SOLARRESERVE

TONOPAH SOLAR ENERGY, LLC

Crescent Dunes Solar Energy Project Fact Sheet | September 2010

The Crescent Dunes Solar Energy Project is a solar power project proposed to be located approximately 10 miles northwest of Tonopah, Nevada (see Figure 1). The project will utilize SolarReserve's innovative concentrating solar power technology with storage, and have the capability to produce approximately 110 megawatts (MW) of energy. If project approval is granted by December 2010 as planned, the plant would be available for operation in 2013. The project will help meet the increasing demand for clean, renewable electrical energy in the US and help reduce reliance on fossil fuels and associated greenhouse gas emissions.

The proposed facility will use concentrating solar power (CSP) technology, and be equipped with an integral storage system (see Figure 2). The technology generates power from sunlight by focusing energy from a field of sun-tracking mirrors called heliostats onto a central receiver. Liquid salt, which flows similar to water when melted, is circulated through the receiver, collecting the energy gathered from the sun. The heated salt is then routed to an insulated storage tank where it is stored with minimal energy losses. When electricity is to be generated, the hot salt is routed to heat exchangers to produce steam used to generate electricity in a conventional steam turbine cycle. The salt is then sent to the cold salt storage tank, ready to be reheated by the sun and reused the following day. The salt storage technology was demonstrated successfully at the U.S. Department of Energy-sponsored 10-MW Solar Two project near Barstow, California.

SolarReserve's unique CSP technology offers several important benefits. First, our technology stores renewable energy and can extract it on demand. The stable electricity supply reduces grid reliability impacts from other intermittent renewable energy sources. Second, the stored energy in the salt can be used to produce electricity even when there is no sunlight, if needed. This is beneficial in Nevada where peak electricity demand can continue after the sun goes down and other solar resources can no longer operate. In addition, with highly efficient heat transfer properties, the liquid salt provides a cost-effective way to store renewable energy. Finally, SolarReserve's CSP technology does not require the use of natural gas and associated combustion emissions to maintain operating stability as some other solar technologies do.

Map of Site

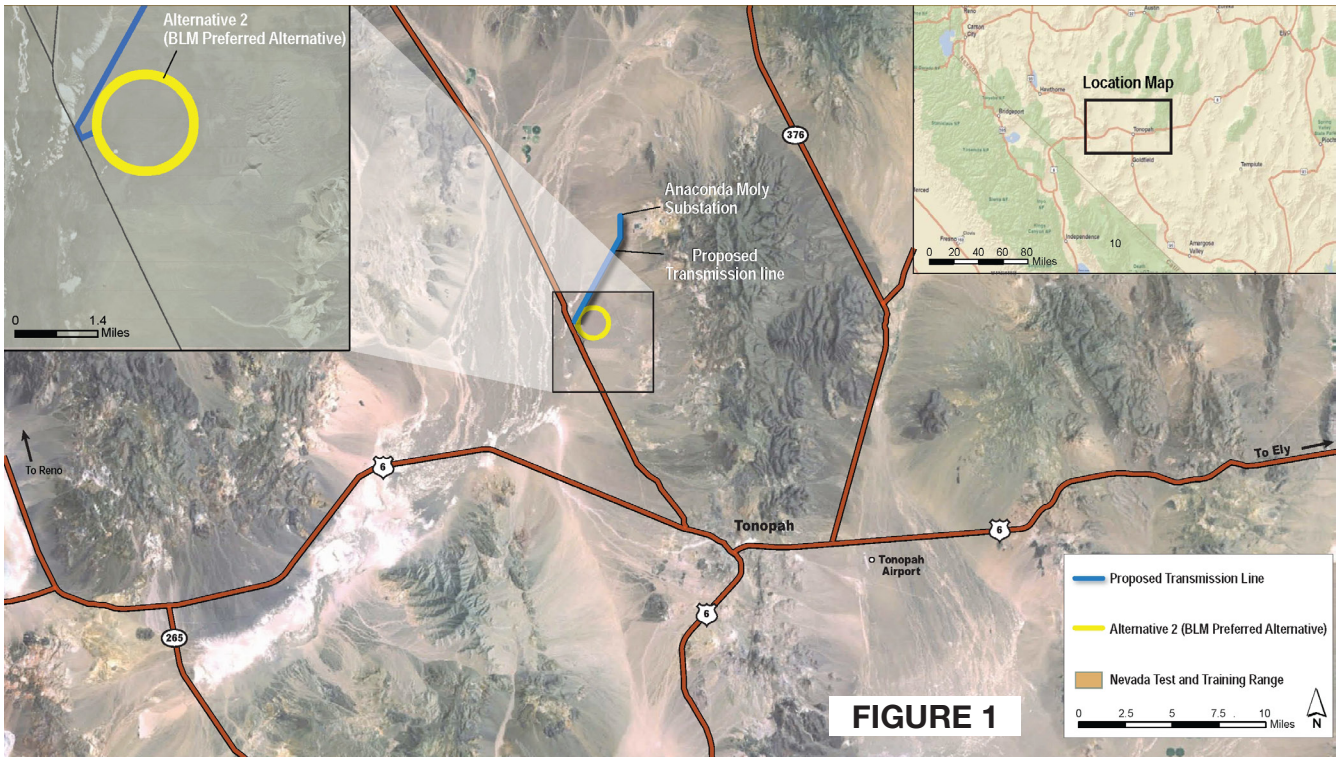
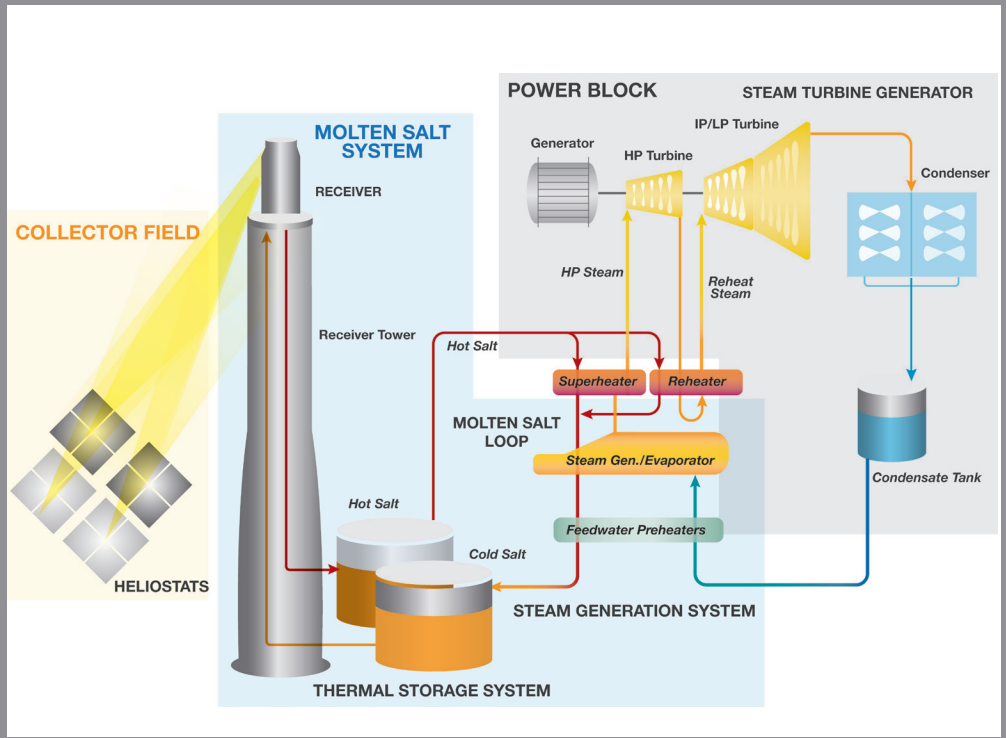


FIGURE 1

How a Solar Thermal Plant Works



1. Sunlight is concentrated and directed from a large field of heliostats to a receiver on a tall tower.
2. Liquid salt from the cold salt tank is pumped through the receiver where it is heated to 1050 °F.
3. The heated salt from the receiver is stored in the hot salt tank.
4. Hot salt is pumped from the hot salt tank through a steam generator to create steam, which drives a steam turbine, generating electricity.
5. Cold salt at 525 °F flows back to the cold salt tank.

FIGURE 2

Project Status Update

Many of you attended the public Scoping Meetings held for the project in Dec 2009 in Tonopah and Las Vegas. We appreciate all those who took the time to attend and provide comments and questions.

Since that time, the Bureau of Land Management (BLM) and HDR (the BLM's third-party contractor) have been busy preparing the Draft EIS (Environmental Impact Statement). The EIS will address the purpose and need for the project, assess alternatives to the proposed project, describe environmental resource areas in and around the site. The EIS will also assess the potential environmental impacts of the project and cumulative impacts.

The Draft EIS has been available for Public Review since September 3, 2010. Public Meetings will be held in Las Vegas on September 22, 2010 at the BLM Southern Nevada District Office, 4701 N Torrey Pines, and in Tonopah on September 23, 2010 at the Convention Center, 301 Brougher Ave., to allow the public the opportunity to ask questions and comment on the Draft EIS. At the end of the 45-day public review period (October 18, 2010), the BLM will then incorporate modifications to the document and issue a Final EIS, anticipated to be available later this year. (There will be another opportunity for the public to comment on the Final EIS at that time.)

Approvals needed to construct the project:

The BLM must provide authorization to allow the project to be constructed on public land. In order to grant authorization, the BLM, in compliance with the National Environmental Policy Act, requires preparation of a detailed environmental impact statement (EIS). The EIS will assess the environmental impacts of the project and all associated linear facilities and/or connected facilities (such as new access roads, new transmission lines and/or upgraded utility transmission lines).

A solar project such as this with a large area of disturbance will require preparation of an Environmental Impact Statement ("EIS") in which all potential project impacts to land, water, air, and biological species will be evaluated as well as alternatives, social, cultural, and economic factors associated with the project. The public is given several opportunities to comment on the project and EIS during the permitting process. After the EIS is finalized, a Record of Decision is prepared to document the selected alternative to be developed and any mitigation measures required. A long-term ROW grant could then be issued to allow construction of the project facilities to proceed.

Participation in the EIS Process:

To participate in the EIS process, please send an e-mail to crescent_dunes@blm.gov and monitor local publications for project communications and notices of upcoming public meetings. You may also view our website at www.TonopahSolar.com.

"...we should be using Nature's inexhaustible source of energy - sun, wind & tide... I would put my money on the sun and solar energy. What a source of power! I hope we don't have to wait until oil and coal run out before we can tackle that."

– Thomas Edison

Frequently Asked Questions

Quick Facts

Location	Northwest of Tonopah, Nevada
Technology	Concentrating Solar Thermal with Storage
Size	110 MW
Site	~ 1,600 acres, BLM-managed land
Water Use	less than 600 acre-feet/year
Transmission	~ 9.5 miles

Why is this project important?

The project is being developed to provide a sustainable, renewable, cost-effective source of electricity using a unique technology which can capture solar energy throughout the day, store the energy, and schedule electricity production to occur whenever it is needed-during hours of peak electricity demand, or during evening or nighttime hours. The storage system allows the project to generate a stable power supply that will enhance electricity grid stability and facilitate wider use of intermittent renewable sources such as wind energy.

Why here?

Nevada has some of the best solar resources available in the world. Solar energy can supplement other resources to serve the country's need for clean, affordable domestic energy supplies and help sustain continued economic development. This site is in a largely undeveloped area with good site access as well as access to NV Energy's existing transmission system, minimizing the length and cost of new transmission lines required.

Why are you proposing to build this project on public land?

The project is proposed to be located on land managed by the Bureau of Land Management. The BLM manages the public land for multiple uses and have recognized that solar radiation levels in the Southwest are some of the best in the world-and that a significant number of lands administered by the BLM have levels of solar radiation suitable for utility-scale solar power plant development. Renewable energy is considered a beneficial public use and BLM's policy, as consistent with national and state leadership goals, is to facilitate environmentally responsible renewable energy development. While the size of the project, with approximately 1600 acres of disturbance anticipated, is large compared to conventional power projects, it represents less than .05% of all BLM-administered lands in Nye County.

What will the new power plant look like?

The project will have a large circular field of mirrors (heliostats). At the center of the field will be a tall, central receiver tower and the power block. The tall tower increases the efficiency of the plant and ensures that the large array of heliostats can focus the solar energy onto the receiver mounted on top of the tower. Visual simulations have been prepared and can be viewed in the Draft EIS. They show how the project will look to viewers from several locations.

Will I be able to see the tower at night?

During the day, the receiver (which is mounted on top of the tower) will glow as it absorbs solar energy. There will be no solar energy at night, so the receiver will not operate or glow at night. Lighting will be designed to be downcast to minimize light pollution and at night will be limited to use only in areas as necessary for worker safety. The FAA will require lighting systems for the tower for day and nighttime operation (similar to those required by the FAA for communication towers).

How tall will the tower be?

The tower will be a concrete structure, approximately 538 feet high, on which a receiver approximately 100 feet tall is mounted. A maintenance crane will be mounted on top of the receiver, for an overall height of 653 feet. The proposed tower height was established by an economic optimization study to determine the lowest cost of electricity production. As the tower grows taller, the plant efficiency increases.

Will it be noisy?

The solar collection field (heliostats) will operate whenever there is sufficient solar resource to collect energy. The heliostats will quietly track the sun during the day but will not operate after sundown. Because the facility is equipped with storage, the facility can generate electricity at any time, even during evening hours. Because the power block is in the middle of the large heliostat field, however, about a mile from the plant boundary, we do not expect noise levels to be significant based on studies performed for other projects. In addition, the nearest residence is about 9 miles away. This issue, however, will be thoroughly studied in the EIS process to ensure that noise does not result in impacts.

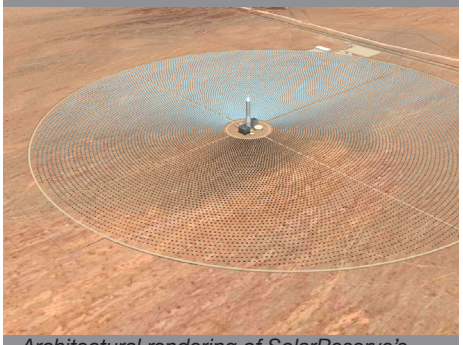
Will the facility require water and how much will be used?

Water is a scarce resource in the Southwest. Recognizing this concern, SolarReserve has chosen to use a more costly hybrid cooling system which is estimated to save up to 600 acre-feet/year of water compared to a traditional 'wet-cooled' power plant. More importantly, we propose to use existing water rights so that the amount of water withdrawn from the basin does not increase as a result of our project. Our proposed use of water and water rights will be thoroughly reviewed and analyzed by the Nevada Water Resources Division and during the EIS process before a permit is granted to construct the project.

What benefits will this project provide?

The benefits of this solar facility are: 1) to produce a stable supply of renewable energy in an environmentally-responsible manner, 2) to enhance the local economy through payment of annual property taxes, and 3) to boost revenues for local businesses, since those who construct, operate and maintain the new plant will likely purchase goods and services and live in and around Tonopah, Nevada.

Heliostats in the field. They direct the sun to the receiver on top of the tower.



Architectural rendering of SolarReserve's proposed Rice Solar Energy project in CA

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