

## Ivanpah Solar Electric Generating System - (Units 1, 2, 3)

**Loan Guarantees** – \$1.6 billion; closed April, 2011

**Impact** – The project is one of the largest infrastructure projects in the nation and the largest solar thermal plant under construction in the world.

**Jobs** – There are over 1,700 total staff currently on site, including manual construction workers, engineers, biologists and project management, plus hundreds more off-site. The project is creating union jobs in an area with one of the nation's highest unemployment rates. The project is expected to support 86 permanent jobs.

Click [here](#) to see a video on the Helmets to Hardhats program, which promotes opportunities for quality men and women from the Armed Forces to learn about promising building and construction careers. The video features two Bechtel apprentices in training to become master craftsmen at Ivanpah.

**Expected Generation Capacity** – 392 MW (gross)

**Expected Clean Air Benefits** – The project is expected to avoid 574,000 metric tons of carbon dioxide annually, equivalent to carbon dioxide emissions of 110,000 vehicles.

**Expected Homes Powered** – The project is expected to generate enough clean electricity to power approximately 87,000 homes annually.

**Power Purchase Agreement** – PG&E and Southern California Edison will purchase the project's output.

**Project Owners** – NRG Energy Inc., as lead investor, in addition to Google Inc. and BrightSource Energy Inc.

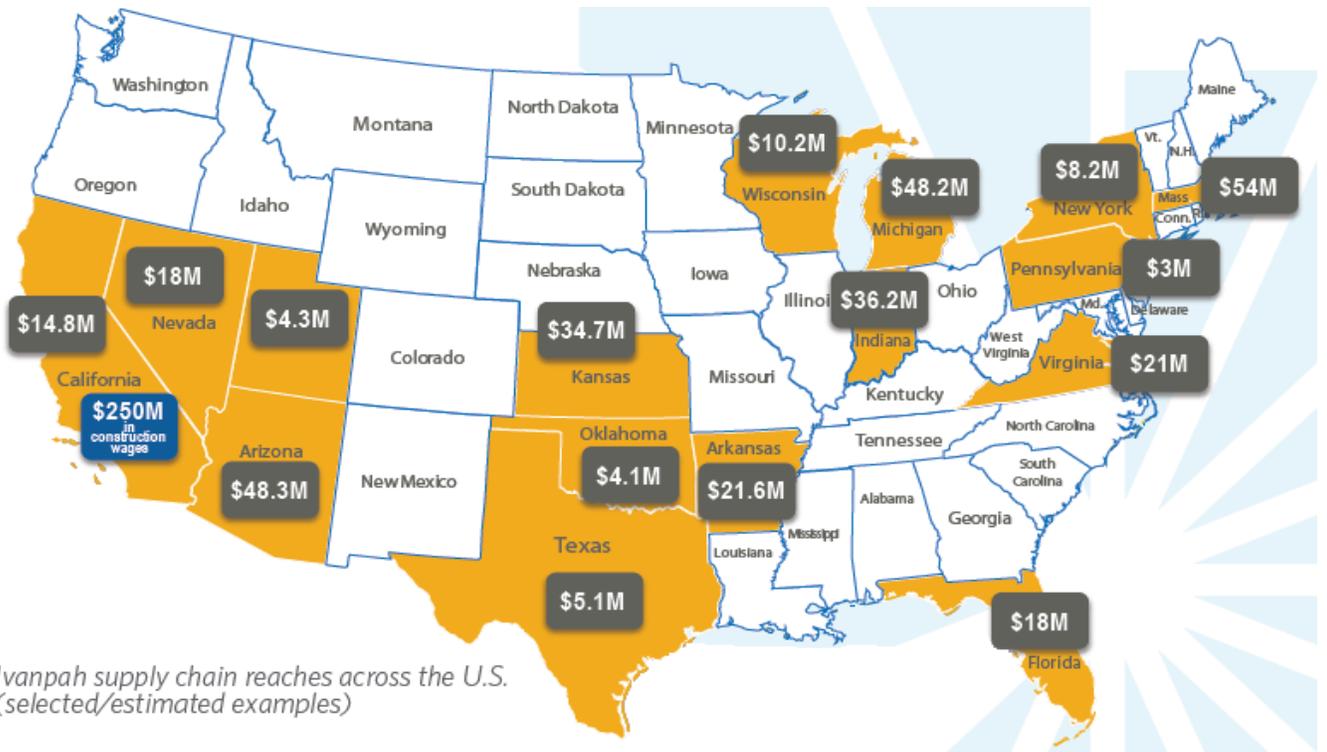
**Awards** – CSP Project of the Year by Solar Power Generation USA; named 2012 Energy Project of the Year Award by the USC CMAA Green Symposium

**Construction Update** – The project is approximately one-third complete. Construction of the three 459-foot power towers are well underway, and tens of thousands of heliostats have been installed out of the 173,500 total heliostats expected to be assembled at the project.

**Innovation** – Ivanpah features power tower solar thermal technology, which generates power by creating high temperature steam to turn a turbine. However, instead of using fossil fuels or nuclear power to create the steam, the project uses the sun’s energy. The system uses software-controlled mirrors called heliostats that follow the sun and reflect it onto a boiler filled with water that sits atop a tower. When the sunlight hits the boiler, the water inside is heated and creates high temperature steam. The steam is then piped to a conventional steam turbine, which generates electricity.

### **Supply Chain**

- The majority of the project’s supply chain is being sourced in the U.S., with components and services coming from more than [17 states](#).
- After winning the contract to supply steel structures for the Ivanpah plant, BrightSource [steel supplier](#), Gestamp Solar Steel, needed to build a [new facility](#) to keep up with the increased demand. The new 75,000 square foot steel manufacturing facility in Surprise, Arizona will create 50 new local manufacturing jobs in its first phase and additional jobs during construction.
- Michigan-based Cone Drive Gearing Solutions will supply Ivanpah with solar tracking drives. The 85-year old company said, “This opportunity will be a source of job creation not only for us but for many of our U.S.-based supply chain partners.”
- Auburn Hills, Michigan-based Guardian Industries will supply Ivanpah with its [EcoGuard Solar Boost mirrors](#). Guardian started supplying the first of 160,000 of its EcoGuard Solar Boost mirrors to ISEGS in November 2011.



*Ivanpah supply chain reaches across the U.S. (selected/estimated examples)*