



Ecuador 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 Ecuador

KEY POINTS

All figures have been converted into USD



Yearly sunshine (sun hours per year)

On average Ecuador receives sunshine of 1606 hours/year or 4.4 hours /day.



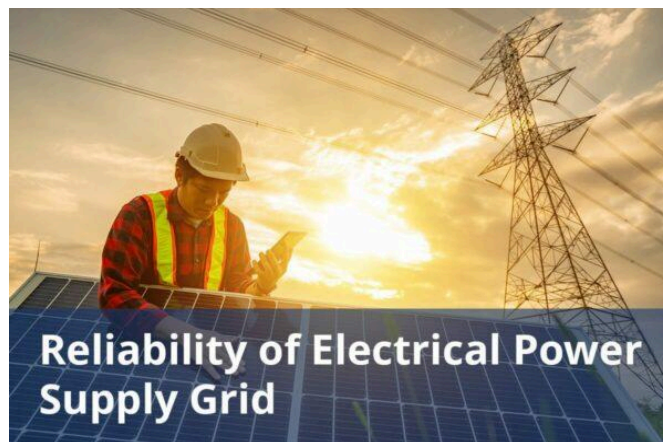
kWh per kWp installed

The average Photovoltaic Power Potential (PVOUT) is 1285.9 kWh/kWp per year and 3.52 kWh/kWp per day.



Average cost per kWh from utility company

In Ecuador, residential electricity costs \$0.096/kWh, while commercial rates are \$0.085/kWh.



Reliability of electrical power supply grid

Ecuador has supplied electricity to 100 % of its population up till 2021. The System Average Interruption Frequency Index (SAIFI) indicates that each customer in Ecuador experienced approximately 3.3 interruptions in their electricity service per year.



DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

IRENA estimated that Ecuador solar energy market produced 31 MW of electricity from PV solar energy in 2023, with 25 MW connected to the grid and 6.4 MW operating off-grid.

Total solar panel production capacity (projected)

The Electricity Corporation of Ecuador (CELEC) has identified seven solar projects across four provinces, with a combined potential capacity of 1580 MW.

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

Hydropower: \$1.47/kWh (2019)
- Solar Energy: \$0.1342/kWh (2020)

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

In 2022, the total installed capacity was 8832 MW. Large hydro was the largest contributor with 4560 MW, accounting for 51.63% of the total.

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

In 2023, Ecuador announced temporary power cuts of 3 to 4 hours daily due to drought condition.

Number of residential solar panel installations

Approximately 5000 photovoltaic (PV) systems have been installed until 2019, particularly in the Amazon region, generating around 0.65 GWh annually.

Total number of solar farms (installed and projected)

An open-source imagery website has found 7 solar farms operating in Ecuador. Official documents indicate that 34 solar farms are operating in Ecuador.

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

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IRENA data shows that Ecuador's average growth rate of off-grid solar energy capacity from 2013 to 2023 is approximately 53.07% per year.

Based on the current growth rate, Ecuador's projected solar energy capacity for 2028 is calculated as 53.68MW.

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

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

A researcher has estimated that Ecuador must produce 4000 MW of solar by 2050 to meet the increasing demand for electricity in Ecuador.

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

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- The average monthly salary of a photovoltaic installer in Ecuador is 761 USD.

- The average monthly salary of a photovoltaic Engineer in Ecuador is 1438 USD.

Population of the country

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Ecuador's estimated population was 18 million (18,162,861) as of September 4, 2024, based on United Nations data measured by Worldometer.

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

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Estimate for Factory Rent:

- The average monthly rent for industrial properties in Ecuador is estimated to be 4 USD /m²/month.

Industrial Electricity Rates:

- Commercial electricity rates were USD 0.085 per kWh (as of Dec 2023).

Water Costs:

- 0.72 USD /m³ (2018)

Key Components of Administrative Costs

- The average monthly salary of a photovoltaic installer in Ecuador is 761 USD.

- The average monthly salary of a photovoltaic Engineer in Ecuador is 1438 USD.
- The average monthly rent for office space in Ecuador is estimated to be 12 USD /m2/month.

A summary of the energy infrastructure

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- Total installed electricity generation capacity: 8832 MW
- Total generation: 33000 GWh
- Total consumption: 27702 GWh
- Per capita consumption: 1560 kW
- Renewable Energy Share: 80.96%.

Electricity Capacity:

- In 2022, the total installed capacity was 8832 MW. Large hydro was the largest contributor with 4560 MW, accounting for 51.63% of the total.

Electricity Generation:

- In 2022, the total electricity generation was approximately 33000 GWh. Large hydro was the largest contributor with 21262.6 GWh, accounting for 64.42% of the total.

Some of the government regulations surrounding solar panel production

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Ecuador is committed to following international standards for solar energy technologies established by the International Electrotechnical Commission (IEC).

- IEC 60904-1: Measurement of current-voltage characteristics for photovoltaic devices.
- IEC 60904-2: Requirements for photovoltaic reference devices.
- IEC 60904-4: Procedures for establishing calibration traceability for reference solar devices.
- IEC 60904-5: Determining the equivalent cell temperature (ECT) of photovoltaic devices using the open-circuit voltage method.

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

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Investment:

- Ecuador government is planning to invest 1.5 billion USD in 7 solar projects across Ecuador.

Net metering in Ecuador:

- Ecuador's (Arconel) allows net metering for solar power systems up to 300 kW (residential) and 500 kW (industrial).

Tax Exemptions:

- To increase solar energy use in Ecuador, solar panel imports are exempt from import and sales tax.

Notable solar projects in the country (installed and projected)

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Installed

- Corporación Favorita Solar Complex
 - Capacity: 2.4 MW DC, 2 MW AC
 - Location: Quito-Sangolquí, Ecuador
 - Technology: 4,368 Jinko Panels of 550W, Huawei Inverters (100 KTL, 60 KTL, and 40 KTL)
- Kentucky Fried Chicken (KFC) Solar Farm
 - Capacity: 2.5 MW DC, 1.29 MW AC
 - Location: El Inga – Quito, Ecuador
 - Technology: 2,720 Jinko Panels of 550W, 40 Huawei Inverters (60 KTL and 100 KTL)

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

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- DeltaGlobal S.A:
 - DeltaGloabal S.A. is a leading solar energy company in Ecuador, offering a range of services including residential and industrial solar installations, battery backup systems, and vehicle charging stations.
- Sun Conservation S.A:
 - Sun Conservation has over 10 years of experience and is one of the leading companies in Ecuador's solar industry.



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.

REFERENCES

All References

For a detailed list of references and additional information, please visit our website with the current report at:

<https://www.pvknowhow.com/solar-report/ecuador/>

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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