Located in Riverside County, California, the two-unit power system will be built on approx. 3,800 acres and will create more than 2,300 jobs for construction workers and support staff.

The project site has been approved by the California Energy Commission (CEC) for 500 MW of parabolic trough technology. Palen Solar Holdings’ proposes to substitute power tower technology in place of the approved parabolic trough technology. The modified Palen project does not expand upon the previously approved footprint and reduces impacts associated with disturbance to habitat, land grading and water use.

The project site is located within an approved Solar Energy Zones (SEZ).

**ECONOMIC BENEFITS**

- **Construction Jobs**: More than 2,300 construction workers and support staff at the peak of construction (33 months construction). The project’s construction partners have a track record for hiring local workers for construction.

- **Permanent Operations & Maintenance Jobs**: Approx. 100

- **Employee Wages**: Approx. $650 million* in wages and employee earnings

- **State & Local Tax Benefits**: Approx. $200 million* in local and state taxes

- **Federal Royalties**: Approx. $200 million*

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

• Palen will produce 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 a 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 Palen, over 170,000 software-controlled mirrors will track the sun in two dimensions and reflect the sunlight to boilers that sit atop two 750 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

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

• Improves Air Quality: solar plants avoid millions of metric tons of carbon dioxide (CO₂) emissions over the plant’s life. A solar thermal tower plant will have reduced air pollutants, such as nitrogen oxides [NOₓ] and sulfur oxides [SOₓ], than a natural gas-fired power plant.

• Low Water Use: 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, solar tower plants retain the majority of the project site’s natural landscape. Instead of extensive grading and concrete foundations, 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.

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.