivanpah 3 configuration is consistent with the general plant avoidance measures described in the FSA/DEIS and as depicted in FSA/DEIS Biological Resources Figure 2.[408]

The largest plant avoidance area is the Northern Plant Mitigation Area (NRPMA). The NRPMA is located north of Ivanpah 3 and totals 433 acres. In the Construction and Logistics Area (CLA), two smaller avoidance areas are proposed. These are Plant Mitigation CLA Area 1 and Plant Mitigation CLA Area 2, totaling approximately 38.2 and 4.6 acres, respectively.[409]

In addition to, and not included in the acreage total, are several smaller plant avoidance areas for two species, Mojave milkweed and Rusby's desert mallow. The locations of these smaller avoidance areas are shown on Figure 3-2. These smaller avoidance locations are the same areas as presented in the Plant Avoidance and Mitigation Plan.[410] They have been selected to avoid and protect 100 percent of the Rusby's desert mallow and the Mojave milkweed areas with the highest densities of plants to the maximum extent practicable while achieving energy generation objectives.[411]

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[407] Ex. 88, Figure 3-2.

[408] Ex. 88, p. 3-3.

[409] *Id.*

[410] Ex. 81.

[411] Ex. 88, p. 3-4.

In addition to these three identified plant mitigation areas, a 7.2 acre area northwest of the substation within the CLA has been set aside as a Plant Transplantation Area, should monitoring determine that remedial measures such as transplantation are needed. This area will only be used for identified plant species to reduce the amount of disturbance to salvaged identified plants. A 59.4 acre Succulent Nursery is located adjacent to the Plant Transplantation Area. Areas undisturbed by direct construction in the CLA (the Plant Mitigation CLA Area 1 and Plant Mitigation CLA Area 2, the Plant Transplantation Area, and Succulent Nursery) total approximately 109 acres. Combined, the three Plant Mitigation Areas, the Plant Transplantation Area and the Succulent Nursery within the CLA that will not be directly affected by construction total approximately 542 acres.[412]

A tabular comparison of the amount of identified plant avoidance (on a locality basis) that would be possible under the 200 MW Ivanpah 3 configuration as shown in Exhibit 81 and the Mitigated Ivanpah 3 Project footprint is provided below in Table 3.2-2 of Ex. 88.[413]

As described in the FSA, plant avoidance is strongly preferred by Staff over plant salvage or translocation. The Mitigated Ivanpah 3 plant avoidance and mitigation approach overall has a higher percentage of identified plant avoidance and protection than that described in Exhibit 81 (with the 200 MW Ivanpah 3 configuration). The total amount of avoidance for all species combined, proposed in the Mitigated Ivanpah 3 (40 percent), is higher than that outlined previously in Exhibit 81 (31 percent).[414] Identified plant protection is provided within large expanses of habitat in the Mitigated Ivanpah 3 configuration rather than just within the smaller identified plant avoidance zones in the heliostat array as proposed in Exhibit 81. In general, large blocks of habitat, such as the Northern Plant Mitigation Area, are more ecologically valuable because natural ecosystem processes (such as seed dispersal) will remain intact. The Northern Plant Mitigation Area is contiguous to large expanses of undisturbed habitat located to the north of Ivanpah 3 and it is also expected that large-scale ecological dynamics such as natural surface water hydrology will be unaltered.[415]

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[412] *Id*.

[413] *Id.*

[414] Ex. 88, Table 3.2-2.

[415] *Id.*

Avoidance previously focused on protecting smaller amounts of habitat within the heliostat array over a larger extent of the species' local distribution. The percentage of avoidance of Parish's club-cholla under the Mitigated Ivanpah 3 layout is almost the same as that previously proposed (21 percent to 22 percent). The amount of avoidance for desert pincushion with the Mitigated Ivanpah 3 is less than that previously proposed (34 percent to 45 percent) but avoidance is attained within a larger block of habitat within which ecological processes can take place. Under the Mitigated Ivanpah 3 identified plant avoidance and mitigation approach, the two identified cactus species (Parish's club-cholla and desert pincushion) that are not avoided will be removed and transported to the Succulent Nursery and monitored as part of the Succulent Salvage Program.[416]

The two avoidance and mitigation approaches differ in the degree of salvage that would be performed as part of the Plant Mitigation Program; (65 percent overall is described in Exhibit 81 compared to 2 percent under the Mitigated Ivanpah 3 configuration. As described earlier, salvage is not viewed as the best plant mitigation method and plant impact avoidance is preferred by Staff.[417]

Identified plant localities designated as salvaged on Figure 3-2 of Exhibit 88 (for example, the Mojave milkweed localities that are in an area to be graded) will be removed and transported to the Plant Transplantation Area or other location with similar micro-habitat conditions.[418]

For two species, Mojave milkweed and Rusby's desert mallow, the number of avoided localities under the two avoidance and mitigation approaches are essentially the same. Both approaches would result in a little more than 80 percent avoidance of the identified Mojave milkweed and 100 percent of Rusby's desert mallow.[419]

In the Mitigated Ivanpah 3 configuration, all localities of Mojave milkweed and Rusby's desert mallow in the northern part of Ivanpah 3 would be protected within a larger block of habitat (433 acres). Within this area, it is expected that ecological processes could occur on a larger scale within the mitigation area and the mitigation area would be ecologically connected to

[416] Ex. 88, p. 3-5.

[417] Ex. 88, p. 3-5 to 3-6.

[418] Ex. 88, p. 3-6.

[419] Ex. 88, Table 3.2-2.

the nearby contiguous blocks of undisturbed habitat. The proposal described in Exhibit 81 would protect smaller blocks of habitat surrounding each locality but over a more widely distributed area throughout the local distribution of these species onsite.[420]

The plant avoidance and mitigation approach for the Mitigated Ivanpah 3 is designed to protect the portions of the site with the highest identified plant densities. However, identified plant avoidance at this site is challenging because the identified plants species have widely-scattered distribution patterns. For example, all three Plant Mitigation Areas combined contain relatively few numbers of Mojave milkweed and Rusby's desert mallow, two species determined in the FSA/DEIS to be of particular concern.[421] For this reason, in addition to identified plant protection within Plant Mitigation Areas, all of the Mojave milkweed and Rusby's desert mallow localities outside of areas proposed for grading (e.g., power blocks) will be avoided during construction and protected as described in Exhibit 81.[422]

The Mojave milkweed and Rusby's desert mallow avoidance and protection areas within the heliostat fields will be fenced during construction to avoid inadvertent encroachment. Fencing will be removed following construction and an alternative marking material (e.g., posts or stakes) will be installed to indicate the areas where avoided plants are located. This will allow ecological connectivity between the Plant Mitigation Areas, the smaller Mojave milkweed and Rusby's desert mallow avoidance and protection areas, and other areas of undisturbed contiguous habitat, allowing seed dispersal, pollinator movement, and other ecological processes to occur. Monitoring of the Mojave milkweed and Rusby's desert mallow plant avoidance and protection areas within the heliostat fields will occur in accordance with Exhibit 81.[423]

No grading, mowing, or other construction or operation activities would occur within the three Plant Mitigation Areas (the NRPMA, CLA 1, and CLA 2). As described in Exhibit 81, the smaller Mojave milkweed and Rusby's desert mallow avoidance and protection areas would not be mowed or graded during construction, but during operation, limited mowing may be needed beneath the heliostat mirrors. Limited weed control, if determined necessary to maintain plant populations over time, may be performed within both the plant avoidance and protection areas

[420] Ex. 88, p. 3-6.

[421] Ex. 88, Figure 3-2.

[422] *Id.*

[423] *Id.*

that are located within the heliostat fields. A substantial benefit of the Mitigated Ivanpah 3 plant avoidance and protection approach is that these larger plant mitigation areas will have a greater degree of protection by being removed from operational activities.[424]

The details in the Applicant's Plant Avoidance and Mitigation Plan is unprecedented. Based on the measures the Applicant has implemented, the potential impacts to rare plants, if there are rare plants, are less than significant.

C. CULTURAL RESOURCES

The CEQA Guidelines identify the main areas that that the Commission must consider to determine whether a project will have impacts to cultural resources: (1) historical resources; (2) archaeological resources; and (3) human remains, whether or not interred in a formal cemetery.[425] Pursuant to CEQA, the Commission must evaluate whether the project will cause a substantial adverse change in the significance of the historical or archaeological resource, and whether the project would disturb any human remains. [426]

Historical resources include resources listed in, or determined to be eligible for listing in the California Register of Historical Resources ("CRHR") or the National Register of Historic Places ("NRHP").[427]

Unique archaeological resources include archaeological artifacts, objects, or sites, that under the "current body of knowledge," can be clearly demonstrated as (1) containing "information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; (2) "has a special and particular quality such as being the oldest of its type or the best available example of its type"; or (3) is directly associated with a scientifically recognized important prehistoric or historic event or person.[428] Unique archaeological resources, or archaeological resources that fall within the definition of a historical

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[424] Ex. 88, p. 3-6 to 3-6.

[425] 14 C.C.R. § 1500 et seq., Appendix G Section V *Cultural Resources*. It should be noted that the CEQA Guidelines also identify a fourth area, paleontological resources or unique geologic features, that should be considered in the cultural resources section. However, the Project's potential impacts to paleontological resources or unique geologic features are discussed in detail in the Geology and Paleontology section of this Brief, and thereof not discussed again here.

[426] 14 C.C.R. § 1500 et seq., Appendix G Section V *Cultural Resources*.

[427] The full scope of resources that can be considered "historical resources" under CEQA are outlined in 14 C.C.R. § 15064.5.

[428] Cal. Pub. Resources Code § 21083.2(g).

resource, are protected under CEQA.[429] If an archaeological resource is neither a unique archaeological nor an historical resource, any potential effects from a project on those resources "shall not be considered a significant effect on the environment."[430]

To determine whether the Project would impact cultural resources, Applicant and Staff conducted, in addition to other research and surveys, consultations with local Native American communities, archival research, reconnaissance surveys, and surface pedestrian surveys.[431] Specifically, searches were conducted at both the Central California Information Center of the California Historical Resources Information System and the Native American Heritage Commission Sacred Lands file, which indicated that there were no Native American Cultural resources in the immediate Project area.[432] A list of Native American contacts representing the nearest tribes that potentially had knowledge of cultural resources in the Project area was provided to the Applicant by the Native American Heritage Commission.[433] Native American groups on that list were contacted by both Applicant and the BLM to ascertain whether the Project area had traditional cultural value or properties, or if there were any concerns about the Project.[434] In addition, a geoarcheological study was conducted to determine the prehistoric archaeological potential of the Project area.[435]

Staff has proposed several monitoring and mitigation measures to be followed during the construction of the powerplant and related linear facilities to ensure that there will be no significant adverse impacts to significant cultural resources during Project construction.[436] With the adoption and implementation of these measures, Staff stated that the Ivanpah Solar Project will not have any significant direct or indirect impacts on cultural resources,[437] and will be in compliance with all applicable state laws, ordinances, regulations, and standards ("LORS").[438]

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[429] 14 C.C.R. § 15064.5.

[430] 14 C.C.R. § 15064.5.

[431] Ex. 300, Section 4.12; Ex. 65, pp. 62-63.

[432] Ex. 65, p. 62.

[433] Ex. 1, Appendix 5.3A.

[434]Ex. 300, Section 4.12-32.

[435] Ex. 65, p. 62.

[436] Ex. 300, pp. 4.12-75 to 4.12-88.

[437] Ex. 300, p. 4.12-74.

[438] Ex. 300, p. 4.12-73.

Applicant agrees that the Project will not have any direct or indirect impacts on cultural resources, agrees that the Project will be in compliance with all applicable LORS, and concurs with these proposed measures.

The FSA's cumulative analysis focused on the potential for Project's cumulative impacts to two types of cultural resources: known cultural resources and unknown cultural resources.[439] Staff stated that the local cumulative effect of the Ivanpah Solar Project, with the adoption of Conditions of Certification CUL-8 and CUL-9, on one known resource, "would be rendered less than cumulatively considerable."[440] In addition, the Staff stated that the Project would not have a regional cumulative effect on known cultural resources, or contribute to cumulative impacts on a local or regional level to unknown cultural resources.[441] Applicant agrees that the Project would not have cumulative impacts, on either a local or regional level, to known and unknown cultural resources, and also agrees to the adoption of Conditions of Certification CUL-8 and CUL-9.[442]

It should also be noted that although, as shown above, Staff ultimately concludes that the Project will not cause cumulative impacts to cultural resources, the FSA expanded the scope of the cumulative impacts analysis for unknown resources to "southeastern California, southern Nevada, and western Arizona."[443] The reasons for Applicant's disagreement with the FSA's unprecedented geographic scope is discussed more thoroughly in Section II.D (Cumulative Impacts); however, Applicant would like to emphasize that in past CEC proceedings, the typical approach has been to limit the cumulative cultural assessment to impacts of the project in combination with other closely related past, present, and reasonably foreseeable probable future projects in the project vicinity. Furthermore, project proponents for future projects in the area can mitigate impacts to as yet undiscovered subsurface archaeological deposits to less than significant by implementing mitigation measures requiring construction monitoring, evaluation of resources discovered during monitoring, and avoidance or data recovery for resources evaluated as significant (eligible for the CRHR or NRHP). Thus, even if analyzed on such an

[439] Ex. 300, p. 4.12-74; *see also* pp. 4.12-69 through 4.12-73.

[440] Ex. 300, p. 4.12-74.

[441] Ex. 300, p. 4.12-74.

[442] However, it should be noted that Applicant does not agree that a regional basis is the appropriate scope for a cumulative impacts analysis.

[443] Ex. 300, p. 4.12-73.

expansive scope, potential impacts from the Project will not contribute to cumulative impacts on cultural resources.

Based on the evidence of record, the Commission should conclude that with the implementation of the proposed Conditions of Certification, the Ivanpah Solar Project will not cause impacts to cultural resources, either directly, indirectly, or on a cumulative basis. Additionally, with the implementation of the proposed Conditions of Certification, the Committee should find that the Project will conform with all applicable LORS relating to cultural resources.

D. CUMULATIVE IMPACTS

This section of the Applicant's Opening Brief addresses a topic which was specifically requested by the Committee: What is the appropriate geographic scope of cumulative impact analysis?

1. The Geographic Scope of Cumulative Impacts Should Be Limited to the Natural Boundaries of the Resource - Such as the Airshed, Watershed or Viewshed.

The appropriate geographic scope for each discipline is the potential area in which the impacts of the Ivanpah Solar Project could combine with those of other closely related past, present, and reasonably foreseeable probable future projects. The FSA has properly defined the geographic scope for many of the disciplines it analyzed. However, in three disciplines the FSA defines a geographic scope which is not legally correct, and as a result of defining an impermissibly broad geographic scope, the FSA concludes incorrectly that the cumulative impacts of the Project on two of these three disciplines would be significant.

Section 15355 of the CEQA Guidelines defines "cumulative impacts" as follows:

> "Cumulative impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
>
> (a) The individual effects may be changes resulting from a single project or a number of separate projects.
>
> (b) The cumulative impact *from several projects* is the change in the environment which results from *the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects*. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. (Emphasis added.)

Although Subsection (a) of Section 15355 seems to suggest on its face that a single project may result in cumulative impacts, case law confirms that cumulative impacts under CEQA involve the potential interrelationships of two or more projects, not the impacts from a single project. Specifically, under Section 15130 of the CEQA Guidelines, an EIR is required to discuss cumulative impacts when the project's incremental effect is "cumulatively considerable." Section 15065(a)(3) defines "cumulatively considerable" as meaning "that the incremental effects of an individual project are significant when viewed in connection with the effects of other closely related past projects, the effects of *other* current projects and the effects of probable *future* projects." (Emphasis added.)[444]

According to EPA guidance, "To avoid extending data and analytical requirements beyond those relevant to decision making, a practical delineation of the spatial and temporal scales is needed. The selection of geographic boundaries ....should be, whenever possible, based on the natural boundaries of resources of concern...."

BLM's NEPA Guidelines for cumulative impact analysis similarly instruct: "The geographic scope is generally based on the natural boundaries of the resource affected, rather than jurisdictional boundaries....For example, *if a proposal affects water quality and air quality, the appropriate cumulative effects analysis areas may be the watershed and the airshed."*[445]

Similar to EPA Guidance and BLM Guidance, CalTrans Guidance for Preparers of Cumulative Impact Assessments explains that "To determine the appropriate geographic boundary for cumulative effects on a particular resource, think about how far an effect can travel. For example, watercourse sedimentation from construction activities can travel long distances downstream, while the impact of construction-period vibration is typically restricted to nearby development."[446]

In summary, CEQA and NEPA regulations as well as EPA, BLM and CalTrans all agree that the geographic scope of cumulative impacts should be limited to the natural boundaries of the resource and, in particular, all EIRs and EISs for specific development projects (as opposed

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[444] Remy *et al*., Guide to the California Environmental Quality Act (10th ed. 1999), p. 465 (stating that "a cumulative impact consists of an impact created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts"). (Emphasis added.)

[445] BLM National Environmental Policy Act Handbook H-1790-1, p. 58 found at: http://www.blm.gov/pgdata/etc/medialib/blm/ak/aktest/planning/planning_general.Par.2116.File.dat/Handbook.NEPA.H-1790-1.2k8.01.30%5B1%5D.pdf

[446] http://www.dot.ca.gov/ser/cumulative_guidance/defining_resource.htm.

to programmatic EIRs) should limit the geographic scope of cumulative impacts to the area in which the effect can travel within the airshed, watershed or viewshed of the specific project.

The Committee must make a determination as to whether the Project may have an incremental impact "when added to other closely related past, present, and reasonably foreseeable probable future projects." The FSA has made no such determination. Instead, the FSA assumes that all indentified projects are "reasonably foreseeable." CEQA requires an analysis, not an assumption.

2. The Geographic Boundary Of Cumulative Analysis Is The Area In Which The Effects Of The Project Can Combine With The Effects Of Other Closely Related Past, Present, And Reasonably Foreseeable Probable Future Projects.

The key question in any cumulative impacts analysis is how the effects of the proposed project combine with the effects of other closely related past, present, and reasonably foreseeable probable future projects.[447] To properly undertake this analysis, the geographic scope of cumulative analysis should be no larger than the area in which the effect of the project can travel.

Many sections of the FSA properly apply this principle. For example, with respect to noise the FSA states:

> Cumulative noise impacts could occur only locally because the ISEGS project impacts cannot combine with impacts of projects beyond this region. The geographic area impacted by cumulative noise impacts is generally limited to areas within approximately one-quarter mile of the ISEGS project. This area is appropriate because noise impacts would generally be localized, mainly within approximately 500 feet from any noise source; however it is possible that noise from different sources within one-quarter mile of each other could combine to create a significant impact to receptors at any point between the projects. At distances greater than one-quarter mile, steady construction noise from the project would generally dissipate into quiet background noise levels.[448]

Whereas the Noise section of the FSA properly limits the geographical boundary of cumulative noise analysis to the area in which the project will be heard, the Visual Section of the FSA does not similarly limit the geographical boundaries of the cumulative visual analysis to the area (viewshed) in which the project will be seen. Instead, the FSA proposes that the

[447] 126 Cal. Rptr. 2d. 441, Cal.App.3 Dist., 2002. Court of Appeal, Third District, California; Communities For A Better Environment et al., Plaintiffs and Appellants, v. California Resources Agency, Defendant and Respondent; California Building Industry Association, Intervener and Appellant.

[448] Ex. 300, p. 4.6-12.

geographical boundary of the cumulative visual analysis be the entire Southern California Mojave Desert or the entire California Desert Conservation Area (CDCA) The CDCA is a vast and diverse area of more than 25 million acres, almost 1/4 of the state of California. Such a vast area plainly exceeds the permissible geographic boundaries for cumulative visual analysis. Just as noise impacts cannot combine with noises beyond the audible range of the project, visual impacts cannot combine with effects beyond the viewshed of the project.

Another section of the FSA to properly define the geographical boundaries of cumulative analysis is traffic. The FSA limits the geographic scope of the cumulative traffic analysis to that area in which the effects of this Project could reasonably combine with other projects:

> Existing traffic on I-15 is mostly attributable to commuter, commercial, and tourist traffic that originates from well beyond the project area, such as Las Vegas, Nevada; Barstow, California; Victorville, California; and Los Angeles, California. However, a comprehensive analysis of traffic generated by projects in such distant locations is beyond the scope of this analysis. Therefore, the geographic extent for the analysis of cumulative traffic and transportation impacts to the regional roadway network is defined as the area up to 30 miles from the project. It should be noted that the geographic extent of regional cumulative impacts would not include currently proposed solar and wind projects located more than 30 miles from the ISEGS project site because the vast area over which these projects are spread and the different construction schedules would preclude the potential for traffic from these projects to combine to result in significant cumulative impacts.[449]

The Traffic Section of the FSA notes that traffic conditions may exist all along I-15 from Los Angeles to Las Vegas. The FSA properly concludes that these regional effects are "beyond the scope" of the cumulative impacts analysis because the vast area over which these projects are spread would preclude the potential for these projects to combine.[450] The Visual Section of the FSA, on the other hand, ignores this common sense approach and proposes to include not just I-15 but all major roadways within the Mojave Desert or within the CDCA as the geographic boundary for cumulative visual analysis, notwithstanding the vast area over which these projects are spread and the fact that they cannot be seen in combination with the Ivanpah Solar Project.

[449] Ex. 300, p. 6.10-26.

[450] Id. at 6.10-26.

3. The Geographic Boundary Of Cumulative Analysis Must Be Large Enough To Allow Meaningful Analysis, But Not So Large As To Be Impractical Or Unwieldy.

While the Commission has discretion to set the appropriate geographic boundaries for each of the cumulative analysis of each resource, that discretion must not be arbitrary or capricious. The boundary must be large enough to allow meaningful analysis, but not so large as to be impractical or unwieldy.[451] EPA Guidance expressly advises:

> EPA reviewers should recommend that the proper spatial scope of the analysis include geographic areas that sustain the resources of concern. Importantly, the geographical boundaries should not be extended to the point that the analysis becomes unwieldy and useless for decision-making. In many cases, the analysis should use an ecological region boundary that focuses on the natural units that constitute the resources of concern.

The Supreme Court in *Kleppe* addressed the selection of an assessment area in the coal mining context. In *Kleppe*, environmental groups challenged federal agencies responsible for developing coal reserves on federally owned or controlled land. Plaintiffs sought a declaration that the agencies were required to prepare a region-wide, comprehensive environmental impact statement. (*Kleppe*, *supra*, 427 U.S. at pp. 394-396.) The Supreme Court disagreed, finding: "The determination of the region, if any, with respect to which a comprehensive statement is necessary requires the weighing of a number of relevant factors, including the extent of the interrelationship among proposed actions and practical considerations of feasibility." The court noted the agencies disputed the environmental groups' contentions that the interrelationship of environmental impacts was regionwide. Instead, the agencies determined that the appropriate scope of comprehensive impact statements should be based on basins, drainage areas, and other factors. The court found: "We cannot say that [the agencies'] choices are arbitrary. Even if environmental interrelationships could be shown conclusively to extend across basins and drainage areas, practical considerations of feasibility might well necessitate restricting the scope of comprehensive statements." (*Kleppe*, *supra*, 427 U.S. at p. 414.)

Similarly in *Ebbetts Pass Forest Watch v. Department of Forestry*, plaintiffs argued that the biological assessment area for a timber harvesting plan must be defined to include the entire Sierra Nevada ecosystem, so as to include the entire range of the California spotted owl and the

[451] *Ebbetts Pass Forest Watch v. Department of Forestry & Fire Protection* (Sierra Pacific Industries) (2004)123 Cal.App.4th 1331.

historical range of the Pacific fisher's Sierra Nevada population, as well as all foreseeable projects in the Sierra Nevada. The Court of Appeals rejected this argument and quoted approvingly the Departments response:

> The Department responded: "Given the guidance in the [technical] rules ..., it does not appear to CDF that an analysis of impacts from SPI logging *for an assessment area the size of the entire Sierra Nevada would be 'practical or reasonable'* within the framework of considering approval of [the] THP ... . Likewise, CDF finds that *the information that would be needed to make such an assessment of the impacts on an area the size of the entire Sierra Nevada is not reasonably available* prior to the submission of [the] THP ..., which is the project that is under consideration at this time. And third, the company appears to know only in very general terms ... their plans for the foreseeable future, *and there are not enough specifics to be able to make a through [sic] analysis of impacts throughout an area the size of the entire Sierra Nevada*, although there is enough information available to make a determination of the cumulative impacts on an area the size of the [THP] assessment area ...[452]

The same considerations which caused the Department of Forestry to reject a proposal to consider the cumulative impacts of the entire Sierra Nevada, apply with equal force to the FSA's proposal to consider the cumulative visual impacts of the entire Southern California Mojave Desert. Such a broad assessment of the entire Southern California Mojave Desert is neither practical or reasonable. There simply is not enough specific information to be able to make a thorough analysis of impacts throughout an area the size of the entire Southern California Mojave Desert, although there is enough information available to make a determination of the cumulative impacts on the Project's viewshed. Because of the excessive scope of the FSA's "regional" cumulative impacts analysis, the FSA necessarily speculates on the actual foreseeability of all of the diverse projects that may or may not occur within this enormous region.

4. A "Regional" Approach To A Cumulative Visual Impact Assessment That Encompasses 1/4 Of The State Of California Is Improper And Unprecedented.

We know of no project EIR or EIS that has ever assessed the cumulative visual impacts of a project within such a vast region as the Southern California Mojave Desert or the entire

[452] *Ebbetts Pass Forest Watch v. Department of Forestry & Fire Protection* (Sierra Pacific Industries) (2004)123 Cal.App.4th 1353-54.

CDCA.[453] And the Staff's expert witness for visual resources, could not recall even one other project EIR or EIS that he had prepared, read or reviewed in the course of his 25-year career where the EIR or EIS has reviewed the cumulative impacts on visual resources on a regional basis. .[454]

Consistently, over the past 35 years, the Commission has limited the geographical boundaries of the cumulative visual analysis to the project's viewshed. Compare, as but one example, how the Staff analyzed the cumulative visual impacts of the Colusa Power Project:

> The proposed power plant would combine with the adjacent, existing PG&E compressor station and nearby existing transmission towers to increase the industrial visual character of the existing setting. Though the combined effect of the two facilities taken together is additively greater than either taken alone, their cumulative impact would not, in this case, exceed a new and higher threshold of impact than the direct effects of the project or existing compressor individually. For example, from KOP 2 the overall visual dominance – that is, the degree to which the proposed project features would demand and dominate viewers' attention - was considered to be moderate. The level of contrast and dominance would be moderate with or without the presence of the existing compressor structures, even though the combined effect would be incrementally higher. One reasonably foreseeable future cumulative project was identified in the project viewshed, an 18-unit residential subdivision near Maxwell, roughly 5 miles from the project site (E&L2006a, p.8.4-4). At this background distance, the projects would have negligible visual effects on one another, and the potential interaction of the two projects within one viewshed would be relatively minor. Furthermore, most future projects with the potential to contribute to significant cumulative visual impacts – for example, additional power plants or other large industrial facilities – would, like the proposed project, require a General Plan Amendment. Although project-created visible plumes could theoretically interact with any existing plumes to create cumulative impacts, no such plume sources within the project viewshed were identified. Thus, no adverse cumulative visual impacts from the project are anticipated."[455]

The above cited analysis, which is typical of how the Commission has heretofore addressed cumulative visual impacts, focused on the *combined* effect of the project with *nearby* projects within the *viewshed.* The analysis did not expand to consider the cumulative visual effects of other power projects in the Sacramento Valley.

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[453] Compare the Draft EIS for the DesertXpress which defined the area of cumulative analysis for effects related to visual resources and aesthetics as that area which "includes the viewshed, or the visible environment, surrounding the action alternatives." Ex. 68, p.3.16-30.

[454] 12/14 RT 215.

[455] Colusa Generating Station Final Staff Assessment, 06-AFC-9, November 2007, p. 4.12-24.

5. A "Regional" Approach To Cumulative Land Use Impact Assessment Encompassing The Entire Mojave Desert In Three States, Is Also Improper And Unprecedented.

Typically, when the Commission assesses the cumulative land use impacts of a power plant project it asks two questions: (1) Do the incremental effects of the proposed project on land uses, together with other closely related past, present, and reasonably foreseeable probable future projects within the vicinity of the project site, compound or increase the incremental effects of the proposed project? (2) Will the proposed project make a significant contribution to regional impacts related to new development and growth (population immigration), and the resultant increase demand for public services, and expansion of public infrastructure?

The Colusa FSA reflects this typical approach:

> Staff has considered the proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project (Pub. Resources Code Section 21083; Cal. Code Regs., tit.14, sections 15064(h), 15065(c), 15130, and 15355.) According to discussions with the Colusa County Department of Planning and Building Administration, there are no projects under construction within the vicinity of the proposed project site. The proposed project is not expected to make a significant contribution to regional impacts related to new development and growth (population immigration), and the resultant increase demand for public services, and expansion of public infrastructure.[456]

In contrast to the typical approach to cumulative land use assessment, the FSA in this case does not stop with an analysis of the cumulative land use impacts in the vicinity of the project. The FSA also states that an "analysis of cumulative effects for land use includes consideration of the numerous solar and wind development applications in the southern California, Arizona, and Nevada Mojave Desert."[457] Not only is such a vast scale of analysis unprecedented, but, as we explain above, it violates the guidance given by CEQA and NEPA regulations as well as EPA, BLM and other agencies. Whatever the effects of the Project on land use may be, they cannot combine with the effects of projects which are not closely related and which are hundreds of miles away.

[456] Colusa Generating Station Final Staff Assessment, 06-AFC-9, November 2007, p. 4.5-7.

[457] Ex. 300, 6.5-20.

E. LAND USE

The land use analysis for a project focuses on consistency with local land use plans, ordinances, and policies, and the project's compatibility with existing and planned land uses. Appendix G of the CEQA Guidelines provide for the evaluation of potential impacts: (1) whether the project will physically divide an existing community; (2) whether the project will conflict with any applicable habitat conservation plan or natural community conservation plan; and (3) whether the project will conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction, or that would normally have jurisdiction over the project.[458]

With the implementation of the Condition of Certification LAND-1 proposed by Applicant, and Condition of Certification LAND-2, and the evidence of record in this proceeding, the Committee should conclude that the Project will comply with all applicable LORS and will not result in significant impacts to land use.

1. The Project Will Not Physically Divide An Existing Community.

Under CEQA, a project may cause a significant effect on the environment if it will "disrupt or divide the physical arrangement of an established community," creating a "physical barrier[ ]dividing a community."[459] As noted by Staff, "neither the size nor the nature of the project would result in a physical division or disruption of an established community" as the Project will be located on "undeveloped public lands in unincorporated San Bernardino County" that is not located "within or near an established community."[460] Thus, the Project does not cause a significant impact on this basis.

2. The Project Does Not Conflict With Any Applicable Habitat Conservation Plan Or Natural Community Conservation Plan.

CEQA also requires a consideration of whether a project will conflict with any applicable habitat conservation plan or natural community conservation plan.[461] As noted in the FSA, while the Project "is in the general area" addressed by the USFWS Desert Tortoise Recovery Plan, which designates areas of critical habitat for the desert tortoise, the Project itself "is not within

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[458] 14 C.C.R. § 15382, Appendix G, Section IX *Land Use and Planning.*

[459] *Gentry v. City of Murrieta,* 36 Cal. App. 4th 1359, 1419 (Cal. Ct. App. 1995)

[460] Ex. 300, p. 6.5-11.

[461] 14 C.C.R. § 15382, Appendix G, Section IX *Land Use and Planning.*

designated critical habitat for any species."[462] Furthermore, there are no other habitat conservation plans or natural community conservation plans applicable to the Project location.[463] Therefore, the Project is in full compliance with CEQA in this respect as well.

3. The Project Is In Compliance With All Applicable Land Use Policies, Plans And Regulations.

a. The Project Complies With the California Desert Conservation Area Plan of 1980 ("CDCA Plan") and Title 43, Code of Federal Regulations § 1610.5-3.

Pursuant to Section 1610.5-3 of Title 43 of the Code of Federal Regulations, actions taken by the BLM "shall conform to the approved plan." Currently, public lands within the California Desert District, which includes the Ivanpah Valley, are managed in accordance with the CDCA Plan.[464] The CDCA Plan is the "key land use plan affecting" the Project.[465] The purpose of the CDCA Plan is to provide "guidance for the management of the public lands of the California Desert" by the BLM.[466] The Project site "includes areas…designated as Multiple Use Class L."[467] Solar power generation facilities, such as the Ivanpah Solar Project, are expressly permitted by the CDCA Plan for areas designated as Class L, although new facilities not currently identified in the CDCA Plan must be added through the CDCA Plan Amendment process.[468] The CDCA Plan also recognizes that even within areas designated as "multiple use," "[m]any uses in a given area will be mutually exclusive" and will "require selective decisions to be made for that area."[469] Accordingly, the CDCA Plan specifically contemplates that lands managed by the BLM as "multiple use" may require, in some instances, tradeoffs between certain uses.

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[462] Ex. 300, pp. 6.5-11, 6.2-29.

[463] Ex. 300, p. 6.5-11.

[464] For a map of the general areas included with the California Desert District, please see http://www.blm.gov/ca/st/en/fo/cdd.html.

[465] Ex. 300, p. 6.5-1.

[466] Introduction to the CDCA Plan, p. 5 (Aug. 1999) *available at* http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/cdd/cdcaplan.Par.15259.File.dat/CA_Desert_.pdf.

[467] Ex. 300, p. 6.5-11.

[468] CDCA Plan, p. 15, 95 (Aug. 1999) *available at* http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/cdd/cdcaplan.Par.15259.File.dat/CA_Desert_.pdf.

[469] CDCA Plan, p. 21 (Aug. 1999) *available at* http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/cdd/cdcaplan.Par.15259.File.dat/CA_Desert_.pdf.

Staff and Applicant agree that the Project will fully comply with the CDCA Plan.[470]

4. The San Bernardino County General Plan and Development Code Are Not Applicable LORS.

Applicant and Staff agree as to the applicability of the San Bernardino County General Plan and Development Code to the Ivanpah Solar Project. While, the FSA had note that the County General Plan is an applicable LORS and that the project fails to comply with three of the General Plan policies, However, after reviewing applicable legal requirements, staff now "concludes that San Bernardino County jurisdiction only extends to off-site infrastructure installation and maintenance activities outside the BLM boundaries, which would exclude the ISEGS site located within BLM boundaries."[471] As recognized in the FSA, the Ivanpah Solar Project is "located entirely on public land and would be under federal jurisdiction." [472]The San Bernardino County General Plan itself notes that "County designated Land Use Zoning Districts," and accordingly, all corresponding zoning and land use restrictions, "do not apply to Federal or State owned property."[473] Thus, because San Bernardino County zoning and land use restrictions do not apply to the Ivanpah Solar Project, the County's General Plan policies do not apply to the Ivanpah Solar Project. Simply stated, because the Project is entirely on Federal land, Applicant and Staff agree that the San Bernardino County is not an agency that has land use jurisdiction over this Project and the County's land use plans are not applicable LORS.

5. The Ivanpah Solar Project Will Not Result in Significant and Unmitigable Cumulative Land Use Impacts

The FSA states that the Project will result in significant cumulative impacts to land use to both the Ivanpah Valley and to the Mojave Desert region. The FSA asserts that the "loss of public lands for other uses" is "significant with respect to CEQA as well as NEPA significance criteria in 40 C.F.R. 1508.27."[474]

In Section II.D (Cumulative Impacts) of this Brief, *infra*, we explain why it is impermissible for the FSA to evaluate cumulative land use impacts on a vast regional basis,

[470] Ex. 300, p. 6.5-13.

[471] Ex. 315, pp, 1-2, 6-10.

[472] Ex. 300, p. 6.5-3.

[473] Ex. 1100, pp. I-12, 13, and 14.

[474] Ex. 300, p. 6.5-22.

encompassing the entire Mojave Desert. In the past, the Commission has assessed the cumulative land use impacts by only looking at the combined impacts of other development near the project site. For the recently approved Avenal Energy Project, the Commission concluded that "There is no evidence of potential cumulative land use impacts resulting from development of the Avenal Energy Project because there are no anticipated zoning changes or proposals for future development near the project site."[475] In the Avenal case, the Commission assessed only the cumulative effects of other development near the project site, and did not seek to evaluate all development with the region. For these same reasons, the FSA's assertion that the Project will have a significant regional cumulative land use impact should be rejected.

As for the FSA's assertion that the Project will have a cumulatively considerable impact on land use within the Ivanpah Valley, the FSA seems to assert that development of the Ivanpah Solar Project "would preclude and in some cases, unduly restrict existing and future multiple uses such as recreation, wildlife habitat, livestock grazing, and open space..."[476] However, there is no analysis whatsoever to support this assertion. The FSA does not specify which uses would be "unduly restricted" or why the heavily biased term "unduly" is used in this assessment, when BLM policies clearly permit development on Multiple Use lands. The assertion that the Project will "unduly" restrict future uses reflects a fundamental misunderstanding of BLM Multiple Use policies.

The absence of a critical analysis to support the assertion of a cumulatively considerable land use impact is very troubling. For example, the FSA asserts here that the impact is cumulatively considerable because it could preclude uses such as recreation, yet the FSA elsewhere correctly recognizes that "The proposed project location itself is not specifically permitted, used, or designated for any recreational activity."[477] Similarly, the FSA seems to assume, without any analysis, that a reduction in cattle grazing on the Project site would be an adverse, rather than a positive impact.

The FSA's analysis of cumulative land use impacts is a radical departure from the manner in which the Commission typically assesses cumulative impacts on land use. When the Commission assesses the cumulative impacts of a project on land use the Commission asks

[475] Avenal Energy Final Decision, 08-AFC-1, December 2009, p. 307.

[476] Ex. 300, p. 6.5-20.

[477] Ex. 300, p. 6.18-15.

whether the project is not expected to make a significant contribution to development near the project, the resultant increase in demand for public services, or the expansion of public infrastructure.[478] The evidence of record is clear that the Ivanpah Solar Project will not result in a demand for public services or the expansion of public infrastructure. The Ivanpah Solar Project will also not contribute to regional growth. The Ivanpah Solar Project will contribute to regional development, but will do so in a manner fully consistent with all applicable land use plans and policies. Therefore, the Commission should find that the Ivanpah Solar Project will not have a significant cumulative effect on land use within the Ivanpah Valley.

F. CEQA OVERRIDE

The Energy Commission has two separate and distinct authorities to approve projects notwithstanding conformity with particular laws. Although the statutory scheme requires separate and different findings, both types of overrides require a similar balancing of benefits and impacts, as well as the consideration of feasible alternatives.[479]

First, the Commission has the authority pursuant to Public Resources Code Section 25525 to approve a powerplant notwithstanding noncompliance with any applicable state, local, or regional standards, ordinances, or laws (LORS). In this case, the Staff has concluded that the project is in compliance with all applicable LORS. Applicant agrees with this conclusion and thus the Commission need not exercise its LORS override authority in this case.

Second, in addition to approval of a project notwithstanding nonconformity with LORS, the Commission also has the authority under Public Resources Code Section 21080.5 to approve a project notwithstanding potentially significant environmental effects through a statement of overriding considerations. The FSA alleges that the Project will have a potentially significant adverse effect on (1) Land Use on a cumulative basis, (2) Traffic and Transportation on a cumulative basis and (3) Visual Resources on a direct, indirect, or cumulative.

Applicant respectfully suggests that the record supports findings of no significant environmental effects of any kind for these disciplines. However, assuming for the sake of argument, that the Commission found the Project could have a potentially significant environmental effect, we explain below why the Commission should exercise its authority under

[478] See for example, Avenal Energy Final Decision, 08-AFC-1, December 2009, p. 307.

[479] Metcalf Energy Center Final Decision, 99-AFC-3, September 24, 2001, p,. 461.

Section 21080.5 to approve the Project notwithstanding any potentially significant environmental effect.

1. The Commission Has Authority To Approve A Project Notwithstanding the Project May Have A Significant Environmental Effect.

Prior to approving a project for which the Commission's certified regulatory program has identified one or more significant environmental impacts, the Commission must make one or more of the following findings, accompanied by a brief explanation of the rationale, pursuant to Section 15091 of the CEQA Guidelines, for each identified significant impact:

- Changes or alterations have been required in, or incorporated into, such project which avoid or substantially lessen the significant environmental effect as identified in the final environmental impact report.
- Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency, or can and should be adopted by such other agency.
- Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the environmental impact report.

Section 15092 of the CEQA Guidelines states that after consideration of an EIR, and in conjunction with the Section 15091 findings identified above, the lead agency may decide whether or how to approve or carry out the project. The lead agency may approve a project with unavoidable adverse environmental effects when specific economic, legal, social, technological, or other considerations outweigh those effects. Section 15093 requires the lead agency to document and substantiate any such determination in a "statement of overriding considerations" as a part of the record.

2. Changes Have Been Incorporated Into The Project Which Avoid Or Substantially Lessen The Significant Environmental Effect As Identified By The FSA.

Under CEQA, the Commission may approve the Ivanpah Solar Project if it finds that changes have been incorporated into the Project which avoid or substantially lessen the significant environmental effect as identified in the final environmental impact report.[480] As explained below, changes have been incorporated into the Project which substantially lessen the three significant environmental effects identified in the FSA.

[480] 14 C.C.R. § 15091.

Cumulative Land Use: In Section II.D. (Cumulative Impacts) and Section II.E.5 (Land Use) of this Brief, *infra*, we explain why it is impermissible for the FSA to evaluate cumulative land use impacts on a vast regional basis, encompassing the entire Mojave Desert. In the past, the Commission has assessed the cumulative land use impacts by only looking at the combined impacts of other development near the project site. The FSA's analysis of cumulative land use impacts is a radical departure from the manner in which the Commission typically assesses cumulative impacts on land use. When the Commission assesses the cumulative impacts of a project on land use the Commission asks whether the project is not expected to make a significant contribution to development near the project, the resultant increase in demand for public services, or the expansion of public infrastructure.[481]

Cumulative Traffic Impacts: The FSA asserts that there is a significant cumulative traffic impact on northbound I-15 traffic on Friday afternoons during peak construction. To substantially lessen this impact, the Project owner will implement a Transportation Control Plan (TCP) to address workers' trips on Friday afternoons and minimize impacts to northbound I-15 traffic. The specific TCP elements will be identified once the specifics of the selected Construction Contractor's schedule are known, but should include provisions for staggering shifts and worker departure times, buses for workers, and provisions for monitoring. With the implementation of appropriate TCP measures, the cumulative short-term impact on I-15 traffic will be reduced to a less-than-significant level.

Direct and Indirect Visual Impacts: The FSA asserts that the Project will have a significant impact on visual resources from select KOPs including I-15 and the Mojave National Preserve and the Stateline Wilderness Area. To substantially lessen this impact, the Applicant will incorporate the Biological Mitigation Proposal, Mitigated Ivanpah 3. See Section II.H. (Traffic and Transportation) below. This proposal reduces the project size, reduces the number of solar towers from seven to three and thereby reduces the Project's impacts on visual resources, particularly the impacts on views from the CEC's KOPs 9 (north of Ivanpah 3) and 10 (Benson Mine vicinity). In addition, because the number of solar towers topped by receiver units will be reduced from seven to three, the potential for the receiver unit glare impacts to travelers on I-15 about which the FSA expresses concern will be substantially reduced. The reduction of the area occupied by Ivanpah 3 will result in the northern boundary of Ivanpah 3 being pushed farther

[481] See for example, Avenal Energy Final Decision, 08-AFC-1, December 2009, p. 307.

south, increasing the distance between it and the Stateline Wilderness to 1.57 miles at its closest point with the closest power tower being more than two miles from the wilderness area boundary. With the reduction in the number of solar towers at Ivanpah 3 from five to one, the area from which the Project has the potential to be visible would be less than under the original design. While the Project would still be visible from both KOPs 9 and 10, the effect of the Project on the views from these locations would be even less than before, reflecting the fact that the northern edge of Ivanpah 3 under the Mitigated Ivanpah 3 alternative would be farther from KOP 9 than before, that the Project would occupy a smaller area and have about 24,500 fewer heliostats, and that the total numbers of solar towers and associated receiver units would be reduced from seven to three.

With the reduced footprint and the reduction of the Ivanpah 3 towers from five towers to one, the beneficial effects on travelers along I-15 associated with fewer towers and a reduced footprint, and the Mitigated Ivanpah 3 design increasing the distance between the Project and the Stateline Wilderness Area and the Mojave Preserve, the potential impacts are substantially lessened to a less than significant level

Cumulative Visual Impacts: The FSA asserts that there will be a cumulative visual impact within the project viewshed. To substantially lessen this impact, the Applicant will incorporate the Biological Proposal. See Section II.H (Traffic and Transportation) below. For the reasons set forth above, the Biological Mitigation Proposal will reduce the project footprint, reduce the number of heliostats by 24,000 and reduce the number of towers from seven to three. All of these changes will be incorporated into the Project and will combine to result in cumulative visual impacts that are less than significant.

3. Specific Economic, Legal, Social, Technological, Or Other Considerations, Including Provision Of Employment Opportunities For Highly Trained Workers, Make Infeasible The Mitigation Measures Or Project Alternatives Identified In The Environmental Impact Report.

Apart from the above described mitigation measures that will be incorporated into the Project (Transportation Control Plan and Biological Mitigation Proposals) there are no other mitigation measures that have been proposed to mitigate the three significant impacts described in the FSA.

A range of alternatives to the proposed Project were exhaustively analyzed by the Applicant and Staff. As explained in Section II.A (Alternatives) of this Brief, none of these

alternatives are feasible. For purposes of CEQA review, "feasibility" does not mean that an alternative exists that could eliminate an environmental effect irrespective of difficulty or expense. It means that the alternative is "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors."[482] The reasons why these alternatives are infeasible are summarized in Section II.A (Alternatives).There are also other economic, legal, social and technological benefits associated with the Ivanpah Solar Project discussed below.

From an economic and social perspective, the Ivanpah Solar Project will contribute significantly to the improvement of the environment, in furtherance of the States GHG and RAPS goals. The challenge the world faces is immense. According to the International Energy Agency, to stabilize CO2 in the atmosphere at 450 ppm - the consensus target adopted by the scientific community –we will need to build the equivalent of 4,900 gigawatts of new carbon free power plants over the next 20 years. The data is clear – we will only be able to address climate change if we build renewables at scale. That's 245 new carbon free power plants, each the size of a nuclear plant, every year. Governor Schwarzenegger recently signed an Executive Order requiring California's utilities to obtain one third of their energy from renewable resources.

The Ivanpah Solar Project will avoid more than 13 million tons of CO2 emissions over its lifecycle, as well as 85 percent of the air emissions from an equally-sized natural gas plant. The plants will employ dry-cooling, which will reduce water usage by 90 percent, allowing the Ivanpah Solar Project to use approximately 30 times less water than competing technologies using wet cooling. The Project will use roughly 100 acre feet of water – the equivalent of 300 homes' annual water usage, and far less than the amount used by the adjacent golf course or nearby casinos. While dry-cooling comes at an additional cost, this proven technology must be used to help conserve precious desert water. The Ivanpah Solar Project's environmental considerations to reduce development impacts also include a low-impact design and use of a currently-used high-voltage transmission pathway that transects the site. The low impact design utilizes BrightSource's proprietary hanging heliostats, which minimize the need for grading and concrete pads required for competing technologies.

The State of California has made the Renewable Portfolio Standard and greenhouse gas ("GHG") policy the cornerstone of the State's energy policy. These important State interests are

[482] *Sierra Club v. County of Napa* (2004) 121 Cal.App.4th 1490.

articulated in numerous documents published by the State. Just a representative sample of these documents includes the following:

- AB 32, The Global Warming Solutions Act of 2006.
- The AB 32 Scoping Plan. CARB, December 2008.
- The Integrated Energy Policy Report (IEPR), 2002-2009.
- Climate Action Team Report to Governor Schwarzenegger and the Legislature. CalEPA, March 2006.
- Integration of Renewable Resources. CalISO, Nov. 2007.
- Draft Final Opinion on Greenhouse Gas Regulatory Strategies: Joint Agency Proposed Final Opinion. CPUC/CEC 2008.
- Framework for Evaluating Greenhouse Gas Implications of Natural Gas-Fired Power Plants in California. CEC (MRW and Associates) May 2009.

California's renewables "gap" for meeting 33% RPS by 2020 has been variously cited at between 59,000 GWh (RETI Phase 1b Report) and 75,000 GWh (CPUC 33% RPS Implementation Analysis). These and other state policy documents demonstrate the public interest in environmental protection.

From a technological perspective, the Ivanpah Solar Project will also improve the reliability of the California electrical system. With the right infrastructure in place, our state systems will enjoy a reliable mix of wind, geothermal, hydroelectric, and solar power with a minimum of conventional power plants. The Ivanpah Solar Project is a keystone to this renewable energy mix, providing quantities of power at peak, and complementing the production profiles of wind and other resources.

The purpose of the Ivanpah Solar Project is to combine California's unique solar characteristics with advanced and environmentally-responsible utility-scale solar technology to reliably deliver cost-effective, clean energy to one of the biggest energy markets in the world. The BrightSource Energy Luz Power Tower 550 (LPT 550) technology has been proven at our demonstration facility in Israel. This technology is reliably producing the world's highest temperature steam for solar energy, and has been validated by an independent engineering firm.

Further, the Ivanpah Solar Project provides reliability benefits by load following and by being available on peak. The Project's generation is "peak coincident," meaning it delivers power when large air conditioners and other loads require additional generation resources. As the

penetration of variable (or “intermittent”) resources increases in the electrical system, reliability can only be maintained either through multiple renewable technologies in multiple geographic locations reinforcing each other, or through conventional peaker plants, often located in low income areas where environmental justice is a concern. It is not viable from a planning or operating perspective to meet RPS goals of 20 to 33% by relying on a single technology. It is not a matter of the Ivanpah Solar Project “or” distributed PV. For California to meet its goals, it must rely on central station solar power and distributed PV and many other resources.

The Ivanpah Solar Project and other central-station solar power will have scheduling coordinators required to forecast their operation, including weather impacts, so that the grid operator is constantly informed of what the central-station solar power plant will be doing and why, so the grid operator can react appropriately. Central station plants (solar or otherwise) are designed to be able to move power across the grid through the integrated transmission system.

Unlike distributed resources, central-station solar power like the Ivanpah Solar Project will be informing the grid operator of forecasted weather conditions and the power plant’s planned response, including informing the grid operator of when the plant will be returning to full output. The grid operator would not have the same surprise with central station solar power, either when output is reduced or when output resumes, than it would with distributed PV. Additionally, solar-thermal generation output is not as volatile due to thermal mass, possible storage and/or supplemental gas firing.

As a 400 MW central station plant, the Ivanpah Solar Project provides the transmission system operator with flexibility to move the power to where it is needed on an integrated utility system. Distributed PV cannot provide this system flexibility. Central station plants including solar thermal plants are necessary for reliable system operation because they contribute both real power (in MWH), but also help by providing other important utility requirements such as reactive power, voltage and frequency support, reserves and other such requirements.

Among other legal and social benefits, the Ivanpah Solar Project also provides substantial consumer benefits. California’s largest utilities have recognized the value of this technology to their ratepayers. BrightSource has signed contracts for over 2.6 gigawatts of solar power with Pacific Gas & Electric Company (PG&E) and Southern California Edison Company (SCE). The California Public Utilities Commission (CPUC) has approved the PG&E contracts, the first two of which are for two of the three plants comprising the Ivanpah Solar Project, and is currently

reviewing the SCE contracts, including the contract for the third of the Ivanpah Solar Project plants. Our PG&E and SCE contracts represent approximately one-third of all of the announced solar thermal utility-scale contracts in the nation. These projects were selected after a rigorous competitive RFO process and represent the best possible value to ratepayers of all the many projects that were reviewed.

The Ivanpah Solar Project was identified as a "fast-track" priority by the U.S. Department of Interior for obtaining federal stimulus benefits for California under the 2009 American Recovery and Reinvestment Act (ARRA). The Project has also been selected as one of sixteen short-listed applicants to receive a loan guarantee under the U.S. Department of Energy (DOE) 1703 program, established by the 2005 Energy Policy Act, and is the only utility-scale solar project so selected.

In conclusion, for the reasons set forth in this Brief, the Commission should conclude that the Project will have no significant adverse environmental effects. However, even if the Commission concludes differently considering the significance of the visual and traffic impacts, the Commission should find, as it did in the Metcalf Energy Center Final Decision, that the evidence conclusively establishes the benefits attributable to the Project, and does not persuasively suggest that the Ivanpah Solar Project as mitigated would create an impact so significant as to prevent it being constructed and operated. Therefore, the Commission should be compelled by the weight of the evidence of record to find and conclude that the Ivanpah Solar Project provides, on balance, a level of benefits sufficient to support findings of "overriding considerations."

G. RECREATION

1. Proposed Condition of Certification REC-1 Is Contrary to the Public Resources Code Section Cited and Should Be Rejected.

Condition of Certification REC-1, as proposed in the FSA, would require the project owner to construct and maintain a "Solar/Ecological Interpretive Center" in the Construction Logistics Area. The Condition is extremely prescriptive, detailing even the slightest minutia such as type and number of toilets. REC-1, as proposed, would require the facility to provide:

1. surfaced public parking for 12 vehicles (4 of which would allow vehicles with trailers);
2. information kiosks describing the Ivanpah Solar Project's solar energy technology;

3. picnic area with 8 shaded tables;
4. garbage cans;
5. interpretive signs identifying local landmarks and ecological features;
6. a two stall contained restroom facility (or a facility with flush toilets and sinks);
7. a drinking fountain; and
8. native plant landscaping with plant identification labels.[483]

This new Interpretive Facility is not proposed as mitigation of any identified impact on recreational resources. Indeed, the FSA is quite clear that "The proposed project location itself is not specifically permitted, used, or designated for any recreational activity. The proposed location represents a small portion of the overall area available for recreation in the Mojave Desert, and although the proposed project would require re-direction of access roads to recreation areas, the magnitude of this redirection is expected to be small."[484]

While the FSA identifies some potential impacts on recreational users, it concludes that "These impacts are not expected to be significant as a recreation impact under the primary CEQA thresholds of significance because they do not increase the level of use which could damage recreational facilities, and do not require the construction or expansion of recreational facilities which could impact the environment. Under NEPA and CEQA, the project's direct impacts are not considered significant because the ISEGS would not disrupt recreation opportunities, and the project's indirect impacts by itself would not substantially diminish the quality of outdoor recreation experiences."[485]

REC-1 is proposed by the FSA not because the Project will significantly impact recreational resources. Instead, the FSA proposes REC-1 because the Staff believes than an Interpretive Facility is required by Public Resources Code Section 25529.[486] For the reasons set forth below, the Staff has seriously misinterpreted Section 25529.

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[483] Ex. 300, p. 6.18-16.

[484] *Id*. at 6.18-15.

[485] *Id*.

[486] Public Resources Section 25529 provides as follows:

> When a facility is proposed to be located in the Coastal Zone or any other area with recreational, scenic, or historic value, the [Energy] Commission shall require, as a condition of certification of any facility contained in the application, that an area be established for public use, as determined by the Commission. Lands within such area shall be acquired and maintained by the Applicant and shall be available for public access and use, subject to restrictions required for security and public safety. The Applicant may dedicate such public use zone to any local agency agreeing to operate or maintain it for the benefit of the public. If no local agency agrees to operate or maintain the public

At the most fundamental level, this statute is not applicable to the Project. Moreover, even if we assume for the sake of argument that the statute was applicable, the Applicant will fully satisfy this requirement by rerouting and improving local roads and trails and by making these roads available for public use and access. The Applicant should not be required to construct a picnic area or an interpretative facility in the middle of the Solar Project between Ivanpah I and Ivanpah II.

Article 10, Section 4 of the California Constitution affords special protection to public access to the coast.[487] In furtherance of this Constitutional right of public access to coastal and other navigable waters, the voters passed Proposition 20, the Coastal Initiative of 1972. Proposition 20, as subsequently codified by Public Resources Code Section 30212, requires that new development projects in coastal areas must ensure public access along the coast, except (1) when it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, or (2) adequate access exists nearby, or (3) agriculture would be adversely affected. This statute provides that a dedicated accessway shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.[488]

When the Warren Alquist Act was enacted in 1974, Section 25529 was included to recognize the provisions of Proposition 20. By its express terms, Public Resources Code Section 25529 was enacted to protect public access within the coastal zone. The term "coastal zone" as used in Section 25529 was expressly defined by Public Resources Code Section 25103 as that zone defined by Proposition 20.[489]

Because the Warren Alquist pre-empted the general land use authority of the Coastal Commission within the coastal zone for certain powerplants, Section 25529 was patterned after

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> use zone for the benefit of the public, the Applicant may dedicate such zone to the state. The [Energy] Commission shall also require that any facility to be located along the coast or shoreline of any major body of water be set back from the shoreline to permit reasonable public use and to protect scenic and aesthetic values.

[487] Article 4 provides that "No individual, partnership, or corporation, claiming or possessing the frontage or tidal lands of a harbor, bay, inlet, estuary, or other navigable water in this State, shall be permitted to exclude the right of way to such water whenever it is required for any public purpose, nor to destroy or obstruct the free navigation of such water; and the Legislature shall enact such laws as will give the most liberal construction to this provision, so that access to the navigable waters of this State shall be always attainable for the people thereof."

[488] Public Resources Code Section 30212.

[489] When the Legislature amended the statutory provisions of Proposition 20 in 1976, Public Resources Code Section 25103 was amended to define coastal access consistent with the California Coastal Act of 1976.

Section 30212, to provide that when a facility is proposed to be located in the coastal zone the Commission shall require, as a condition of certification that an area be established for public use, as determined by the Energy Commission. Similar to Section 30212, Section 25529 provides that lands within such area shall be available for public access and use, subject to restrictions required for security and public safety. And, as in Section 30212, the applicant may dedicate such public use zone to any local agency agreeing to operate or maintain it for the benefit of the public. If no local agency agrees to operate or maintain the public use zone for the benefit of the public, the applicant may dedicate such zone to the state. Section 25529 further provides that the Energy Commission shall also require that any facility to be located along the coast or shoreline of any major body of water be set back from the shoreline to permit reasonable public use and to protect scenic and aesthetic values. Note that even where applicable, these provisions focus on access – not the construction of multi-million dollar visitor centers.

Despite the fact that the clear context of Section 25529 is that this statute is applicable to protection of coastal access, the Staff would interpret Section 25529 more broadly to apply to public access not just to the coastal zone, but to any other area with recreational, scenic, or historic value. We acknowledge that Section 25529 does refer to the coastal zone "or any other area with recreational, scenic, or historic value", but we do not agree that it was the legislative intent to extend the provisions of Section 25529 beyond the coastal zone to any non-coastal region that might have recreational, scenic or historic value. Instead, Section 25529 when read in its proper context applies to facilities located in the coastal zone or any other area with recreational, scenic, or historic value along the coast or shoreline. The Warren Alquist Act defines the coastal zone as it is defined in Public Resources Code Section 30103. As defined in Section 30103, Coastal zone does not include the area of jurisdiction of the San Francisco Bay Conservation and Development Commission .... nor any area contiguous thereto, including any river, stream, tributary, creek, or flood control or drainage channel flowing into such area." Therefore, the most reasonable reading of Section 25529 is that the language "any other area with recreational, scenic or historic values" is intended to extend public access protection to any other coastal area with scenic, recreational or historic values not included in the coastal zone.

Section 25529 should not be read so broadly as to apply to any area outside the coastline that may have "recreational, scenic or historic value". Section 25529 provides very special requirements for the dedication of public access to the coast because the California

Constitution and Proposition 20 (as codified) provide a special guarantee for coastal access. The California Constitution does not extend this guarantee of public access to all areas within California that may contain recreational, scenic or historic values.

While the Energy Commission has applied Section 25529 to facilities located within the coastal zone, to our knowledge the Commission has never applied Section 25529 to projects located outside the coastal zone, even where such areas have had recreational, scenic or historic value. The FSA cites only four cases where Section 25529 has been applied.[490] Each of these four projects were located within the coastal zone.

Not only is Section 25529 clearly applicable only to projects within the coastal zone, it is also clearly applicable only to projects in areas where there is private land. The statute is not applicable to projects on Federal land. By its express terms, Section 25529 requires that lands "within such area shall be acquired" and shall be dedicated to a local or state agency. As a practical matter, the Applicant cannot acquire Federal lands nor dedicate these lands to a local or State agency.

Staff concludes that Section 25529 is applicable here because the Project area is alleged to have both recreation and scenic values.[491] Yet, the FSA concedes that the "project location itself is not specifically permitted, used, or designated for any recreational activity. The proposed location represents a small portion of the overall area available for recreation in the Mojave Desert, and although the proposed project would require re-direction of access roads to recreation areas, the magnitude of this redirection is expected to be small."[492] Additionally, as we explain in Section II.I f(Visual Resources) of this brief, the FSA overstates the scenic values of the project site. Therefore, there are little if any significant recreational or scenic values of the project site as that term is used in Section 25529.

Finally, even if we assume *arguendo* that Section 25529 is applicable to a project located outside the coastal zone, on Federal land and on a site with minimal recreational and scenic value, the Commission should reject a proposal to put an interpretative facility in the Construction Logistics Area - in the very center of the Ivanpah Solar Project. Instead, the Commission should find that the Applicant satisfies the requirement that "an area be established

[490] Ex. 300, pp. 6.18-13 and 14.

[491] *Id*. at 6.18-13.

[492] *Id*. at 6.18-15.

for public use" by paving and re-routing Colosseum Road and by improving and re-re-routing various other hiking trails affording continued public access to the site and the public lands to the west of the site.

Public Resource Code Section 25529 specifies that any lands acquired by the Applicant shall be available for public access and use "subject to restrictions required for security and public safety." The Applicant takes very seriously its obligation to protect the facility from malicious mischief, vandalism, or domestic/foreign terrorist attacks. Construction of this visitor facility in the Construction Logistics area, in the heart of the Ivanpah Solar Project, is not consistent with the need to ensure the security of the project. While visitors to the Ivanpah Valley may transit the Construction Logistics area on Colosseum Road during operation of the Ivanpah Solar Project, there are serious security issues with a proposal to provide facilities that encourage the public to congregate, picnic and even camp near the fenceline of Units 1 and 2.

We find it ironic that the FSA recommends that the Applicant spend substantial funds to screen the facility from the public's view at one vantage point[493], while proposing that the Applicant spend additional sums to entice the public to view the plant from an even closer but lower and less advantageous viewpoint within the Construction Logistics area. The directives to "screen the plant" while adding picnic tables to view that plant are obviously inconsistent and misguided.

We would respectfully submit that if the Commission desires to encourage visibility of the project, the most effective and least expensive approach would be to eliminate Condition of Certification VIS-2 and allow the Project to be viewed by the public from the vicinity of the golf course.

The Commission should find that the Applicant satisfies the requirement, though inapplicable, that "an area be established for public use" by paving and re-routing Colosseum Road[494] and by improving and re-re-routing various hiking trails.[495] In each of the four cases

[493] See Condition of Certification VIS-2, Ex. 300, p. 6.12-44.

[494] Colosseum Road, currently a dirt road, would be paved to a 30-foot wide, two lane road for a distance of 1.9 miles from the Primm Valley Golf Club to the facility entrance. A portion of the current route of Colosseum Road would be incorporated into the Ivanpah 2 plant site, so the road would be diverted for a distance of 1.66 miles. A segment of 1.2 miles would be re-routed around the southern end of Ivanpah 2 and paved, and then an additional 0.46 mile, 12-foot wide dirt segment would link the paved road to the existing dirt road to the west of Ivanpah 2. (Ex. 300, pp. 3-10 to 3-11)

[495] Off-road, recreational vehicle trails currently authorized by BLM which run through the proposed project site would be re-located outside of the project boundary fence. The trails that would be rerouted are:

where the Commission has applied Section 25529, the Commission has required the Applicant to improve or provide trails for public access outside the fenceline of the project.[496] In the instant case, the Applicant will at its own expense improve or provide trails for roads and public access outside the fenceline of the project. These expenditures, which may end up being substantially greater than any of the other facilities cited in the FSA, must be properly recognized as providing public access.

The Commission has not required Applicants in previous proceedings to construct elaborate interpretative centers to satisfy Section 25529. In the El Segundo case, for example, the Applicant proposed to increase public access by "moving the fence on the west edge of the property back three feet and providing park-type benches along the existing bicycle path."[497] The City of El Segundo, on the other hand, argued that Section 25529 required the Applicant to dedicate approximately 1.2 acres on the project site to public use.[498] The Commission rejected the City's proposal: "The Commission believes that the expansion of the area adjacent to the bicycle path by the Applicant's moving the fence and installing park-type benches is sufficient to meet any requirement of establishing or enhancing public access."[499]

Similarly, in this case the Commission should reject the Staff's proposal to require the Applicant to construct an elaborate, multi-million dollar Interpretive Center in the center of the Project. Instead, the Commission should find that the Applicant's plans to relocate and pave Colosseum Road and to relocate and improve various trails is sufficient to meet the requirements, if any are applicable on these facts, of establishing or enhancing public access.

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1. Trail 699226, which passes through the northern third of Ivanpah 3, would be rerouted along the northern border of Ivanpah 3;
2. Trail 699198 would be rerouted between Ivanpah 2 and 3; and
3. An unnumbered trail on the east side of Ivanpah 3 would be relocated outside the project site so that it would provide continued access to the limestone outcrop. (Ex. 300, p. 3-11)

[496] In the Morro Bay case, in addition to the dedication of certain coastal lands, the Applicant was required to promote public access and recreation adjacent to the project site and satisfy Public Resources Code Section 30210-30214 and 25529 by funding an endowment, through a one-time payment, for the purpose of maintaining any proposed Class I and Class II bike paths and pedestrian paths. Morro Bay Power Plant Project 3rd Revised Presiding Member's Proposed Decision, 00-AFC-12, June 15, 2004, p. 478.

[497] El Segundo Final Decision, p. 118.

[498] *Id.*

[499] *Id.* at 119.

H. TRAFFIC AND TRANSPORTATION

For each Application, the Commission must examine the extent to which the project may impact the transportation system within the vicinity of the proposed project. In this proceeding, Applicant and Staff agree that the project will not have a significant adverse effect on the traffic and transportation system, either from construction or operation of the facility. Applicant and Staff also agree that with the Commission's adoption of Staff's proposed Conditions of Certification, the Ivanpah Solar Project will comply with all laws, ordinances, regulations and standards applicable to traffic and transportation. Staff and Applicant are in agreement as to the proposed Conditions of Certification, with the exception of TRANS-4, as discussed below.

The Applicant and Staff also generally agree that the Project will not have significant cumulative traffic impacts on local roads, on I-15 southbound traffic and on I-15 northbound traffic most of the time. The Applicant and Staff differ only as to the cumulative traffic impacts from operation of the facility on Friday evening northbound traffic on I-15. This difference is discussed below.

1. With the Implementation of the Proposed Conditions of Certification, the Ivanpah Solar Project Will Be Constructed and Operated in Conformity With All Applicable Traffic and Transportation Laws, Ordinances, Regulations and Standards and Will Have No Significant Adverse Environmental Impact.

The Applicant and Staff both analyzed the potential transportation and traffic impacts related to the Ivanpah Solar Project, specifically in relationship to the potential impacts on the local roadway system and on I-15.

The operational workforce for all three phases is projected to be 90 people—at least 60 of which will work a night shift. The Applicant and Staff agree that this will not result in a significant adverse traffic impact on local roads or I-15.[500]

The Applicant and Staff also agree that the traffic impacts during construction of the Ivanpah Solar Project will not be significant. While the FSA found there to be a potential for significant traffic impacts on northbound I-15 traffic on Friday afternoons or Friday evenings, the FSA identified a mitigation measure requiring the Applicant to provide bus service for a

[500] 12/14 RT 87.

minimum of 60 percent of construction workers.[501] The FSA concluded that this mitigation measure would reduce the impact to less than significant.[502] In its direct testimony, the Applicant submitted revised construction data, indicating that most of the construction workforce would originate in California.[503] The Staff finds this new information and the new assumptions to be reasonable.[504] Because most of the construction traffic will originate in California, it will not be returning to the Las Vegas area, i.e., on northbound I-15 on Friday afternoons. Therefore, the Staff agreed to revise the Condition of Certification that required busing 60 percent of the construction workforce.[505] The Condition, as it now reads, will require the Applicant to provide bus and van services for workers who can make use of it. This revised Condition is acceptable to the Applicant.

2. The Operation of the Ivanpah Solar Project Will Not Have A Significant Cumulative Traffic Impact.

With one very limited exception, the Applicant and Staff agree that the construction and operation of the Project will not have a cumulative impact on local roads, regional roads or I-15. Specifically, the parties agree that there will be no significant cumulative impact:

- on any local roads during construction or operation of the facility,
- on southbound I-15 during construction or operation of the facility, nor
- on northbound I-15, during construction of the Project for a limited but undefined period of time on Friday.[506]

Thus, the only question in dispute is whether there is a cumulative adverse traffic impact during construction of the project, in combination with other existing and future uses, on northbound I-15 traffic during Friday afternoons. Approximately 174 vehicles will travel

[501] Ex. 300, p. 6.10-1.

[502] *Id.*

[503] Ex 65, p. 100.

[504] 12/14 RT 70.

[505] *Id.*

[506] The FSA is vague as to the period of time when the project is alleged to cumulatively impact the Friday northbound traffic on I-15. The FSA variously refers to the peak traffic times as being Friday afternoons, Friday evenings, Friday afternoons and evenings and Friday afternoon into late evening. Ex. 300, p. 6.10-27.

northbound on I-15 on Friday afternoons. Staff asserts that this will be a cumulative adverse traffic impact.[507] The Applicant respectfully disagrees.

Cumulative impacts, as defined by Section 15355 of the CEQA guidelines, "refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts."[508] The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.[509] When assessing whether a cumulative effect requires an Environmental Impact Report, the lead agency shall consider whether the cumulative impact is significant and whether the effects of the project are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.[510]

While cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time,[511] it is important to realize that the traffic impacts from the Ivanpah Solar Project which are alleged to be cumulatively significant are relatively minor and limited in time and scope of occurrence. During peak construction, a period of approximately three months,[512] the Ivanpah Solar Project will add an estimated 174 vehicles to a flow of traffic of more 30,000 vehicles per day. This focused impact on northbound I-15 traffic occurs during a limited period of peak construction (approximately three months). The impacts under discussion only occur one day a week (Friday) during the afternoon hours.[513] The temporary addition of 174 cars on certain Fridays will not change the LOS rating during this time.

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[507] 12/14 RT 89.

[508] 14 C.C.R. § 15355.

[509] *Id.*

[510] 14 C.C.R. § 15064.

[511] 14 C.C.R. § 15355.

[512] 12/14 RT 93.

[513] Ex. 65, pp. 100-103.

While I-15 may be congested on certain Fridays, the Applicant suggests that the effects of temporary construction impacts from just 174 cars is not cumulatively considerable. As a general rule, the Commission has found temporary construction impacts not to be cumulatively considerable, even when the project adds construction traffic to roadways which have either a pre-existing LOS F, or which become LOS F during either the morning or evening commute hours with the addition of project traffic.

In the El Segundo case, to cite but one example, the Commission found that the project's 20-month construction schedule would generate traffic causing two intersections to temporarily drop from LOS E to LOS F during the morning and evening commute hours.[514] Nevertheless, the Commission held that the traffic impacts of the project were not cumulatively considerable: " The impacts associated with the construction phase of the power plant project are short-term...thus no significant impacts are expected under cumulative conditions."[515] Similarly, in this case the Commission should find that the impacts associated with the construction phase of the Ivanpah Solar Project are short term and therefore no significant impacts are expected under cumulative conditions.

The FSA seems to presume based on the mere fact that I-15 Northbound traffic is already congested on Friday afternoons that the short-term contribution of 174 vehicles is cumulatively considerable. This presumption would be inappropriate. According to the CEQA guidelines, "The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable."[516] In the instant case, the mere existence of congestion on I-15 on certain Fridays is not substantial evidence that 174 cars from the Ivanpah Solar Project would have a cumulatively considerable impact on northbound traffic.

The FSA offers a laundry list of probable future projects and asserts that the construction impacts of the Ivanpah Solar Project when combined with these projects are cumulatively considerable. The FSA states, without any supporting evidence, that "Construction of each of these projects would result in increased vehicle trips on I-15. It is highly likely that some, if not

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[514] El Segundo Power Plant Project Final Decision, 00-AFC-14, February 2, 2005, p. 177.

[515] *Id* at 183. Significantly, the Commission decision adopted the Staff's recommendation that these short-term construction traffic impacts are not cumulatively significant, even though they temporarily increase LOS E to LOS F at two intersections. El Segundo/ FSA, p. 4.9-17

[516] 14 C.C.R. § 15064(h)(4).

all of these projects would result in additional vehicle trips on northbound I-15 on Friday afternoons. Additionally, because it is proposed to facilitate tourist travel to Las Vegas, operation of the Southern Nevada Supplemental Airport would likely result in a substantial increase in vehicle traffic on northbound I-15 on Friday afternoons."[517]

The fatal flaw in the FSA's cumulative impact analysis is that it is not sufficient merely to state that these other projects will add traffic to I-15. The critical question, and the question not addressed by the FSA, is when these projects will occur and whether it is likely to be in a time frame that will combine with or overlap the construction of the Ivanpah Solar Project. For example, in finding no significant cumulative impacts from the El Segundo Power Project the Commission stated " Energy Commission staff reviewed the traffic volume from all cumulative projects, plus the power plant project and determined there would likely be increases in the congestion levels on area roadways and intersections. However, the construction schedules for these projects may not overlap with this project construction schedule....thus no significant impacts are expected under cumulative conditions."[518]

The future projects listed by the FSA as reasonably foreseeable are the Southern Nevada Supplemental Airport, the Desert Xpress Train, the I-15 Mountain Pass Truck Lane and the FirstSolar photovoltaic project. However, there is no credible evidence in this record that any of these projects might conceivably overlap with the construction of the Ivanpah Solar Project. The Mountain Pass Truck Lane is expected to be completed in 2010.[519] Although the FSA states that the Southern Nevada Supplemental Airport is expected to begin construction in 2012, the Airport's website reports that the Draft Environmental Impact Statement will not be released until the Fourth Quarter of 2012.[520] The FSA states that the DesertXpress "hopes to operational by 2012."[521] In fact the FEIS for this project has not been issued, therefore when this project may be constructed or operated is not reasonably foreseeable. Moreover, because the DesertXpress is a rail project and not a highway improvement project, there is no evidence that construction of the DesertXpress will impact I-15 traffic at any time, much less Friday evenings.

[517] Ex. 300, p. 6.10-27.

[518] El Segundo Power Plant Project Final Decision, 00-AFC-14, February 2, 2005, p. 164.

[519] Ex. 300, p. 5-16.

[520] http://www.snvairporteis.com/faqs.asp.

[521] Ex. 300, p. 5-15.

On the other hand, if the operation of the DesertXpress is coincident with the construction of the Ivanpah Solar Project, the cumulative effect of these two projects will be positive because the DesertXpress will reduce congestion on I-15. The final project mentioned by the FSA is the "FirstSolar photovoltaic project". Here again there is simply, no evidence - much less substantial evidence - that the construction of this project will combine or overlap with the Ivanpah Solar Project to create cumulative impacts on northbound I-15.

In summary, the Commission should conclude that the temporary, construction-related, Friday night only impacts of the Ivanpah Solar Project on traffic and transportation are not cumulatively considerable.

3. Light from the Ivanpah Project Will Not Significantly Impact Pilots, Drivers Or Other Observers.

There are two potential sources of light from the Project. The first source of light is reflected sunlight from the heliostat mirrors that will focus the sun's rays on the power tower receiver. The second source of light is the unabsorbed light on the Solar Receiver Steam Generator (SRSG) itself located at the top of the power tower. While there are currently no regulations specific to light reflected from solar plants, both Applicant and Staff studied the potential safety effects of solar radiation from the proposed Project. The Applicant and Staff have thoroughly analyzed the potential of these light sources to impact aviation, traffic and persons who may transit the area in the vicinity of the Project site. The Applicant and Staff agree that the light from the Project will not have an adverse effect on public health and safety. The parties also analyzed the potential impact of light from the Project on visual resources and this is discussed in Section II.I (Visual Resources), below.

The Applicant agrees to the Conditions of Certification proposed by the Staff, with the exception of Condition TRANS-4 which is discussed below.

4. The Light From The Heliostats Will Not Be Harmful To Public Health Or Safety.

Staff initially expressed some concern regarding the potential of the heliostats to cause temporary blindness and compromise safety of an observer who may be responsible to navigate an aircraft or vehicle.[522] Therefore, Staff recommended Condition of Certification TRANS-3 that

[522] Ex. 300, p. 6.10-18.

would require the Applicant to prepare a Heliostat Positioning Plan in order to avoid the potential risk to human health and safety.[523] While Applicant does not agree that the heliostats pose any risk to aircraft, vehicles or any persons in the vicinity of the Project, Applicant has no objection to preparing a Heliostat Positioning Plan as required by TRANS-3.

The Applicant's Direct Testimony provides a detailed description of how the heliostats would operate and why they do not pose any threat to public health or safety. "Each heliostat has a unique physical location coded into the heliostat operation and positioning program. Each heliostat is also individually programmed with the location of the solar receiver and calculates the location of the sun with great precision as it tracks across the sky. The positioning and movements of each of the heliostats is planned, coordinated and managed by a central computer that ensures safe operation of the heliostat field, not only in terms of the solar flux reflected onto the SRSG, but also in terms of controlling where beams are reflected at those times when any particular heliostat is not targeting the SRSG. Each heliostat is equipped with a heliostat controller (HC) that specifically incorporates the functionality of independently positioning the heliostat to aim its reflected beam to a defined (x,y,z) location. Among other built-in safety features, the HC will have a programmed border limitation such that aiming points are checked to ensure that they do not fall outside the boundaries of the solar field, and within the 1,350 feet maximal height in the sky. "Since heliostats are individually controlled based on their unique location and instant position, yet centrally directed, the potential for heliostats to collectively refocus on a location that would impact hikers, motorists or aircraft pilots and passengers is non-existent."[524] In addition, the Applicant "agrees to prepare a Heliostat Positioning Plan that will explain the operation of the heliostats including operating and positioning methodology, and alarms that are provided to plant operators in the event that a heliostat malfunctions."[525]

At the evidentiary hearing of December 14, 2009, there was an extensive discussion of how the heliostats would operate. During this discussion, the Staff 's expert witness testified:

> Well, I've examined all the documents submitted by the applicant and listened this morning to the presentation and impressed no end by the care and extent to which

[523] *Id.*

[524] Ex. 65, pp. 103-104.

[525] Ex. 65, p. 104.

they've described the processes for controlling the heliostats. It seems that that is a very sophisticated process and one to which I will stipulate agreement.[526]

However, Mr. Jewell raised two additional questions about the heliostats during the hearing, which he characterized as "being of some concern." First, he asked whether the "rest position" for the heliostats is horizontal and whether it is possible that a number of heliostats immediately adjacent to each other might produce a continuous line in the sky of reflected sunlight, such that an observer from an airplane would see not intermittent heliostats, but in effect a continuous line of heliostats.[527]

In response to this question, the Applicant's expert witness explained that the heliostats in the rest position are not just horizontal, but will be slightly angled downward to prevent dust collection such that they will reflect slightly toward the ground.[528] Therefore, it will not be possible for the heliostats in the rest position to produce a continuous line in the sky, because they will be pointing downward, not upward. The only time the heliostats will be in the horizontal position is during a high wind condition, which generally occurs at night. But even during high winds and assuming the coincidence of high winds and lack of cloud cover, when the heliostats are in the "safe position", Mr. Gilon testified that the likelihood that the coincidence of the heliostats to reach a certain point at 1,300 feet or above is totally improbable.

Mr. Jewel's second question was whether there would be any time in which "rest position" will produce a new focal point in the sky? In response, Mr. Gilon testified that:

> But intentionally we will make sure that's why we will show, and in fact, we have a heliostat positioning plan such that every use that is directed to very very specified positioning. And those position will make sure that never two or more can aim to a point out of the border of this plant. And the border, I mean the surface of hose heliostat and up to 1350 feet above.

In summary, the Applicant has fully addressed Staff's lingering concerns regarding the heliostats as a potential source of light and glare. The undisputed evidence is that the Applicant's design of the facility, together with the Heliostat Positioning Plan that will be

[526] 12/14 RT 73.

[527] 12/14 RT 81.

[528] 12/14 RT 128.

implemented will not be a threat to public health or safety or a significant source of light and glare.

5. The Light From The Solar Receivers Will Not Be Harmful To Public Health Or Safety.

Both Applicant and Staff agree that solar radiation reflected from Project power tower receivers is not expected to pose a health and safety hazard to motorists, pilots or passengers in aircraft flying over the site. The Staff calculated that the intensity of energy reflected from the power tower receiver as experienced at the ground surface (120 meters below) would be approximately 0.048, which is well below the 10 kw/m2 and 1 kw/m2 MPEs for momentary and continuous exposure, respectively. Motorists or hikers on adjacent roadways or trails "would be located even farther from the light source and would experience even lower levels of solar radiation."

Additionally, with implementation of Condition of Certification TRANS-6, aircraft flying over the project site would be required to fly at least 1,350 feet (411 meters) above the ground surface, which would be approximately 900 feet (274 meters) above the power tower receiver. Therefore, the intensity of solar radiation expected to be experienced by pilots flying over the project site attributable to the power tower receivers would be approximately 0.009 kw/m2, which is well below the MPEs for momentary and continuous exposure.

6. Proposed Condition TRANS-4 Is Unnecessary And Should Not Be Adopted.

Despite the fact that the Applicant and Staff both agree that the light from the power tower receivers will not pose a safety hazard to pilots, motorists or hikers, the FSA nonetheless has proposed Condition TRANS-4. This Condition, as originally proposed, would have required the Project Owner to periodically evaluate the intensity of luminance of light reflected from all four sides (north, south, east and west) of the power tower receivers, as measured from the power plant boundary, nearest road and various distances, in order to ensure that luminance does not exceed the standard of 89 cd/m2 at the nearest road or power plant boundary.

At the December 14, 2009 evidentiary hearing, Staff acknowledged that it had misconstrued the 89 candela per square meter reference point as being a threshold, which it is not. Therefore, the Staff withdrew Condition TRANS-4 as proposed in the FSA.

Thereafter, in Exhibit 302, Staff proposed, "in the spirit of discussion", a new version of

TRANS-4. This proposed condition would require the project owner to prepare a Power Tower Luminance Monitoring Plan to provide procedures to conduct periodic monitoring and to document, investigate and resolve complaints regarding distraction effects to aviation, vehicular and pedestrian traffic associated with the power towers.

The Applicant respectfully submits that such a Plan is entirely unnecessary. It is undisputed that the intensity of the light at the base of the tower is well below established safety levels and that any pilots, motorists or hikers will be at substantially greater and even safer distances. In the absence of any evidence of any discernible harm and without any specific standard or regulation regarding allowable light levels, a periodic "evaluation" would serve no productive purpose. The original version of TRANS-4 would have required these studies to be performed to assess compliance with an incorrect threshold. Staff has removed the stated threshold, but would still require the studies. The Commission should not require studies simply for the sake of doing a study.

The simple truth, as Jewell explained, is that terms such as bright, intrusive, nuisance or distraction are "difficult to quantify, as I said. There's certainly no standard for this. You know, we live with all sorts of things. Driving past an automobile sales lot exposes one to windshield after windshield, which is reflecting solar brightness to an oncoming driver. That's a nuisance, a distraction, but you drive right on past it and you live safely ever after."[529] In the absence of any standard, periodic evaluations will serve no useful purpose.

It is equally troubling to suggest that an evaluation would be triggered by the mere assertion of a "distraction" by any unspecified person, where the term "distraction" is not even defined. A distraction can be anything from that which draws away or diverts attention to that which provides a pleasant diversion or amusement. Given the absence of a specific standard and extremely subjective nature of the term, the Commission would lack any concrete tools to meaningfully evaluate an alleged "distraction".

The proposed Condition would require mitigation "if reported distraction is determined to be legitimate" and "if power tower luminance is determined to be causing a safety concern." Of course if the term distraction is not defined, a provision that requires the undefined term to be legitimate is completely meaningless. The latter phrase, regarding a "safety concern" is equally vague. Since the unrefuted evidence is that light from the solar receiver towers will not pose a

[529] 12/14 RT 94-95.

safety hazard even at the base of the tower, there is no basis for requiring mitigation of an undefined "safety concern."

The sole justification for TRANS-4 in the FSA is that "the technology proposed at the ISEGS site is relatively new and has never been implemented at this scale." However, the evidence is undisputed that the expected illuminance from the receivers at a distance of 1,000 meters (still inside the property line) is 0.0007 kw/m2. This is 0.07% of Staff's stated continuous exposure limit. Therefore, TRANS-4 is entirely unnecessary and should not be adopted.

I. VISUAL RESOURCES

Visual resources are the features of the landscape that contribute to the visual character or quality of the environment. CEQA requires an examination of a project's visual impacts in order to determine whether the project has the potential to cause substantial degradation to the existing visual character of the site and its surroundings, have a substantial adverse effect on a scenic vista, damage scenic resources, or create a new source of substantial light or glare affecting day or nighttime views in the area.[530] In addition, the Commission is required to examine the cumulative impacts of the project and determine whether the project is in compliance with all applicable laws, ordinances and regulations ("LORS").

The evidence of record in this proceeding demonstrates conclusively that the Project does not cause a significant adverse visual impact, does not cause a significant cumulative impact and is in compliance with all LORS relating to visual resources. In addition, the Applicant's Mitigated Ivanpah 3 proposal further reduces the visual impacts by substantially reducing the size of the Ivanpah 3 heliostat field and reducing the number of Ivanpah 3 receivers from five to one, thereby even more clearly reducing the visual impacts of the proposed Project to less than significant levels.

1. Staff And Applicant Agree That The Ivanpah Solar Project Will Not Have Significant Visual Impacts At Five Key Observation Points (KOPs).

Key Observation Points ("KOPs") are intended to provide representative views that would be experienced by the general viewing public.[531] These KOPs, together with onsite visual

[530] 14 C.C.R. § 15382, Appendix G.

[531] "KOPs are photographs of locations within the project area that are highly visible to the public — for example, travel routes; recreational and residential areas; and bodies of water as well as other scenic and historic resources." (Ex. 300, p. 6.12-49)

inspections, are then used as the basis for developing the subsequent analyses of the project's potential visibility, appearance, and effects on visual resources. The Applicant initially selected two KOPs in consultation with Commission Staff ("Staff") and BLM.[532] Staff and BLM subsequently requested that the Applicant develop additional KOPs at very specific locations.[533] Notwithstanding the Applicant's reservations regarding the representative value of certain of these additional KOPs, the Applicant complied with the Staff's request. The locations of the ten KOPs and the boundaries of the project's viewshed are presented on Exhibit 69.

Staff and Applicant analyzed these ten KOPs to determine whether the Ivanpah Solar Project might have a significant impact on visual resources. Staff and Applicant are in agreement that the potential impacts associated with five of these KOPs are less than significant. The Applicant's witnesses found no significant impacts associated with any of these five KOPs.[534] Similarly, Staff found no significant impacts for three KOPs analyzed.[535] While Staff found the visual impacts of two KOPs to be significant, the Staff recommends mitigation that will reduce the impacts to less than significant.[536]

Both the Staff and Applicant agree that there are no significant impacts on visual resources associated with these five KOPs[537]:

- KOP 1 - Looking southwest from Primm Valley Golf Course toward Ivanpah 1 from Hole 1, (roughly 1.5 miles). Although Staff finds the unmitigated impact to be significant, the Staff has proposed mitigation measures that will reduce the impacts to less than significant.[538] The Applicant generally agrees to the Staff's proposed mitigation. The Applicant has proposed slight modifications to these mitigation measures. (See Attachment B of this Brief). It is our understanding that the Staff has agreed to these modifications.
- KOP 2- Looking west from Primm Valley Golf Course toward Ivanpah 2 and 3 from Hole 8, (roughly 1.5 miles). KOP 1 and 2 represent views of various portions of the project from two distinct locations within a single sensitive

[532] Ex. 1, § 5.13.3.12.

[533] Ex. 300, p. 6.12-9.

[534] Ex. 65, p. 113.

[535] Ex. 300, pp. 6.12-22 to 6.12-24.

[536] *Id.* at pp. 6.12-16 through 6.12-18.

[537] The KOP numbers listed below are the CEC-numbered KOPs, which in some cases, differ from the Applicant's KOP numbers.

[538] *Id.* at p. 6.12-18.

viewing location, the golf course. The same conclusion, no significant visual impacts with mitigation, apply to KOPs 1 and 2.[539]

- KOP 6 – View of Ivanpah 2 and 3 looking west toward site from eastern side of Ivanpah Lake, 4 miles from site. KOP 6 is taken from the most heavily-used access point to the dry lakebed by wind sailors, on the eastern edge of the lakebed at a distance of roughly 4 miles. The visual impacts from this KOP are less than significant.[540]
- KOP 7 - Looking southwest toward site from western side of Ivanpah Lake, 3 miles from site. KOP 7 is taken from another wind sailing access point on the west side of the lakebed west of I-15. It illustrates the nearer range of viewing conditions existing for lakebed visitors. These visual impacts are also less than significant.[541]
- KOP 8 - Looking south from Primm, 4 miles from site. Primm is a high-volume visitor destination within middle-ground distance of the project. Overall, viewer exposure and orientation to the project site are limited. "Existing visual quality within Primm, dominated by large parking areas and commercial development, is also relatively low. In addition, views toward the project site from this location would be essentially similar to those of KOP 7 (Ivanpah Lake), except from a greater distance (over 4 miles rather than 3 miles). For these reasons Energy Commission staff agreed that a simulation from this location would not be required."[542] The Staff and Applicant agree that the impacts from this KOP are less than significant.

In summary, the Staff and Applicant agree that from each of these five KOPs representing the most heavily utilized public access points within the project viewshed where there are public facilities or recreational activities (the town of Primm, the Primm Golf Course and the Ivanpah Lakebed), the visual impacts of the Ivanpah Solar Project, with proposed mitigation, will be less than significant.

However, Staff and Applicant disagree regarding the significance of the impacts at five other KOPs. These five KOPs, which relate to views from Interstate 15 (KOPs 3, 4, and 5), north of the Project (KOP 9) and the vicinity of the Benson Mine (KOP 10), are discussed below.

[539] *Id.*

[540] *Id.* at pp. 6.12-22 and 23.

[541] *Id.* at 6.12-23.

[542] *Id.* at 6.12-24.

2. There Are No Significant Visual Impacts Associated With KOPs 3, 4 and 5 (views of the Project site from I-15) Because The Visual Quality From I-15 Is Moderately Low To Moderate And The Level Of Visual Sensitivity Is Low to Moderate.

Visual resource analysis is both an art and a science. "Assigning values to visual resources is a subjective process. The phrase, 'beauty is in the eye of the beholder,' is often quoted to emphasize the subjectivity in determining scenic values."[543] Although the FSA purports to apply a standard methodology (VR-1) and claims that it has been "applied to numerous siting cases in the past",[544] there is considerable subjectivity and variability in the application of the Staff's methodology in this proceeding. For example, under the VR-1 methodology that Staff applied to determine significant visual impacts of the Delta Energy Center, a significant visual impact would result from "substantial reduction in the visual character and quality of views identified to be of moderate visual quality to high visual quality and moderately high to high visual sensitivity."[545] In the instant proceeding, however, Staff has varied the criteria to allege a significant visual impact from KOPs with moderate visual sensitivity,[546] which is a lower threshold than the "moderately high to high" visual sensitivity that was required in the Delta case. Similarly, in past proceedings the Staff has selected KOPs that are representative of viewpoints with significant public access. In this proceeding, however the Staff selected some KOPs that few, if any, people may ever see.

As a result of the evolving nature of the Staff's visual resource standards for assessing significance, the Commission must view the Staff's methodology cautiously and ensure that this methodology, or any methodology, is applied consistently from project to project. Moreover, the Commission should not base a determination of significance upon any KOPs that are not representative of actual visitors or, in the case of I-15, actual drivers. Instead, the Commission should apply a common sense, real world approach to the assessment of visual impacts.

Such a common sense approach is particularly appropriate in the case of KOPs 3, 4 and 5.

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[543] BLM Manual 8400 - Visual Resource Management found at: http://www.blm.gov/nstc/VRM/8400.html.

[544] Ex. 300, 6.12-1.

[545] Delta Energy Center Final Staff Assessment, 98-AFC-3, September 10, 1999, p. 184.

[546] Ex. 300, Appendix VR-1.

KOPs 3 and 4 are meant to capture the full panoramic field of view that motorists on I-15 would have when at their closest location to the Project (Yates Well Road exit).[547] Yates Well Road exit is an exit that does not offer any commercial services; it is an exit to the Primm Valley Golf Club and the off-road trails from Colosseum Road. Because it is difficult and unsafe to take a photo at an oblique angle from a moving vehicle,[548] KOP 3 was taken from a fixed location at the freeway exit and is rotated away from the driver's actual cone of vision to capture the view of Ivanpah 2 and 3 in relation to the prominent rock outcropping.[549] Similarly, KOP 4 is rotated to the left to capture the view of adjoining Ivanpah 1.[550] The two photographs together are intended to represent what could be seen if one were to exit the freeway at that location and take in the view. [551] The photos do not represent what a driver would see traveling at interstate speeds along I-15. KOP 5 (from I-15 at the Nipton Road exit) is meant to capture the view that northbound I-15 motorists would have of the Ivanpah Valley at the furthest southern point from the Project site.[552]

As we explain below, the FSA's visual impacts analysis and its finding of purported significant impacts at KOPs 3, 4 and 5[553] are based on exaggerated conclusions related to visual sensitivity and the degree of visual change. If these factors are properly characterized, it is clear that the Project will not have a significant visual impact on drivers or passengers on I-15.

a. The FSA's Characterizations Of Visual Sensitivity Are Overstated.

The FSA rates the I-15 views as having moderate overall visual sensitivity. This characterization is overstated and is not supported by the FSA's own analysis.

[547] Ex. 300, p. 6.12-19.

[548] *Id*.

[549] *Id*.

[550] *Id*.

[551] *Id.*

[552] *Id.* at p. 6.12-21.

[553] The FSA is confusing with respect to the significance of impacts at KOP 5. The FSA finds that the visual impacts at KOP 5 are "less than significant." However, the FSA goes on to speculate, although no intermediate locations on Highway I-15 were simulated, "for the greater part of the drive between Nipton Road and Yates Well Road, which occurs within the middle-ground distance zone (under 3 miles), contrast would be considered strong, and impacts potentially significant." Ex. 300, p. 6.12-21

One factor influencing viewer sensitivity is "viewer concern". In one sentence, the FSA states that this rating (moderate overall visual sensitivity) is based upon the assumption of "moderately high" viewer concern.[554] In the very next sentence, however, the FSA concedes that although the recreational destination for the majority of such motorists is Las Vegas rather than the Mojave Desert, thus the level of concern with scenic quality of many motorists is likely to be moderate or low."[555] And a few pages later, the FSA states "Arguably, the majority of motorists on I-15 are not highly concerned with the scenic quality of the setting."[556]

The Applicant believes that the majority of motorists on I-15 are not highly concerned with the setting, and therefore, the level of concern is low or moderate. "Many viewers are likely to find the solar power plant to be a point of interest, with positive connotations as an expression of a concrete step toward energy independence and a shift toward production of energy in a way that is renewable and has low levels of overall environmental impact."[557] Indeed, the FSA concedes that "not all viewers would find the project disagreeable or unattractive; indeed, many viewers could find the project interesting to view due to its novelty."[558] There is therefore, no evidentiary or common sense support for the FSA's conclusion that the viewer concern of the majority of drivers going to or from Las Vegas on I-15 is "moderately high."

Another factor that influences viewer sensitivity is viewer exposure. The FSA rates viewer exposure from I-15 to be "high".[559] The "high" rating appears to be based, in part, on the assumption that drivers will have "foreground" views of the Project.[560] This is not correct. "The time of viewer exposure is limited (only 4.8 minutes of elapsed time from the Nipton Road off ramp to the Primm Valley Golf Club, when traveling at Interstate posted speeds), and there are no parking lots or vista point viewing areas in the area along this stretch of I-15 that permit travelers to stop to enjoy the scenery. Of that 4.8-minute view of the project, a background view

[554] Ex. 300, p. 6.12-19.

[555] *Id*.

[556] *Id*.

[557] Ex. 65, p. 114.

[558] Ex. 300, p. 6.12-20.

[559] Ex. 300, p. 6.12-18.

[560] Ex. 300, p. 6.12-18 as Staff defines that term, 'foreground' is used generically to refer to viewing distances under ½-mile; 'middle-ground' to distances between ½ and 4 miles; 'near middle-ground' refers to that portion of middleground under roughly one mile. Ex. 300, p. 6.12-8.

toward the project is afforded for 2.2 minutes, and a middleground view is provided for the remaining 2.6 minutes. A foreground view of the project is not provided when driving on I-15 because the project sites are located more than 0.5 mile from I-15."[561]

In addition, the record is clear that along I-15, the views of the Project are generally outside the cone of vision of the drivers.[562] The cone of vision is the area of view that a driver sees, and this area decreases as the speed of the vehicle increases.[563] At Nipton Road, where the FSA agrees the visual impact is not significant,[564] drivers may see a portion of the Project within their cone of peripheral vision, "But as they proceed northeast on I-15, these facilities would very quickly fade out of their primary, and even their peripheral cone of vision....there is no place where a driver would essentially be driving, have a solar tower right in the immediate middle of their cone of vision."[565]

The Staff's visual resource witness admitted that there are no designated scenic viewpoints and no pullouts along this stretch of I-15.[566] He also conceded that the photographs of views from I-15 that he offered into evidence were taken when he daringly parked his vehicle on the side of the interstate.

> "MR. WHEATLAND: Do you expect that many other drivers will do as you did to pull over on the shoulder of the freeway to observe the project site?
>
> "MR. KANEMOTO: Not if they can help it."[567]

In summary, the Staff's conclusion that viewer exposure from I-15 would be "high" is contrary to the evidence, which demonstrates clearly that the project is not in the foreground view of the drivers; in fact, it is not even within their cone of vision except at background distances. Certainly a driver could experience high exposure if they parked on the shoulder of the freeway; but motor vehicle law dictates that vehicles should not pull over to the side of a road

[561] Ex. 65, p. 114.

[562] 12/14 RT 262-264

[563] *Id.* at 262.

[564] Ex. 300, p. 6.12-21.

[565] 12/14 RT 263-264.

[566] 12/14 RT 198.

[567] *Id* at 197.

that does not have a shoulder wide enough to accommodate the vehicle. In addition, common sense suggests, and the Staff concedes, no one will do that if they can help it.

The third factor used to evaluate visual sensitivity is visual quality. The FSA describes the visual quality in the vicinity of I-I5 as "moderate".[568] We agree with this characterization. However, we do not agree with the FSA's description of the scenic quality in the vicinity of I-15 as an "intact" scenic setting. The FSA, acknowledges that "The Bighorn Electric Generating Station, the town of Primm at the north end of the valley, the Primm Golf Course, existing high-voltage power lines, several unpaved vehicular trails and Highway I-15 intrude on the valley's scenic intactness."[569] But the FSA argues that "overall these features are very subordinate visually, and the landscape appears predominantly undisturbed."[570] We are not sure from which viewpoint the FSA believes the desert landscape to be "predominantly undisturbed," but it is certainly not from an interstate freeway as it passes a golf course and approaches the town of Primm. As the Applicant's visual resource experts testified: "It is important to note that existing views across the project site from I-15 are not pristine in that this area is crossed by roads and a major electric transmission line, and that the Primm Valley Golf Course, which contrasts with the surrounding landscape is located within the foreground of views from an approximately one mile stretch of the Interstate, and is visible in the middleground as travelers approach it from the east and west."[571]

The FSA combines high viewer concern, high viewer exposure, and moderate visual quality to conclude that the overall viewer sensitivity is moderate. The evidence of record, on the other hand, shows there to be low to moderate viewer concern, low to moderate viewer exposure, and moderate (but certainly not pristine) visual quality, resulting in a much lower degree of overall visual sensitivity of drivers along the I-15 corridor.

b. The Ivanpah Solar Project Will Result In Moderate Visual Change Along The I-15 Corridor.

The FSA concludes that "from foreground and near-middle-ground viewpoints on I-15, the project would not be consistent with the moderate overall sensitivity level associated with its

[568] Ex. 300. 6.12-18.

[569] Ex. 300, p. 6.12-7.

[570] Ex. 300, 6.12-7.

[571] Ex. 65, p. 113.

existing scenic quality, viewer concern, and viewer exposure...Within an urban frame of reference, this level of impact might be considered acceptable. However, within a landscape conservation-oriented frame of reference, the project would represent a substantial change and impairment of a previously intact natural landscape."[572]

The visual change described by the FSA at KOPs 3 and 4 is not the view of the typical driver on I-15, but instead is the view of someone who has pulled off the freeway at a location that offers no overlook, and no parking area or visitor services. Although I-15 has a high volume of traffic, very few drivers are likely to stop at this location to take in the view.[573]

In asserting that the visual change is substantial, the FSA overstates the degree of visual change that the viewer would experience at this KOP. There are at least six major flaws in the FSA's assertion of "substantial" visual change, any one of which would reduce the degree of visual change stated in the FSA.

First, there are no foreground viewpoints on I-15. The project is located more than 1/2 mile from I-15 at its nearest point.[574]

Second, although the Project is located within a near-middle-ground viewpoint for a very short distance along I-I5, the Project is not within the driver's cone of vision at middle-ground distances.[575]

Third, the natural landscape in the vicinity of I-15, and especially at near middle-ground distances, is not "intact." At this location, it is the Golf Course, not the Project that is in the foreground view. Recognizing that a landscape filled with an interstate highway and a golf course is not intact at middle-ground and near middle-ground distances renders the more distant changes of the Project at most moderate.[576]

Fourth, the FSA mistakenly applies a "landscape conservation frame of reference", rather than an urban frame of reference, to characterize the visual impacts on drivers along I-15.[577] In

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[572] Ex. 300, p. 6.12-18.

[573] 12.14 RT 264-265.

[574] Ex. 69. The FSA defines distance zones as follows: "'foreground' is used generically to refer to viewing distances under ½-mile; 'middle-ground' to distances between ½ and 4 miles; 'near middle-ground' refers to that portion of middle-ground under roughly one mile; and 'background' to distances over 4 miles." Ex 300, p. 6.12-8.

[575] 12/14 RT 263.

[576] 12/14/09 RT 261-262.

[577] Ex. 300, p. 6.12-20.

most every case of visual impact analysis by the Commission over the past 30 years, the frame of reference for assessing viewer concern and response to proposed visual changes is based on the typical viewer activity and corresponding level of scenic expectations.[578] A "landscape conservation frame of reference" is certainly incongruous with the viewer activity of the vast majority of drivers who are driving along the interstate highway, past a golf course, and headed to or from Las Vegas. Based on the typical viewer activity along this busy interstate highway, application of an urban frame of reference will lead to the conclusion that the Project will represent, at most, moderate visual change along I-15.

Fifth, as the FSA notes, the Project would not obstruct views toward the Clark Mountains in the background because of the low height of the mirror fields and the relatively large distances between the vertical towers.[579] Because the project will not obstruct views in the background, the degree of visual change is not substantial.

Sixth, the FSA is wrong in asserting that "glare" from the receiver units atop the solar towers would dominate or interfere with views from I-15 toward the Clark Mountains.[580] In the FSA/DEIS Transportation analysis, the FSA states that the brightness of the solar receiving units as seen from I-15 would be 38 cd/m^2.[581] This level of brightness is equivalent to the brightness of a 100-watt light bulb seen at a distance of approximately 25 feet. This level of brightness does not fit the definition of glare, which properly speaking, refers to levels of brightness that cause discomfort or interfere with vision.[582] Both Applicant and Staff agreed that the intensity of energy reflected from the power tower receiver as experienced at the ground surface (120 meters below) would be approximately 0.048, which is well below the 10 kw/m2 and 1 kw/m2 MPEs for momentary and continuous exposure, respectively. Motorists or hikers on adjacent roadways or trails "would be located even farther from the light source and would experience even lower levels of solar radiation."[583]

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[578] Compare, AES Huntington Beach Retool Project Final Staff Assessment, 01-AFC-13, March 2001, p. 193.

[579] Ex. 300, p. 6.12-15.

[580] *Id.*

[581] *Id.* at 6.10-19.

[582] Ex. 65, p. 114.

[583] Ex. 300, p. 6.10-17

The FSA is also wrong in stating that the project would exhibit strong spatial and scale dominance.[584] The presence of the project in this view will represent an incremental change, increasing the intensity of human development in the corridor seen from the Interstate.[585]

Rather than be visually detracting, the Project will:

> …exhibit strong visual unity and simplicity, attributes that are generally associated with positive visual quality. This condition is in contrast to scenes of visual disorder and disunity that are generally equated with low visual quality or 'visual blight.' For example, a mining operation or manufacturing facility might present scenes of strong visual disorder and thus, low visual quality or 'blight.' The proposed project, in comparison, would exhibit moderate visual quality and would likely appear more acceptable than many other forms of intensive urban or industrial development.[586]

In summary, the overwhelming evidence of record is that the degree of visual change at KOPs 3, 4, and 5, will be moderate, at most, and not "substantial" as the FSA asserts.

c. The Overall Visual Impacts From KOPs 3, 4 and 5 Are Less Than Significant.

The FSA concludes that the Project would have a significant visual impact on KOPs 3, 4, and 5.[587] This conclusion is based on several false assumptions. As we have explained above, the FSA is wrong about (1) the location of the Project in relation to the KOPs, (2) the degree of viewer sensitivity, and (3) the visual quality along that section of I-15 that provides near middle-ground and middle-ground views of the Project. At KOPs 3 and 4, the Project is in the near middle-ground, not the foreground as stated in the FSA. The degree of viewer sensitivity is low to moderate, not high. Finally, the quality of views where I-15 is closest to the Project is at most moderate, not high as stated in the FSA. Therefore, weighing these factors together, the evidence demonstrates that the overall impact on the views of travelers on I-15 will be less than significant.[588]

[584] Ex. 300, p. 6.12-17.

[585] Ex. 65, p. 114.

[586] Ex. 65, p. 114.

[587] Ex. 300, pp. 6.12-19 and 6.12-21.

[588] Ex. 65, p. 114.

In the past, the Staff has found that there is not a significant impact unless the quality of views is at least moderate and the viewer sensitivity is at least moderately high.[589] Here, as we have shown above, where the quality of the views is moderate and the viewer sensitivity is low to moderate, the conclusion based on past Staff assessments, should be that the visual impacts from KOPs 3, 4, and 5 are less than significant.

3. There Are No Significant Visual Impacts Associated With KOP 9 (views of the Project site from the North).

The FSA concludes that from KOP 9, along Powerline Road north of the Project, the visual impacts will be significant.[590] The FSA bases this conclusion on the assumption that "Overall project visual change would thus be strong. The project would demand attention, could not be overlooked, and would be dominant in the landscape....This strong level of overall project visual change contrast would not be compatible with the moderate overall visual sensitivity of the Ivanpah Valley, nor with the high overall visual sensitivity of the Stateline Wilderness Area in which this viewpoint is located."[591] As we explain below, the FSA's assessment of KOP 9 is wrong on all counts.

a. KOP 9 Is Not Located In The Stateline Wilderness Area.

The FSA does not accurately describe the location of KOP 9.[592] The FSA states that KOP 9 is in the Stateline Wilderness Area and "represents a sensitive recreational viewpoint at middle-ground distance."[593] In fact, KOP 9 represents a viewpoint at near middle-ground (not middle-ground) distance and the KOP is ***outside*** the Stateline Wilderness Area.[594]

The FSA also describes KOP 9 as on the trail to the Umberci mine.[595] In fact, KOP 9 does not represent the view from the trail to Umberci mine.[596] Instead KOP 9 represents the

[589] Delta Energy Center Final Staff Assessment, 98-AFC-3, September 10, 1999, p. 184.

[590] Ex. 300, p. 6.12-25.

[591] *Id.*

[592] *Id.* at 6.12-10.

[593] *Id.*

[594] Ex. 69.

[595] Ex. 300, p. 6.12-10.

[596] *Id.*

view from a small hill in the vicinity of Powerline Road, approximately 0.7 miles north of the nearest edge of the Project and 0.5 mile south of the Stateline Wilderness Area.[597]

KOP 9 is not representative of a sensitive recreational viewpoint and is not representative of views from within the Wilderness Area. Instead, KOP 9 is representative of near middle-ground view of the project from existing roads and powerlines that are north of the northern boundary of the Project.

As Applicant's witnesses explained, the Project will be visible from only a small portion of the Stateline Wilderness Area, and these portions consist largely of inaccessible ridges and hillsides.[598] To the extent the Project can be viewed from the Wilderness Area, the viewpoints will be much farther away than the view from KOP 9. Areas within the Stateline Wilderness Area from which the Project may be visible are located from 1.12 miles to over 2.5 miles from the Project's closest edge.[599] As a consequence, KOP 9 provides a view that is substantially closer to the Project site than any potential view from within the wilderness and the simulation from it thus overstates the proximity and visual effects of the proposed Project on views from the Wilderness Area.

b. The FSA Overstates The Degree Of Viewer Sensitivity At KOP 9.

The FSA assigns a high degree of viewer sensitivity to KOP 9.[600] This conclusion appears to be based on the false assumption that KOP 9 is located within the Stateline Wilderness Area. The FSA provides no other explanation for assigning such a high sensitivity rating at this KOP. Moreover, with respect to the Wilderness Area itself, the FSA provides no explanation of how many visitors, if any, may visit portions of the Wilderness Area that may have background views of the project. The FSA characterizes the Umberci Mine as being within the Wilderness Area and a "popular hiking destination" from Primm.[601] However, no authority is given for the assertion that there is a "popular" destination and no visitor figures are provided to support that statement.

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[597] While the Staff requested that the Applicant take photos from a hill above Umberci mine, the Applicant was not able to do so safely. Instead, the Applicant took photos from a point much closer to the project and outside the Stateline Wilderness Area. The Applicant informed the Staff of the revised location. 12/14 RT 268-269.

[598] 12/14 RT 252.

[599] Ex. 69.

[600] Ex. 300, p. 6.12-10.

[601] *Id.* at 6.12-10 and 6.12-25.

In fact, the Umberci Mine is not within the Wilderness Area, and the number of visitors is very small.[602] The recreation staff of the BLM Needles District office estimates that the entire Stateline Wilderness Area is used by an average of one visitor per day or no more than 365 users per year.[603] The BLM recreation staff has observed that much of this use is concentrated on the eastern and northern areas of the wilderness where Stateline Pass Road provides ready access to the edge of the wilderness and to a number of washes that provide convenient hiking routes into the wilderness area's interior.[604] BLM staff has also observed that, to the extent that overnight camping takes place in the Stateline Wilderness, it is mostly concentrated in these northern and eastern areas where the landscape is the most engaging and sense of solitude is the greatest.[605] The viewshed pattern on Figure VRT-2 indicates none of the Project facilities (and none of any nighttime lighting that would be associated with them) would be visible from these portions of the wilderness in which the small numbers of users who camp in this wilderness would be likely to be located.[606] Because few, if any, users of the Stateline Wilderness Area would have views of the Project, the visual impacts of the project at this location are less than significant.

c. The FSA Overstates The Degree Of Visual Change From KOP 9.

Even though the simulation of the Project as it would appear when seen from KOP 9 overstates the Project's potential visibility and effects on views from the Stateline Wilderness Area, review of this simulation indicates that the Project would be some distance from the viewpoint and would be consistent with the forms of the 500-kV transmission lines visible in the foreground of the view.[607] As the Applicant's experts testified, the Project would be visually integrated into the view in that the solar collector towers would not appear to extend above the skyline formed by the mountain backdrop, and the collector fields would create low, flat-appearing forms on the desert floor that would be consistent with the overall landscape pattern.[608]

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[602] 12/14 RT 187 and 196.

[603] Ex. 85, p. V-3.

[604] Ex. 85, p. V-3.

[605] Ex. 84.

[606] Ex. 85, Figure VRT-2.

[607] Ex. 300, Visual Resources - Figure 15.

[608] Ex. 85, p. V-3.

The FSA describes the degree of visual change in much stronger language, but the description is based on misinterpretation of the visual simulation by a witness who never actually visited the KOP. Although visual simulations are a valuable tool in assessing visual impacts, they are no substitution for human observation. In this case, the Staff's visual resource expert never personally visited KOP 9,[609] or any of the other recreational KOPs for that matter. As a result, he has an inaccurate perception of the actual degree of visual change. For example, the FSA states that "the bright solar receivers would intrude into, and potentially interfere with, scenic views of the Clark Mountains from a moderate to strong degree depending upon brightness of the solar receivers."[610] This is simply incorrect and not supported by the record.

4. There Are No Significant Visual Impacts Associated With KOP 10 (Views From a Remote Ridge Above Benson Mine).

The FSA incorrectly concludes that from KOP 10 the Project will have an adverse visual impact. This false conclusion is based on a KOP that is not representative of viewpoints within the Clark Mountains. The conclusion is also based upon exaggerated assumptions regarding the proximity of the Project to the Mojave National Preserve, overstatement of the number of viewers, and overstatement of the degree of visual setting and visual change.

a. KOP 10 Is Not Representative Of Mojave National Preserve Visitors.

According to the Staff's definition, a KOP is intended to provide representative views that would be experienced by the general viewing public.[611] Under BLM's visual resource contrast rating system, the contrast rating should be done from the most critical viewpoints. This is usually along commonly traveled routes or at other likely observation points.[612]

The FSA asserts that "KOP 10, located in the vicinity of the Benson Mine, is representative of Mojave National Preserve visitors in the Clark Mountains within the project viewshed."[613] Nothing could be further from the truth.

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[609] 12/14 RT 195.

[610] Ex. 300 6.12-25.

[611] "KOPs are photographs of locations within the project area that are highly visible to the public — for example, travel routes; recreational and residential areas; and bodies of water as well as other scenic and historic resources." (Ex. 300, p. 6.12-49)

[612] BLM Manual 8431 - Visual Resource Contrast Rating found at: http://www.blm.gov/nstc/VRM/8431.html.

[613] Ex. 300, 6.12-26.

KOP 10, as directed by the Staff, is taken from the top of a very steep, trail-less, virtually inaccessible shale rocky ridge adjacent to the Benson Mine.[614] It was selected, we presume, because the Project site would be visible from this spot, whereas views from the Benson Mine itself are obstructed. KOP 10 certainly was not chosen because it will be visited by the general viewing public. There is no evidence that anyone, other than Applicant's visual resource experts, has ever visited this location. The Staff's own visual resource expert did not visit this KOP because it was too inaccessible.[615]

The FSA implies that this view is representative of views that will be experienced by visitors in the vicinity of the KOP, including rock climbers, hunters, hikers, campers, and OHV drivers on Yates Well, Colosseum, and other roads, hikers, and campers.[616] In fact, KOP 10 is not taken from a four-wheel-drive trail, a hunting area, a hiking trail, or a camping area. The rock climbing area is not in the vicinity of Benson Mine and there is no evidence that the project site is visible from the rock climbing area. Even Benson Mine itself is not a representative viewpoint of views that will be experienced by the general public, because it is accessed by a maze of very rough unmarked roads which can be accessed, with difficulty, from a four-wheel drive vehicle.[617]

The FSA also implies that KOP 10 is representative of views that people on Colosseum Road might be seeing. This too is incorrect. Although Colosseum Road is a more developed road than the roads to Benson Mine, a ridge on the north side of the road obscures the views toward the valley and the project site.[618]

The record of evidence is that KOP 10 offers a prominent view of the Ivanpah Valley, but it is not a viewpoint that many visitors to the area are likely to visit. On the other hand, in those areas where some visitors may travel, such as Colosseum Road or the rock climbing area, there is no evidence of record that these areas have significant views of the Project site, much less that

[614] 12/14 RT 254.

[615] *Id.* at 195-196.

[616] Ex. 300, 6.12-26.

[617] 12/14 RT 254.

[618] *Id.* at 254-255.

the Project might significantly impact these views. Overall, the Project will simply not be visible from most points within the Mojave National Preserve.[619]

b. The FSA Overstates The Number Of Persons Who Will View The Project From The Mojave Preserve.

The FSA estimates 50,000 visitors per year in the vicinity of KOP 10.[620] In fact, the number of visitors to the vicinity of KOP 10 is much, much lower.

According to National Preserve personnel who observe vehicles in the eastern portion of the Clark Mountain Unit of the Preserve, there are on average one or two vehicles per day in this area during most of the year, and perhaps up to 20 to 30 vehicles during the spring and fall months.[621] Extrapolating from these numbers, the Applicant estimates that perhaps as many as 12,000 people may visit the eastern side of the Mojave National Preserve per year, and even this estimate is on the high side.[622] However, as we explain above, very few of these visitors are likely to visit the Benson mine or the steep ridge above the mine that is KOP 10. Instead, most of these visitors are likely to visit the rock climbing area or Colosseum Road, from where the project is much less visible.

Finally, the Staff states that it considers more than 10,000 visitors per year to be a high use level. We must note that this assertion of high use is inconsistent with how the Commission has characterized use levels in past proceedings. In East Altamont, to cite but one example, the Staff characterized 2,500 vehicles per day to be low-to-moderate use.[623] Therefore, we find it somewhat surprising that the Staff would now characterize 1 to 2 vehicles per day (or 20 to 30 on busy days) to be "high" use. By the standards applied by the Commission in past proceedings, such as East Altamont, visitor use of the eastern side of Mojave National Park is extremely low.

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[619] Ex. 69.

[620] Ex. 300, p. 6.12-26. This estimate is based on a flawed extrapolation from a non-scientific NPS visitor survey. The Applicant explains in Ex. 67 why this analysis is deeply flawed.

[621] 12/14 RT 196. These observations are consistent with the experience of the Staff's own visual resources witness, who visited the project site three times and observed only a few other visitors, less than a dozen, on these occasions. *Id.* at 195-196.

[622] *Id.* at 251.

[623] East Altamont Energy Center Final Staff Assessment, 01-AFC-4, p. 5.11b-8.

c. The FSA Overstates The Degree Of Visual Setting and Visual Change From KOP 10.

KOP 10 is approximately four miles from the project site. The FSA characterizes the degree of visual change, as depicted in the visual simulation, Figure 16B, even at this distance, as displaying "a strong level of form, line, color and texture contrast, introducing an element of highly man-made character into a wide portion of the field of view.... Overall, project visual change would thus be strong. The project would demand attention, could not be overlooked, and would be dominant in the landscape."[624]

The FSA's characterization of the visual setting and degree of visual change is not correct. As to the visual setting, the Staff's expert did not personally go to this KOP.[625] In characterizing the existing visual conditions and visual sensitivity of the views in these areas based solely on a photograph, the FSA states that "…the existing intact natural landscape is considered one of the primary attractions for visitors to these mountains."[626] However, the FSA fails to point out that KOP 10 is in the vicinity of sites of past mining activity, where there are roads, excavations, and derelict structures in the immediate foreground of the views that visitors experience, and that in fact, these remnants of the old mines and related industrial activities may be part of what attracts visitors to these areas.[627]

The FSA also mischaracterizes the degree of visual change. As clearly depicted in Figure-16B, the Project does not dominate the landscape. The forms and lines of the mirror field are complementary, not in contrast, to the lakebed in the background.

KOP 10, in particular, represents an improbable view from just a portion of the vast Mojave National Preserve. The Project is not visible from any portion of the main Unit of the National Preserve and it is visible from only a small portion of the smaller Clark Mountain Unit. From most of the Preserve, therefore, the Project is either not visible due to topographic conditions, or is visible only in the distant background.[628]

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[624] Ex. 300, 6.12-26.

[625] 12/14 RT 195.

[626] Ex. 300, p. 6.12-15.

[627] Ex. 65, p. 115.

[628] Ex. 65, p. 115.

5. There are No Significant Construction Related Visual Impacts Associated With The Ivanpah Solar Project.

The Applicant disagrees with the FSA's conclusion that the temporary construction period activities "could represent strong visual changes to affected KOPs on I-15 and in the Clark Mountains."[629] The FSA's finding of a significant impact of construction activities seems to rest on the FSA's assertions that the views from these KOPs will also be permanently impacted by the Project after the completion of construction. As discussed above, the evidence of record is that the visual impacts of the project from these locations are not significant and they are, by definition, temporary -- construction-related. The Applicant respectfully submits that if the visual impacts of the permanent mirror fields are not significant, then the temporary visual impacts of any graded area prior to installation of a mirror is similarly less than significant. Although the FSA also mentions fugitive dust and night-time construction lighting, the Applicant and Staff agree that with the recommended mitigation, the visual impacts of these activities will be less than significant.

6. The Record Does Not Support the Staff's Finding of Potentially Significant Cumulative Visual Impacts Associated with the Ivanpah Solar Project.

"'Cumulative impacts' refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines, Section 15355). The FSA considers two types of cumulative impacts: (1) cumulative impacts within the viewshed, and (2) cumulative impacts within the CDCA or the Southern California Mojave Desert. The FSA concludes that the impacts of the Ivanpah Solar Project will be cumulatively significant both within the viewshed and regionally.

The Applicant respectfully submits that (1) the factual evidentiary record does not support a finding of significant cumulative impacts within the viewshed, (2) that it is a violation of CEQA to consider cumulative impacts outside the viewshed, and (3) even assuming, arguendo, that regional cumulative impacts over an area as large as 1/4 of the State of California could be considered, these impacts are not cumulatively significant.

[629] Ex. 300, p. 6.12-27.

a. The Cumulative Impacts Within The Viewshed Are Not Significant.

The FSA concludes that:

> [T]he ISEGS, GEN 3, and Nextlight Primm solar projects, along with the existing Bighorn Generating Station, proposed Ivanpah Energy Project, and City of Primm, would simultaneously be visible within middle-ground distance to I-15 motorists, and also be cumulatively dominant from viewpoints in the Clark Mountains, including KOP 10, within the Mojave National Preserve. This cumulative effect would be substantially more adverse than the significant impacts of the ISEGS project alone, or the future projects without ISEGS, both from I-15 and from the Preserve.[630]

The FSA is incorrect in its assessment of the cumulative visual impacts within the viewshed. As we explain below, the visual impacts are not cumulatively considerable, as that term is used in CEQA, either from I-15 or from the Preserve.

The FSA reaches an erroneous conclusion because it discusses the cumulative impacts at two isolated locations, rather than assessing the cumulative impacts within the majority of the area of cumulative analysis. For example, the FSA asserts that for I-15 motorists, "the cumulative effect of the existing Primm Valley Golf Course together with the ISEGS, I-15 Widening, Port of Entry, and Desert Xpress projects would be substantially adverse, converting the majority of the western highway frontage within the valley to a more urbanized, developed foreground view with potential to intrude into scenic westward highway views of the Clark Mountains."[631] The issue of cumulative assessment is, however, the impact in the majority of the viewshed, not the impact from the "majority of western highway frontage."

Compare, for example, how the Draft EIS for the DesertXpress reaches the conclusion that the combined effect of the DesertXpress with these same projects in this same viewshed does not have a cumulatively considerable impact. It reaches this conclusion of no cumulative visual impact within the viewshed, because it assesses the impact in the "majority of the area of cumulative analysis" rather than a limited area of freeway frontage.

> Present and future projects located between Victorville and Las Vegas are isolated in nature and spread out along the DesertXpress rail alignment. Development of these projects, in combination with the DesertXpress project, would maintain the slow trend of visual alterations to this area. While implementation of the Ivanpah

[630] Ex. 300. p. 6.12-32.

[631] *Id.*

> Airport, Southern Nevada Regional Heliport, and Mixed-Use Development (Jean, Nevada) would introduce new visual features to the desert aesthetic, including mixed-use buildings and facilities, runways and landing pads, flight towers, aircrafts, and associated structures and cumulatively contribute to changes in the open desert visual environment, the isolated nature of these projects would not result in rapid visual changes to the area. Additionally, the energy and solar projects, primarily near Segments 2A/2B, would potentially be visible from the DesertXpress rail alignment, depending on the height of the wind towers and materials used. Similar to the transportation projects discussed above, these wind towers and solar panels could cumulatively introduce an industrial visual character to the open desert but would not result in a rapid change in visual character due to their dispersed locations. Therefore, while these isolated projects along the DesertXpress rail alignment would have cumulative effects in changing the open desert visual environment, *the visual change for the majority of the area of cumulative analysis is anticipated to be slow, generally maintaining the existing trend of visual changes*.... Thus, the cumulative impact of the transportation, development, and energy projects in combination with the DesertXpress project would not be substantial .[632]

The conclusion reached by the DesertXpress Draft EIS, that these various projects are isolated and not cumulatively considerable, is the same conclusion stated in the AFC:

> According to publicly available information for some of the projects (information regarding project schedules for all of the projects is not known), development of these projects would occur during different timeframes, ranging from Spring 2007 through year 2017. During that 10-year period, if the projects are approved for construction, it can be expected that the area's undeveloped character would change to one of a developing area. Due to the projects' varying locations, their development may appear to be scattered over several miles, with expanses of undeveloped land between them. Adding transportation, electrical, and water infrastructure to the area may result in additional industrial, commercial, and residential growth in the vicinity to the extent that the federal, state, and local jurisdictions have planned and approved it, thus further changing the landscape's character. It is currently unknown if the impacts on visual resources from these other five projects would be adverse and significant. However, because the Ivanpah SEGS project will not create impacts on visual resources that are considered significant, it will not contribute to cumulative impacts on visual resources in the project vicinity.[633]

The FSA also asserts, without citation to any reference or authority, that the GEN 3 and Nextlight Primm solar projects, along with the existing Bighorn Generating Station, proposed Ivanpah Solar Project, and City of Primm "be cumulatively dominant from viewpoints in the

[632] Ex. 68 , p. 3.16-32 to 3.16-33 (emphasis added).

[633] Ex. 300, p. 5.13-35.

Clark Mountains, including KOP 10, within the Mojave National Preserve." There is simply nothing in the record to show that these other projects would be visible, much less dominant, from KOP 10, the isolated rocky shale above the Benson Mine. The City of Primm and the Bighorn Generating Station are barely visible, if at all, in the distant background of VR - Figure 16 and are clearly not dominant from KOP 10. Moreover, because the Staff's visual resources expert did not visit KOP 10 or any other viewpoint in the Clark Mountains, there is simply no evidentiary support for the argument that these other projects could be seen from the Clark Mountains or combine with the Ivanpah Solar Project to be visually dominant.

In summary, two analyses of the combined effects of the Ivanpah Solar Project with other past, present, and reasonably foreseeable future projects within the viewshed (the AFC and the DesertXpress Draft EIS) independently conclude that the impacts will not be cumulatively significant. The FSA reaches a contrary result because it focuses narrowly on impacts from one particular viewpoint and not the viewshed as a whole and because it exaggerates the visual effects from the Clark Mountains. The Commission should adopt the findings of the AFC, as independently confirmed by the DesertXpress Draft EIS.

b. CEQA Does Not Authorize An Assessment Of Cumulative Visual Impacts Outside The Viewshed.

The FSA states, with absolutely no citation to authority, that the "analysis of cumulative impacts is not necessarily restricted to the immediate viewshed of a project, and the need for cumulative analysis over a broad geographic area may often be determined by the affected resource itself." The FSA then proceeds to discuss the visual impacts of the project in a "regional" context of an area vaguely and variously defined as either the California Desert District, the California Desert Conservation Area, the Southern California Mojave Desert, or other broad basin of the Project's affected landscape type. The widest applicable basin of cumulative effect would include all of the Mojave Desert landscape type, including southeastern California, southern Nevada, and western Arizona. We are not sure which of these regions purports to be the basis of the FSA's regional cumulative impact analysis, but it really does not matter because none of these regions are appropriate for a review of cumulative impacts.

It is well settled, before the Commission, before BLM, and generally in California, that the geographic boundaries of the cumulative impact assessments should be limited to the ecological boundaries that define the particular resource. This point is reinforced above in

Section II.D (Cumulatives), which explains that the "geographic scope is generally based on the natural boundaries of the resource affected."[634] The rule could not be clearer: for visual resources the natural boundaries of the resource is the viewshed.

In summary then, the proposal to evaluate the cumulative visual impacts outside the viewshed of the project is a radical and unnecessary departure from the practice of this Commission and other regulatory agencies. In this proceeding, the Commission should limit the consideration of cumulative visual impacts to the viewshed in which these impacts occur.

c. "Regional" Cumulative Visual Impacts Are Not Significant.

Even if we assume *arguendo* that the Commission would depart from thirty years of precedent and assess cumulative visual impacts over a broader region (whether that region is the CDD, CDCA, southern California, or the entire Mojave Desert), the overwhelming evidence is that the cumulative impacts of the Ivanpah Solar Project, with other projects would not be cumulatively considerable.

The FSA has made three serious errors in finding the visual impacts of this Project, combined with the impacts of other projects in an undefined region, to be cumulatively considerable.

First, the FSA bases its regional cumulative impact assessment on Cumulative Impacts Table 1 which identifies 66 solar projects and 63 wind project applications with a total overall area of over one million acres within the CDCA. CEQA is very clear that the environmental assessment of cumulative impacts must consider only those future projects which are probable. A "probable future project" is defined in the CEQA Guidelines as follows:

- a project for which an application has been received by the time the Notice of Preparation is released;
- a project that is included in an adopted capital improvements program, general plan, regional transportation plan, or other similar plan;
- a project included in a summary of projections of projects (or development areas designated) in a general plan or a similar plan;

[634] BLM National Environmental Policy Act Handbook H-1790-1, p. 58 found at http://www.blm.gov/pgdata/etc/medialib/blm/ak/aktest/planning/planning_general.Par.2116.File.dat/Handbook.NEPA.H-1790-1.2k8.01.30%5B1%5D.pdf

- a project anticipated as a later phase of a previously approved project (e.g., a subdivision); or
- public agency projects for which money has been budgeted.

The FSA fails to state which, if any, of the 129 Projects listed in Cumulative Impacts Table 1 meet one or more of these criteria. The FSA states that these projects are "indicative of the interest in public lands for renewable energy generation at a regional level."[635] However, a mere interest in public lands does not make a project a reasonably foreseeable future project for the purpose of cumulative impact assessment. Instead, the project must file an application. The FSA incorrectly states that each of these projects have filed applications with BLM. In truth, most of these projects have only filed Plan of Development letters.

In response to the Applicant's assertion that a Plan of Development letter does not make a project a probable future project, the FSA cites the BLM NEPA Handbook which gives further guidance for defining "reasonably foreseeable" cumulative projects to include projects for which there are "existing decisions, funding, formal proposals, or which are highly probable, based on known opportunities or trends (Section 6.8.3.4)". The FSA asserts, without explanation, that "A Plan of Development can be considered a formal proposal." This assertion is clearly wrong. A Plan of Development letter cannot be considered a formal proposal, because as the very next sentence of the BLM NEPA Handbook states (the sentence not cited by the FSA), "When considering reasonably foreseeable future actions, it may be helpful to ask such questions as:

- Is there an existing proposal, such as the submission of permit applications?
- Is there a commitment of resources, such as funding?"

The mere filing of a BLM Form 299 and submission of a first draft of the Plan of Development are not a commitment of resources. A Plan of Development submission is not an "application" and the Plan of Development will change as the project evolves. What signals a serious commitment of resources by the BLM is the Issuance of a Notice of Intent (NOI), the NEPA-equivalent of a CEQA Notice of Preparation, which kicks off the scoping process pursuant to NEPA. Until the NOI is published, a filing at BLM is not considered active. More important, until the NOI is published in the *Federal Register*, significant staff resources are not committed to a project.

[635] Ex. 300, 6.12-33.

The Cumulative Impacts Section of the FSA states explicitly that it is unlikely that all the renewable projects would be constructed and gives concrete reasons for this expectation. At this time, it would be speculative for the CEC and BLM to guess how many and which of these projects may or may not be built. As such, the CEC and BLM have listed all the renewable projects with applications for use of BLM land in the CDCA, but explained that it is unlikely they would all be built. The Cumulative Impacts section of the FSA then states, "The uncertainty about the number of renewable projects that would be built was further emphasized in the cumulative analysis of the individual resource areas; see for example Cumulative Analysis for the Air Quality and Land Use." Although it is true that this very important qualification is stated in a few sections of the FSA, it is not stated in the Visual Resources section.

Rather than identifying projects as reasonably foreseeable projects, the FSA simply assumes that all announced projects are reasonably foreseeable. This assumption is instead antithetical to CEQA's requirements to identify reasonably foreseeable probable future projects. The Cumulative Impacts section of the FSA states that "both Table 1 and Figures 1 and 2, are shown only to inform the reader where land in California and Nevada has been identified for potential renewable resources and for use in the individual resource analysis when considering if the development of some of the projects would result in a cumulative effect to the resource. Yet, contrary to CEQA's mandates on foreseeability, the Visual Resources Section assumes that most, if not all, of these projects would be built: "With this very high number of renewable energy applications currently filed with BLM, the potential for profound widespread cumulative impacts to scenic resources within the CDCA is clear."[636]

Where the Cumulative Impact section of the FSA states that it would be incorrect to speculate which, if any of the projects in Table 1 will be constructed, the Visual Resources section of the FSA only speculates as to the projects that could be constructed in the future. It asserts that the cumulative impacts from an unidentified number of projects at unidentified locations "could include a substantial decline in the overall number and extent of scenically intact, undisturbed desert landscapes, and a substantially more urbanized character in the overall southern California Mojave Desert landscape."[637] This kind of speculation is particularly

[636] Ex. 300, p. 6.12-33.

[637] Ex. 300, pp. 6.12-33 to 6.12-34.

dangerous where the FSA has not identified even one alleged "scenically intact" landscape that would be visually impacted by another probable future project.

Therefore, in the improbable event that the Commission were to deviate from CEQA and CEC precedent to assess cumulative visual impacts within the entire Southern California landscape, the Commission must conclude on the record before it, that the Ivanpah Solar Project will not have significant cumulative visual impacts within the greater Southern California region.

7. The Project Would Not Have a Substantial Adverse Effect on a Scenic Vista.

Appendix G of the CEQA *Guidelines*, under Aesthetics, lists four questions to be considered. The Appendix G "checklist" is a screening tool used to determine whether an effect may be significant. If there is substantial evidence of a potential for a significant impact, an EIR must be prepared (rather than using a Negative Declaration or a Mitigated Declaration). To be clear, Appendix G is a screening tool, and a finding of a potentially significant impact leads to the conclusion that an EIR must be prepared, not to a conclusion that an impact is "significant".

The first of these Appendix G questions is: "Would the project have a substantial adverse effect on a scenic vista?"

The FSA acknowledges that "no designated scenic vistas were identified in the study area."[638] Ordinarily, when there are no designated scenic vistas in the study area, the Commission will conclude that the project does not have a substantial adverse impact on a scenic vista.

However, in this case the FSA remarkably reaches a contrary conclusion. The FSA asserts that certain undesignated viewpoints "particularly those in the Clark Mountains within the Mojave Preserve and Stateline Wilderness Area would qualify as such due both to their very high scenic quality and high levels of recreational use."[639]

There is simply no evidence in this record of any viewpoint within the Mojave Preserve or the Stateline Wilderness Area that would qualify as a "scenic vista" within the meaning of the Guidelines. Nor is there any evidence that such viewpoints, if they existed, would be substantially and adversely impaired by the Project. The Staff's visual resource expert never set foot in the Preserve or the Wilderness, so he has no basis for asserting such viewpoints.

[638] Ex. 300, p. 6.12-15.

[639] Ex. 300, p. 6.12-15.

Moreover, as we have shown above, to say that one or two visitors a day during much of the year constitutes "high levels of recreational use" is sheer nonsense, and is unsupported by the record.

The FSA asserts that "Both representative KOPs within the Clark Mountains, KOPs 9 and 10, would experience substantial adverse visual effects as a result of the proposed project."[640] However, as we have shown above, KOP 9 is not located in the Clark Mountains nor in the Stateline Wilderness Area. KOP 10 is in the Clark Mountains, but it is not in a location that many visitors are likely to visit.

Lacking any actual visual experience with which to evaluate the visual impacts of this project, the FSA asserts without any citation to authority the "existing intact natural landscape is considered one of the primary attractions for visitors to these mountains" and therefore, "the resulting dramatic alteration of landscape character, particularly as seen from high sensitivity recreational viewpoints in the Clark Mountains, is considered to represent a substantial adverse visual effect."[641] Yet, had the Staff's expert actually visited either the Preserve or the Wilderness Area, he would have observed "that both locations include the sites of past mining activity, where there are roads, excavations, and derelict structures in the immediate foreground of the views that visitors experience, and that, in fact, these remnants of the old mines may be part of what attracts visitors to these areas."[642] Unfortunately, the Staff analysis in the FSA/DEIS does not place the views from KOPs 9 and 10 in their larger context. It provides no indication of the role of these particular views in the overall experience of the Stateline Wilderness and the Mojave National Preserve....in most of these areas, the project area is either not visible due to topographic conditions, or is visible only in the distant background."[643] Where there are views of the valley, these views are not views of an intact landscape, but "are views of the Ivanpah Valley, which has a developed character in that it is traversed by a major Interstate highway, a railroad, a transmission line and gas line, and includes a large golf course and a complex of casinos."[644]

[640] Ex. 300, p. 6.12-15.

[641] Ex. 300, p. 6.12-15.

[642] Ex, 65, p. 115.

[643] Ex. 65, p. 115.

[644] Ex. 65, p. 115.

8. The Project Would Not Substantially Damage Any Scenic Resource.

Under Appendix G, the second of the four criteria for evaluating the significance of visual impacts is: "Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?"

As the FSA notes, the Project is adjacent to I-15, which is not listed as an eligible State Scenic Highway. The proposed Project would be located in immediate proximity to a large rock outcropping that is a prominent landmark for viewers throughout the viewshed to background distances, but the Project would not damage or intrude into views of this rock outcropping, and no other notable scenic features are present on-site.[645] Although the FSA states that the Project would be "significant in terms of the four criteria of CEQA Appendix G,"[646] the Staff's witness testified that in his opinion the project would not substantially damage a scenic resource within the meaning of this subsection.[647] Therefore, Staff and Applicant agree that the project complies with this significance criterion.

9. The Project Will Not Substantially Degrade the Existing Character or Quality of the Site and its Surroundings.

The third Appendix G criterion for Visual Resources is whether the Project will substantially degrade the existing visual character or quality of the site and its surroundings.

As set forth in Section II.I (Visual Resources) of this Brief, infra there are no significant visual impacts associated with the construction and operation of the Ivanpah Solar Project. Please refer to this discussion for a full discussion of why the Project will not substantially degrade the character of the site and its surroundings.

10. The Project Will Not Result in Significant Light and Glare.

The fourth question in Appendix G is, "Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?"

Glare is a major issue of concern to Staff. The level of glare perceived by the Staff strongly influences the Staff's opinion that the project will have significant adverse visual

[645] Ex. 300, 6.12-15.

[646] Ex. 300, 6.12-1.

[647] 12/14 RT 232-233.

impacts at KOPs 3, 4,[648] 9,[649] and 10[650]. Staff asserts that the anticipated level of glare of the solar receiving units could remain conspicuous. According to Staff, this level of glare could be dominant and could detract from the public's ability to enjoy views of Clark Mountain from the valley floor, and the glare would alter the character of those views, but would not prevent them.[651]

The Staff's assertions that the Project's receivers would be so bright at distances of 1 to 4 miles from the Project that the receivers would be dominate, interfere with, or obstruct views is not supported by the record. The Applicant's expert witness, Mr. Gilon, testified that from the closest KOP (the golf course) the potential glare from the heliostats or the receivers will be very low:

> Which then it will be -- if it's coming from the site of the heliostats, even one heliostat malfunctioning and turn to the other side, it will go down at that distance to a fifth of the sun, which is very low. And if we are speaking on the glare coming from the tower, again, the level of this will be about four watt per square meter, in comparison to 1000 watt per square meter, which is a clear day sun. So it's very low.[652]

Mr. Gilon's unrefuted testimony in this proceeding is that along I-15 from the golf course, and certainly at all distances more than 1/4 mile from the Project, the heliostats will not produce glare that would create discomfort or nuisance.[653] At a distance of four miles, the Benson Mine KOP, the reflectivity from the heliostats will be less than that of a lake.[654] And the

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[648] Ex. 300, p. 6.12-19: "The project would not physically obstruct existing scenic views of Clark Mountain due to the low height of the mirror fields, and the relatively large distances between the vertical solar power towers. However, the very bright solar receiver units could tend to dominate or even interfere with such views." The FSA characterizes the potential to interfere with such views as "strong view blockage." *Id.*

[649] Ex. 300, p. 6.12-25: " The brightly lit solar receivers would compete with the mountain peaks and ridges for visual dominance. Similarly, the bright solar receivers would intrude into, and potentially interfere with, scenic views of the Clark Mountains from a moderate to strong degree depending upon brightness of the solar receivers."

[650] Ex. 300, p. 6.12-26: "At certain times the mirror arrays could potentially create strong diffuse or spread glare, particularly in the morning if viewed on axis with the sun, and in late afternoon. Bright receiver glare is anticipated during all sunny periods. The solar receivers could potentially interfere with the ability to see such views due to strong nuisance glare."

[651] Ex. 300, p. 6.12-29.

[652] 12/14 RT 243.

[653] 12/14 RT 244.

[654] 12/14 RT 245.

receivers, Mr. Gilon testified, "[I]t will be like a 100-watt bulb, about maybe if not 30, 25 feet away. Twenty-five feet away of a bulb you see it, but not more than that." [655]

Although the Staff offered photographs of other projects where the receivers appear to produce bright glare, Mr. Gilon testified that these photographs are not representative of what would actually be observed of the Ivanpah Solar Project receivers. The pictures represent an intentional photographic special effect, not an effect of an actual viewer on the ground.[656]

In summary, the FSA's assertion that the heliostats or receivers will produce strong glare at any KOP is exaggerated. The heliostats and receivers will be visible within the viewshed, but will not produce glare that creates a nuisance or discomfort, nor will the light obstruct or distract from background views of the mountains.

11. The Project is Consistent With All Applicable LORS.

Applicant and Staff agree that the project is consistent with all applicable laws, ordinances, standards and regulations. While the FSA noted that the San Bernardino County General Plan is an applicable LORS after reviewing applicable legal requirements, Staff "concludes that San Bernardino County jurisdiction only extends to off-site infrastructure installation and maintenance activities outside the BLM boundaries, which would exclude the ISEGS site located within BLM boundaries. Therefore, the Mitigated Ivanpah 3 project would conform with all applicable LORS." As recognized in the FSA, the Ivanpah Solar Project is "located entirely on public land and would be under federal jurisdiction." [657] As explained in further detail in Section II.E (Land Use), the San Bernardino County General Plan itself notes that zoning and land use restrictions, "do not apply to Federal or State owned property."[658] In summary, Staff and Applicant agree that because the Project is entirely on Federal land, San Bernardino County is not an agency that has land use jurisdiction over this Project and the County's land use plans are not applicable LORS.

[655] 12/14 RT 247.

[656] 12/14 RT 246.

[657] Ex. 300, p. 6.5-3.

[658] Ex. 1100, pp. I-12, 13, and 14.

12. The Mitigated Ivanpah 3 Proposal Will Substantially Reduce the Visual Impacts of the Project.

The Mitigated Ivanpah 3 proposal has the potential to substantially reduce the visual resources impacts during project construction and operation.

The Mitigated Ivanpah 3[659] could reduce the duration of the construction period from what was previously indicated, reducing the length of the period in which viewers would be exposed to construction activities.

From a Project operation standpoint, revising the Project description to reduce the Project size would reduce the Project's impacts on visual resources, particularly the impacts on views from KOPs 9 (north of Ivanpah 3) and 10 (Benson Mine vicinity). In addition, because the number of solar towers at Ivanpah 3 would be reduced from five to one, the potential for the receiver unit glare impacts to travelers on I-15 about which CEC Staff has expressed concern, would be also be substantially reduced.

As shown in Figure 3-6 of Exhibit 88, the reduction of the area occupied by Ivanpah 3 would result in the northern boundary of Ivanpah 3 being pushed farther south, increasing the distance between it and the Stateline Wilderness to 1.57 miles at its closest point, with the closest power tower being more than 2 miles from the wilderness area boundary. Figure 3-5 indicates that, with the reduction in the number of solar towers at Ivanpah 3 from five to one, the area from which the Project has the potential to be visible would be less than the present design. In fact, it would only be visible from less than 15 percent of the Stateline Wilderness. Figure 3-5 of Exhibit 88 indicates that because of the reduction in the area occupied by Ivanpah 3 on its northern and western sides, under the Mitigated Ivanpah 3 alternative, this unit at its closest point, would be 1.35 miles from the western boundary of the Mojave National Preserve.

The Project under the Mitigated Ivanpah 3 alternative would still be visible from both KOPs 9 and 10. However, the effect of the Project on the views from these locations would be less than with the originally proposed Project, reflecting the fact that the northern edge of Ivanpah 3 under the Mitigated Ivanpah 3 alternative would be farther from KOP 9, that the Project would occupy a smaller area and have 40,000+ fewer heliostats, and that the total numbers of solar towers and associated receiver units would be reduced from 7 to 3.

[659] Ex. 88.

When Figure 3-7 of Exhibit 88, a revised simulation of the view from KOP 9 located on a hillside north of the project site, is compared to Figure DR147-2 (Exhibit 22), it is clear that under the Mitigated Ivanpah 3 alternative, the Project's level of visual impact would be lower than the impact that would have occurred with the original Project proposal. The field of heliostats would be smaller and would be located farther away than would have been the case, and there would be fewer solar towers and receiver units in the view. Because the Project would continue to be reasonably well integrated into the overall view, under the Mitigated Ivanpah 3 alternative, it would not dominate it, and would not substantially degrade its existing visual character and quality; hence, its visual impact on this view would continue to be less than significant.

When Figure 3-8 of Exhibit 88, the revised simulation of the view from KOP 10, is compared to Figure DR147-3,[660] which depicts the view as it would appear with the originally proposed Project in place, it is clear that the Project's level of visual impact under the Mitigated Ivanpah 3 alternative would be lower than the impact that would have occurred in that the heliostat field would be smaller and the number of solar towers and receiver units (in the portion of the view captured by the simulation view) would be reduced from six to two. Because the Project would continue to be reasonably well integrated into the overall view under the Mitigated Ivanpah 3 alternative, it would not dominate it, and would not substantially degrade its existing visual character and quality; and thus, its visual impact on this view would continue to be less than significant.

The Mitigated Ivanpah 3 alternative would comply with existing LORS. With the reduced footprint and the reduction of the Ivanpah 3 towers from five towers to one, the overall visual impacts of the Project within the viewshed and cumulatively would be less than significant.

13. The Commission Should Adopt the Applicant's Proposed Mitigation Measures.

Set forth in Attachment B are Applicants proposed mitigation measures and Conditions of Certification. These measures should be adopted. The Applicant recommends in VIS-2 that the Project Owner will be responsible for implementing a plan to provide screening of the power

[660] Ex. 22.

project, particularly the mirror fields, from the tees and greens of the golf course, but that the golf course owner be responsible for the ongoing maintenance, irrigation, replacement and monitoring of any landscaping that is installed. As a practical matter, it would not be feasible for the Project Owner to assume responsibility for maintenance and irrigation for a portion of the landscaping on a private golf course. Instead, this responsibility should be assumed by the golf course owner along with the other vegetation maintained along the course. Except for VIS-2, Staff and Applicant agree regarding the Conditions of Certification for Visual Resources.

Dated: April 1, 2010

ELLISON, SCHNEIDER & HARRIS L.L.P.

By 

Jeffery D. Harris
Greggory L. Wheatland
Samantha G. Pottenger
2600 Capitol Avenue, Suite 400
Sacramento, California 95816
Telephone: (916) 447-2166
Facsimile: (916) 447-3512

Attorneys for Ivanpah Solar Project

STATE OF CALIFORNIA

Energy Resources Conservation
and Development Commission

Application for Certification for the IVANPAH SOLAR ELECTRIC GENERATING SYSTEM	)	Docket No. 07-AFC-5

PROOF OF SERVICE

I, Karen A. Mitchell, declare that on April 1, 2010, I served the attached *Opening Brief of Ivanpah Solar Project* via electronic mail and CD to all parties on the attached service list.

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

Karen A. Mitchell

SERVICE LIST
07-AFC-5

APPLICANT

Solar Partners, LLC
John Woolard, Chief Executive Officer
1999 Harrison Street, Suite #500
Oakland, CA 94612

Todd A. Stewart, Project Manager
Ivanpah SEGS
tstewart@brightsourceenergy.com
E-mail Preferred

Steve De Young, Project Manager
Ivanpah SEGS
1999 Harrison Street, Ste. 2150
Oakland, CA 94612
sdeyoung@brightsourceenergy.com

APPLICANT'S CONSULTANTS

John L. Carrier, J. D.
2485 Natomas Park Dr. #600
Sacramento, CA 95833-2937
jcarrier@ch2m.com

COUNSEL FOR APPLICANT

Jeffery D. Harris
Ellison, Schneider & Harris L.L.P.
2600 Capitol Avenue, Suite 400
Sacramento, CA 95816
jdh@eslawfirm.com

INTERESTED AGENCIES

California ISO
e-recipient@caiso.com

Tom Hurshman, Project Manager
Bureau of Land Management
2465 South Townsend Ave.
Montrose, CO 81401
tom_hurshman@blm.gov

Raymond C. Lee, Field Manager
Bureau of Land Management
1303 South Highway 95
Needles, CA 92363
Raymond_Lee@ca.blm.gov

Becky Jones
California Department of Fish & Game
36431 41st Street East
Palmdale, CA 93552
dfgpalm@adelphia.net

INTERVENORS

California Unions for Reliable Energy
Tanya A. Gulesserian
Marc D. Joseph
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080
tgulesserian@adamsbroadwell.com

Western Watersheds Project
Michael J. Connor, Ph.D.
P.O. Box 2364
Reseda, CA 91337-2364
mjconnor@westernwatersheds.org

Gloria Smith, Joanne Spalding
Sidney Silliman, Devorah Ancel
Sierra Club
85 Second Street, 2nd Floor
San Francisco, CA 94105
E-mail Service Preferred
gloria.smith@sierraclub.org
joanne.spalding@sierraclub.org
gssilliman@csupomona.edu
devorah.ancel@sierraclub.org

Joshua Basofin
Defenders of Wildlife
1303 J Street, Suite 270
Sacramento, CA 95814
E-mail Service Preferred
jbasofin@defenders.org

Basin and Range Watch
Laura Cunningham
Kevin Emmerich
P.O. Box 70
Beatty, NV 89003
atomictoadranch@netzero.net

Center for Biological Diversity
Lisa T. Belenky, Sr. Attorney
Ileene Anderson, Public Lands Desert Director
351 California Street, Ste. 600
San Francisco, CA 94104
E-mail Service Preferred
lbelenky@biologicaldiversity.org
ianderson@biologicaldiversity.org

California Native Plant Society
Greg Suba, Tara Hansen & Jim Andre
2707 K Street, Suite 1
Sacramento, California, 95816-5113
E-mail Service Preferred
gsuba@cnps.org
thansen@cnps.org
granite@telis.org

County of San Bernardino
Bart W. Brizzee, Deputy Co. Counsel
385 N. Arrowhead Avenue, 4th Floor
San Bernardino, CA 92415
bbrizzee@cc.sbcounty.gov

ENERGY COMMISSION

Jeffrey D. Byron
Commissioner and Presiding Member
jbyron@energy.state.ca.us

James D. Boyd
Vice Chairman and Associate Member
jboyd@energy.state.ca.us

Paul Kramer
Hearing Officer
pkramer@energy.state.ca.us

John Kessler
Project Manager
jkessler@energy.state.ca.us

Dick Ratliff
Staff Counsel
dratliff@energy.state.ca.us

Jennifer Jennings
Public Adviser
publicadviser@energy.state.ca.us