

CUMULATIVE SCENARIO

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REQUIREMENTS FOR CUMULATIVE IMPACT ANALYSIS

Preparation of a cumulative impact analysis is required under both CEQA and NEPA. “Cumulative impact” is the impact on the environment that results from the incremental impact of the proposed project when considered with other past, present, and reasonably foreseeable future actions regardless of which agency (federal or non-federal) or person undertakes such other actions (40 CFR §1508.7).

Under CEQA Guidelines, “a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts” (14 Cal Code Regs §15130(a)(1)). Cumulative impacts must be addressed if the incremental effect of a project, combined with the effects of other projects is “cumulatively considerable” (14 Cal Code Regs §15130(a)). Such incremental effects are to be “viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects” (14 Cal Code Regs §15165(a)(3)). Together, these projects comprise the cumulative scenario which forms the basis of the cumulative impact analysis.

CEQA also states that both the severity of impacts and the likelihood of their occurrence are to be reflected in the discussion, “but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion of cumulative impacts shall be guided by standards of practicality and reasonableness, and shall focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact” (14 Cal Code Regs §15130(b)).

DEFINITION OF A CUMULATIVE PROJECT SCENARIO

Cumulative impacts analysis is intended to highlight past actions that are closely related either in time or location to the project being considered, catalogue past projects and discuss how they have harmed the environment, and discuss past actions even if they were undertaken by another agency or another person. Most of the projects listed in the cumulative projects tables (Cumulative Tables 1, 2, and 3 at the end of this section) have, are, or will be required to undergo their own independent environmental review under either CEQA.

Under CEQA, there are two acceptable and commonly used methodologies for establishing the cumulative impact setting or scenario: the “list approach” and the “projections approach.” The first approach would use a “list of past, present, and probable future projects producing related or cumulative impacts” (14 Cal Code Regs §15130(b)(1)(A)). The second approach is to use a “summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact” (14 Cal Code Regs §15130(b)(1)(B)). This

Final Staff Assessment/Draft Environmental Impact Statement (FSA/DEIS) uses the “list approach” for purposes of state law to provide a tangible understanding and context for analyzing the potential cumulative effects of the project.

Under NEPA, an EIS must provide a sufficiently detailed catalogue of past, present, and reasonably foreseeable future projects, and provide an adequate analysis of how these projects, in conjunction with the proposed action, are thought to have impacted or are expected to impact the environment. While NEPA requires an adequate cataloging of past projects, it also requires a discussion of consequences of those past projects. NEPA is designed to inform decision making and through disclosure of relevant environmental considerations, permit informed public comment.

In order to provide a basis for cumulative analysis for each discipline (e.g., biological resources, air quality), this section provides information on other projects in both maps and tables. Projects are defined within a geographic area that has been identified by the Energy Commission and the Bureau of Land Management (BLM) as covering an area large enough to provide a reasonable basis for evaluating cumulative impacts for all disciplines, as shown in three maps and accompanying tables. However, the area of cumulative effect varies by resource. For this reason, each discipline has identified the geographic scope for the discipline’s analysis of cumulative impacts. **Cumulative Figures 1, 2, and 3** are on the following pages, and **Cumulative Tables 1, 2, and 3** are presented at the end of this section.

- **Cumulative Impacts Figure 1, Regional Renewable Applications, and Cumulative Impacts Table 1, Regional Renewable Energy Projects.** The analysis of cumulative effects for some disciplines requires consideration of the numerous solar and wind development applications for use of BLM land, including approximately 1 million acres of the California Desert. Additional BLM land in Nevada and Arizona also has approximately 78 applications for solar and wind projects. Private and state lands have also been targeted for renewable solar and wind projects. The use of this additional land should be considered for some disciplines where applicable. This is because, as stated in the BLM NEPA Handbook (H-1790-1), the geographic scope of a cumulative effect will often extend beyond the scope of the direct effects of a project and should consider ecologically relevant boundaries, such as habitats, rather than political boundaries (CEQ, 1997).
- **Cumulative Impacts Figure 2, Regional Renewable Applications (Detail)** illustrates the challenges of siting large renewable projects in the desert. This map shows the boundaries of the renewable applications in the eastern Mojave Desert as well as the current land use designations of BLM and non-BLM land in this portion of the desert region. This map highlights land uses that may not be appropriate for large scale renewable projects (e.g., National Park Service land, wilderness areas, desert wildlife management areas), and shows the limited land areas that remain after these potentially incompatible areas are removed from consideration for renewable development.
- **Cumulative Impacts Figure 3, Ivanpah Valley Existing and Future/ Foreseeable Projects and Cumulative Impacts Tables 2 and 3** list foreseeable future projects in the immediate Ivanpah area. Table 2 presents existing projects in the Ivanpah Valley, and Table 3 presents future foreseeable projects in the Ivanpah Valley area.

Both tables indicate each project name and project type, as well as its location and status. Table 2 presents information regarding past actions that is designed to be useful and relevant to the analysis of cumulative effects. The applicant's list of existing projects in the Ivanpah Valley was considered when compiling Table 2 (Existing projects in the Ivanpah Valley); see Section 5.2.10 of the AFC which includes a variety of activities ranging from construction and continued use of major highways and secondary roads, unimproved roads and trails, pipelines, the Union Pacific Railroad, casinos and retail businesses, recreation opportunities including the Primm golf course and use of the Ivanpah Dry Lakebed, transmission lines and substations and other facilities developed around the Nevada communities of Jean and Primm (BSE 2007a).

LIKELIHOOD OF RENEWABLE PROJECT APPROVAL AND CONSTRUCTION

NEPA and CEQA require that cumulative analysis consider both the severity of impacts and the likelihood of their occurrence. The numerous renewable projects now described in applications to the BLM and on private land are competing for utility Power Purchase Agreements, which will allow utilities to meet the state-required Renewable Portfolio Standard. While **Cumulative Impacts Figures 1 and 2** and **Table 1** show a very large number of applications to BLM, it is unlikely that all of these projects will be constructed for the following reasons:

- Not all developers will develop the detailed information necessary to meet BLM and Energy Commission standards. Most of the solar projects with pending applications are proposing generation technologies that have not been implemented at large scales. As a result, preparing complete and detailed plans of development (PODs) is difficult, and completing the required NEPA and CEQA documents is especially time-consuming and costly.
- As part of approval by the appropriate Lead Agency under CEQA and/or NEPA (generally the Energy Commission and/or BLM), all regulatory permits must be obtained by the applicant or the prescriptions required by the regulatory authorities incorporated into the Lead Agency's license, permit or right-of-way grant. The large size of these projects may result in permitting challenges related to endangered species, mitigation measures or requirements, and other issues.
- Also after project approval, construction financing must be obtained (if it has not been obtained earlier in the process). The availability of financing will be dependent on the status of competing projects, the laws and regulations related to renewable project investment, and the time required for obtaining permits.

While not all the renewable projects currently proposed will be constructed, a number of existing policies and incentives encourage renewable energy development. These incentives lead to a greater number of renewable energy proposals. Example of incentives for developers to propose renewable energy projects on private and public lands in California, Nevada and Arizona, include the following:

- U.S. Treasury Department's Payments for Specified Energy Property in Lieu of Tax Credits under §1603 of the American Recovery and Reinvestment Act of 2009 (Public Law 111-5) - Offers a grant (in lieu of investment tax credit) to receive

funding for 30% of their total capital cost at such time as a project achieves commercial operation (currently applies to projects that begin construction by December 31, 2010 and begin commercial operation before January 1, 2017).

- U.S. Department of Energy (DOE) Loan Guarantee Program pursuant to §1703 of Title XVII of the Energy Policy Act of 2005 - Offers a loan guarantee that is also a low interest loan to finance up to 80% of the capital cost at an interest rate much lower than conventional financing. The lower interest rate can reduce the cost of financing and the gross project cost on the order of several hundred million dollars over the life of the project, depending on the capital cost of the project.

APPROACH TO CUMULATIVE IMPACT ANALYSIS

This FSA/DEIS evaluates cumulative impacts within the analysis of each resource area, following these steps:

1. Define the geographic scope of cumulative impact analysis for each discipline, based on the potential area within which impacts of the ISEGS project could combine with those of other projects.
2. Evaluate the effects of the ISEGS project in combination with past and present (existing) projects in the Ivanpah Valley.
3. Evaluate the effects of the ISEGS project with foreseeable future projects that occur within the area of geographic effect defined for each discipline.

Each of these steps is described below.

Geographic Scope of Cumulative Analysis

The area of cumulative effect varies by resource. For example, air quality impacts tend to disperse over a large area, while traffic impacts are typically more localized. For this reason, the geographic scope for the analysis of cumulative impacts must be identified for each resource area.

The analysis of cumulative effects considers a number of variables including geographic (spatial) limits, time (temporal) limits, and the characteristics of the resource being evaluated. The geographic scope of each analysis is based on the topography surrounding the ISEGS project and the characteristics of each resource.

In addition, each project in a region will have its own implementation schedule, which may or may not coincide or overlap with the ISEGS project's schedule. This is a consideration for short-term impacts from the ISEGS project. However, to be conservative, the cumulative analysis assumes that all projects in the cumulative scenario are built and operating during the operating lifetime of the ISEGS project.

Project Effects in Combination with Foreseeable Future Projects

Each discipline evaluates the impacts of the proposed project on top of the current baseline—the past, present (existing), and reasonably foreseeable or probable future projects near the Ivanpah site as illustrated in **Cumulative Impacts Figure 3, Ivanpah Valley Existing and Future/Foreseeable Projects** and listed in **Table 2 Existing**

Projects in the Ivanpah Valley and Table 3 Future Foreseeable Projects in the Ivanpah Valley Area.

Reasonably foreseeable projects that could contribute to the cumulative effects scenario depend on the extent of resource effects, but could include projects in the immediate Ivanpah area as well as other large renewable projects in the California, Nevada, and Arizona desert regions. These projects are illustrated in **Cumulative Impacts Figures 1, 2, and 3.**

Ivanpah area projects are illustrated in **Cumulative Impacts Figure 3, Ivanpah Valley Existing and Future Foreseeable Projects.** As shown in the map and table, there are a large number of projects in the immediate area around Ivanpah whose impacts could combine with those of the proposed ISEGS project. As shown on **Cumulative Impacts Figure 1** and in **Table 1**, solar and wind development applications for use of BLM land have been submitted for approximately one million acres of the California Desert Conservation Area. Additional BLM land in Nevada also has applications for solar and wind projects, as shown in Figure 1.

Analysis of Cumulative Impacts

The analysis presented for each discipline (e.g., air quality, biological resources) describes the geographic area of effect for that discipline and the potential cumulative effects of the ISEGS project with the other existing and reasonably foreseeable or probable future projects defined on the tables and maps presented in this section. Where appropriate, conditions of certification (mitigation measures) are recommended to reduce cumulative effects.

Cumulative Impacts Tables 1, 2, and 3 on the following pages were assembled using the following information:

- Table 1, Regional Renewable Energy Projects, identifies solar and wind renewable projects as listed on the BLM California Desert District Alternative Energy website (BLM 2008). These projects are indicative of the kind of development that could occur at a regional level. Renewable solar and wind projects have also been proposed on public lands in Nevada and Arizona.
- Table 2, Existing Projects in the Ivanpah Valley, identifies existing projects within the Ivanpah Valley. These projects were identified through a variety of sources including the San Bernardino and Clark County websites, BLM website and personal communication, personal communication with Clark County personnel, and individual project websites.
- Table 3, Future Foreseeable Projects in the Ivanpah Valley, identifies future foreseeable projects within the Ivanpah Valley. These projects were identified through a variety of sources including the San Bernardino and Clark County websites, BLM website and personal communication, personal communication with Clark County personnel, and individual project websites.

RESPONSE TO AGENCY AND PUBLIC COMMENTS ON THE PSA

This section responds first to comments on the cumulative scenario received from the applicant followed by responses to all other comments received.

The applicant submitted a PSA comment letter (dated and docketed January 23, 2009) to the CEC. The letter addresses the following subjects related to cumulative impact analysis. Responses to each comment are presented below, by comment number.

- The definition of a cumulative impact as defined by 14 Cal Code Regs §15065(a)(3) (Comment 20)
- The projects listed in Tables 1 and 2 of the cumulative impacts approach (Comment 21)
- The appropriate geographic scope of the cumulative analysis (Comments 22 - 26)
- The likelihood of the development of the renewable projects currently under BLM review (Comment 27 - 30)

COMMENT 20

The applicant states that the definition of a cumulative effect should include the words “probable future projects” as defined by California law (14 Cal Code Regs §15065(a)(3)) and should consider the incremental effects of an individual project when combined with probable future projects.

The CEQA definition of a cumulative effect was included in the **Cumulative Scenario** section of the PSA, second paragraph, page 5-1, which states that the cumulatively considerable effects are to be “viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects”. The definition the applicant refers to in the first paragraph of page 4-1 which uses the term “reasonably foreseeable future actions” is taken from the NEPA (40 CFR §1508.7). The reference to NEPA has been added to the first paragraph of page 5-1. In the analysis of cumulative effects, future projects are characterized as reasonably foreseeable or probable future projects to accommodate both federal and state definitions.

The applicant further states that to find a cumulative effect significant, the analysis must focus on the combined effects of the ISEGS project with past, present, and reasonably foreseeable future projects. The applicant gives as an example, that “to find a significant cumulative Visual effect, the Ivanpah SEGS project and the other past, present, and reasonably foreseeable probable future project must be in the same viewing area.” The BLM NEPA Handbook (H-1790-1), states that the geographic scope of a cumulative effect will often extend beyond the scope of the direct effects of a project. As the applicant notes, the direct impact to visual resources would occur within the ISEGS project viewshed. However, the ISEGS project location within the CDCA and the Mojave Desert affects the unique and highly valued scenic resources of those regions, as stated in the **Visual Resources** section. These scenic resources would be impacted by the development of numerous renewable projects within and outside of the ISEGS project viewshed, as visitors to the Mojave Desert and the CDCA may traverse multiple

viewsheds during one visit. Therefore, the cumulative effect of viewing a number of renewable projects could be considerable.

The applicant is correct in noting that the cumulative impacts and geographic scope of cumulative impacts, especially in regard to the renewable projects in the CDCA, Nevada and Arizona, must be considered independently for each resource.

The applicant states that the PSA finds potentially significant cumulative effects between the ISEGS project and other projects dispersed throughout the west. The applicant notes that the **Land Use** section identifies regional impacts from the ISEGS project when combined with future solar and wind development in southeastern California, southern Nevada and western Arizona which the applicant feels is not consistent with CEQA and NEPA requirements for analysis of potential combined effects because it does not look at the potential effects of the ISEGS project with specifically identified projects in southern Nevada and western Arizona.. The Land Use Cumulative Impact Analysis has been revised. It concludes that the project would result in a significant unavoidable land use impact in the Ivanpah Valley when combined with other foreseeable projects and lists the most significant of these projects.

COMMENT 21

The applicant states that when using a list of past, present, and probable projects producing related or cumulative impacts, including, if necessary those projects outside the control of the agency, factors to consider are location and type of the projects. The applicant states that there is no discussion or explanation of why the projects in Table 1 are listed and that the discussion with respect to the Projects in Table 2 is extremely cursory.

The projects listed in Table 1 were included because, as it states on page 4-2, the analysis of cumulative effects for some disciplines requires consideration of the numerous solar and wind development applications for use of BLM land, including approximately one million acres of the CDCA. Additional BLM land in Nevada and Arizona also has applications for solar and wind projects and the use of this additional land should be considered for some disciplines. The applicant is correct in noting that the distant projects in the CDCA or in Nevada and Arizona will not be applicable for each discipline, and the effects of renewable projects in the CDCA would only be considered if they would combine with the effects of the proposed project for the resources affected. For this reason, not all disciplines consider the ISEGS project to contribute to cumulative regional effects in the CDCA or when combined with projects in Nevada and Arizona. This information has been included in the discussion of Table 1 above in Defining a Cumulative Project Scenario.

The projects listed in Table 2 and Table 3 were compiled with the aid of the BLM and CEC and were specifically screened to 1) include projects that may have effects that would combine with those of the ISEGS project and 2) only include projects that were probable future projects.

Table 2 lists existing projects that are either ongoing or active in the Ivanpah Valley and gives a brief description of each of the projects. Further details regarding the list of

projects included in Table 2 and further information regarding the projects themselves can be found above, in the Definition of a Cumulative Project Scenario and in Table 2 below.

Table 3 lists reasonably foreseeable or probable future projects that are likely to occur in the Ivanpah Valley and gives a brief description of each of the projects. Further details regarding the list of projects included in Table 3 and further information regarding the projects themselves can be found above, in the Definition of a Cumulative Project Scenario and in Table 3 below.

COMMENT 22, 23, 24, 25, AND 26

These comments address the geographic scope of the Cumulative Analysis.

The applicant states that according to the U.S. Environmental Protection Agency (USEPA) guidance for consideration of cumulative impacts under NEPA, “the geographic boundaries should not be extended to the point that the analysis becomes unwieldy and useless for decision-making,” and that they should focus on the natural units that constitute the resources of concern. The applicant states that inclusion of projects in Nevada and Arizona would make the geographic boundaries unwieldy and useless. While the **Cumulative Scenario** states that the geographic boundaries should focus on the natural units for the resources of concern for each discipline, this would not preclude a geographic scope for some specific resources that includes a consideration of the renewable projects under review by the BLM in the CDCA, Nevada, or Arizona. The BLM NEPA Handbook H-1790-1, states that “if the boundaries are defined too broadly, the analysis becomes unwieldy; if they are defined too narrowly, significant issues may be missed, and decision-makers will be incompletely informed about the consequences of their actions (Section 6.8.3).” The BLM NEPA Handbook refers the reader to the federal Council on Environmental Quality (CEQ) Cumulative Effects Guidelines which specifically note that cumulative impact boundaries should consider ecologically relevant boundaries rather than political boundaries (CEQ, 1997). These guidelines suggest possible geographic areas such as species habitat or ecosystems for resident wildlife, and breeding grounds, migration routes, wintering areas or total range of affected population units for migratory wildlife (CEQ, 1997).

The applicant notes that the **Cumulative Scenario** section correctly states that the first step for a cumulative analysis is to define the geographic scope of cumulative impact analysis for each discipline. The applicant states that this step is not completed because of the inclusion of Table 1, Solar and Wind projects in the CDCA, which the applicant feels are outside the potential area wherein impacts of ISEGS could combine with other projects. As stated previously, while the projects defined in Table 1 would not combine with the effects of each resource, the loss of approximately one million acres of desert land would combine with the loss of approximately 4,065 acres of land through the implementation of the ISEGS project and would cause cumulative effects to some of the resource areas. As stated above, if the geographic scope is defined too narrowly, significant issues may be missed, and decision-makers will be incompletely informed about the consequences of their actions (BLM, 2008). While we agree that for some disciplines, if geographic boundaries are extended the analysis may become unwieldy

and useless for decision-making, this is not true for all disciplines. We have explained our rationale for the extent of geographic boundaries for each discipline in the individual discipline analysis.

COMMENT 27

The applicant notes that there are 17 potential projects within the Ivanpah Valley region and that this number should not be characterized as a “large number” of projects. The applicant further states that the effects of these projects would only be significant if they would combine with the effects of the proposed project. The applicant gives an example that states that projects that cannot be seen will not interact with the visual impacts of the ISEGS project. As stated above, the ISEGS project is located in the CDCA and the Mojave Desert, which are unique and highly valued scenic resources as stated in the **Visual Resources** section. This scenic resource would be impacted by the numerous renewable projects within and outside of the ISEGS project viewsheds, as visitors to the Mojave Desert and the CDCA may traverse numerous viewsheds during a visit and the cumulative effect of viewing a number of renewable projects could be considerable.

COMMENT 28

The applicant states that while solar and wind development applications for use of BLM land have been submitted for approximately one million acres of the CDCA, a Plan of Development letter does not mean that the project is a reasonably foreseeable project. Both CEQA and NEPA have guidelines as to how to limit probable future projects. In 14 Cal Code Regs §15130 it states, “When analyzing the cumulative impacts of a project under 15130 (b)(1)(A), the Lead Agency is required to discuss not only approved projects under construction and approved related projects not yet under construction, but also unapproved projects currently under environmental review with related impacts or which result in significant cumulative impacts. The analysis should include a discussion of projects under review by the Lead Agency and projects under review by other relevant public agencies, using reasonable efforts to discover, disclose, and discuss the other related projects.” The BLM NEPA Handbook 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)”. A Plan of Development can be considered a formal proposal.

The Cumulative Scenario 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 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**.

The applicant further states that the majority of the projects mentioned in the Cumulative Scenario are outside the geographic boundaries of the area impacted by the ISEGS project and that the reference to Nevada is not explained. The CEQ states that

choosing the boundaries of the cumulative effects analysis should consider the ecologically relevant boundary, such as a watershed, rather than political boundaries such as a county line (CEQ, 1997). Due to the ISEGS project location, approximately four miles from the California/Nevada border, and the diverse nature of the resources affected by the ISEGS project, the cumulative impacts may well include renewable projects in southern Nevada or western Arizona. For example, as stated in the **Biological Resources** section, the development of renewable resources in the California or Nevada deserts would lead to a cumulative loss of desert habitat for desert plants and wildlife, including the desert tortoise, to which the ISEGS project and Nevada projects would contribute.

COMMENT 29

As the applicant stated, it is unlikely that all the projects listed in Table 1 and shown on Figures 1 and 2 would be built. The applicant's discussion related to the number of megawatts required to meet the 33 percent renewable goal in California by 2020 is appreciated; however, it is not possible for the CEC and BLM to speculate as to the percentage of megawatts of renewable power that may ultimately be sited on BLM land in the CDCA. It would be equally speculative of the CEC and BLM to speculate as to how many of the projects listed in Table 1 and shown on Figures 1 and 2 would be required to meet the California renewable portfolio standard (RPS) and how many of the projects may not be required to meet the RPS and therefore would not be built. As such, 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. It is not assumed that all 48,531 MW of renewable energy projects identified in Table 1 would be built; see pg 5-3, Likelihood of Renewable Project Approval and Construction.

COMMENT 30

The applicant states that PPM Energy is in the CAISO queue for a 63 MW project, rather than a 75 MW project as stated in Table 3, Row J. Information regarding the PPM Energy project was taken from the BLM renewable applications (BLM Wind Energy Applications, November 2008, application number CACA 44988). The CAISO queue does not identify projects by name; it identifies the point of interconnection only and as such cannot be used to identify individual projects. The information in Table 3, Row J will remain as is.

Additional Comments on the PSA

Commenters, including the Defenders of Wildlife (January 23, 2009), the California Native Plant Society (February 6, 2009), stated that the cumulative analysis of the ISEGS project must consider the renewable impacts of the renewable energy projects in the region and must consider foreseeable growth in the area, including Primm. As stated above in the Analysis of Cumulative Impacts, the list approach for the ISEGS project included renewable projects in the ISEGS region and through the California Desert as well as in Clark County, Nevada. Foreseeable development in Primm, Nevada was included in Table 3. Future Foreseeable Projects in the Ivanpah Valley Area and these projects were included on Cumulative Impacts Figure 3.

An additional commenter letter was submitted by Defenders of Wildlife on July 29, 2009 that included a list of reasonable foreseeable future projects in the Ivanpah Valley. Most of these projects were included in the existing and future foreseeable tables published in the PSA in December 2008 and were considered in the cumulative analysis for each discipline. The two additional solar projects identified in the comment letter and located in Nevada have been included to the list of future foreseeable projects. It should be noted that the Cogentrix 1,000 MW solar project site conflicts with the proposed Ivanpah Airport site.

The Center for Biological Diversity commented that the cumulative analysis should include further discussion regarding the DesertXpress project. Details regarding potential DesertXpress alignments have been updated in Table 3 and the potential alignment north of Ivanpah 3 has been included in Cumulative Figure 3.

Table 1. Regional Renewable Energy Projects

BLM Field Office	Number of Projects & Acres	Total MW
Solar Energy		
Barstow Field Office	<ul style="list-style-type: none"> • 18 projects • 144,901 acres 	<ul style="list-style-type: none"> • 12,625 MW
El Centro Field Office	<ul style="list-style-type: none"> • 8 projects • 61,198 acres 	<ul style="list-style-type: none"> • 5,570 MW
Needles Field Office	<ul style="list-style-type: none"> • 17 projects • 238,800 acres 	<ul style="list-style-type: none"> • 15,700 MW
Palm Springs Field Office	<ul style="list-style-type: none"> • 18 projects • 126,345 acres 	<ul style="list-style-type: none"> • 11,100 MW
Ridgecrest Field Office	<ul style="list-style-type: none"> • 5 projects • 31,743 acres 	<ul style="list-style-type: none"> • 2,935 MW
TOTAL – CA Desert	<ul style="list-style-type: none"> • 66 projects • 602,987 acres 	<ul style="list-style-type: none"> • 47,930 MW
Wind Energy		
Barstow Field Office	<ul style="list-style-type: none"> • 27 projects • 196,780 acres 	<ul style="list-style-type: none"> • n/a
El Centro Field Office	<ul style="list-style-type: none"> • 8 projects • 49,506 acres 	<ul style="list-style-type: none"> • n/a
Needles Field Office	<ul style="list-style-type: none"> • 8 projects • 111,931 acres 	<ul style="list-style-type: none"> • n/a
Palm Springs Field Office	<ul style="list-style-type: none"> • 4 projects • 5,852 acres 	<ul style="list-style-type: none"> • n/a
Ridgecrest Field Office	<ul style="list-style-type: none"> • 16 projects • 94,872 acres 	<ul style="list-style-type: none"> • n/a
TOTAL – CA Desert District	<ul style="list-style-type: none"> • 63 projects • 458,941 acres 	<ul style="list-style-type: none"> • n/a

Source: BLM 2009

Table 2. Existing Projects in the Ivanpah Valley

ID #	Project Name; Agency ID	Location	Ownership	Status	Project Description
1	Bighorn Electric Generating Station	Primm, Nevada (approximately 4 miles northeast of the proposed project)	Reliant Energy Wholesale Generation, LLC	Existing, producing energy since 2004	Operating 570 MW natural gas power plant, uses dry cooling system
2	Primm Casinos: Buffalo Bill's, Primm Valley, Whiskey Pete's	I-15 at state line, NV 31900 Las Vegas Blvd. South. Primm (approximately 4 miles northeast of the proposed project)	Terrible's Primm Valley Casino Resorts (MGM Mirage)	Existing, undergoing renovation	Two existing Resort and Casinos and one existing Hotel and Casino
3	Primm Valley Golf Course	3 miles south of state line in California, (less than one mile from project site)	Terrible's Primm Valley Casino Resorts (MGM Mirage)	Existing	Existing golf course located south of the California/Nevada border along I-15, opened in 1997, approximately 22-acres
4	Primm Outlet Mall	Primm, Nevada 32100 Las Vegas Blvd. S. Primm, NV (approximately 4 miles northeast of the proposed project)	Fashion Outlets (MGM Mirage)	Existing since 1998	Existing shopping outlet with over 100 stores. Connected to the Primm Casinos by monorail, approximately 359,000 square feet of leasable area and 1,600 parking spaces. More than one million vehicles pass the Fashion Outlets per month.
5	Recreation Activities	Ivanpah Dry Lake (approximately 1 mile from proposed project)	BLM	Ongoing	<p>Approximately 200 casual use permits are issued annually (these cover between 1 individual to 6 individuals) and approximately 5000 annual visitors.</p> <p>Approximately 12 Permitted and Organized events occur on the Dry Lake annually on both east and west sides. (Approximately 50% of these permitted and organized events occur on the west side and 50% on the east side, although the largest of the events tend to occur on the east side of the Dry Lake.) Permits are also given out that include use of both sides. Examples of such events include Championship Racing Archery events Kite bugging Land Sailing</p>

Table 2. Existing Projects in the Ivanpah Valley

ID #	Project Name; Agency ID	Location	Ownership	Status	Project Description
6	Molycorp (Now Chevron-Texaco)	Mountain Pass, Sulphide Queen Property	Chrevron-Texaco	Ongoing, expected to continue until mid-2020.	Existing mining operation on Mountain pass, property was acquired by Molycorp in 1950 and has been mined since, Molycorp was acquired by Unocal in 1977 which was acquired by Chevron-Texaco in 2005.
7	Colosseum Mine	12 miles west of Primm, Nevada (approximately 6 to 7 miles from Ivanpah site)	Lac Minerals	Inactive – as of early 1990s. Remedial action undergone.	Mining facilities occupy 284 acres on a 3,316 acre private parcel. Located within the East Mojave National Scenic Area and Clark Mountain ACEC.
8	Clark Mountain and Crescent Peak Allotment 10 Year Lease CA-690-EA06-25	Northern Clark Mountain Range (surrounds the proposed project)	Allotment #09003	Ongoing	Grazing Lease – expires 2016. Project would remove 4,065 acres of Clark Mountain Grazing Allotment.
9	Molycorp (Now Chevron Environmental Management Company) Evaporation pond	Southeast of the Ivanpah Dry Lake (Approximately 3.25 miles from project)	Molycorp	Active, undergoing improvements	During summer of 1995 and 1996, releases were experienced in the 13.mile long pipeline that carries waste discharge to the evaporation pond. With the exception of two minor and localized areas of contamination spill-related material was removed by the fall of 2000.
10	AT&T Fiber-optic replacement of cables	Along the west side of the Ivanpah Dry Lake and of I-15	AT&T	Environmental Assessment of project was released in July 2008. Project is expected to be completed before permitting for Ivanpah SEGS is finished.	Existing direct buried fiber-optic cable will be replaced from Nevada border to the Halloran Summit, including a segment adjacent to the ISEGS project to the west of the Ivanpah Dry Lake. Use existing 10 foot ROW with some temporary larger ROW for where existing cable must be replaced.
11	Existing 115-kV transmission line from El Dorado substation	Through Ivanpah SEGS site	SCE	Active	SCE 115 kV ROW is located at ISEGS proposed site. This 115 kV is located in the BLM transmission corridor. An additional BLM corridor is located north of the ISEGS proposed site.
12	Molycorp (Now Chevron Environmental Management Company) pipeline	Runs from Molycorp south of I-15, through the Mojave National Desert Preserve to the Evaporation pond	Molycorp	Active	13-mile long pipeline that runs between the Molycorp mine and the evaporation pond. Experienced approximately 230,000 gallons of wastewater.

Table 3. Future Foreseeable Projects in the Ivanpah Valley Area

Project Name; Agency		Location	Ownership	Status	Project Description
ID #	ID				
A	GEN 3 Solar, Inc CACA 48669	Ivanpah, south of Calif./Nevada line T17N/R14E	OptiSolar	Plan of Development letter sent 07/31/08	300 MW Photovoltaic 4,160 acres land requested
B	Ivanpah Airport (Southern Nevada Supplemental Airport)	30 miles South of the McCarran International Airport - Note outline of purple around the project depicts the airport noise compatibility area	Clark County Department of Aviation	Draft EIS in progress, Scoping Report available. Preparing Draft EIS: Draft Alternatives Working Paper is available. Construction expected to begin 2012.	International Airport to supplement the McCarran International Airport in Las Vegas <ul style="list-style-type: none"> • 5,934 acre site • 17,000 acre sphere of influence • Adjacent to desert tortoise relocation site
C	Victorville-Las Vegas High Speed Train	High Train along the I-15 between Victorville and Las Vegas	DesertXpress Enterprises	Draft EIS was published in March 2009 and the public comment period ended on May 22, 2009.	DesertXpress would run from Victorville to Las Vegas. It hopes to be operational by 2012. On August, 2006, DesertXpress submitted a ROW application to the BLM for portions of the corridor between Victorville and Las Vegas that would be located on BLM land. Two alternative alignments in the vicinity of the east approach to Mountain Pass on Interstate 15 were identified. In November, 2006 BrightSource submitted an application to the BLM for a ROW grant to construct and operate the ISEGS facility. The BLM notified DesertXpress that one of its proposed route segments – Segment 4B – travelled through two proposed solar projects, ISEGS and a proposed solar power plant by OptiSolar, Inc. In January, 2009 BLM sent a letter to DesertXpress, BrightSource, and OptiSolar alerting the parties of the conflict and urging them to consult together to determine if there is a mutually agreeable solution so that the projects could co-exist. As a result of the coordination meetings, DesertXpress developed several potential alternatives to avoid the ISEGS project area including the alternative shown on Cumulative Figure 3. DesertXpress will formally request FRA to include Segment 4C in the Final EIS as an Avoidance Alternative to Segment 4B such that no portion of the DesertXpress project would be within the boundaries of ISEGS. [See TN 51648 05-21-09 BrightSource Agreement with DesertXpress for full details of the agreement.]
D	Pipeline Restoration	Adjacent to the ISEGS property	Mojave Pipeline	Meeting in Jan or Feb to discuss what must be provided to gain ROW	Pipeline restoration, similar footprint to when laying the original pipeline.

Table 3. Future Foreseeable Projects in the Ivanpah Valley Area

Project Name; Agency					
ID #	ID	Location	Ownership	Status	Project Description
E	Joint Port of Entry CA-690-EA06-01	Between Yates Well Road and Nipton Road, San Bernardino County	CALTRANS, California Dept of Food and Ag (CDFA)	Caltrans is reconsidering proposal as a phased project based on funding availability (2006) Temporary Use Permit for Geotechnical Testing and Soil Sampling in Progress Caltrans submitted a Recreation and Public Purposes Act Lease application to the BLM for the JPOE facility	Joint Port of Entry would include an Agricultural Inspection Facility and a Commercial Vehicle Enforcement Facility located on the north side of Interstate 15 between Nipton Road and Yates Well Road.
F	Temporary Batch plant	Located at Yates Well Rd. intersection within Interstate 15 ROW	CALTRANS	Caltrans widening of the I-15.	Temporary asphalt batch plant.
G	Mixed-use Development	166 acres near Jean, Nevada	MGM Mirage and Jeanco Realty Development, LLC	Demolition of the Nevada Landing Casino as the first phase of the proposed new development to begin in April. Note: On hold due to International Airport plans, will not be replaced at least until building of new airport is begun if not complete.	MGM Mirage announced a joint-venture partnership with two Las Vegas-based developers to turn undeveloped land on both sides of Interstate 15 into a community that features affordable housing, commercial businesses, shops and a new hotel-casino. This would include the demolition of two casinos MGM Mirage currently owns in Jean.
H	Clark Mountain and Crescent Peak Allotment 10 Year Lease CA-690-EA06-25	Northern Clark Mountain Range	Allotment #09003	In Progress	Grazing Lease
I	Ivanpah Energy Center	Primm, Nevada	Diamond Generating Corporation	Construction was to begin in the first quarter of 2006. No construction currently taking place	<ul style="list-style-type: none"> • 500 Mw gas-turbine combined-cycle power plant
J	Wind energy power plant CACA 44988	Mountain Pass T15N/R14E R151/2N/R14E	PPM Energy	Application received 10/15/02 & 08/04/06 Testing & monitoring – 2nd Term	<ul style="list-style-type: none"> • 75 Mw wind energy project • 2,330 acres • Military: Red
L	I-15 Mountain Pass Truck Lane 4393U	San Bernardino County, near Wheaton Springs (from 2.4 km south of Bailey Rd. overcrossing to 1.2 km north of Yates Well Road Overcrossing)	CALTRANS	Bid for contractor out Sept. 2007	NB Truck Descending Lane and Pavement rehab. Construction not expected to start before August 2008. Work is expected to continue until 2010

Table 3. Future Foreseeable Projects in the Ivanpah Valley Area

ID #	Project Name; Agency ID	Location	Ownership	Status	Project Description
M	Power Partners SW Solar Application NVN 86156	West of Jean, NV.	Power Partners Southwest LLC	Application received 9/19/09, additional information requested by BLM.	Solar Power Plant to generate 250 MW, located on approximately 10,814 acres near Jean, NV.
N	Upgrade to existing 115-kV transmission line from El Dorado substation	Along northern transmission lines of Southern California Edison (SCE)	SCE	Project filed June 2009, scoping period closed August 2009. The projected online date would be 2013.	Construct a new Ivanpah Substation sized to accommodate 220 / 115 kV facilities. Remove approximately 36 miles of a portion of the Eldorado-Ivanpah leg of the existing Eldorado-Baker-Cool Water - Dunn Siding - Mountain Pass 115 kV line and construct a double circuit 220 kV line.
O	Mixed Use -Recreation	Ivanpah Dry Lake	BLM	Numbers are approximate for annual use. The use is expected to continue into the foreseeable future.	<p>Approximately 200 Casual Use permits are issued annually (these cover between 1 individual to 6 individuals).</p> <p>Approximately 12 Permitted and Organized events occur on the Dry Lake annually on both east and west sides. (Approximately 50% of these permitted and organized events occur on the west side and 50% on the east side, although the largest of the events tend to occur on the east side of the Dry Lake.) Permits are also given out that include use of both sides.</p> <p>Annual dry-sailing and buggy events, examples from 2006 includes:</p> <ul style="list-style-type: none"> • Ivanpah Playa Commercial Landsailing Tours • 2006 north American Buggy Expo Windjet Land Sailing Speed Trial
P	New fast food restaurant	Primm, NV	Unknown	In permitting process, application received by the Clark County permitting office 2/7/08	Fast food restaurant to be built adjacent to the Primm Outlet Mall (32100 S. Las Vegas Blvd.)
Q	Primm Solar Generating Plants	Just south of Primm, Nevada, on the California/ Nevada border	NextLight Renewable Power, LLC	Application in to the Las Vegas BLM Field Office	Two solar power plants are proposed by NextLight Renewable Power, LLC at the Nevada/California border. One is a 250 MW solar trough project on approximately 2,500 acres (Serial number NVN 085801). Construction expected to take 32 months.
Q	Primm Solar Generating Plant 2	Just south of Primm, Nevada, on the California/ Nevada border	NextLight Renewable Power, LLC	Application in to the Las Vegas BLM Field Office	Two solar power plants are proposed by NextLight Renewable Power, LLC at the Nevada/California border. One is a 500 MW solar trough project on approximately 4,700 acres (Serial number NVN 085077).
R	Cogentrix NVN 083083 and 083129	East, southeast of Jean, NV.	Cogentrix Solar Services LLC	Application received 1/18/07, additional information requested and received	Solar thermal energy facility for approximately 9.760 acres and 19,840 acres respectively. Mining claims identified in the same area.

CUMULATIVE ANALYSIS OF SCE TRANSMISSION UPGRADES

This analysis examines the potential cumulative impacts of future transmission line, fiber optic, and substation construction, line removal, and other upgrades that have been proposed by Southern California Edison Company (SCE) for the purpose of providing the electrical facilities necessary to integrate up to 1,400 megawatts (MW) of new solar generation in the Ivanpah Dry Lake area, including the ISEGS project.

On May 28, 2009, SCE filed an application with the California Public Utilities Commission (CPUC) to construct the Eldorado-Ivanpah Transmission Line Upgrade Project (Application 09-05-027), and on July 23, 2009, the CPUC issued a Notice of Preparation.¹ In addition, SCE has applied to the Bureau of Land Management (BLM) for a Right-of-Way Grant and the BLM published its Notice of Intent in the Federal Register on July 27, 2009.² SCE's PEA serves as the basis for the project description included in this analysis.

SCE proposes to construct a new 220 kilovolt (kV) transmission line and a new 220 kV/115 kV substation in California near Primm, Nevada (see "N" in Table 3). The new double-circuit 220 kV transmission line would be approximately 35 miles long, and would be located between the existing Eldorado Substation in Nevada and the proposed new Ivanpah Substation in California. The Eldorado-Ivanpah portion of the existing Eldorado-Baker-Coolwater-Dunn Siding-Mountain Pass 115 kV transmission line would be removed and replaced with the 220 kV transmission line. The rest of the 115 kV line would remain unchanged west of the new Ivanpah Substation (SCE 2009).

Overall, the SCE project would also include the following components:

Substation Construction and Upgrades

- Construction of a new Ivanpah 220/115 kV Substation. The substation would be designed to allow up to four 220/115 kV transformer banks (three would be initially required to support 115 kV level interconnection requests) and would provide 220 kV expandability to support 220 kV voltage level generation tie-lines as well as future 220 kV network transmission lines (if and when required).

Transmission and Telecommunication Facilities

- Removal of approximately 35 miles of a portion of the Eldorado leg of the existing Eldorado-Baker-Cool Water-Dunn Siding-Mountain Pass 115 kV line (the existing 115 kV infrastructure cannot support transmission of greater capacity).
- Construction of a new approximately 35-mile double-circuit 220 kV transmission line with bundled 1590 aluminum conductor steel reinforced conductor, including optical ground wire to support a special protection system (SPS). The new double circuit 220 kV line would be constructed in mostly existing ROW with some minor rerouting for technical and environmental reasons.

¹ The CPUC Eldorado-Ivanpah project website is online at: <http://www.cpuc.ca.gov/Environment/info/ene/ivanpah/ivanpah.html>

² Federal Register Volume 74, Number 142, page 37053-37054.

- A new approximately 1-mile portion of the existing Baker-Cool Water-Dunn Siding-Mountain Pass 115 kV line connecting to the proposed Ivanpah Substation.
- Second telecommunication route to support WECC redundant telecommunication requirements for an SPS.

This analysis examines the construction and operational impacts of the SCE transmission line, substation and telecommunications system upgrades, and the nature and scope of the probable cumulative impacts of the project. The issue areas with potentially significant impacts have been discussed in detail.

AIR QUALITY

Environmental Setting

California and Nevada

The SCE 220 kV transmission upgrades would occur in San Bernardino County, California (7 miles) and in Clark County, Nevada (28 miles). The transmission upgrades would cross BLM lands including the Ivanpah Dry Lake and some private land. These areas are largely open space, recreation, and some minimal private development within the Primm, Nevada region. The proposed route would be southwest of Las Vegas, where ozone, particulate matter, and carbon monoxide levels violate ambient standards, despite the very low population density outside of Las Vegas itself. The SCE electrical upgrades and telecommunications installations would be located within the Mojave Desert Air Basin, administered by the Mojave Desert Air Quality Management District.

Potential Environmental Impacts

The construction and structure removal activities caused by the project would generate emissions at the locations of the work along the transmission line and telecommunication right of way (ROW) and at substation sites. The impacts would principally consist of exhaust emissions from heavy-duty diesel and gasoline-powered construction equipment (*e.g.*, ozone precursors, Nitrogen Oxides (NO_x) and Volatile Organic Compounds (VOC), other criteria pollutants, such as CO and PM₁₀, and toxic diesel particulate matter emissions) and fugitive particulate matter (dust) from travel on unpaved surfaces. Beyond the boundaries of the ROW and substations, exhaust emissions would also be caused by workers commuting to and from the work sites, from trucks hauling conductor, pole segments, and other equipment and supplies to the sites, and crew trucks (*e.g.*, derrick trucks, bucket trucks, pickups).

Odors of diesel exhaust from construction equipment would be reduced by the California's requirements for mandatory use of either low-sulfur or ultra-low-sulfur fuel. No substances used or activities involved with the project would have the capability to produce offensive odors. As such, the impacts of odors would be less than significant.

Once construction and structure removal is complete, operational emissions would result from vehicle and helicopter use for periodic maintenance, repair, and inspection of the system components. These mobile source emissions would be the only direct source of emissions related to project operation, and they would be minor. System monitoring, control, and inspections would induce light and medium heavy-duty truck

traffic and periodic helicopter use. The air quality impact caused by emissions from project vehicular traffic for maintenance activities would be less than significant.

Conclusion

The construction and structure removal activities associated with SCE's upgrades would cause emissions due to heavy-duty diesel and gasoline-powered construction equipment and fugitive particulate matter (dust) emissions from activity on unpaved surfaces. With effective and comprehensive control measures such as those recommended by Energy Commission staff for the proposed ISEGS project, dust and equipment exhaust cumulative impacts could likely be reduced to a less than significant level.

BIOLOGICAL RESOURCES

Environmental Setting

California

The SCE transmission line upgrade would be located in California for approximately 7 miles. The existing SCE 115 kV transmission line is located in the southeastern portion of the Northern and Eastern Mojave Planning Area (NEMO) in the desert region of San Bernardino County. The desert regional habitat of San Bernardino County includes soils that are predominantly sandy gravel, and include major dune formations, desert pavement, and dry alkaline lake beds (SB County 2007). The Mojave Desert region is characterized by arid conditions with low precipitation. The entire NEMO planning region is crossed by expansive alluvial washes. Please see the **Biological Resources** section within this Final Staff Assessment/DEIS for a complete list of the common vegetation and wildlife species that are expected to occur within the Ivanpah Valley region.

Nevada

The SCE transmission upgrades would be located in Nevada for approximately 28 miles beginning at Eldorado Substation. The existing Eldorado Substation and SCE 115 kV transmission line are located in the southwestern portion of Clark County, Nevada. Clark County is located within the Sonoran Basin and Range Province or Mojave Desert Shrub Biotic Communities. The regional habitat of Clark County includes soils that are predominantly Entisols, located in areas where soils are actively eroding (such as on steep slopes) or receiving new soil materials (such as alluvial fans), and Aridisols, often associated with desert pavement (LVMP 1998). The Mojave Desert region is characterized by arid conditions with low precipitation. The climate of Southern Nevada has an average precipitation of four to eight inches at lower elevations and from 12 to 20 inches at higher elevations. Maximum precipitation falls between November and March.

Vegetation Communities

The SCE 115 kV to 220 kV transmission upgrade is located within the Mojave Desert Shrub Biotic communities with hot, dry summers and mild winters. Southern Nevada has a high percentage of sunny days per year (LVMP, 1998). According to generalized vegetation mapping of the Las Vegas Resource Management Plan, the SCE 115 kV

transmission upgrade would traverse Southern desert shrub and Mojave desert shrub communities. The Southern desert shrub occurs primarily at elevations below 4,000 feet, with annual rainfall averaging less than six inches and temperatures ranging from over 100 degrees Fahrenheit in the summer to 25 degrees in the winter (LVMP 1998). Creosote bush (*Larrea tridentate*) is the dominant species, and may occur with yucca (*Yucca schidigera*) depending on elevation. Additional vegetation found in the Southern desert shrub includes white bursage (*Ambrosia dumosa*). Catclaw acacia (*Acacia greggii*) is found in dry washes at lower elevations.

Mojave desert shrub is made up of a mixture of shrubs characteristic of mid-elevation Mojave desert. The species occur on tuff or alluvial deposits at elevations between 4,000 and 5,000 feet (LVMP, 1998). Joshua tree (*Yucca brevifolia*) is one of the dominant species of the overstory. Common shrubs include horsebrush (*Tetradymia glabrata*), spiny menodora (*Menodora spinescens*), burrobrush (*Hymenoclea salsola*), box thorn (*Lycium andersonii*), green ephedra, green rabbitbrush (*Chrysothamnus viscidiflorus*), Mormon tea (*Ephedra nevadensis*), and four-wing saltbush. Blackbrush (*Coleogyne ramosissima*) and sagebrush (*Artemisia* sp.) become the dominant shrubs at higher elevations. Cacti species are also part of this community including cottontop barrel cactus (*Echinocactus polycephalus*), prickly pear (*Opuntia echinocarpa*), and various cholla species (*Opuntia* sp.) (LVMP 1998).

Pinyon-Juniper Woodland is found in the McCullough range south of the SCE 115 kV transmission upgrade. The singleleaf pinyon pine (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*) are the dominant components of this community.

The SCE upgrades would be located in between the North McCullough Mountain Wilderness Area and the South McCullough Mountain Wilderness Area in an already designated transmission line corridor.

Wildlife Species

According to the Las Vegas Management Plan, the SCE 220 kV transmission line upgrade would cross desert bighorn sheep (*Ovis canadensis nelsoni*) habitat, quail (*callipepla gambelli*) habitat, and would be north of mule deer (*Odocoileus hemionus*) winter rangeland; all of which are considered species of concern. The upgrades would be located north of the Piute-El Dorado desert tortoise Desert Wildlife Management Area (DWMA).

The following non-listed, special status animal species have moderate to high potential to occur along the 220 kV transmission line upgrade: chuckwalla (BLM sensitive) and gila monster (State of Nevada protected).

Potential Environmental Impacts

Potential impacts to biological resources caused by the project could occur as a result of construction disturbance at or near the construction work sites that would be established for the project components. These sites include the pull and tensioning sites used to pull the new conductors onto the towers and potential sites for staging or marshalling yards. Temporary construction yards would be established in both California and Nevada along the route. Generally these yards range in size from a few

acres to up to nearly 30 acres. Construction of the Ivanpah Substation would require a temporary laydown area located at or near the existing roadway at the site. Upgrades at Eldorado Substation would be within the existing substation property, and construction of the remaining 115 kV switchrack, the 220 kV switchrack and the transformer banks at Ivanpah Substation would be on already-disturbed/graded land that was analyzed as part of this Final Staff Assessment/DEIS.

For the proposed 220 kV route, new dulled galvanized 220 kV lattice steel towers (LSTs) and H-frame structures would be installed in the existing and new ROWs. Permanent loss of habitat would occur at each of these structure sites.

No main access roads are expected to be required for the proposed route, because it would largely follow an existing transmission corridor; however, spur roads to individual towers would be required. Where overland vehicle travel is not possible, upgrades to main access roads and extensions to existing spur roads would be needed to allow passage of construction vehicles. Such upgrades may require vegetation clearing and grading based on site conditions. During transmission line construction, most of the spur roads built to accommodate new construction are usually left in place to facilitate future access for operations and maintenance purposes. Thus for the purposes of this analysis, the disturbance is assumed to be permanent.

Impacts that could occur include disturbance of habitat caused by movement of the construction equipment, disturbance of nesting activities caused by construction noise and movement of machinery, and potential take of listed species caused by construction activities at the structure locations. Therefore, the project could potentially impact special status species and sensitive habitats. Recommended mitigation measures would be needed to avoid, eliminate, reduce to a less-than-significant level or compensate for those impacts.

Conclusion

Because it appears some of the construction work would occur in or near sensitive species, habitats, and/or waters of the U.S., staff concludes that the upgrades could cause an adverse cumulative impact when combined with ISEGS and other potential projects. Potential impacts include construction noise effects on nesting activities, and construction activity physical effects on habitats.

Impact avoidance measures would help reduce potentially significant cumulative biological impacts to levels less than significant. However, there would also be permanent habitat disturbances at tower locations, at the Ivanpah Substation and with the construction of new spur roads.

Activities associated with upgrading the transmission line, substations and telecommunication facilities would require compliance with applicable Federal, State and local laws, ordinances and regulations, including: Federal and State Endangered Species Acts, Federal Migratory Bird Treaty Act, and Federal and State Clean Water Acts. Specific agency permits would be required before any work could commence.

Even if the upgrades work complies with all applicable laws, ordinances, regulations and standards (LORS), absent biological survey information that proves otherwise, the SCE upgrades may create significant individual project and cumulative impacts to biological resources due to the permanent loss of habitat and the disturbance to sensitive plant and wildlife species during construction.

CULTURAL RESOURCES

Environmental Setting

California

The regional setting for archaeological resources in the Ivanpah Valley is presented in the **Cultural Resources** section of this Final Staff Assessment/DEIS. Prior to CEQA and NEPA permitting, cultural surveys would need to be conducted along the proposed 220 kV ROW within California and Nevada, as well as along the telecommunications facilities pathways and at the substation sites.

The Hoover Dam-to-San Bernardino transmission line (CA-SBR-10315H), which would be upgraded through the project, is a known historical resource and discussed in detail in the **Cultural Resources** section of this FSA/DEIS.

Nevada

All prehistoric Native Americans in southern Nevada, in the vicinity of the project, used hunting and gathering methods to acquire at least some of their foods. Hunters-gatherers moved seasonally within a series of environmental zones, and the adaptation to arid land resources is placed by archaeologists in the period called the Archaic (LVMP 1998). Heaviest use of the southern Nevada region is thought to have occurred within the last 5,000 years. Southern Nevada was used by three distinct groups (Lower Colorado, Virgin Anasazi, and Southern Paiute peoples). Lower Colorado tribes such as the Mojave conducted floodwater farming along the Colorado River south of the Las Vegas Valley and exploited resources in the surrounding ranges and valleys. The Lower Colorado people lived in open camps and rancherias, making their archaeological record similar to that of the Archaic hunter-gatherers (LVMP 1998). The Virgin Anasazi tribes are characterized by use of agriculture (maize, gourds, and possibly cotton), pit structures and aboveground masonry structures, possibly the use of kivas, and ceramics. They lived in isolated villages. The southern Paiute are considered descendants of the Archaic hunter-gatherers in southern Nevada and lived in temporary brush structures, foraging among the diverse environmental zones of the region (LVMP 1998).

Historic use of southern Nevada began with the exploration of routes such as the *Old Spanish Trail/Mormon Road* (1844 to the early 1900s). Potosí mine, the first mine in the region, dates to 1861 and ranching was underway in the late 1800s. Historic foundations such as mining sites, ranches, and quarries are found within southern Nevada.

Potential Environmental Impacts

The project would have a significant impact to a portion of one historical resource, the Hoover Dam-to-San Bernardino transmission line (CA-SBR-10315H). Proposed Conditions of Certification **CUL-8** and **CUL-9** would reduce the contribution of the proposed project to the cumulative impact to this resource to less than cumulatively considerable..

Ground disturbance, the presence of vehicles driving over the top of sites and the installation of new towers could damage archaeological resources. After the work area is defined and after archaeological and historic surveys are complete in any areas that have not been protocol-level surveyed previously by SCE, archaeological sites or historic resources within the built environment may be identified. Depending on when they were built, if the existing SCE 115 kV line or the Eldorado Substation are determined eligible for the National Register of Historic Places (NRHP), the upgrades and removal effort would result in an impact to historical resources. Whether the impact is significant would need to be determined after the line or substations are evaluated.

Some new underground and overhead lines would be installed in places where there previously were none, and some existing overhead lines would have poles replaced or new poles installed along the existing line. The trench for undergrounding would normally be excavated within or adjacent to a roadway, and trenching would not come within 12 inches from any existing fence, wall, or outbuilding associated with an adjacent property. Therefore, there would be no potential to adversely impact the physical condition of existing above-ground cultural resources. The only potential to adversely impact existing above-ground cultural resources would arise from a change in the visual setting of the property due to the addition of taller poles or new poles, new overhead lines, and new substation equipment depending on the location in the project area.

It is possible that buried cultural deposits could be encountered during ground disturbing project activities including trenching for the installation of underground fiber optic cables, during ground disturbance associated with the replacement or installation of new poles, or ground disturbance associated with the construction at the substations.

Conclusion

SCE would directly impact one known cultural site but mitigation would reduce this impact. Additionally, it is possible that the corridors have sensitive cultural resources that could be affected. It is possible that all cumulative impacts to cultural resources could be mitigated to less than a significant level through the Section 106 process and implementation of recommended measures that apply to cultural resources. Known sensitive areas would be avoided, construction activities would be monitored and other appropriate mitigation similar to the conditions of certification identified in the **Cultural Resources** section of the Final Staff Assessment/DEIS would be implemented.

GEOLOGY AND PALEONTOLOGY

Geotechnical and paleontological investigations for geologic or paleontologic resources have not yet been performed in the project area; however, fossilized vertebrae bones and invertebrate fossils have been uncovered in the southern Nevada region. There are

no known active faults crossing the proposed route and the area is considered to have a low potential for seismic hazard. Therefore, there would not likely be any contribution to cumulative impacts related to fault rupture, liquefaction, strong groundshaking, or earthquake-induced landslides. The structures would be constructed to comply with all applicable LORS. With implementation of measures and best management practices that would ensure proper re-vegetation, erosion control, and drainage, among other geologic and paleontologic requirements, SCE's project upgrades would create a less than significant cumulative impact to geology and paleontology.

HAZARDOUS MATERIALS MANAGEMENT

Spills and leaks of hazardous materials during construction activities could potentially result in soil or groundwater contamination. Improper handling of hazardous materials could expose project workers or the nearby public to hazards and/or known or previously undocumented soil and or groundwater contamination could be encountered during ground disturbing activities. Evaluation of the primary potential cumulative effect would require consideration of the possibility that any one chemical release from the sites or linear facilities would create an additive risk to the public when combined with other releases from surrounding chemical-use facilities. Implementing mitigation measures similar to the Conditions of Certification that are proposed in the Final Staff Assessment/DEIS for construction of the ISEGS, as well as implementation of SWPPP and SPCC plans, would avoid potentially significant cumulative hazard impacts from work associated with the proposed SCE upgrades.

LAND USE

The SCE 220 kV transmission upgrades project would parallel an established and major utility corridor across BLM land. Generally all of the upgrades would parallel existing utility or transportation corridors and so they would not disrupt or divide the physical arrangement of an established community. Also for these reasons, the SCE upgrades would not restrict existing or future land uses along the route. To reduce cumulative recreation impacts, mitigation measures would be recommended that would require SCE to coordinate construction activities and the project construction schedule with the authorized BLM officer for the Ivanpah Dry Lake area, and require SCE to identify alternative recreation facilities that may be used by the public during construction.

NOISE

The entire area within the ROW is undeveloped, with the exception of a few roads that pass underneath the transmission line. There are a few residences within 500 feet of the transmission line ROW in the area of Primm, NV at the California/Nevada state line. Short-term noise impacts to these residences may occur during the construction from operation of heavy equipment throughout the project area. SCE would largely use existing ROW access roads to complete work, but they would also need improvement and construction of new spur roads (new access roads would not be required with the proposed route). Implementing mitigation measures similar to the conditions of certification that are proposed in the Staff Assessment/DEIS for construction of the ISEGS would avoid potential significant individual and cumulative noise impacts from work associated with the proposed project. After the construction work is complete and the line operational, there may be a change in corona noise levels in portions along the new corridor.

SOCIOECONOMICS

Because few, if any, workers are expected to relocate to the area, no new housing would be needed for the project, no housing would be displaced, and no new competition for existing housing would likely occur in conjunction with the ISEGS project. Construction employees would likely already live within commuting distance to the project area in Primm, Nevada, the Las Vegas area, which is less than 40 miles to the north, or San Bernardino County in California. Since any non-local construction workers would not likely relocate family members for the relatively short duration of construction and very few, if any, new permanent employees would be hired by SCE for operation of the project, cumulative impacts to schools, public services, and recreational facilities would be less than significant.

SOIL AND WATER RESOURCES

Construction activities would not occur within the watercourses; therefore, impacts to water quality for construction and operation of the transmission lines would be less than significant. Implementation of SWPPP and recommended mitigation, such as temporary erosion control measures, and best management practices or similar mitigation would ensure less than significant cumulative impacts to soils and water resources. The SCE project would cross three grazing allotments located along the transmission line corridor in California and Nevada, however, with the implementation of mitigation, neither construction nor operation of the transmission line would cause a significant impact to agricultural resources and associated cumulative impacts would be less than significant.

TRAFFIC AND TRANSPORTATION

Since the majority of construction activities would take place in largely rural areas, it is projected that the activities of the proposed SCE upgrades in conjunction with the ISEGS project would have minimal impact on the traffic level of service for the roadways in the vicinity of the activities. In addition, the movement of heavy machinery on local roads would occur intermittently, but infrequently throughout the project area over the construction period. However, on Fridays from approximately 12 p.m. to 10 p.m., northbound I-15 experiences an hourly average of approximately 2,000 trips per lane and operates at LOS F. Regardless, the number of vehicles added to northbound I-15 on Friday afternoons as a result of the project would be minor compared to the number of vehicles traveling on northbound I-15 during the same time. Based on the temporary nature of the construction activities and the generally undeveloped nature of the area, coupled with implementation of traffic mitigation measures similar to conditions of certification in the ISEGS Staff Assessment/DEIS, such as scheduling during non-peak hours, would ensure that any potential cumulative traffic and transportation impacts would be less than significant.

TRANSMISSION LINE SAFETY AND NUISANCE

Since the upgraded 220 kV line would be operated at a higher voltage than the existing 115 kV line, the magnitude of the electric field along the line route would increase. The magnetic field may also change, because its intensity depends directly on current levels, however, phasing with other existing lines can actually reduce magnetic fields in some instances. SCE would prepare an EMF Field Management Plan as part of its project application to the CPUC that would include changes in EMF levels associated

with the upgrades. The upgraded 220 kV transmission line would be designed, built and operated (largely within the existing ROW) according to SCE's requirements, reflecting compliance with the health and safety (non-EMF) LORS. Therefore, it is not expected that this project's operation would pose a significant cumulative health and safety hazard to individuals in the area, in conjunction with the ISEGS project.

TRANSMISSION SYSTEM ENGINEERING

To mitigate potential safety and reliability impacts, the LORS, CPUC and NESC regulations and SCE scheduling protocols would be used. SCE would need to assure conformance with the safety and reliability requirements. All of SCE's electrical and telecommunication upgrades would result in local system benefits, in that they would provide considerably greater flexibility in routing power in the regional transmission, subtransmission and telecommunication networks, even if the ISEGS is not built. The project would ensure that the ISEGS could generate at its rated capacity as it would mitigate overloads on the existing Eldorado–Baker–Coolwater–Dunn Siding–Mountain Pass 115 kV transmission line between Eldorado and Ivanpah Substations.

VISUAL RESOURCES

Environmental Setting

California and Nevada

As stated in the **Visual Resources** analysis in the ISEGS Staff Assessment/DEIS, the regional landscape is part of the Great Basin section of Fenneman's Basin and Range physiographic province, a vast desert area of the western U.S. extending from eastern Oregon to western Texas, characterized by periodic mountain ranges separated by desert plain (Fenneman, 1931). It is also located within the Mojave Desert, immediately north and east of the northernmost portions of the Mojave National Preserve. Locally, the site is situated within the Ivanpah Valley, notable for the level playa or dry lakebed of Ivanpah Lake. Steeply rising, barren slopes and ridges of the Clark, Spring, and Ivanpah Mountains to the south, west, and north, and the Lucy Gray, McCullough, and New York Mountains to the east, define the Ivanpah Valley in the project vicinity.

The transmission line would be located approximately 30 miles south of the City of Las Vegas, and would cross within several hundred feet of Primm, Nevada, and along I-15 becoming increasingly urbanized and less scenically intact as one progresses northward. However, upon leaving Primm, Nevada, the transmission line upgrades would be located on undeveloped BLM land. The transmission line upgrades would be located approximately one mile south of the Red Rock Canyon National Conservation Area that is managed primarily for its visual resources. However, the transmission line upgrades would occur within an existing transmission line corridor adjacent as many as five additional transmission lines. Thus, in a regional context, the site is located at the outer edge of urban influence of the City of Las Vegas metropolitan area. I-15 adjacent to the project site is the principal travel route for visitors to Las Vegas from southern California. There are no California Officially-Designated or Eligible State Scenic Highways in the project vicinity (Caltrans 2008).

Potential Environmental Impacts

For the proposed 220 kV route, new dulled galvanized 220 kV LSTs and H-frame structures would be installed in the existing and new ROW. Double-circuit LSTs generally range in height between 100 feet and 200 feet. Single-circuit H-frame structures generally would be less than 100 feet tall. Most of the structure sites would likely require minor to substantial grading and new or re-developed access and spur roads.

The project would require temporary staging areas for equipment and materials storage along the transmission line route in both California and Nevada. Generally these yards range in size from a few acres to up to approximately 30 acres. Construction of the Ivanpah Substation would likely require a temporary laydown area located at or near the existing roadway at the site.

Conductor pulling and tensioning equipment would be located at various sites along the transmission line ROW. Depending on the terrain and the number of angles and dead-end sites, numerous pull sites would likely be needed.

Construction equipment and activities would be visible to motorists on I-15 and other local roadways, as well as to residents living near the construction activities in Primm, Nevada. Due to temporary duration of the project construction, the adverse visual impacts that would occur during construction would not be significant. This conclusion assumes that construction areas and the ROW would be restored to their pre-project conditions, as discussed below.

However, the upgrades would include the construction of new permanent spur and access roads to the individual structure sites and Ivanpah Substation, which could create permanent visual scars across the undeveloped landscape.

Construction of the 220 kV line would be largely within an existing ROW, where feasible, across undeveloped BLM lands, and would parallel a major existing utility corridor with up to five existing transmission lines for its length. Because the existing transmission lines and towers are an established part of the setting and the project would include removal of the existing 115 kV line and poles, the adverse visual impacts that would occur due to installation of the new line, and any incremental changes in tower height or design, would likely not be significant. This conclusion assumes that the new wires and towers would incorporate typical measures to mitigate potentially significant adverse visual impacts, such as those listed below.

Conclusion

Construction of the SCE upgrades project would require temporary disturbance during construction (i.e., heavy equipment, tensioning, and pull sites). After rehabilitation of temporary construction yards and pulling sites, as required by the suggested mitigation, the transmission line would appear largely as it does now, except for the construction of new and permanent spur and access roads, which would permanently scar the fragile desert landscape.

The SCE upgrades project would have the potential to cause adverse long-term visual impacts, such as through the use of reflective conductors and/or insulators that would make existing or new structures more dominant in the existing viewshed, and through the construction of new and larger structures. However, project design features and feasible mitigation measures would be available that would ensure that visual impacts, including cumulative impacts, of the project would be reduced. With use of non-specular conductors and non-reflective and non-refractive insulators, potential long-term impacts associated with this activity would be reduced as well. Because the upgrades would be in a largely undeveloped area on BLM land, would parallel an existing utility corridor or be on/within existing facilities, and would include removal of the existing line, it is expected that incremental cumulative visual impacts would be reduced to less than significant.

WASTE MANAGEMENT

Construction would generate waste largely in the form of soil from structure excavation, concrete from existing foundations, utility line cable, and scrap metal/wood from the removal/replacement of existing structures, which would be disposed of at an offsite location. Due to the number and capacity of landfills serving the project area, capacity for materials generated from construction of the upgrades in conjunction with the proposed ISEGS project would be available. Recycling activities would greatly reduce the quantity of construction-related materials transported to local landfills. To help ensure and facilitate ongoing project compliance with LORS, mitigation similar to the conditions of certification included in the **Waste Management** section of this Final Staff Assessment/DEIS would be recommended. It is also recommended that SCE should be required to recycle construction waste where feasible.

WORKER SAFETY AND FIRE PROTECTION

Workers at the project would be exposed to loud noises, moving equipment, trenches, and confined space entry and egress. Workers may sustain falls, trips, burns, lacerations, and other injuries. During construction and operation of the upgrades there is also the potential for both small fires and major structural fires. Mitigation similar to the Conditions of Certification in the **Worker Safety and Fire Protection** section of this Final Staff Assessment/DEIS would require SCE to provide a project construction safety and health program and a project operations and maintenance safety and health program. These measures would ensure adequate levels of industrial safety and would comply with applicable LORS. The project would not have significant cumulative impacts on local fire protection services.

Conclusion

This analysis determined that impacts in the following areas would likely be less than significant for this upgrades project (some with implementation of standard mitigation measures): Facility Design, Power Plant Efficiency, and Power Plant Reliability.

Although implementation of mitigation may reduce potential impacts to less than significant levels, the disciplines where potential impacts are of most concern are Air Quality, Biological Resources, Cultural Resources, and Visual Resources.

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