Bolivia california solar energy

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Clear skies over Oruro department in Bolivia. The Altiplano plateau in western Bolivia has some of the world"s highest and most consistent levels of solar radiation, creating high potential for solar photovoltaic power in the region, but structural challenges may prevent scaling. (Image: Anyisa / Alamy)

Perched at 3,730 metres above sea level in the community of Ancotanga, the Oruro solar power plant is one of the flagship projects in Bolivia"s energy transition. With more than 300,000 panels deployed over an area of 214 hectares, it is the largest of its kind in the country, with a production capacity of 100 megawatts (MW) - a sizeable output, but not enough on its own to turn Bolivia"s energy mix away from fossil fuels and towards renewables.

Given Bolivia"s strong and consistent solar radiation, the country has high potential to expand its photovoltaic energy production capacity, and new plants with an additional capacity of 300 MW are already being studied. However, specialists are calling for a broader restructuring of entrenched economic and energy models, which depend largely on the exploitation of fossil fuels - primarily natural gas - as well as the distribution of the resources derived from their sale, and the subsidised supply of hydrocarbons to the domestic market.

The Oruro solar plant was installed in two phases, and is divided into two plants. The first, executed under the government of former president Evo Morales, brought capacity of 50 MW. The second, seen through under Luis Arce"s current government, and completed in February 2021, increased capacity to 100 MW, which supplies the National Interconnected System (SIN), Bolivia"s national grid.

"Currently, both plants are operating satisfactorily, contributing a great deal of renewable energy," said Rodrigo Corrales, general manager of ENDE Guaracachi, the state-owned electricity company that operates the complex.

Corrales also affirmed that the surrounding Oruro department "is its main market", but when demand in the region is less than the capacity of the solar plant, the energy is transmitted to neighbouring departments, including La Paz and Potos?.

When its second phase was inaugurated in February 2021, President Arce highlighted the importance of the project for the country"s energy transition. "We are making progress in changing the energy matrix towards clean and renewable energy. We are generating economic development and guaranteeing electricity for the [Oruro] department, taking care of Pachamama [Mother Earth]," he tweeted.

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Corrales claims that since it has been in service, the Oruro plant has produced approximately 237 gigawatt hours of energy, preventing more than 188,627 tonnes of CO2 from being emitted into the atmosphere, according to his calculations.

The Bolivian government intends to install new plants of this type in the Altiplano region. At the end of 2021, the Minister of Hydrocarbons and Energy, Franklin Molina, announced an intention to add 500 MW of new renewable and clean energy projects.

Corrales confirms that the possibility of installing photovoltaic plants with a combined capacity of an additional 300 MW is being studied. "We are analysing these and looking for the ideal sites," he says.

Specialists have some recommendations for these new solar energy projects. Miguel Fern?ndez, an energy researcher and director of Bolivian development organisation Energ?tica, told Di?logo Chino that the installation of smaller, more distributed plants than that at Ancotanga would be more appropriate, in order to reduce the impact when clouds gather and hinder solar panels" capacity to generate electricity.