

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

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SUMMARY OF CONCLUSIONS

U.S. Bureau of Land Management (BLM) and Energy Commission staff (hereafter referred to as staff) conclude that the two 100-megawatt (MW) (nominal) solar electric generating plants, known as Ivanpah 1 and 2, and the one 200-MW (nominal) plant, known as Ivanpah 3, referred to collectively as the Ivanpah Solar Electric Generating System (ISEGS), would not result in significant adverse direct or indirect socioeconomic impacts with respect to either CEQA or NEPA. In addition, the ISEGS would not contribute to a cumulative socioeconomic impact on the area's population, employment, housing, police, schools, or hospitals because the proposed project's construction and operation workforce currently resides in the regional or local labor market area and construction would be short term. Gross public benefits from the proposed project include capital costs, construction and operation payroll, and property and sales taxes. Furthermore, the construction and operation of the proposed ISEGS would not result in any disproportionate impacts to low-income or minority populations. Conditions of Certification referred to herein serve the purpose of both the Energy Commission's Conditions of Certification for purposes of CEQA and BLM's Mitigation Measures for purposes of NEPA.

INTRODUCTION

Staff's socioeconomic impact analysis evaluates project-induced changes on existing population and employment patterns, community services, and related community issues such as environmental justice. A discussion of the estimated beneficial economic impacts of the construction and operation of the proposed ISEGS and other related economic impacts are provided. For purposes of analyzing the complete ISEGS project, this **Socioeconomics and Environmental Justice** section analyzes the proposed ISEGS (Phases 1, 2, and 3) as a whole. Therefore, **Socioeconomics and Environmental Justice** setting data and analysis are presented for the entire ISEGS project.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

SOCIOECONOMICS and ENVIRONMENTAL JUSTICE Table 1 contains all applicable socioeconomic laws, ordinances, regulations, and standards (LORS) applicable to the proposed ISEGS. The proposed project is subject to federal socioeconomic LORS (including the National Environmental Policy Act) because it would be located on federal lands administered by the United States Bureau of Land Management (BLM).

**SOCIOECONOMICS and ENVIRONMENTAL JUSTICE Table 1
Laws, Ordinances, Regulations, and Standards (LORS)**

Applicable LORS	Description
Federal	
<p>Executive Order 12898 (<i>Federal Register</i>, Vol. 59, No. 32, February 11, 1994)</p> <p>National Environmental Policy Act (NEPA) 42 United States Code (USC) 4321 et seq.</p>	<p>Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," focuses federal attention on the environment and human health conditions of minority communities and calls on agencies to achieve environmental justice as part of this mission. The order requires the U.S. Environmental Protection Agency (EPA) and all other federal agencies (as well as state agencies receiving federal funds) to develop strategies to address this issue. The agencies are required to identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and/or low-income populations.</p> <p>Under NEPA, an environmental impact statement must discuss social and economic effects if they are related to the natural or physical effects and the definition of "effects" includes economic and social factors. Consequently, a federal environmental document must include an analysis of the proposed project's economic, social, and demographic effects related to effects on the natural or physical environment in the affected area, but does not allow for economic, social, and demographic effects to be analyzed in isolation from the physical environment.</p>
State	
<p>California Environmental Quality Act (CEQA) Title 14 of the California Code of Regulations, Chapter 3, Guidelines for Implementation of the California Environmental Quality Act, Article 9(a), section 15131</p> <p>California Education Code, section 17620</p> <p>California Government Code, sections 65996–65997</p>	<p>Socioeconomic impacts are limited to those that could be considered direct effects on the environment, such as changes to population and housing, and that are separate from strictly economic impacts, such as a loss of revenue.</p> <p>The governing board of any school district is authorized to levy a fee, charge, dedication, or other requirement for the purpose of funding the construction or reconstruction of school facilities.</p> <p>These sections include provisions for school district levies against development projects. As amended by Senate Bill 50 (Greene, Chapter 407, section 23, Statutes of 1998), these sections state that, except for fees established under Education Code 17620, state and local public agencies may not impose fees, charges, or other financial requirements to offset the cost of school facilities.</p>

Applicable LORS	Description
<p>California Revenue and Taxation Code, sections 721–725: California Board of Equalization (BOE) – Property Tax Rule 905 (BOE authority to assess electrical generating facilities is found in Article XIII, section 19, of California's Constitution)</p>	<p>Property Tax Rule 905 states “the Board shall annually assess every electric generation facility with generating capacity of 50 MW or more...” It also states that for purposes of this rule, “electric generation facility” does not include a qualifying small power production facility or qualifying cogeneration facility within the meaning of section 201 and section 210 of Title II of the Public Utility Regulatory Policies Act of 1978. According to this act, (16 USC, section 796 [17] [A]), a “small power production facility is defined as 'A facility which is eligible solar, wind, waste, or geothermal facility...[that] has a power production capacity, which together with any other facilities located at the same site, is not greater than 80 MW.'”</p>
<p>Local</p>	
<p>San Bernardino County General Plan</p>	<p>San Bernardino County General Plan’s (2007) Economic Development Element calls for a vibrant and thriving local economy that spans a variety of industries, services, and other sectors while recognizing the distinctions between the growth stages of the Valley, Mountain, and Desert Planning Regions in encouraging industrial, office, and professional development and local-serving employment. The Economic Development Background report (2005) states that the Desert Planning Region (which includes the proposed ISEGS site) is just entering Stage 2 of the three-stage pattern of development. Stage 2 is where an area is capable of attracting blue collar and entry-level white collar workers and companies that take advantage of undeveloped industrial space.</p>

SETTING

PROJECT LOCATION

The applicant is developing three solar energy plants to be located in the Ivanpah Basin of San Bernardino County, California, 4.5 miles southwest of Primm, Nevada just west of the Ivanpah Dry Lake and 0.5 miles west of the Primm Valley Golf Club. The ISEGS project includes Ivanpah 1, 2, and 3, which are designed to generate a total of 400 megawatts (MW) of electricity. Ivanpah 1 and 2 are designed to provide 100 MW each of electricity and Ivanpah 3 is designed to provide 200 MW of electricity. The 100 MW Ivanpah 1 and 2 would each occupy approximately 914 acres and 921 acres respectively; the 200 MW Ivanpah 3 would occupy approximately 1,837 acres. All three phases would be developed on contiguous property, sharing an administration building, an operation and maintenance building and a substation within a common logistics area between Ivanpah 1 and 2 that would also be used for construction laydown and staging activities. The proposed project would cause permanent disturbance of about 3,713 acres, temporary disturbance of 321 acres, and including the existing transmission line corridor of about 39 acres within the Construction Logistics area, ISEGS would utilize about 4,073 acres (6.4 square miles) of federal land managed by BLM (CH2ML 2009f).

For purposes of analyzing the complete ISEGS project, this **Socioeconomics and Environmental Justice** section analyzes the proposed ISEGS (Ivanpah 1, 2, and 3 and associated facilities) as a whole. Therefore, **Socioeconomics and Environmental Justice** setting data and analysis are presented for the entire ISEGS project.

Research shows that workers may commute as much as two hours each direction from their communities rather than relocate (EPRI 1982). Therefore, for purposes of this analysis, the socioeconomics study area is San Bernardino County in California and Clark County in Nevada. San Bernardino County is bordered on the north by Inyo County, on the south by Riverside County, on the west by Los Angeles, Kern, and Orange Counties; on the east by Clark County, Nevada, and also by portions of Mojave and La Paz Counties in Arizona. There are 24 incorporated cities in San Bernardino County, including Fontana, Ontario, Rancho Cucamonga, and San Bernardino. There are five incorporated cities in Clark County, Nevada, including Las Vegas.

DEMOGRAPHIC CHARACTERISTICS

Within the study area, San Bernardino County, California, and Clark County, Nevada, are considered areas that may be affected by potential population in-migration resulting from the proposed ISEGS. In order to characterize the population profile of the study area, current and forecasted population trends for the study area are summarized in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 2**. Between the period of 2000 and 2010, the total population increase in San Bernardino County, California, is expected to be approximately 25 percent, while the population increase in Clark County, Nevada, within the same time period is expected to be approximately 64 percent.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 2
Population Profile of the Study Area, Year 2000–2030

Area	Year			
	2000 Population	2010 Projected Population	2020 Projected Population	2030 Projected Population
San Bernardino County, CA	1,709,434	2,133,377	2,456,089	2,762,307
Clark County, NV	1,375,765	2,258,748	2,946,350	3,358,456

Source: US Census 2008; CDOF 2008a; Clark County 2008a.

DEMOGRAPHIC SCREENING

Staff's demographic screening is designed to determine the existence of a minority or below-poverty-level population or both within a six-mile area of the proposed project site.

The demographic screening process is conducted based on information contained in two documents: *Environmental Justice: Guidance Under the National Environmental Policy Act* (Council on Environmental Quality, 1997) and *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses* (Council on Environmental Quality, 1998). Based on the demographic screening analysis, the potential affected area is a six-mile radius of the proposed ISEGS site. The six-mile radius is consistent with the radius used in the Air Quality section of the

FSADEIS to determine potential air quality impacts. The screening process relies on Year 2000 U.S. Census data to determine levels of minority and below-poverty-level populations.

Minority Population

According to *Environmental Justice: Guidance Under the National Environmental Policy Act*, minority individuals are defined as members of the following groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic.

A minority population, for the purposes of environmental justice, is identified when the minority population of the potentially affected area is (1) greater than 50 percent; (2) meaningfully greater than the percentage of the minority population in the general population or other appropriate unit of geographical analysis; or (3) when one or more U.S. Census blocks in the potentially affected area have a minority population of greater than 50 percent.

For the proposed ISEGS Project, the total population within the six-mile radius of the proposed site is 36 persons, and the total minority population is 10 persons or 27.8 percent of the total population (see **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE FIGURE 1**).³ Primm, Nevada is entirely contained within the six-mile radius of the proposed ISEGS site but is not included in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE FIGURE 1** as Primm was not considered a Census Designated Place at the time of the Year 2000 Census (US Census, 2008). Therefore, no Year 2000 Census Data is available for the City of Primm. In 2008, the community of Primm had a population of 1,060 persons (Clark County 2008c). As shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE FIGURE 1**, no census blocks within a six-mile radius of the proposed ISEGS site contain minority populations greater than 50 percent.

Below-Poverty-Level Population

Staff has also identified the below-poverty-level population based on Year 2000 U.S. Census block data within a six-mile radius of the project site. The below-poverty-level population within a six-mile radius of the proposed ISEGS Project consists of no people or 0.0 percent of the total population in that area.

ENVIRONMENTAL JUSTICE

Executive Order 12898, "Federal Actions to address Environmental Justice in Minority Populations and Low-Income Populations," focuses federal attention on the

³ To more accurately map the affected population, **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE FIGURE 1** typically includes only US census blocks that contain over 50 percent of the blocks' geographic area within a six-mile radius of a proposed site. In the ISEGS case, the census blocks were extremely large and captured population that extended 60 miles to the southwest and 50 miles to the northwest of the ISEGS site to include population in Boulder City and south Las Vegas, NV. Primm, NV is in the census block that extends 50 miles to the northwest of the project site and data was not used because it would grossly miscount the population in that area. Therefore, the census data, including the population and race for the town of Primm was not represented on the map.

environment and human health conditions of minority communities and calls on federal agencies to achieve environmental justice as part of this mission. The order requires the USEPA and all other federal agencies (as well as state agencies receiving federal funds) to develop strategies to address this issue. The agencies are required to identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and/or low-income populations.

The purpose of the screening analysis is to determine whether a minority or low-income population exists within the potentially affected area of the proposed site. For all siting cases, Energy Commission staff conducts an environmental justice screening analysis in accordance with the “Final Guidance for Incorporating Environmental Justice Concerns in USEPA’s National Environmental Policy Act (NEPA) Compliance Analysis” dated April 1998, which defined minority populations as either:

- the minority population of the affected area is greater than 50% of the affected area’s general population; or
- the minority population percentage of the area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

California Statute, Section 65040.12 (c) of the Government Code, defines “environmental justice” to mean “fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.” In light of the progress made by federal environmental agencies on environmental justice, the Energy Commission has examined federal guidelines pursuant to its desire to follow environmental justice principles for the environmental review of this project.

The steps recommended by these guidance documents to assure compliance with the Executive Order are: (1) outreach and involvement; (2) a screening-level analysis to determine the existence of a minority or low-income population; and (3) if warranted, a detailed examination of the distribution of impacts on segments of the population. Though the Federal Executive Order and guidance are not binding on the Energy Commission, staff finds these recommendations helpful for implementing this environmental justice analysis. Staff has followed each of the above steps for the following 11 sections in the FSA/DEIS: Air Quality, Hazardous Materials, Land Use, Noise, Public Health and Safety, Socioeconomics and Environmental Justice, Soils and Water, Traffic and Transportation, Transmission Line Safety/Nuisance, Visual Resources, and Waste Management.

According to the Census 2000 data there were 36 people within six miles of the proposed project site which resided within California. With 10 or 27.8 percent of the total California residents classified as minority. (see **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE FIGURE 1**), no census blocks within a six-mile radius of the proposed ISEGS site contain minority populations greater than 50 percent. The 2000 Census block data did not identify any California residents living below the designated poverty level within a six-mile radius of the project site.

No minority communities or low income communities are located within or adjacent to the proposed project areas. The proposed action would not impact distinct Native American cultural practices or result in disproportionately high or adverse human health or environmental effects on minority communities.

EMPLOYMENT CHARACTERISTICS

Labor force characteristics for the study area, which includes San Bernardino County, California (Year 2006 data), and Clark County, Nevada (Year 2005 data), are described in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3**. San Bernardino County is part of the Riverside-San Bernardino-Ontario Metropolitan Statistical Area (MSA) as defined by the U.S. Census Bureau. In 2006, total employment in the Riverside-San Bernardino-Ontario MSA was 1,084,800. As shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3**, construction, manufacturing, retail trade, and services were the largest employment sectors. Clark County is part of the Las Vegas-Paradise MSA. In 2005, total employment in the Las Vegas-Paradise MSA was 871,600, with the largest employment sectors being construction and services.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3
Labor Force Characteristics, San Bernardino County, California (Year 2006) and
Clark County, Nevada (Year 2005)

Industry	Riverside-San Bernardino-Ontario MSA 2006 Labor Force Characteristics	Las Vegas-Paradise MSA 2005 Labor Force Characteristics
Agriculture	17,200	N/A
Natural Resources, Mining	1,400	400
Construction	129,500	101,500
Manufacturing	124,000	25,000
Wholesale Trade	53,800	22,200
Retail Trade	171,500	94,000
Transportation, Warehousing, and Utilities	63,800	32,400
Information	15,200	10,400
Financial Activities	51,800	48,800
Services	436,200	449,400
Government	18,800	87,500
<i>Total Employed</i>	1,084,800	871,600
Unemployment	41,800 (4.7%)	33,000 (3.7%)

Source: CEDD 2008a; CEDD 2008b; NDETR 2008a.

HOUSING

Current housing conditions within the study area are shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 4**. There were 1,402,485 total housing units in the study area in 2006, with 110,011 of these units vacant, creating a study area vacancy rate of 7.8 percent.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 4
Housing Units in the Study Area, Year 2006

	Total Units	Single-Family	Multi-Family	Mobile Homes	Percent Vacant
Clark County, NV	740,817	433,317	227,040	30,460	32,596 (4.4%)
San Bernardino County, CA	661,668	492,519	125,594	43,555	77,415 (11.7%)
<i>Total</i>	1,402,485	925,836	352,634	74,015	110,011 (7.8%)

Source: CDOF 2008b; Clark County 2008a.

FISCAL REVENUE

The two key taxing agencies in the study area are San Bernardino County, California, and Clark County, Nevada. As comparable fiscal data for Clark County, Nevada, is unavailable, fiscal data for the City of Las Vegas (the primary Metropolitan Service Area within Clark County, Nevada) is presented. **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 5** shows the revenues and expenditures for both San Bernardino County and the City of Las Vegas for fiscal year 2006. As shown, both San Bernardino County and the City of Las Vegas generated more revenue than expenditures in fiscal year 2006.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 5
Fiscal Revenue and Expenditures for San Bernardino County, California, and the City of Las Vegas, Nevada, Year 2006

	San Bernardino County*	City of Las Vegas*
Expenditures For Countywide Operations		
Admin/Exec	\$462,158	\$164,150
Contingencies	\$59,124	N/A
Financial Administration	\$6,916	\$1,019
Debt Service	\$21,137	\$38,461
Economical Development Agency	\$3,845	\$22,205
Fiscal Group	\$55,580	N/A
Human Services	\$837,760	N/A
Law & Justice	\$65,595	\$26,169
Public and Support Services	\$99,187	514,121
<i>Total Expenses</i>	\$2,157,013	\$917,834
Revenues		
Property Taxes	\$415,936	\$108,092
Sales and Other Taxes	\$207,443	\$7,954
Intergovernmental Revenue	\$1,622,031	\$442,187
Charges for Current Services	\$568,348	\$181,211
Other Revenue	\$130,465	N/A
Operating Transfers In	\$275,104	N/A
Fund Balance/Net Assets	\$329,871	N/A
General Fund Unreserved Fund Balance	\$100,699	N/A
Use of Reserves	\$6,064	N/A
Contribution to Reserves	(\$35,453)	N/A
Total Other Financing	\$676,285	N/A
<i>Total Revenues and Financing Sources</i>	\$3,620,501	\$1,442,055

Source: San Bernardino County 2008; City of Las Vegas 2008.

* \$ Thousands

N/A – Data Not Available

PUBLIC SERVICES

Physical impacts to public services and facilities are usually associated with population in-migration and growth in an area, which increase the demand for a particular service, leading to the need for expanded or new facilities. Therefore, public services data is provided below for both San Bernardino County and Clark County.

Police Protection

The proposed ISEGS site is located within the jurisdiction of the San Bernardino County Sheriff's Department, which is headquartered at 655 East 3rd Street in San Bernardino. The nearest sheriff's office to the proposed ISEGS site is the Barstow Station in the city of Barstow located at 225 East Mountain View Road (SBCo Sheriff 2008). The California Highway Patrol (CHP) is the primary law enforcement agency for California highways and roads (CHP 2008). CHP services include law enforcement, traffic control, accident investigation, and the management of hazardous materials incidents.

Within Clark County, the Las Vegas Metropolitan Police Department (LVMPD) provides police protection services. The LVMPD is a joint city/county police force providing law enforcement services for all of Clark County, including the City of Las Vegas, with over 2,600 sworn officers (LVMPD 2008)

Schools

The proposed ISEGS site is located within the Baker Valley Unified School District (BVUSD). Clark County School District (CCSD) provides school services to the Nevada portion of the study area. Current school enrollment figures within the study area for the 2006–2007 school year are shown in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 6**. As shown, the BVUSD has a small student enrollment, while the CCSD serves a large number of students.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 6
Enrollment Figures for the BVUSD and the CCSD, Year 2006–2007

Student Level	Baker Valley Unified School District	Clark County School District
Kindergarten	21	23,391
Elementary School (1 st through 5 th Grade)	82	121,816
Middle School (6 th through 8 th Grade)	42	73,862
High School (9 th through 12 th Grade)	56	84,681
<i>Total</i>	<i>201</i>	<i>303,750</i>

Source: ED-Data 2008; NDE 2008.

Hospitals

The closest hospital with an emergency room to the proposed ISEGS site is the Saint Rose Hospital - Siena Campus in Henderson, Nevada (within Clark County) located at 3001 St. Rose Parkway, approximately 40 miles east of the proposed ISEGS site. This facility is a 214-bed hospital and has over 2,600 employees with approximately 1,142 physicians in the area with staffing privileges at Saint Rose (SRDH 2008). The emergency room at Saint Rose Hospital is designated as a Level II trauma center that

provides immediate, specialized care to accident victims and victims of sudden illness. Specialty services at the hospital include intensive care unit, emergency/trauma, labor and delivery, cardiac care, orthopedics, surgery, and transplant.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

Staff reviewed the socioeconomics section of the applicant's Ivanpah Solar Electric Generating System Application for Certification (AFC) and the socioeconomic data provided and referenced from various governmental agencies and trade associations and conducted its own independent analysis to form the following socioeconomics analysis and conclusions.

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

NEPA provides no specific thresholds of significance for socioeconomics impact assessment. Significance varies, depending on the setting of the proposed action (40 CFR 1508.27[a]), but 40 CFR 1508.8 states that indirect effects may include those that are growth inducing and others related to induced changes in the pattern of land use, population density, or growth rate. With respect to the California Environmental Quality Act (CEQA), socioeconomic impacts are limited to those that could be considered direct effects on the environment, such as changes to population and housing, and that are separate from strictly economic impacts, such as a loss of revenue.

Based on a review of recent environmental assessment documents prepared for the BLM and the CEQA Guidelines, Appendix G, staff has determined the list of thresholds below to be appropriate for analysis of socioeconomics impacts under both NEPA and CEQA. A project may have a significant effect on socioeconomics if the project would:

- Induce substantial population growth in an area, either directly or indirectly;
- Displace substantial numbers of people and/or existing housing, necessitating the construction of replacement housing elsewhere;
- Cause a substantial change in revenue for local businesses or government agencies; or
- Adversely impact acceptable levels of service for law enforcement, schools, and hospitals.

Typically, substantial long-term employment of people from regions outside the study area would have the potential to result in significant adverse socioeconomic impacts due to a change in the local housing demand and supply and an increase in population resulting in increased demands to public services. In addition to direct population, employment, and housing impacts based on the above criteria, the following socioeconomic analysis looks at beneficial impacts on local finances from property and sales taxes as well as potential adverse impacts on public services. In order to determine if a project would have any significant impacts, staff analyzes whether the current status of these community services and capacities can absorb the project-related impacts in each of these areas. A project's property taxes, sales tax, local school impact fees, or development fees can help local governments augment public services required to meet project needs. If the project's impacts could appreciably strain or degrade these services, staff considers this to be a significant adverse impact.

The analysis of subject areas such as capacities of fire service providers, utilities, water use, and wastewater disposal are identified in the **Worker Safety and Fire Protection**, **Soil and Water Resources**, and **Waste Management** sections of the Staff Assessment.

Socioeconomic impacts resulting from ISEGS closure/decommissioning activities are included below, based on the **Project Description** section of the FSA/DEIS.

DIRECT/INDIRECT/INDUCED IMPACTS

Proposed Project

Proposed Project - Population and Employment

Construction

It is anticipated that the construction period for the proposed ISEGS would occur from first quarter 2009 through fourth quarter 2012. There will be an average of approximately 474 daily construction workers, with a peak daily workforce of 959, depending on the month and the work required. Laborers would consist of craftspeople and supervisory, support, and construction management personnel on site during construction. According to AFC section 2.0 (Project Description), the peak construction labor force of 959 total daily construction workers would occur during the 32nd month of construction. This maximum employment number is used to analyze worst-case construction population and employment impacts.

Research shows that construction workers would commute as much as two hours each direction from their communities rather than relocate (EPRI 1982). Staff reviewed the socioeconomics data for counties within the two-hour commute range, which is within the study area and includes San Bernardino County and Clark County.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3 indicates that a total of 231,000 construction workers are available within the study area. An assumed maximum need of 959 construction workers represents 0.4 percent of the total construction workforce within the study area. Because the number of construction workers required represents such a small portion of the local available labor force, it is assumed that no population in-migration would occur as a result of project-related construction activities. Therefore, no significant impacts would occur to existing population levels or employment distribution within the study area from the proposed ISEGS construction.

Operation

Research shows that operational workers would commute as much as one hour to a power plant site from their homes rather than relocate (EPRI 1982). This one-hour commute range is within the study area and includes San Bernardino County and Clark County. According to AFC section 2.0, the proposed ISEGS is expected to employ a total of 90 permanent full-time employees (management, engineering, and administrative staff; skilled workers; and operators). According to AFC section 5.10

(Socioeconomics), it is anticipated that most of the operational workforce will be drawn from the City of Las Vegas within Clark County, Nevada, as well as parts of surrounding rural areas in San Bernardino County, California.

As stated in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3**, a total of 90 workers would account for a negligible amount of the total San Bernardino County and Clark County total labor force. As all workers would reside within the study area, no impacts to existing population levels would occur. Because the number of operational workers required represents such a small portion of the local available labor force, no significant impacts to the study area population or employment base would result from proposed project operation.

Closure and Decommissioning

As described in the **Project Description** section of the FSA/DEIS, it is assumed decommissioning of the facility would occur in a phased sequential manner; work would start at Ivanpah 1, followed by similar work at Ivanpah 2 and then Ivanpah 3, while the later phases of demolition / restoration work are finished at Ivanpah 1 and Ivanpah 2. Therefore, work would pass sequentially across all three units, with phases of work occurring at the same time at different locations and would be temporary in duration. It is assumed that the number and type of workers required for closure and decommissioning activities would be similar to that described above for construction of the ISEGS. Also, the the closure and decommissioning workforce would be drawn from the City of Las Vegas within Clark County, Nevada, as well as parts of surrounding rural areas in San Bernardino County, California. As all workers are expected to reside within the ISEGS area, no impacts to existing population levels are expected to occur. As closure and decommissioning activities would be temporary and the number workers anticipated would represent a small portion of the local available labor force, no significant impacts to the study area population or employment base would result from proposed project closure and decommissioning activities.

Staff cannot speculate as to the long-term economic and fiscal effects that closure and decommissioning activities would have on the study area because future conditions are unknown. Upon permanent closure of the ISEGS, the beneficial socioeconomic operational impacts such as worker payroll, project expenditures, and local economic stimulus would no longer occur. It should be noted that closure and decommissioning of the ISEGS would likely require further environmental impact evaluation, and most likely would have some beneficial fiscal and non-fiscal impacts to the area..

Proposed Project - Housing

The proposed ISEGS site would be located within vacant BLM land and contains no housing. As such, no housing would be displaced. As presented in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 4**, there were 1,402,485 total housing units within the study area, with 110,011 vacant units, resulting in a 7.8 percent vacancy rate. As discussed above, during project construction and operation, all workers would reside within commuting distance of the proposed ISEGS site, and therefore would not need to move into the area. Therefore, no construction or operation-related impacts are expected on the local housing supply availability or demand. As no housing units would be located within the ISEGS site, closure and

decommissioning activities would not result in the removal of any housing units. As discussed above, all closure and decommissioning workers are expected to reside within the ISEGS area, and therefore would not need to move into the area requiring permanent housing.

Proposed Project - Fiscal and Economic Effects

Property Taxes

The proposed ISEGS would generate property tax revenue to San Bernardino County, California. The California State Board of Equalization (BOE) has jurisdiction over the valuation of a power-generating facility of 50 MW or more for property tax purposes except for a qualifying small power production facility or qualifying cogeneration facility such as a solar, wind, waste, or geothermal facility that together with any other facilities located at the same site, is not greater than 80 MW. For power-generating facilities determined to be under the jurisdiction of the state of California for property tax assessment purposes, the BOE determines the assessed value of the property, which is then used by the relevant county to assess and collect the appropriate amount of property taxes. In this case, the San Bernardino County assessor would assess and collect the appropriate amount of taxes. According to AFC section 5.10, under current law with exemptions for portions of the proposed ISEGS, property taxes are estimated at approximately \$2.2 million per year. According to AFC section 5.10, once property taxes are assessed, tax monies would be allocated as follows:

- 39.66 percent to local schools;
- 31.74 percent to the local Educational Revenue Augmentation Fund;
- 20.96 percent to the San Bernardino County General Fund;
- 3.80 percent to Special Districts;
- 2.02 percent to the County Library; and
- the remaining 1.78 percent to flood control.

The additional property tax revenues generated by the proposed ISEGS would have a beneficial impact to San Bernardino County by increasing the amount of public funds available for community projects and spending by the county.

Sales Tax

The proposed ISEGS's annual operations and maintenance (O&M) budget is expected to be approximately \$340,500 (in 2007 dollars), of which it is assumed that \$27,000 would be spent locally within San Bernardino County, California, and the remaining \$313,500 within Clark County Nevada. The additional sales tax revenues generated by the proposed ISEGS would have a beneficial impact to both the San Bernardino and Clark Counties' local economies.

Employment

Operation of the proposed ISEGS would generate a beneficial impact by creating employment opportunities for local workers through local expenditures for materials, such as office supplies and services. According to AFC section 5.10, the proposed

ISEGS would provide a total of approximately \$5.4 million (in 2007 dollars) in operational payroll, at an average salary of \$60,000 per year (including benefits) for the estimated 90 full-time employees. The additional revenues generated by employment and spending of the ISEGS would have a beneficial impact to both the San Bernardino and Clark County areas. However, the addition of 90 full-time jobs would not significantly reduce unemployment rates within the study area as presented in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 3**, as the contribution of 90 full-time jobs would account for only 0.1 percent of the total unemployed workers (74,800) within the study area.

Proposed Project - Public Services

Physical impacts to public services and facilities are usually associated with population in-migration and growth in an area, which increase the demand for a particular service and lead to the need for expanded or new facilities. An increase in population in any given area may result in the need to develop new or alter existing public services and associated facilities to accommodate increased demand. The Socioeconomics analysis focuses on the proposed project's impacts to public services such as law enforcement, schools, and hospitals. The analysis of proposed ISEGS impacts to fire protection service levels is discussed within the **Worker Safety and Fire Protection** section of the Staff Assessment.

Law Enforcement

The required construction and operational labor force would reside within the study area. Therefore, no population increase would occur as a result of the proposed project, thereby eliminating the need for an increase in law enforcement services or facilities in the study area. In addition, according to AFC section 5.10, the San Bernardino County Sheriff's Department, which has primary responsibility for policing the proposed ISEGS site, did not express any concerns about the need for increased services as a result of the proposed ISEGS. Therefore, construction and operation activities at the proposed ISEGS would not significantly impact the existing service levels of the San Bernardino County Sheriff's Department or the Los Vegas Municipal Police Department.

Schools

The proposed ISEGS is expected to employ a total of 90 full-time employees from within the San Bernardino County and Clark County labor forces. Because all construction and operational employees are expected to already reside within the study area, the proposed ISEGS would not result in any direct population growth to the area that could generate a need for expanded school facilities within the CCSD or BVUSD enrollment areas. No impacts to schools would occur.

Any development (industrial or residential) within the BVUSD boundaries is currently charged a one-time assessment fee of \$0.33 per square foot of principal building area. The only project structure that would qualify as a principal building area would be the administration/storage building, which is the only habitable structure. The administration/storage building (the only structure that could be defined as an occupied structure) is 9,682 square feet in size. Therefore, the proposed ISEGS would pay a one-time fee of \$3,195 in school impact fees to the BVUSD. This is considered a beneficial socioeconomics impact of the proposed project.

Hospitals

The proposed ISEGS would not directly or indirectly induce substantial population growth in the area. The Saint Rose Hospital - Siena Campus, serves the proposed ISEGS site. As all construction and operational employees are expected to already reside within the study area, no additional constraints or physical impacts would occur to the healthcare services or facilities provided by the Saint Rose Hospital - Siena Campus. Therefore, construction and operation of the proposed ISEGS would have no impacts to hospital facilities.

Closure and Decommissioning

As discussed above, all closure and decommissioning workers are expected to reside within the ISEGS area. Therefore, closure and decommissioning of the proposed ISEGS would not result in any direct population growth to the area that could generate a need for new or expanded public service facilities.

No Project / No Action Alternative

In the No Project / No Action Alternative, the proposed action would not be undertaken. The BLM land on which the project is proposed would continue to be managed within BLM's framework of a program of multiple use and sustained yield, and the maintenance of environmental quality (43 U.S.C. 1781 (b)) in conformance with applicable statutes, regulations, policy and land use plan.

The results of the No Project / No Action Alternative would be the following:

- The impacts of the proposed project would not occur. However, the land on which the project is proposed would become available to other uses that are consistent with BLM's land use plan, including another solar project.
- The benefits of the proposed project in reducing greenhouse gas emissions from gas-fired generation would not occur. Both State and Federal law support the increased use of renewable power generation.

If this project were not approved, renewable projects would likely be developed on other sites in the Mojave Desert or in adjacent states as developers strive to provide renewable power that complies with utility requirements and State/Federal mandates. Construction methods, resulting impacts, and regulatory requirements associated with other renewable projects would be similar to those identified for the proposed ISEGS. However, as such, socioeconomic impacts associated with construction and operation of other renewable projects could be expected to be either similar when compared to the proposed ISEGS (no significant impacts and providing positive fiscal benefits) or greater (resulting in significant impacts such as by causing a burden on community services). Furthermore, important public benefits discussed above under the fiscal and non-fiscal effects section and summarized below in **SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 7** would not occur within the study area.

CUMULATIVE IMPACTS AND MITIGATION

A project may result in a significant adverse cumulative impact where its effects 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 (California Code Regulation, Title 14, section 15130). NEPA states that cumulative effects can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR §1508.7).

There is the potential for substantial future development in the Ivanpah Valley area and throughout the southern California desert region. Analysis of cumulative impacts is based on data provided in the following maps and tables (see **Cumulative Scenario** section):

- Cumulative Impacts Figure 1, Regional Renewable Applications
- Cumulative Impacts Figure 2, Regional Renewable Applications (Detail)
- Cumulative Impacts Figure 3, Ivanpah Valley Existing and Future/Foreseeable Projects
- Cumulative Impacts Table 1, Regional Renewable Energy Projects
- Cumulative Impacts Table 2, Existing Development in the Ivanpah Valley
- Cumulative Impacts Table 3, Future Foreseeable Projects in the Ivanpah Valley Area.

The analysis in this section first defines the geographic area over which cumulative impacts related to socioeconomics could occur. The cumulative impact analysis itself describes the potential for cumulative impacts to occur as a result of implementation of the ISEGS project along with the listed local and regional projects.

Geographic Extent

Cumulative impacts can occur if implementation of the ISEGS project could combine with those of other local or regional projects. Cumulative impacts would occur locally if ISEGS project impacts combined with impacts of projects located within the Ivanpah Valley. Cumulative impacts could also occur as a result of regional development of some of the many proposed solar and wind development projects that have been or are expected to be under consideration by the BLM and the Energy Commission in the near future. Many of these projects are located within the California Desert Conservation Area, as well as on BLM land in Nevada.

The geographic extent of cumulative impacts related to socioeconomics includes San Bernardino County, California and Clark County, Nevada and the cities contained therein. This geographic extent is appropriate because local jurisdictions or districts provide socioeconomic factors, such as public services, and the labor force and housing market potentially impacted is expected to come primarily from within these counties.

Cumulative Impact Analysis

Local Projects

Despite the potential for construction schedule overlaps with known projects within the proposed ISEGS study area, no adverse cumulative socioeconomic effects are

anticipated from either the construction or operation of the proposed ISEGS. As discussed above, an assumed maximum peak labor force of 959 construction workers represents 0.4 percent of the total construction workforce within the study area. Operation of the proposed ISEGS would require only 90 full-time, permanent employees, which represents a small portion of the available local labor force. Therefore, because the proposed ISEGS requires such a small number of workers relative to the amount of available workers for both construction and operation, its cumulative contribution to socioeconomic impacts resulting from an influx of non-local workers and their dependents would not be cumulatively considerable and therefore, less than significant.

As shown in Cumulative Impacts Figure 3 (Ivanpah Valley Existing and Future/Foreseeable Projects), as identified in Cumulative Impacts Tables 2 (Existing Development in the Ivanpah Valley) and 3 (Future Foreseeable Projects in the Ivanpah Valley Area), only one identified existing or foreseeable local projects contains residential housing, a mixed-use development in Jean, Nevada (identified as Cumulative Project G in Cumulative Impacts Table 2). The number of housing units associated with this project is unknown. In addition, those existing and foreseeable local projects would create job stimulus within the local area that could increase population. Large development projects such as the Primm Outlet Mall, Colosseum Mine, and the Ivanpah Airport would likely result in an increase in population and require the need for new housing and expanded public service facilities. However, as the ISEGS project would not result in any project specific adverse socioeconomic impacts it would have no contribution to any potential local cumulative adverse socioeconomic impacts. Furthermore, because the proposed ISEGS would not result in any impacts to socioeconomic resources, it would not result in any individually minor but collectively significant actions taking place over a period of time that could result in cumulative socioeconomic impacts on a local level. In addition, the long-term payment of taxes and fees and distribution of O&M and payroll dollars is expected to have a significant cumulative benefit to San Bernardino County, California, and Clark County, Nevada, by increasing the amount of public funds available to the counties for community projects. The cumulative benefits would be increased when combined with the revenues accrued as a result of current and future reasonably foreseeable development projects as a result of the proposed ISEGS.

Regional Projects

Regional impacts would occur if impacts from the ISEGS combined with impacts of the future solar and wind development projects that are currently proposed southeastern California, southern Nevada, and western Arizona. Similar to the ISEGS project, these projects would be located in relatively isolated areas of the desert. These projects are identified in Cumulative Impacts Figure 2 (Regional Renewable Applications), as identified in Cumulative Impacts Tables 1 (Regional Renewable Energy Projects). Large scale renewable energy projects, such as Cogentrix Solar Services LLC: 1,000 MW solar generation facility on approximately 19,000 acres in Nevada, NextLight Renewable Power, LLC: two solar trough projects (one 200 MW project and one 500 MW project at the Nevada/California border), Ivanpah Energy Center 500 MW gas-turbine combined-cycle power plant in Primm, Nevada, and the Wind Energy power plant projects (75 MW on 2,330 acres and 50 MW on 3,360 acres) in Mountain Pass will

require a large construction workforce and lengthy construction duration. Construction workers would likely commute from larger urban centers in surrounding communities during construction activities. Solar energy generation and wind energy generation facilities do not require large numbers of operational staff, therefore it is very unlikely that these projects would induce substantial growth in any of the communities in which they are proposed to be constructed. As such, these projects would be extremely unlikely to generate the need for new housing or substantially affect revenues of local businesses or agencies. In fact, construction of these facilities would likely result in increased revenues to local businesses during construction. Therefore, while large scale regional renewable energy projects will occur within the ISEGS geographic area for socioeconomic effects, as the ISEGS project would not result in any project specific adverse socioeconomic impacts it would not cumulatively contribute or combine with those of the future solar and wind development projects proposed to be constructed in desert areas of southeastern California and southern Nevada to result in cumulatively considerable adverse socioeconomic impacts. Furthermore, because the proposed ISEGS would not result in any impacts to socioeconomic resources, it would not result in any individually minor but collectively significant actions taking place over a period of time that could result in cumulative socioeconomic impacts on a regional level.

COMPLIANCE WITH LORS

Energy Commission staff concludes that the proposed ISEGS would comply with all applicable LORS regulating socioeconomics during both facility construction and operation. Given the ISEGS projected 50-year life span, staff cannot speculate about LORS compliance for facility closure and decommissioning activities.

NOTEWORTHY PUBLIC BENEFITS

Important public benefits discussed under the fiscal and non-fiscal effects section are O&M capital expenditures, construction payroll, and annual property and sales taxes. **Socioeconomics AND ENVIRONMENTAL JUSTICE Table 7** provides a summary of economic benefits of the ISEGS.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE Table 7
Noteworthy Public Benefits
Related to Ivanpah Solar Electric Generating System

Fiscal Benefits	
Estimated annual property taxes	\$2.2 million per year
State and local sales taxes: Construction	\$6.0 million
State and local sales taxes: Operation	\$2,090 per year
School Impact Fee	\$3,195
Non-Fiscal Benefits	
Total capital costs	\$1,100 million
Construction payroll	\$197 million
Operations payroll	\$5.4 million
Construction materials and supplies	\$77 million
Operations and maintenance supplies	\$4.0 million per year
Direct, Indirect, and Induced Benefits	
<i>Estimated Direct Employment</i>	
Construction	An average of 474 jobs per month
Operation	90 full-time jobs
<i>Estimated Secondary Employment</i>	
Construction	528 jobs
Operation	12 jobs
<i>Estimated Secondary Income</i>	
Construction	\$20.5 million
Operation	\$470,150

COMMENTS ON THE PSA

Comments were provided in writing on the contents of the Preliminary Staff Assessment (PSA) from agencies, organizations and members of the public. Public agencies, organizations, or members of the public provided no comments related to issues presented in the Socioeconomics section of the PSA.

CONCLUSIONS

No significant adverse socioeconomics impacts would occur as result of the construction or operation of the proposed ISEGS. Staff believes the proposed ISEGS would not cause a CEQA- or NEPA-significant adverse direct, indirect, or cumulative impact on population, employment, housing, public finance, local economies, or public services. The proposed ISEGS would benefit the two-county study area (San Bernardino County, California, and Clark County, Nevada) and the local project vicinity in terms of an increase in local expenditures, payrolls, and taxation during construction and operation of the facility. These activities would have a positive effect on the local and regional economy. Socioeconomic impacts of the ISEGS project would not combine with impacts of any past, present, or reasonably foreseeable local or regional (future solar and wind development projects that are currently proposed southeastern California, southern Nevada, and western Arizona) projects to result in cumulatively considerable local or regional impacts.

MITIGATION MEASURES/PROPOSED CONDITION OF CERTIFICATION

No conditions of certification are required for socioeconomic resources, as no significant adverse socioeconomic impacts would occur as a result of the proposed ISEGS.

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