



Bolivia Solar Report

Prepared by J.v.G. Technology GmbH

J.v.G. Technology GmbH is a German engineering company specializing in turnkey solar module production lines and manufacturing consulting, with project experience ranging from 20 MW to 500 MW per production line, including multi-line and gigafactory projects exceeding this scale.

This Solar Report is part of the **PVKnowHow** Knowledge Network.
The data, analysis, and conclusions in this document are based on real research, consulting insights, and international solar market data.

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Gain comprehensive insights into the statistics and metrics surrounding the solar production industry in Bolivia

KEY POINTS

All figures have been converted into USD



Yearly sunshine (sun hours per year)

Average yearly sunshine is about 5.5 hours per day.

This averages to approximately 2000 hours of sunshine per year.

This is a great condition for solar energy generation.



kWh per kWp installed

The average energy production per kWp is about 1200 kWh/kWp per year.

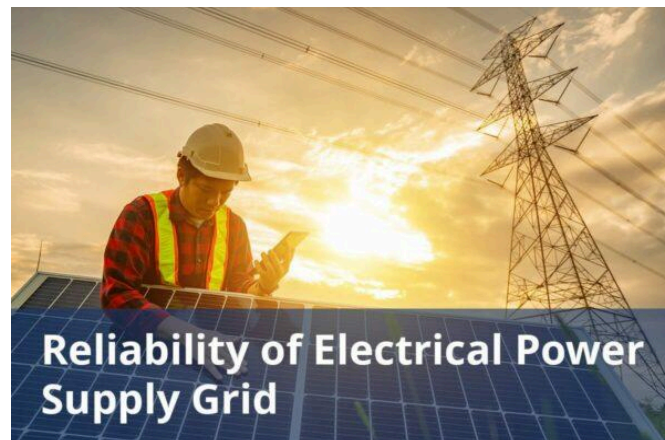
This can vary slightly depending on location and system specifics.



Average cost per kWh from utility company

Residential Electricity Prices:

- For 0-100 kWh: \$0.135/kWh
- For 100-600 kWh: \$0.135/kWh
- For 600-1000 kWh: \$0.1945/kWh
- For consumption above 1000 kWh: \$0.2196/kWh



Reliability of electrical power supply grid

Solar panels have a reliability of 25 years with minimal degradation.

Regular maintenance is recommended to ensure optimal performance.



DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

In 2022, approximately 100 GW of solar panels were installed worldwide.

This reflects a steady growth in solar technology adoption.

Total solar panel production capacity (projected)

By 2030, installed solar capacity is expected to reach 300 GW worldwide.

This projection supports the transition to renewable energy sources.

Average costs of various electricity generation sources (coal, natural gas, solar, etc)

The average cost to install solar panels is around \$3000 per kW.

This price varies based on location and incentives available.

Percentages of various electricity generation sources (coal, natural gas, solar, etc)

Solar energy is expected to contribute approximately 20% to the electricity supply by 2030.

This is a significant increase from current levels.

Average daily availability of electricity from the national grid (measured in hours)

Solar panels can generate electricity effectively for about 5-7 hours daily, depending on weather conditions.

Energy storage systems can help utilize solar energy even at night.

Number of residential solar panel installations

There are currently over 2 million residential solar installations in the country.

The growth rate of installations continues to rise each year.

Total number of solar farms (installed and projected)

As of 2022, there are approximately 5000 solar farms operating across the nation.

These farms have contributed significantly to renewable energy output.

Off-grid market demand for solar panels (current and projected)

Installed:

- IRENA estimated that Bolivia produces 5.3 MW of its energy from off-grid photovoltaic systems in 2023.

Projected:

- IRENA data from 2014 to 2023 shows that the off-grid solar capacity is likely to remain stable at around 5.28 MW in the upcoming years.

On-grid market demand for solar panels (current and projected)

The average annual growth rate from 2021 to 2023 was approximately 0.59% per year.

If the trend from 2021-2023 continues, Bolivia could see a modest increase in solar capacity, reaching around 174 MW by 2024 and 175 MW by 2025.

Average monthly income of workers in solar industry (labor cost)

The average monthly salary of a photovoltaic installer in Bolivia is 772.31 USD.

The average monthly salary of a photovoltaic Engineer in Bolivia is 1,280.50 USD.

Population of the country

Bolivia's population stood at 12438081 on August 24, 2024.

Average overhead costs of solar panel production (with a brief breakdown)

Estimate for Factory Rent:

- Average monthly rent for industrial properties is estimated to be 1.5 USD /m²/month.

Industrial Electricity Rates:

- The average cost of electricity for industry was 0.119 USD/kWh in 2022.

Water Costs:

- Not found

Key Components of Administrative Costs:

- Salaries and Wages:

- The average monthly salary of a photovoltaic installer in Bolivia is 772.31 USD.

- The average monthly salary of a photovoltaic Engineer in Bolivia is 1,280.50 USD.

- Rent for Office Space:

- The average monthly rent for industrial properties is estimated to be 8.8 USD /m²/month.

A summary of the energy infrastructure

Total installed electricity generation capacity:

- 4138 MW.

Total generation:

- 11216.4 GWh.

Total consumption:

- 10565 GWh.

Per capita consumption:

- 874.6 kWh.

Generation mix:

- In 2022, Bolivia's total installed capacity was 4138 MW.

Natural gas was the largest contributor with 2791.2 MW, accounting for 67.45% of the total.

Large hydro followed with 468.6 MW (11.32%), and small hydro added 290 MW (7.01%).

Solar PV contributed 170 MW (4.11%), biomass & waste provided 178.5 MW (4.31%), wind added 135 MW (3.26%), and oil & diesel accounted for 104.7 MW (2.53%).

Some of the government regulations surrounding solar panel production

Certifications:

- Standards Compliance:

- TÜV Rheinland certifies PV modules according to IEC 61215 and IEC 61730, ensuring quality and performance.

- Testing Services:

- Includes laboratory tests, factory inspections, and issuance of TÜV Rheinland test marks and certificates of conformity.

Quality Assurance Measures:

- Degradation Testing:
- Assesses PID, LID, and LeTID effects.
- Durability Tests:
- Conducts fire, corrosion, and long-term outdoor tests.

Added Value Services:

- Energy Yield Testing:
- Evaluates energy output under real climate conditions.
- BIPV Qualification:
- Assesses building-integrated PV systems for compliance and safety.

Government initiatives in solar panel production (includes investments and subsidies)

Incentives and Tax Benefits:

- Bolivia has implemented two tax incentives for renewable energy technologies through Laws 3279 and 3152.

These laws provide tax relief on the Value Added Tax (VAT) and import duties specifically in the Beni and Pando regions of the country.

NET metering:

- Bolivia has implemented a net metering scheme for renewable energy through Supreme Decree 4477.

Notable solar projects in the country (installed and projected)

Oruro Solar Park:

- Capacity: 100 MW
- Location: Ancotanga, Oruro

- Description: It has 300000 solar panels spread across 214 hectares, was developed in two phases and completed in 2021.

Uyuni Solar Park:

- Capacity: 60 MW
- Location: Uyuni, Potosí
- Description: Inaugurated in September 2018, spread over 105 hectares, generating electricity using 196952 modules. Developed by Elecnor and Emias, it is now owned by Empresa Electrica Guaracachi.

Cobija Solar Plant in Bolivia:

- Capacity: 5 MW
- Location: Cobija, Pando
- Description: Consists of over 17300 solar panels of 300 W each, distributed across 11 hectares.

Some of the notable solar companies (plus brief details on what they do)

ENDE (Empresa Nacional de Electricidad):

- ENDE is Bolivia's national electricity company and a major player in the country's solar energy sector. It operates significant solar projects such as the Oruro Solar Plant, which has a capacity of 100 MW.

Electrificación y Servicios Energéticos de Cochabamba (ELFEC):

- ELFEC, based in Cochabamba, is a key regional utility company involved in various renewable energy projects, including solar energy. They focus on the distribution of electricity and are gradually increasing their investment in solar power to diversify their energy portfolio.

Enersol:

- Enersol S.A. is a Bolivian company specializing in photovoltaic solar energy, established in 1986. With over 9.5 MW installed across more

than 20000 projects nationwide, it has become a leader in the renewable energy sector.



ABOUT THIS REPORT

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All market data, analysis, and conclusions follow JvG's internal consulting standards and international PV market research practices.

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About J.v.G. Technology GmbH

J.v.G. Technology GmbH is a European engineering and advisory specialist for solar production lines and manufacturing equipment, supporting investors and operators with market, location and production-focused decision frameworks.

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