BrightSource Limitless



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IVANPAH PROJECT FACTS

A BRIGHTSOURCE ENERGY CONCENTRATING SOLAR POWER PROJECT

The Ivanpah solar thermal power system uses BrightSource's proven solar tower technology to produce clean, reliable solar electricity to more than 140,000 homes. Located in Ivanpah Dry Lake, California, the three-unit power system is built on approx. 3,500 acres and created more than 2,600 jobs for construction workers and support staff.

IVANPAH AT A GLANCE

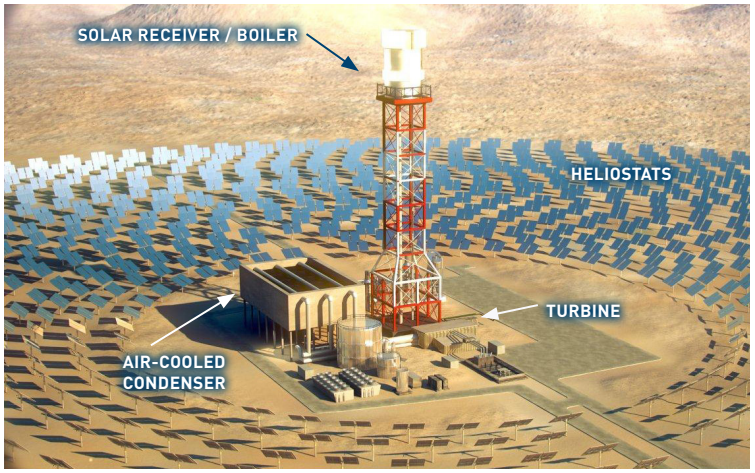
- **Location:** Ivanpah Dry Lake, CA
- **Size:** Approx. 3,500 acres (14.2 km^2)
- **Power Production:** 377 MW (Net) / 392 MW (Gross)
- **Average Homes Served Annually:** 140,000 (California, USA)
- **Customers:** PG&E and Southern California Edison
- **Partners:** NRG, Google, Bechtel Corporation, and the Department of Energy
- **Construction Commenced:** October 2010
- **Operational:** December 2013

ECONOMIC BENEFITS

- **Jobs:** During its construction, Ivanpah reached a peak of 2,636 construction workers and support staff (over a 3 year period). BrightSource and its partners have a track record for hiring local workers.
- **Permanent and Seasonal Operations & Maintenance Jobs:** 65
- **Employee Wages:** Approximately $650 million* in wages and employee earnings
- **State & Local Tax Benefits:** Approx. $350 million* in local and state taxes

**Preliminary estimates only, based on the power plant's first 30 years of operation*

TECHNOLOGY



• Ivanpah produces electricity the same way that most of the world's electricity is produced – by creating high-temperature steam to turn a conventional turbine. However, instead of burning fossil fuels to create the steam, we use the clean and infinite sun as fuel.

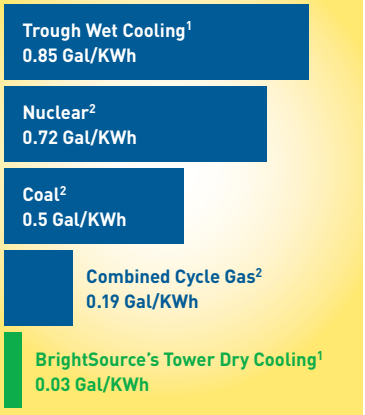
• At the heart of BrightSource's proprietary power-tower solar thermal system is an innovative solar field design, optimization software and a control system that allow for the creation of high temperature steam.

• At Ivanpah, over 300,000 software-controlled mirrors track the sun in two dimensions and reflect the sunlight to boilers that sit atop three 459 foot tall towers. When the concentrated sunlight strikes the boilers' pipes, it heats the water to create superheated steam.

• This high-temperature steam is then piped from the boiler to a standard turbine where electricity is generated. From here, transmission lines carry the power to homes and businesses.

ENVIRONMENTAL BENEFITS

Wet CSP/Conventional Cooling vs. BrightSource's Dry CSP Cooling



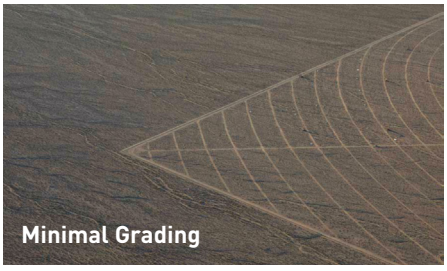
[1] Source: California Energy Commission
[2] Source: Nuclear, Coal and Combined Cycle numbers from World Forum report - Thirsty Energy: Water and Energy in the 21st Century

• **Efficient Land Use:** With its taller towers and optimized solar field design, BrightSource's solar tower technology uses less land than competing solar technologies, including photovoltaic and trough solar.

• **Improves Air Quality:** BrightSource's solar plants avoid millions of metric tons of carbon dioxide (CO_2) emissions over the plant's life. A BrightSource plant will have reduced air pollutants, such as nitrogen oxides (NO_x) and sulfur oxides (SO_x), than a natural gas-fired power plant.

• **Low Water Use:** BrightSource's solar tower technology uses up to 95% less water than competing wet cooled solar thermal plants by employing a dry-cooling process, which uses air instead of water to condense steam. The steam production cycle is a closed-loop system, with all water recycled back into the system, while general conservation measures help to further reduce water usage. The water consumed on the project is for cleaning the mirrors, much like a PV plant of similar size.

• **Limited Impact on the Land:** Unlike competing technologies, which require the majority of a project site be fully graded, BrightSource solar tower plants retain the majority of the project site's natural landscape. Instead of extensive grading and concrete foundations, BrightSource's heliostat pylons are inserted directly in the ground allowing vegetation to co-exist within the solar field below the mirrors. The limited grading and concrete foundations allow the land to retain its natural land contours and features.


Minimal Grading


Low Impact Pylon Design


Minimal Impact on Vegetation

PROVEN LEADERSHIP IN SOLAR ENERGY

BrightSource Energy is a leader in the design and development of concentrating solar thermal technology used to produce high-value electricity and steam for power, petroleum and process markets worldwide.

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