

## EXECUTIVE SUMMARY

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The Pahrump Field Office of the Bureau of Land Management (BLM) has prepared this Final Environmental Impact Statement (EIS) in response to a right-of-way application submitted by Solar Millennium, LLC (Proponent) to construct and operate the Amargosa Farm Road Solar Energy Project (Project). The proposed Project includes the construction and operation of two dry-cooled solar power plants, each with a nameplate capacity of 250-megawatt (MW) and a net output of approximately 232 MW, equipped with thermal energy storage capability and associated ancillary linear facilities. Facilities located within the Project area would occupy approximately 4,350 acres and would include solar fields, power blocks, an office and maintenance building, parking area, lay-down area, switchyard, evaporation ponds and a stormwater detention basin.

The proposed Project would utilize parabolic trough solar thermal technology to produce electrical power using steam turbine generators fed by solar steam generators. The main element of a parabolic trough power plant is the solar field. The solar field consists of numerous parallel rows of solar collectors, arranged on a north-south axis. The solar collectors follow the path of the sun from east to west during the day to keep the sun's rays continuously focused on a receiver tube. The reflectors consist of parabolic mirrors made from transparent, silver-coated glass, which concentrate the incident solar radiation 80-fold, focusing it onto the receiver tube in the solar collector. The receiver tube contains a heat transfer fluid, which is temperature-stable synthetic oil in a closed circuit that can be heated to temperatures of up to 752 degrees Fahrenheit (400 degrees Celsius). Once heated, the oil is pumped to a centrally located power block, where it flows through a heat exchanger.

The remainder of the process is similar to the steam cycle used in conventional power plants. The steam produced by the heat exchanger is used to drive a turbine connected to a generator, which produces electricity to be fed into a substation. With solar thermal technology, the heat is stored (referred to as thermal storage) and used during periods of cloud cover and up to 4.5 hours after sundown.

At this time, it is anticipated the proposed Project would be built in two separate phases, with the construction of the first phase beginning in 2011, or immediately following issuance of the BLM right-of-way grant and other federal, state, and local permits and approvals. Project construction is expected to occur over a total of 39 months. The Proponent would phase construction so that the first power plant would be operational approximately one year before the second power plant becomes operational.

### ES-1.1 PROJECT OVERVIEW

The proposed Project is located on BLM-administered lands, approximately 80 miles northwest of Las Vegas, in the Amargosa Valley in Nye County, Nevada (Figure ES-1). Some portions of the proposed Project would be located on private property, including a 40-acre parcel south of Amargosa Farm Road and the well and pipelines to be used to supply water to the proposed Project.

# Amargosa Farm Road Solar Energy Project (NVN-84359)

## Project Vicinity Figure ES-1

### LEGEND

-  Project Area
- Surface Management**
-  Department of Defense
  -  Department of Energy
  -  National Park Service
  -  US Fish and Wildlife Service
  -  US Forest Service

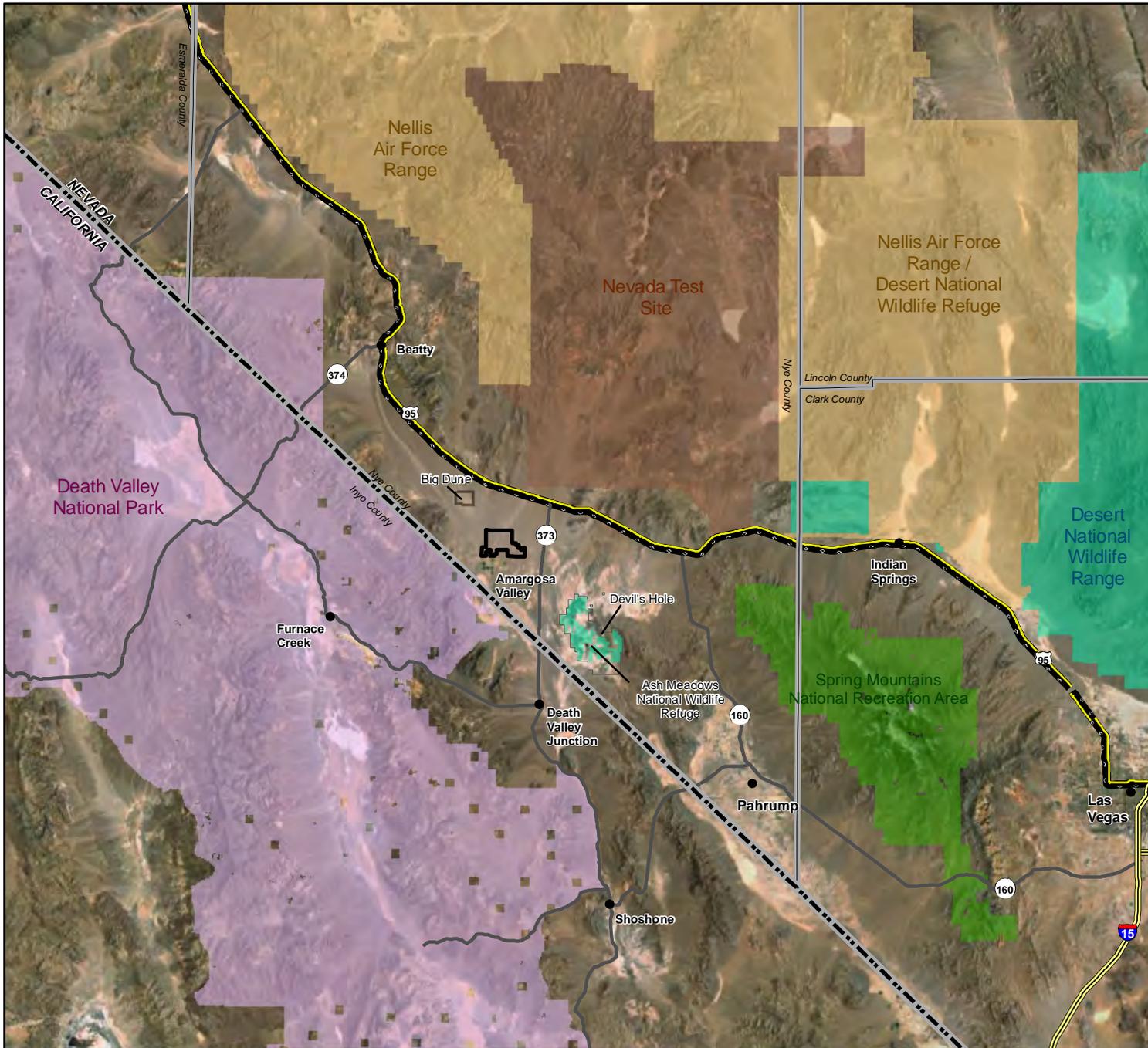
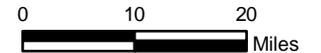
### General Reference Features

-  Interstate
-  US Highway
-  State Highway
-  State Boundary
-  County Boundary
-  City / Town



Source: Surface Management - BLM, 2007;  
 Ash Meadows - USFWS, 2005;  
 Highways, Imagery - ESRI, 2009

February 2010



The Project area is located approximately 5 miles south of United States Highway 95 (US 95) and 3 miles west of NV 373. The majority of the Project area would be located north of Amargosa Farm Road, and east of Valley View Boulevard. The Proponent’s initial application for a right-of-way and subsequent Plan of Development erroneously stated the area of the right-of-way to be 7,810 acres. The actual area, by legal description, is 7,630 acres.

On August 6, 2009, the Proponent sent a letter to the BLM requesting a reduction in the acreage from 7,630 acres to 6,320 acres. The Proponent’s decision to release a portion of the lands from further consideration was based upon refinement of the Project layout following surveys conducted in the spring of 2009. The lands released from further consideration are shown on Figure ES-2, Project Area. The legal description of BLM-administered lands requested under the Proponent’s request is provided in Table ES-1-1.

<b>Table ES-1-1 Legal Description of Lands Requested under Proponent’s Right-of-Way Application</b>		
<b>Township (T)</b>	<b>Range (R)</b>	<b>Section/Portion</b>
T16 South	R48 East	Sec. 1 and 12 – all
T16 South	R48 East	Sec. 2, 11, 13, and 14 – Partial Section
T16 South	R49 East	Sec. 6, 7, and 17 – all
T16 South	R49 East	Sec. 5, 8, 9, 16 18 – Partial Section

## ES-1.2 PURPOSE AND NEED FOR ACTION

### ES-1.2.1 Bureau of Land Management Purpose and Need

The BLM’s purpose and need is to respond to Solar Millennium’s application under Title V of the Federal Land Policy and Management Act (FLPMA) (43 USC § 1701-1782) for a right-of-way grant to construct, operate and decommission a 500-MW solar thermal generation facility and associated infrastructure in accordance with FLPMA, BLM right-of-way regulations (43 Code of Federal Register [CFR] Part 2800), and other applicable federal laws. The BLM will decide whether to approve, approve with modification, or deny issuance of a right-of-way grant to Solar Millennium for the proposed Project. That is, the decision the BLM will make is whether or not to grant the requested right-of-way, and if so, under what conditions.

### ES-1.2.2 Proponent’s Proposal

According to the 2005 Nevada Renewable Energy and Energy Conservation Task Force Annual Report to the Legislature and the Governor, Nevada utilities will need in excess of 3,000 gigawatt hours per year of new renewable energy generation capability over the next 10 years to meet the state’s renewable energy needs (2005).

# Amargosa Farm Road Solar Energy Project (NVN-84359)

## Project Area Figure ES-2

### LEGEND

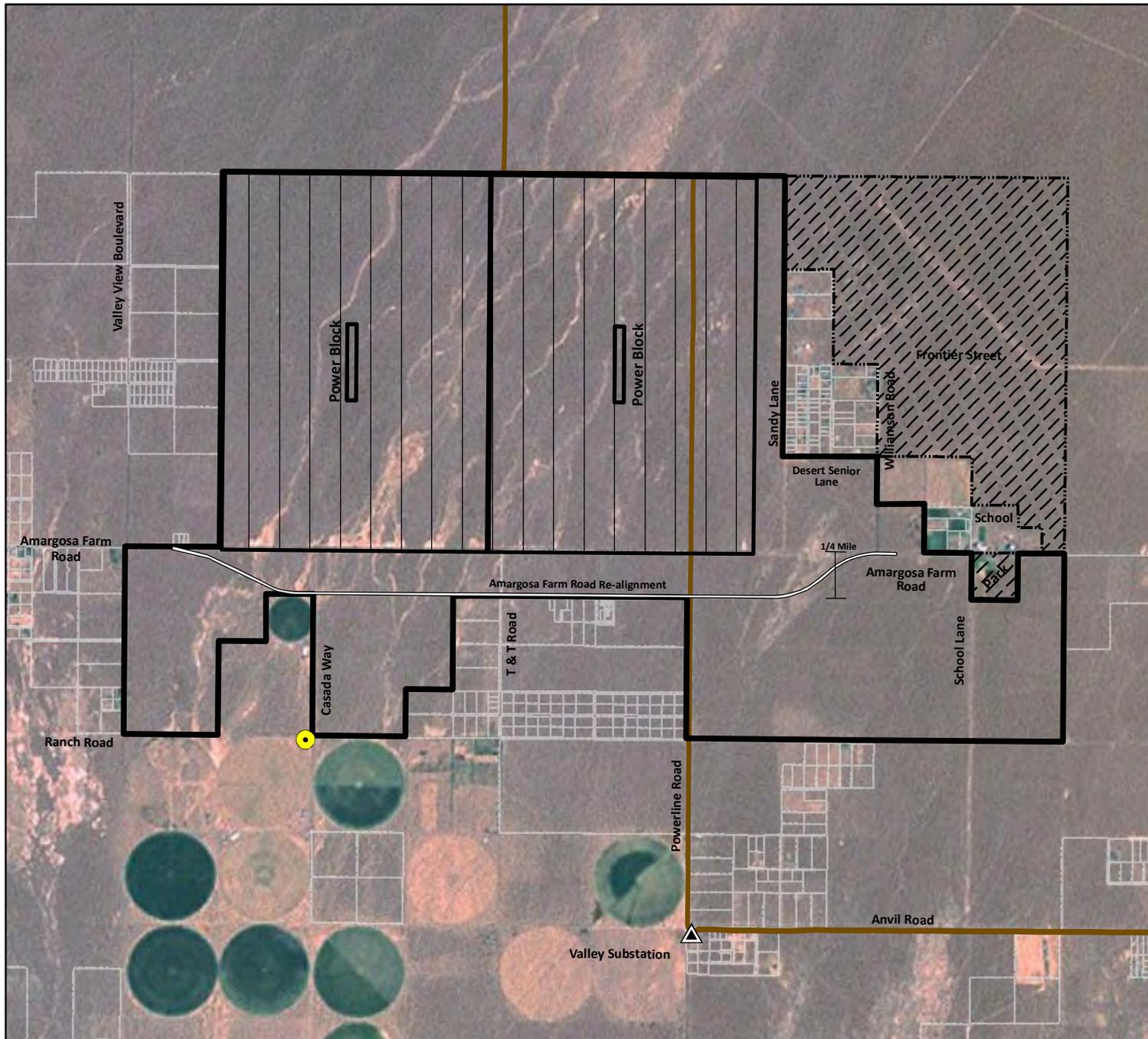
-  Initial Right-of-way Limits (November 2007)
-  Revised Right-of-way Limits (August 2009)
-  Lands Released from Consideration for Project
-  Proposed Solar Field
-  Proposed Project Well
-  Existing Substation
-  Existing Transmission Line (<230kV)
-  Private Parcel Line

Note: The Power Block contains the steam turbine, salt storage tanks and other power generating equipment as described in the Plan of Development.



Source: Project Facilities - Solar Millennium, 2009;  
Wells - Nevada State Engineer, 2008;  
Substation, Transmission Line - Platts, 2009;  
Imagery - ESRI, 2009

September 2010



The State of Nevada has established a Renewable Portfolio Standard that all public utilities must meet by investing in, and partnering with, commercial project developers to purchase renewable generated power, and participate in turnkey projects and/or co-development of renewable projects. This standard mandates that 12 percent of retail sales come from renewable resources by 2009-2010; 15 percent by 2011-2012; 18 percent by 2013-2014; 20 percent by 2015-2019; 22 percent by 2020-2024; and 25 percent by 2025.

Of the total amount of electricity that the provider is required to generate, acquire, or save from renewable portfolio energy systems or efficiency measures during each calendar year, not less than 5 percent of that amount must be generated or acquired from solar renewable energy systems. Beginning in 2016, this percentage increases to 6 percent. It is expected that at least 1,000 MW of new solar power will be required annually to meet this need. Because of the intermittent nature of solar generation, there is particular interest in technologies that can expand capacity through thermal storage to help utilities balance loads.

Further, the Nevada Renewable Energy and Conservation Task Force has estimated that by increasing in-state renewable energy production to just 15 percent of the state's generation, over 5,000 new jobs could be created, with an average annual Gross State Product effect of \$665 million through 2035 (2005).

Additional solar generation will also be required to meet California's needs. Under Senate Bills 1078 (2002) and 107 (2006), electric corporations must obtain 20 percent of their energy from renewable sources by 2010. On November 17, 2008, the Governor of California signed Executive Order S-14-08 which increased the requirement to 33 percent by 2020.

Following the Report of the Nevada Renewable Energy Transmission Access Advisory Committee (2009), California is examining the possibility of meeting the 33 percent Renewable Portfolio Standard requirement through out-of-state generation. To do so would assume a potential of 34 terawatts of energy routed to California from or through Nevada by 2020. This energy transfer is equivalent to approximately 12,900 MW of capacity from wind or concentrated solar power resources, assuming a 30 percent capacity factor (Nevada Renewable Energy Transmission Access Advisory Committee 2009).

The Proponent's objectives and purpose for the proposed Project are to:

- Develop a utility-scale parabolic trough solar thermal energy facility that optimizes power generation efficiency and provides energy at a reasonable and competitive cost.
- Construct and operate an environmentally compatible, economically sound, and operationally reliable solar power generation facility that will contribute approximately one million MW hours of clean, renewable solar energy per year to meet state, regional, and national renewable energy goals and mandates.
- Locate the Project in an area with high solar insolation (i.e., high intensity of solar energy) and other characteristics suitable for the development of a 500-MW solar thermal facility.

- Minimize environmental impacts, infrastructure needs, and costs by locating the plant near existing infrastructure, such as a transmission line, a substation, an adequate water supply, and highways/access roads, and by using designated corridors to the maximum extent possible.
- Develop a power-generation facility with the technical capability and flexibility to continue producing electricity when the solar resource is not optimal (i.e., during cloud cover and early evening hours) to better match the load demands of utility offtakers.
- Develop a solar thermal energy facility that will qualify for, and benefit from, the EPAct Section 1703 loan guarantee program, as well as the EPAct Section 1603 American Reinvestment and Recovery Act of 2009 Tax Grant Program if the deadline for construction under Section 1603 is extended.
- Support the economy of southern Nevada and the region by helping to ensure an adequate supply of renewable electrical energy, while creating additional tax revenues, employment, and expenditures in local businesses.

### ES-1.3 PUBLIC PARTICIPATION AND AGENCY CONSULTATION

#### ES-1.3.1 Public Participation

Public scoping is an integral part of the NEPA process. It provides “an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a Proposed Action” (40 CFR 1501.7). Initiation of the EIS process and the public scoping meetings for the proposed Project were announced through the Federal Register Notice of Intent, published on July 13, 2009 (Volume 74, Number 132, Page 33458), which marked the beginning of the public scoping period for the Project EIS.

The scoping period, required to be a minimum of 30 days, was announced as ending on August 12, 2009. Public scoping meetings were not conducted within this time period; therefore, a second notice was published in the Federal Register on September 17, 2009 (Volume 74, Number 179, Page 47820), reopening public scoping. This reopened scoping period was announced as ending on October 19, 2009.

Four scoping meetings were held from August 17 through August 24, 2009, and one information meeting, following the reopened scoping period, was held on September 22, 2009. During the public scoping period, a total of 151 comment documents were received, with a total of 1,175 comments provided. A comment document is defined as a method of response recorded as part of a public scoping transcript, email, fax, letter, or comment form. Because some documents had more than one comment, the total number of comments is greater than the number of respondents or individuals who submitted comments. A summary of comments received is provided in Chapter 1.9. Copies of the individual comments received during the scoping period are available for review at the BLM Pahrump Field Office.

The 45-day comment period for public review of the Draft EIS began with the publication of the Notice of Availability in the Federal Register on Friday, March 19, 2010. The BLM distributed press releases announcing the dates, locations, and times of the public meetings to local and regional print and broadcast media, as well as online. The Draft EIS was distributed to individuals and agencies that requested copies, and posted on BLM's website at: [http://www.blm.gov/nv/st/en/fo/lvfo/blm\\_programs/energy/proposed\\_solar\\_millennium.html](http://www.blm.gov/nv/st/en/fo/lvfo/blm_programs/energy/proposed_solar_millennium.html).

Four public meetings were held during the public comment period (from March 19, 2010 – May 3, 2010) to receive comments on the Draft EIS. During the 45-day comment period, the BLM received 37 comment documents (e.g., letters, emails, faxes, etc.) from individuals, private companies, interest groups, and federal and state agencies commenting on the Draft EIS. A list of comment documents received, the content of each letter, and the BLM's responses to comments are contained in Appendix G of the Final EIS. Each comment letter was assigned a reference number, and each comment was identified with a number. Where appropriate, changes and additions are reflected in the Final EIS to respond to comments.

This Final EIS has been distributed with the publication of the Notice of Availability in the Federal Register. Copies of this Final EIS have been distributed to those parties requesting the Draft EIS, including those listed in Section 5.4. In addition, the Final EIS is available at: [http://www.blm.gov/nv/st/en/fo/lvfo/blm\\_programs/energy/proposed\\_solar\\_millennium.html](http://www.blm.gov/nv/st/en/fo/lvfo/blm_programs/energy/proposed_solar_millennium.html).

### **ES-1.3.2 Agency and Tribal Consultation**

Federal and state agencies were contacted individually to gather input for the EIS. Other resources management agencies at the federal and state levels were consulted to identify common concerns related to the Proposed Action or Alternatives. Cooperating agencies on this EIS include the U.S. Department of Defense, DOE, National Park Service, United States Army Corps of Engineers, Nevada Department of Wildlife, and Nye County. Consultations with federal, state, and local resource management and regulatory agencies, as well as interested Tribal governments are ongoing.

A Biological Assessment has been prepared for the Proposed Action and was submitted in May 2010 to the U.S. Fish and Wildlife Service (USFWS) as required by Section 7 of the Endangered Species Act of 1973 (16 USC §§ 1531-1544). A species list was requested from the USFWS which identified flora and fauna listed as threatened, endangered, or candidate that occur and have the potential to occur within the Project area and its vicinity. At the request of the USFWS, rare plant and Desert Tortoise surveys have been conducted within the Project area. Consultation with the USFWS was triggered once the Biological Assessment was submitted.

The BLM conducts consultation and coordination with American Indian Tribal governments for proposed projects that may affect their ancestral lands. On June 17, 2009 the BLM distributed formal consultation letters to the following groups:

- Pahrump Paiute Tribe
- Las Vegas Paiute Tribe
- Chemehuevi Indian Tribe

- Colorado River Indian Tribes
- Timbisha Shoshone Tribe

The notification letter informed them of six separate renewable energy projects being proposed in the Pahrump and Amargosa Valleys of Nye County, Nevada, including the proposed Project. The tribes were invited to provide input on any potential impacts to any culturally significant areas within the proposed solar project areas, including the proposed Amargosa Farm Road Project area. The Tribes were also informed of when scoping meetings were to occur if they wanted to make any project comments. A field visit with the Timbisha Shoshone Tribe was conducted on September 17, 2009. No Tribal comments opposing the Project's proposed action have been received by the BLM.

A Memorandum of Agreement between the BLM and Nevada State Historic Preservation Office (SHPO) will be completed prior to the ROD. The Memorandum of Agreement ensures that mitigation of any adverse effects to the single identified National Register of Historic Places (NRHP) eligible site will be completed under a prepared Historic Properties Treatment Plan prior to implementation of the Project in that area. If unanticipated cultural resources, human remains, or funerary items are inadvertently discovered during the Project activities, the standard procedures outlined in the 2009 State Protocol Agreement between the BLM and the Nevada SHPO would be implemented.

### ES-1.4 PROPOSED ACTION AND ALTERNATIVES

#### **ES-1.4.1 Proposed Action – Dry-Cooled Alternative**

The Proposed Action alternative includes the construction and operation of a two-unit dry-cooled parabolic trough solar thermal power plant, with a nameplate capacity of 250 MW and a net output of 232 MW. The plant will consist of a conventional steam Rankine-cycle power block, a parabolic trough solar field, a heat transfer fluid and steam generation system, a nitrate salt thermal energy storage system, as well as a variety of ancillary facilities (sometimes referred to collectively as “balance-of-plant”), such as conventional water treatment, electrical switchgear, administration, warehouse, and maintenance facilities. The electric output of the plant will be provided entirely by solar energy. No electricity will be generated by the use of fossil fuels.

The Proponent’s original right-of-way request of 7,630 acres was refined to include only 6,320 acres. Project facilities would only be located on approximately 4,350 acres and would include the solar fields, power blocks, an office and maintenance building, parking area, lay-down area, stormwater detention basin, evaporation ponds, and switchyard.

A land survey of the proposed right-of-way will be performed to determine the final boundary and extent of the Project area. A topographic survey was performed to obtain one-foot contours for final engineering design for grading and drainage-related requirements. A preliminary geotechnical study of the Project site will be conducted to evaluate general subsurface conditions, seismicity, and other geological hazards and to provide recommendations for design and construction of the foundations for Project structures.

## Executive Summary

As shown on Figure ES-2, the solar field will occupy the majority of the Project footprint. The final layout will be determined based on engineering design and in consideration of resource constraints and opportunities. All plant facilities will be designed, constructed, and operated in accordance with applicable laws, ordinances, regulations, and standards. All generating facilities will be located within the facility fence line. General facility dimensions for both the dry- and wet-cooled alternatives are listed in Table ES-1-2.

<b>Table ES-1-2 Preliminary Facility Dimensions - Proposed Alternative and Wet-Cooled Alternative</b>			
<b>Project Component</b>	<b>Approximate Dimensions / Acreage</b>	<b>Proposed Alternative (Dry-Cooled)</b>	<b>Wet-Cooled Alternative</b>
Solar Fields	Two fields, Approximately 7,800 feet east-west by 11,000 feet north-south. Each field has a collector aperture area of approximately 1,970 acres.	X	X
Power Blocks	<u>Dry-cooled</u> – One power block located in the center of each solar field (28 acres each). Dimensions of each power block is 2,500 feet x 490 feet; tallest major structure is the air-cooled condenser at 144 feet high <u>Wet-cooled</u> – One power block located in the center of each solar field (28 acres each). Dimensions of each power block is 2,500 feet x 490 feet; tallest major structure is the water-cooled condenser at 55 feet high.	X	X
Switchyard	400 feet x 400 feet (3.7 acres)	X	X
Assembly Hall/Maintenance Building	394 feet x 164 feet x 46 feet (1.5 acres)	X	X
Main Office Building	200 feet x 53 feet x 12 feet (.24 acres)	X	X
Parking Area	250 feet x 100 feet (0.5 acres)	X	X
Stormwater Detention Basin	1,200 feet x 1,200 feet (33 acres) – providing 122-acre-feet of storage assuming 4-foot-deep basin)	X	X
Evaporation Pond(s)	<u>Dry-cooled</u> – Two 4-acre evaporation ponds per power block (16 acres total for the project) <u>Wet-cooled</u> - Three 8.3 acre evaporation ponds (25 acres total for the project)	X	X
Bioremediation Area	400 feet x 800 feet (7.3 acres total for the project)	X	X
Fencing	Wind fencing on east and west side of facility: 30 feet high x approximately 11,000 feet long per side Perimeter fencing on north side of facility: 9 feet high x approximately 15,500 feet long Perimeter fencing on south side of facility: 8 feet high x approximately 17,500 feet long	X	X

Water use in a dry-cooled plant would include water for solar collector mirror washing, makeup for the solar steam generator feedwater, dust control, water for cooling plant auxiliary equipment, potable water, and fire protection. The total annual operational water usage for the dry-cooled alternative is 400 acre-feet per year (afy). During construction, approximately 600 afy will be needed. Water needed during construction and operation will be obtained from a private well located south of the Project site. On March 18, 2010, the Proponent filed Application 79699 with the Nevada State Engineer to change the manner and place of use of a portion of the water right associated with this well. In addition, the Proponent filed another application (Application 79783) on April 15, 2010 to change the point of diversion to a new well, to be located approximately 300 feet west of the existing well.

To address the National Park Service, USFWS, and BLM concerns that the proposed groundwater withdrawals associated with the proposed Project—in combination with existing withdrawals in the vicinity of Devils Hole and the Ash Meadows National Wildlife Refuge (NWR) —may adversely affect federal rights and resources, the Proponent has agreed to acquire an additional 236 afy of existing water rights within the Amargosa Desert Hydrographic Basin. The 236 afy consists of 204 afy identified as “Minimization Water Rights” (see Appendix A), and an additional 32 afy to offset the potential reduction in groundwater return flow as a result of changing the manner of use from agricultural to industrial. The acquisition of the additional 236 afy of existing groundwater in the basin will most likely be obtained from existing water rights permitted for agricultural use. At this time, it is unknown where the additional water rights will be obtained.

In addition, to ensure Project pumping does not exceed the levels indicated by the Proponent as necessary for operations, the Proponent will report water use by meters installed and operated on the points of diversions associated with the leased water right. Metering will be no less than quarterly to the Nevada State Engineer and the BLM.

#### **ES-1.4.2 Wet-Cooled Alternative**

Under the wet-cooled alternative, the Proponent would construct and operate two wet-cooled solar power plants, each with a nameplate capacity of 250-MW and a net output of approximately 242 MW. Each solar plant would be equipped with thermal storage capability and associated linear facilities. Construction and operation of a wet-cooled project would be similar to a dry-cooled plant. Plant components and layout are similar under both the wet- and dry-cooled alternatives; the primary differences are the amount of water used for plant operations, the need for cooling towers for heat rejection from the steam cycle for the wet-cooled alternative, and the larger area needed for evaporation ponds under the wet-cooled alternative. Table ES-1-2 lists the plant components for both the wet- and dry-cooled alternatives.

Water use in a wet-cooled plant would include water needed for the cooling tower to cool the steam cycle; water for solar collector mirror washing; makeup for the solar steam generator feedwater; dust control, potable water and fire protection. The average total annual water usage for the wet-cooled alternative is estimated to be approximately 4,600 afy. Under the wet-cooled alternative, the well identified for use under the dry-cooled alternative would supply a portion of

the water required for operations. However, additional water supplies would be required under the wet-cooled alternative.

The source of this additional water would be dependent on the availability of other water rights available for lease or sale in the Amargosa Desert Hydrographic Basin.

The wet-cooled alternative would provide better (i.e., more efficient) performance than the dry-cooled alternative. Specifically, the wet-cooled alternative would offer approximately 11 MW greater electrical output during peak summer ambient temperature conditions. The performance of the wet-cooled alternative is enhanced because wet-cooling relies primarily on evaporative cooling to remove heat from the circulating water.

In contrast, a dry-cooled alternative uses convective heat transfer, which operates similar to a car's radiator. In the dry-cooled alternative, an air cooled condenser using a large array of fans that force air over finned tube heat exchangers cools the steam turbine-generator exhaust steam. The disadvantages of dry-cooling are higher capital costs, higher auxiliary operating power requirements, and an overall lower plant performance, especially on hot days, when the peak power is needed most. A dry-cooled plant provides about 5 percent less electric energy on an annual basis than a wet-cooled plant because of this reduced performance on hot summer days. The cost of electricity produced by a dry-cooled plant is approximately 6 to 9 percent higher than the electricity produced by a wet-cooled plant. Thus, dry-cooling of a trough plant minimizes water use, but at a 6 to 9 percent cost penalty.

#### **ES-1.4.3 No Action Alternative**

NEPA regulations require that EIS alternative analyses "include the alternative of no action" (40 CFR §1502.14(d)). The No Action Alternative provides a useful baseline for comparison of the environmental effects of the other alternatives. For this analysis, no action means that the BLM would reject the Proponent's proposal and would not grant the requested right-of-way. Because the Project facilities would not exist, the Project's potential adverse environmental effects would not occur. However, any beneficial effects such as reduced fossil fuel use also would not occur.

#### **ES-1.4.4 Other Alternatives Considered But Not Evaluated in Detail**

In accordance with 40 CFR §1502.14, and consistent with guidance in BLM's NEPA Handbook, alternatives were not carried forward for further analysis if the alternative:

- would be ineffective (it would not respond to the BLM's purpose and need)
- would be technically or economically infeasible
- is inconsistent with the basic policy objectives of the Las Vegas Resource Management Plan
- would involve remote or speculative implementation

- is substantially similar in design to an alternative that is analyzed
- would have substantially similar effects to an alternative that is analyzed

#### ES-1.4.4.1 Alternative Sites

As part of its siting process, the Proponent used a refined set of criteria to screen, identify, and prioritize potential land sites for eventual solar development. Criteria include all aspects of feasibility, including the physical characteristics of the site, environmental considerations, and economic factors. Each of these criteria was applied during the screening phase for the proposed Project, which led to the selection of the current site.

These criteria included:

- **Solar Resource** – The site needs to be located where high solar insolation is available to maximize the plant’s output and allow efficient utilization of the land area affected by project development. For a project to be economically viable, solar insolation levels of greater than 7 kilowatt-hours per square meter per day are desirable.
- **Size and Shape** – The site must be large enough (at least 4,000 contiguous acres) and of adequate proportions to include two 250 MW parabolic trough solar thermal plants. The shape of the site should also support an efficient and cost-effective layout of the project facilities.
- **Slope** – The site should be relatively flat, with a slope of 2 percent or less, to minimize the need for extensive grading and a large volume of cut and fill.
- **Environmental sensitivity** – The site should not be highly pristine or biologically sensitive (e.g., not within a designated wilderness area or Area of Critical Environmental Concern).
- **Availability of Infrastructure and Water** – To minimize cost and potential environmental impacts, the site should be located where water resources are available and interconnection to an existing transmission system is possible without the construction of lengthy transmission lines. In addition, the site should be in reasonable proximity to suitable transportation infrastructure to allow easier access during both construction and operation without creating the need for additional road construction.
- **Site Control** – The land must be available for sale or lease/right-of-way, at a reasonable cost and be free of conflicting encumbrances. Land with many different owners does provide adequate site control.
- **Labor Availability** – The site should be close enough to areas with large construction labor pools to maximize the number of construction workers within daily commuting range.

- Economic Viability** – The Project must be economically viable and competitive with other renewable technology projects, including wind, geothermal, and other solar projects. To be viable, the site should be located on property currently available at a reasonable cost, be as close as possible to transmission and transportation infrastructure, and have a high solar resource value.

The selected Project site is located in an area with an excellent solar resource and is large enough to accommodate two 250 MW plants in an optimal layout. In addition, the Project site is relatively flat; is not located in any wildlife management or conservation areas; has access to transmission infrastructure and water resources; and was available for an application for a right-of-way from the BLM. Finally, the Project site allows for access to skilled labor and other industrial infrastructure from nearby Pahrump and Las Vegas.

Three alternative sites in the regional area were considered. The three sites include a site southeast of Pahrump (Sandy Hills), a site a few miles south of the proposed Project along Anvil Road in Amargosa Valley (Anvil Road), and a site near the Beatty Airport (Beatty Airport). Right-of-way applications were filed for each of these sites in 2007 and 2008. The right-of-way applications for each of these sites were ultimately withdrawn after the Proponent conducted due diligence and preliminary studies on each site and determined the alternative sites did not meet the above criteria. Table ES-1-3 summarizes the weaknesses and strengths of each of the alternative sites.

<b>Table ES-1-3 Alternative Sites Considered</b>						
<b>Alternative Site</b>	<b>Solar Resources</b>	<b>Size and Shape</b>	<b>Slope</b>	<b>Environmental Sensitivity</b>	<b>Availability of Infrastructure</b>	<b>Site Control</b>
Sandy Hills Site	Yes	Yes	No	No	Yes	No
Anvil Road Site	Yes	No	Yes	Yes	Yes	No
Beatty Airport Site	Yes	No	Yes	Yes	No	Yes
Yes – Site met criteria; No – Site did not meet criteria						

The Sandy Hills site consisted of approximately 8,000 acres in Pahrump Valley approximately 20 miles southeast of Pahrump. Although the site was large enough to accommodate two 250-MW solar power plants, the site was eliminated from further consideration due to the slope of the site, as well as the existence of sensitive vegetation and wildlife, conflicting encumbrances, and water availability. Construction and operation of a solar thermal power plant at this site would result in higher environmental impacts than the Proposed Action, while not offering any offsetting advantages.

The Anvil Road site consisted of approximately 1,000 acres, located a few miles south of the selected Project site. The site was flat and had good access to transmission and water infrastructure but was too small to accommodate one 250 MW plant, let alone two of them. The Proponent explored acquiring additional private land surrounding the site but determined that the

acquisition of sufficient lands was not economically viable. Due to the number of parcels that would have to be acquired to accommodate two 250-MW solar power plants would make obtaining site control more challenging (in comparison to obtaining a right-of-way grant to use BLM lands). This, combined with the size and existing encumbrances on the site, made the site not viable.

The Beatty Airport site consisted of approximately 2,500 acres located adjacent to the Beatty Airport (approximately 35 miles north of the Project site). It was flat and had good solar resource, but it was too small for two 250 MW plants, and had existing encumbrances. The Proponent also determined that access to transmission and water would be more difficult and costly than the Project site that was ultimately selected.

During the 45-day public comment period, the BLM received several comments requesting the agency conduct a full analysis of other sites considered by the Proponent. As described above, the Proponent evaluated several sites before selecting the proposed Project site. The BLM concurred with the Proponent's conclusions to dismiss the alternative sites from further consideration.

The Proponent also considered the alternative of developing the proposed Project as a single 250 MW plant. Generally, building one plant would have fewer environmental impacts when that plant is considered in isolation. However, given the infrastructure requirements associated with building a single plant, building two plants allows for economies of scale and reduces the infrastructure impacts, including transmission access, and water development. In addition, a single 250 MW plant would be substantially less effective than two 250-MW plants in meeting renewable energy mandates and objectives, and attaining the Project objective of supporting those mandates and goals. For these reasons, the development of a smaller project was rejected.

During the scoping and the public comment periods, several comments were received requesting that the Proponent move the Project site further north, at least 0.5 to 2 miles away from existing residential or public buildings. The BLM land immediately north of the Project area has a pending solar energy development right-of-way application on file with the BLM Pahrump Field Office (Cogentrix - NVN-083150). The Proponent filed an overlapping or "second-in-line" right-of-way application on these lands (NVN-087366); however, subsequent discussions between Cogentrix and BLM staff indicate Cogentrix intends to seek approval to develop a solar energy project at this location within the next 2 to 3 years. Although the BLM's right-of-way regulations provide that conflicting applications may be resolved through a competitive process (see 43 CFR §§ 2804.23(c), 2806.50, it is unlikely that the Proponent's overlapping application could be processed in a timeframe that met the Proponent's objectives.

### **ES-1.4.4.2 Alternative Solar Technology**

The Proponent has requested a right-of-way to construct and operate a dry-cooled, solar thermal parabolic trough project. Solar thermal parabolic trough technology has a history of successful operation in the United States. The Solar Energy Generating Systems (SEGS), located in California's Mojave Desert, is the largest solar energy generating facility in the world. It consists of nine solar power plants with an installed capacity of 354 MW. The SEGS facilities have

operated successfully over the past 30 years. Although other solar thermal technologies are under active development, none of these technologies have the construction and operating experience of parabolic trough technology. Building upon this experience base significantly reduces much of the construction and operational risk associated with a project of this magnitude. In addition, the Proponent has significant experience and expertise in siting, constructing, and operating parabolic trough plants. The Proponent is a wholly owned subsidiary of Solar Trust of America, LLC, a joint venture between Solar Millennium AG and Ferrostaal AG. Solar Millennium AG is an international developer and supplier of parabolic trough collector technology used in powering solar thermal power plants. Solar Millennium AG developed and designed the first parabolic trough power plants, Andasol 1-3, in Spain. The Andasol 1 plant began operating in December 2008, the Andasol 2 plant is currently in the commissioning phase, and the Andasol 3 plant, is currently under construction. When the entire Andasol complex is completed in 2011, it is expected to generate enough electricity to serve 150,000 Spanish households or about 600,000 people. Ferrostaal AG is a worldwide provider of industrial services and plant construction and engineering.

Although all of the SEGS and Andasol projects are wet-cooled plants, a dry-cooled alternative is the Proponent's preferred alternative. Dry-cooled technology has been used successfully on large thermal generating plants in the United States for almost 30 years dating back to its use on the 330 MW, coal-fired, Wyodak power plant in Wyoming. The largest dry-cooled power plant installation in the world, the 4,000 MW coal-fired Matimba plant in South Africa, has successfully operated for over 10 years. Dry-cooled technology has been proposed because it is a well proven technology for this scale of power generation in desert environments.

### **ES-1.4.5 Agency-Preferred Alternative**

The BLM preferred alternative is the Proposed Action – Dry-cooled Alternative. The environmental consequences of the Proposed Action and Alternatives are summarized and compared in Table ES-1-4 below.

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<b>Table ES-1-4 Summary of Impacts by Resources for the Amargosa Farm Road Solar Energy Project Proposed Action, Wet-Cooled Alternative, and No Action Alternative</b>		
<b>Proposed Action – Dry-Cooled Alternative</b>	<b>Wet-Cooled Alternative</b>	<b>No Action Alternative</b>
<b>Air Quality and Climate – Sections 3.1 and 4.1</b>		
<p>Direct effects on air quality would occur from earthmoving activity during construction (fugitive dust, particulate matter less than 10 microns [PM<sub>10</sub>] and particulate matter less than 2.5 microns [PM<sub>2.5</sub>]) and tailpipe emissions from heavy construction equipment and worker vehicles (particulate matter, nitrogen oxide, sulfur dioxide, carbon monoxide [CO], and volatile organic compounds). The Proponent would comply with Federal and State air quality standards. Particulate emissions during construction would be temporary and mitigated through adherence to the recommended mitigation measures.</p> <p>The construction and operation of the solar power plant will not cause or contribute to a violation of any applicable NAAQS or Potential for Significant Deterioration (PSD) increment. The Project’s operation would not cause new violations of any nitrogen dioxide, sulfur dioxide, PM<sub>2.5</sub> or CO ambient air quality standards.</p>	<p>Impacts to air quality from construction and operation of a wet-cooled solar plant would be similar to the impacts described below for the Proposed Action (dry-cooled alternative). The primary differences is the additional PM<sub>10</sub> and PM<sub>2.5</sub> emissions from the cooling tower associated with a wet-cooled plant due to solids in the entrained moisture in the cooling tower drift.</p>	<p>Under the No Action Alternative, there would be no short-term construction-related exhaust or fugitive dust impacts. No impacts to air quality would occur under the No Action Alternative.</p>
<b>Geological Hazards and Mineral Resources – Sections 3.2 and 4.2</b>		
<p>The Proposed Action would not result in impacts to geological resources. However, seismic activity and ground subsidence in the region could potentially impact structures constructed and operated under the Proposed Action. All project components and facilities would be constructed in accordance with applicable regulations, engineering protocols, and safety standards to minimize potential impacts from seismic activity. The Proposed Action would not result in impacts to mineral resources, as no active claims, mines, or quarries are present within the Project area.</p>	<p>Impacts to geological hazards and mineral resources from construction and operation of a wet-cooled solar plant would be similar to the impacts described for the Proposed Action (dry-cooled alternative).</p>	<p>Under the No Action Alternative, no Project-related impacts to geological hazards or mineral resources would occur.</p>
<b>Soils – Sections 3.3 and 4.3</b>		
<p>Up to 4,350 acres of desert land will be cleared and graded to accommodate construction of the solar facility and ancillary facilities. The removal of vegetation and soil crusts would expose soil and increase the potential for wind- and water-driven erosion.</p>	<p>Impacts to soils from construction and operation of a wet-cooled solar plant would be similar to impacts described for the Proposed Action (dry-cooled alternative).</p>	<p>Under the No Action Alternative, no Project-related impacts to soil resources would occur.</p>

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**Table ES-1-4 Summary of Impacts by Resources for the Amargosa Farm Road Solar Energy Project Proposed Action, Wet-Cooled Alternative, and No Action Alternative**

Proposed Action – Dry-Cooled Alternative	Wet-Cooled Alternative	No Action Alternative
<p>Watering or use of BLM-approved dust suppressants is expected to reduce the potential for fugitive dust from construction activities. Site-appropriate stormwater and erosion control protection measures will be implemented during construction to reduce erosion and sedimentation. The selected erosion and sediment control BMPs and environmental protection measures would be based on the type of disturbance expected, soil type, and the location of the site relative to sensitive resources.</p> <p>Following construction, permanent erosion and sediment control BMPs would include continued watering for dust control, use of diversion berms, and redirection of stormwater flows into a detention/sediment or settling basin prior to discharging off-site.</p>		
<b>Water Resources – Sections 3.4 and 4.4</b>		
<p>The Proposed Action (dry-cooled alternative) would require up to 600 afy, or 1,950 acre-feet of groundwater over the 39-month construction period. During operations, water requirements would be 400 afy. The proposed source of construction and operation water is an existing well south of the Project site. The Proponent has filed an application with the Nevada State Engineers Office to change the place and manner of use of the water right. The Proponent has requested that 400 acre-feet of the 603 acre-feet annual duty is changed from agricultural to industrial use.</p> <p>Following approval by the Nevada State Engineer, the Proponent intends to drill a new well approximately 300 feet west of the existing well, and move 400 acre-feet from its current point of diversion to the new well. The remaining 203 acre-feet will remain with the existing well. This will allow for redundancy should one of the wells fail. During construction, the Proponent will lease the full annual duty (603 afy) from the water rights holder for the Project well. During this period, the water rights holder will fallow farmlands that were previously irrigated.</p>	<p>Under this alternative, the demand for water would be 4,600 afy, which is substantially more than that required for the Proposed Action. Construction-related impacts on surface and groundwater resources for this alternative would be the same as the Proposed Action (dry-cooled alternative). Plant components and layout are similar under both the wet- and dry-cooled alternatives, the primary difference being the amount of water used for plant operations, the need for cooling towers for heat rejection from the steam cycle, and the size and number of evaporation ponds. Impacts to surface and groundwater quality and jurisdictional waters would be similar to the Proposed Action.</p> <p>It is assumed that the water that could be acquired for the wet-cooled option would have been used on an annual basis by the current water rights owner(s) at the same volume. New wells would be drilled on-site and changes in the points of diversion, place of use and manner of use would be required to be approved by the</p>	<p>Under the No Action Alternative, no Project-related impacts to water resources would occur.</p>

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**Table ES-1-4 Summary of Impacts by Resources for the Amargosa Farm Road Solar Energy Project Proposed Action, Wet-Cooled Alternative, and No Action Alternative**

Proposed Action – Dry-Cooled Alternative	Wet-Cooled Alternative	No Action Alternative
<p>After construction, the water rights holder may continue to irrigate up to 40 acres of farmland with the 203 acre-feet assigned to the existing well.</p> <p>To address the NPS, USFWS, and BLM concerns that the proposed groundwater withdrawals associated with the proposed Project—in combination with existing withdrawals in the vicinity of Devils Hole and the Ash Meadows National Wildlife Refuge (NWR) — may adversely affect federal rights and resources, the Proponent has agreed to acquire an additional 236 afy of existing water rights within the Amargosa Desert Hydrographic Basin. The 236 afy consists of 204 afy identified as “Minimization Water Rights” (see Appendix A), and an additional 32 afy to offset the potential reduction in groundwater return flow as a result of changing the manner of use from agricultural to industrial. The Proponent would sign over the minimization water rights (204 afy) to Nye County upon a signed Memorandum of Understanding (MOU). Though details yet to be determined by the MOU, Nye County, in cooperation with the other MOU signatories and other appropriate agencies shall perform studies to better understand how the use of the minimization water rights would impact area resources. These include Devil’s Hole, Ash Meadows, and overall local and regional water levels. The details and ultimate goals of the studies shall be agreed upon by Nye County, BLM, NPS, and USFWS.</p> <p>The acquisition of the additional 236 afy of existing groundwater in the basin will most likely be obtained from existing water rights permitted for agricultural use. At this time, it is unknown where the additional water rights will be obtained.</p> <p>The water to be used during construction will be piped from the Project well to temporary water storage tanks to be located throughout the construction site. Meters will be placed on both wells to ensure there is no exceedance of the permissible annual duty.</p> <p>Under the dry-cooled alternative, four 4-acre evaporation ponds will be required for boiler blowdown. The evaporation ponds would be</p>	<p>Nevada Division of Water Resources. Water acquisitions would be required to comply with Nevada State Engineer Ruling No. 1197 and any other Nevada state regulations and policies.</p>	

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<b>Table ES-1-4 Summary of Impacts by Resources for the Amargosa Farm Road Solar Energy Project Proposed Action, Wet-Cooled Alternative, and No Action Alternative</b>		
<b>Proposed Action – Dry-Cooled Alternative</b>	<b>Wet-Cooled Alternative</b>	<b>No Action Alternative</b>
<p>double-lined and would be constructed in accordance with NDEP requirements.</p> <p>The section of the Fortymile Wash that traverses the Project area will be rechanneled and designed to intercept the 100-year storm event and convey the concentrated flow to historic discharge locations south of the Project site. The Proponent is coordinating these activities with the BLM, Nye County, and the United States Army Corps of Engineers.</p> <p>Potential impacts to water resources during construction would be primarily associated with surface disturbing activities, but could also be a result of accidental spills and handling and storage of hazardous chemicals. Mitigation measures are proposed to prevent spills of chemicals, as well as to respond to spills should they occur.</p>		
<b>Noise – Sections 3.5 and 4.5</b>		
<p>Throughout the construction of the proposed Project, temporary noise impacts are expected to briefly radiate within the defined boundaries of the Project site. Under Environmental Protection Agency guidelines for outdoor noise impacts to residential property lines, the noise impacts are considered to be less than significant and no mitigation will be required for the temporary construction operations.</p> <p>Operational activities of the Proposed Action were evaluated to determine the worst-case daily operational noise impacts. Under Environmental Protection Agency noise threshold guidelines, the impacts were found to be less than significant and require no mitigation.</p> <p>Employees working within the operational areas may be exposed to areas considered as a sensitive noise receptor location. Under Occupational Safety and Health Administration Standards the impact of worst-case calculated noise exposure levels the impacts is considered less than significant.</p>	<p>Impacts to noise levels from construction and operation of a wet-cooled solar plant may be similar to the impacts described for the Proposed Action (dry-cooled alternative). The noise producing mechanical equipment is situated at a lower height in a wet-cooled solar plant and, as such, may result in slight decreases in operational noise as compared to the dry-cooled alternative.</p>	<p>Under the No Action Alternative, no Project-related impacts to noise levels would occur.</p>

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Table ES-1-4 Summary of Impacts by Resources for the Amargosa Farm Road Solar Energy Project Proposed Action, Wet-Cooled Alternative, and No Action Alternative		
Proposed Action – Dry-Cooled Alternative	Wet-Cooled Alternative	No Action Alternative
<b>Biological Resources – Sections 3.6 and 4.6</b>		
<p><b>VEGETATION RESOURCES:</b> Up to 4,350 acres of creosote bush-dominated native vegetation will be completely cleared for the life of the project to accommodate construction of the solar facility and ancillary facilities. Construction activities could promote the proliferation of non-native invasive weeds into the Project area. In consultation with BLM biologists, the Proponent will prepare a Project-specific Weed Management Plan prior to commencing construction activities.</p> <p>No potential habitats for federally listed threatened or endangered plant species occur within the Project area; however, two state protected cacti species are present and would need to be salvaged in accordance with NRS 527.060-120.</p> <p><b>WILDLIFE RESOURCES:</b> Direct impacts on wildlife resources can result from ground disturbance caused by construction-related activities, which can impact wildlife habitat by removing vegetation, altering plant composition or structure (e.g., non-native invasive species replacing native species), causing fragmentation, loss of connectivity for wildlife, increased predation, and altering soil characteristics. Removal of vegetation, alteration of Fortymile Wash, and placement of fencing around perimeter of the solar fields, could impede travel opportunities for wildlife.</p> <p>The Project area contains low quality, but suitable habitat for Desert Tortoise. Four old Class IV burrows were located within the Project area. Efforts will be made to ensure that the area is clear of any active burrows and all live tortoises prior to any construction being conducted. Pre-construction clearance surveys would be conducted to ensure that activities associated with the construction and operation of the Project would not cause mortality or other harm to Desert Tortoise by collapsing dens and burrows, entombing adults, eggs, and young. Mortality could also occur from collisions with equipment and</p>	<p><b>VEGETATION RESOURCES:</b> Impacts to vegetation from construction and operation of a wet-cooled solar plant would be similar to the impacts described for the Proposed Action (dry-cooled alternative).</p> <p>Similar to the dry-cooled alternative, there would be no new groundwater pumping under the wet-cooled alternative. Water for Project construction and operations, would be obtained from existing water rights and converted to industrial use.</p> <p><b>WILDLIFE RESOURCES:</b> Impacts to wildlife resources from construction and operation of a wet-cooled solar plant would be similar to the impacts described for the Proposed Action (dry-cooled alternative). The primary difference would be the number and size of evaporation ponds for each alternative. Under the wet-cooled alternative, three 8.3 acre evaporation ponds would be needed.</p> <p>Similar to the dry-cooled alternative, there would be no new groundwater pumping under the wet-cooled alternative. Water for Project construction and operations, would be obtained from existing water rights and converted to industrial use. New wells would be drilled on-site and changes in the points of diversion, place of use and manner of use would be required to be approved by the Nevada Division of Water Resources.</p>	<p>Under the No Action Alternative, no direct Project-related impacts to biological resources would occur.</p>

**Table ES-1-4 Summary of Impacts by Resources for the Amargosa Farm Road Solar Energy Project Proposed Action, Wet-Cooled Alternative, and No Action Alternative**

Proposed Action – Dry-Cooled Alternative	Wet-Cooled Alternative	No Action Alternative
<p>vehicles. Predation could increase as construction displaces wildlife from protected cover to uncovered habitat. Direct impacts on Desert Tortoise can result from loss of tortoise habitat; including loss of old burrow sites, located in the northwest quarter of the Project area.</p> <p>Construction activities may impact suitable habitat for nesting and burrowing birds including Burrowing Owl, a BLM Sensitive species and a Nevada animal species considered to be at risk in all counties in Nevada. Old burrowing Owl burrows were found in the Project area. For other nesting bird species, direct impacts could include eliminating potential nesting habitat and loss of individuals. The Migratory Bird Treaty Act applies to species that would be impacted during the construction phase of the Project.</p> <p>There would be direct impacts to LeConte’s Thrasher by eliminating suitable nesting habitat. Loss of native vegetation would directly impact at least 12 snake and lizard species that were found in the Project area. Two such species include, Desert Iguana, included on the Nevada Natural Heritage Program Animal Watch List, and Nevada Shovel-nosed Snake, included as a conservation priority species in Nevada.</p> <p>Under the dry-cooled alternative, four 4-acre evaporation ponds will be required for boiler blowdown. Evaporation ponds would introduce a potential threat to wildlife. Since the tortoise-proof perimeter fencing will restrict most terrestrial wildlife from entering the plant site, it is anticipated that birds will face the greatest potential risk from constituents in the evaporation ponds. Species at risk are those with the potential for nesting at the facility, residents of the area that would drink and forage from the ponds or feed on insects associated with the ponds, and migrants that would use the ponds for a stopover during migration. To reduce the potential for impacts from the ponds, the ponds would be placed within the existing Project footprint, would be double-lined, and covered with narrow-mesh netting to prevent access by ravens and migratory birds in accordance with applicable regulations. Additionally, the operational design of the ponds will make it difficult for perching birds and/or shorebirds to access the</p>		

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<b>Table ES-1-4 Summary of Impacts by Resources for the Amargosa Farm Road Solar Energy Project Proposed Action, Wet-Cooled Alternative, and No Action Alternative</b>		
<b>Proposed Action – Dry-Cooled Alternative</b>	<b>Wet-Cooled Alternative</b>	<b>No Action Alternative</b>
water.		
<b>Historic and Cultural Resources – Sections 3.7 and 4.7</b>		
<p>Sixteen cultural resource sites were identified within the Area of Potential Effects of the Proposed Action. Only one site has been determined eligible for listing on the NRHP under Criterion D. Direct effects to this site could occur as a result of ground disturbing activities associated with the construction of the proposed Project.</p> <p>An Historic Properties Treatment Plan describing the mitigation measures that would be employed to resolve any adverse effect to the one NRHP eligible site has been prepared. A Memorandum of Agreement between the BLM and Nevada State Historic Preservation will be implemented to ensure the Historic Properties Treatment Plan will mitigate any adverse effect to the single NRHP-eligible site.</p> <p>Treatment of the site would occur prior to any project implementation. If unanticipated cultural resources, human remains, or funerary items are inadvertently discovered during Project activities, the standard procedures outlined in the 2009 State Protocol Agreement between the BLM and the Nevada SHPO would be implemented.</p>	<p>Impacts to cultural resources from construction and operation of a wet-cooled solar plant would be similar to the impacts described for the Proposed Action (dry-cooled alternative).</p>	<p>Under the No Action Alternative, no Project-related impacts to cultural resources would occur.</p>
<b>Paleontological Resources – Sections 3.8 and 4.8</b>		
<p>No paleontological localities have been identified within the Project area. The two geological units present in the Project area both have a low potential for containing paleontological resources. There would be no impacts to paleontological resources as a result of operation or maintenance of the components or facilities under the Proposed Action.</p>	<p>Impacts to paleontological resources from construction and operation of a wet-cooled solar plant would be similar to the impacts described for the Proposed Action (dry-cooled alternative).</p>	<p>Under the No Action Alternative, no Project-related impacts to paleontological resources would occur.</p>
<b>Socioeconomic Resources – Sections 3.9 and 4.9</b>		
<p>Construction of the proposed Project would last 39 months. Construction is expected to directly create an average of about 650 annual full-time employment over 39 months, with a peak monthly</p>	<p>Socioeconomic effects under the wet-cooled alternative would be the same as the Proposed Action (dry-cooled alternative).</p>	<p>Under the No Action Alternative, the right-of-way would not be granted. However,</p>

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<b>Table ES-1-4 Summary of Impacts by Resources for the Amargosa Farm Road Solar Energy Project Proposed Action, Wet-Cooled Alternative, and No Action Alternative</b>		
<b>Proposed Action – Dry-Cooled Alternative</b>	<b>Wet-Cooled Alternative</b>	<b>No Action Alternative</b>
<p>employment of approximately 1,300 full-time employees. Operation is anticipated to employ between 170 to 200 full-time employees. This direct employment will create both indirect and induced secondary employment in the regional area. For all projects in the region, temporary housing facilities would be needed and the added population during construction could place a burden on local social and public services.</p> <p>The construction payroll has been estimated at approximately \$58.6 million annually over the 39 period. Capital expenditures and local spending on construction materials and equipment within the Region of Influence are estimated to total approximately \$50 to \$75 million annually. During construction, the proposed Project could generate up to \$30 million in property taxes, and pay approximately \$35 million in sales tax to the State of Nevada for the Local School Support Tax.</p> <p>During operation, it is expected that the annual purchases for materials supplies, equipment, and services delivered and purchased within the Region of Influence would total approximately \$16.9 million. For example, if all purchases are delivered to and made within Nye County, which has a current tax rate of 7.1 percent, these expenditures would generate approximately \$1.2 million in annual sales tax revenue.</p>		<p>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 renewable energy project. The beneficial impact on the regional economy from construction and operation of the proposed Project would not occur.</p>
<b>Environmental Justice – Sections 3.10 and 4.10</b>		
<p>Potential direct and indirect impacts associated with the Proposed Action would not have a disproportionate effect on low-income or minority populations. There are no special issues, such as housing, transportation, access, or resource use in the Project area that would affect the environmental justice (EJ) population disproportionately.</p>	<p>Impacts to EJ under the wet-cooled alternative would be same as those described under the Proposed Action (dry-cooled alternative).</p>	<p>Under the No Action Alternative, no Project-related impacts to EJ would occur.</p>

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<b>Table ES-1-4 Summary of Impacts by Resources for the Amargosa Farm Road Solar Energy Project Proposed Action, Wet-Cooled Alternative, and No Action Alternative</b>		
<b>Proposed Action – Dry-Cooled Alternative</b>	<b>Wet-Cooled Alternative</b>	<b>No Action Alternative</b>
<b>Land Use, Recreation, Transportation and Access – Sections 3.11 and 4.11</b>		
<p><b>LAND USE:</b> Construction and operation of the Proposed Action would permanently disturb approximately 4,350 acres, and would make this acreage unavailable to be developed for other uses. No residential, commercial, or industrial land uses would be directly impacted by construction or operation of the proposed Project.</p> <p><b>TRANSPORTATION AND ACCESS:</b> The proposed Project would have short-term impacts on traffic flows and volumes on area roadways. Increased construction traffic on local unimproved roads may contribute to road deterioration and mitigative actions may be required. No access to commercial or residential areas would be restricted; however construction activity could potentially delay users’ daily commute times within the Valley’s transportation network. Scheduling construction activities could mitigate those delays. Operation of the Proposed Action would have long-term, cumulative impacts on traffic flows and volumes on roadways when combined with the other proposed energy projects and the commercial activity associated with increased industry in the area. All disturbance areas not covered by project facilities would be reclaimed in accordance with BLM protocols.</p> <p><b>RECREATION and SPECIAL MANAGEMENT AREAS:</b> The proposed Project would not preclude the use of recreation and special management areas, but would remove land currently available for dispersed recreation on the Project site. Operation and maintenance of the Project facilities would not limit public access to recreation opportunities in the surrounding area.</p>	<p>Impacts to land use, recreation, transportation, and access under the wet-cooled alternative would be the same as those described under the Proposed Action (dry-cooled alternative).</p>	<p>Land use would not change on federal lands. However, land use changes could continue on adjacent private lands. Under the No Action Alternative, no Project-related impacts to transportation and access would occur. Under the No Action Alternative, no Project-related impacts to Areas of Critical Environmental Concern wilderness, or other special use areas would occur. No project-related impacts to recreational use of public lands would occur.</p>
<b>Visual Resources – Sections 3.12 and 4.12</b>		
<p>Visual impacts would occur during the construction of the proposed Project based on the introduction of construction equipment, higher</p>	<p>Impacts to visual resources under the wet-cooled alternative would be similar to those described for the</p>	<p>Under the No Action Alternative, no Project-related</p>

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**Table ES-1-4 Summary of Impacts by Resources for the Amargosa Farm Road Solar Energy Project Proposed Action, Wet-Cooled Alternative, and No Action Alternative**

Proposed Action – Dry-Cooled Alternative	Wet-Cooled Alternative	No Action Alternative
<p>levels of traffic, potential fugitive dust, and new forms of night lighting in the foreground distance zone of high sensitivity residential viewers along Sandy Lane and adjacent to Valley View Estates. Long term impacts would be based on the introduction of moderate/strong visual contrast associated with Project components (e.g., solar troughs, power block, transmission lines, and ancillary buildings) within a rural to natural setting that would be visible to moderate and high sensitivity viewers. The majority of long term impacts are anticipated to range from low to moderate based on the relatively low profile of the Project and the occurrence of various existing landscape features (i.e., topography, mature vegetation, and structures associated with the town of Amargosa Valley) that would screen the Project and reduce contrast from moderate and high sensitivity viewers. Limited occurrences of high impacts would occur where moderate to high sensitivity viewers would have unobstructed views of the Project in the foreground distance zone (i.e., Sandy Lane and Valley View Estates residences). Potential effects to dark-sky that would result from the nighttime operations of the Project are anticipated. Compliance is anticipated with BLM Visual Resource Management Class IV objectives.</p>	<p>Proposed Action with the following exception. Because a wet-cooling unit is less than half the height of a dry-cooled unit, the contrast for key observation points with views of the power block would be less visible to sensitive viewers under the wet-cooled alternative. High impacts would remain for residences located along Sandy Lane and within Valley View Estates; however, impacts would be reduced for all other identified sensitive viewers and residences with views of the Project area.</p>	<p>impacts to visual resources would occur as no project facilities would be constructed on BLM lands.</p>
<p><b>Health and Safety/Hazardous Materials – Sections 3.13 and 4.13</b></p>		
<p>Potential wastes that could be generated at the site include domestic non-hazardous solid waste, hazardous wastes or materials, and used wastes that can be recycled. These types of substances, materials, and wastes most likely would be present during stages of construction, development, and operation of the facility. During all stages of plant construction and operation, strict compliance with all federal, state, and local regulations governing the management of hazardous materials is required by law.</p>	<p>Impacts from hazardous materials and solid waste under the wet-cooled alternative would be same as those described under the Proposed Action.</p>	<p>There would be no Project-related hazardous materials or solid waste produced under the No Action Alternative.</p>

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