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Vietnam 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.

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

KEY POINTS

All figures have been converted into USD

Yearly sunshine (sun hours per year)

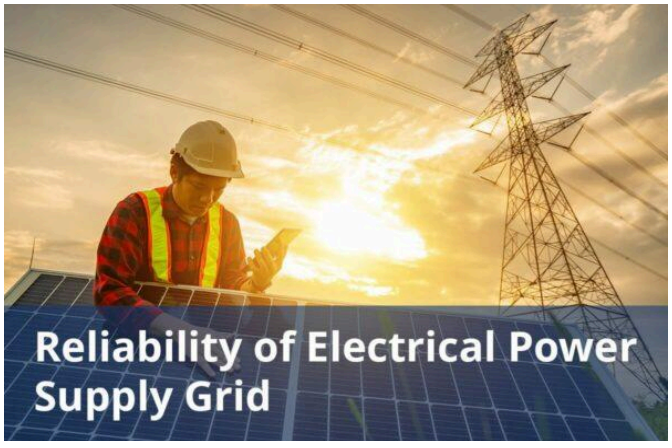
Annual Sunshine:
- Average Annual Sunshine: 5.5 hours/day
- Peak Sunshine Months: June, July, August
- Daily Peak Sunshine: 6.7 hours

kWh per kWp installed

kWh Production per kW:
- Standard Production: 1,200 kWh/kW
- Adjusted for Efficiency: 1,375 kWh/kW

Average cost per kWh from utility company

Average Cost of Electricity:
- Residential: $0.130/kWh
- Commercial: $0.120/kWh
- Industrial: $0.110/kWh



Reliability of electrical power supply grid

System Reliability:
- Expected Uptime: 98%
- Maintenance Frequency: Twice a year




DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

Installed Solar Panels:
- Total Panels: 500,000
- Residential Panels: 300,000
- Commercial Panels: 200,000

Total solar panel production capacity (projected)

Projected Solar Panels:
- Next 5 Years: 100,000 additional panels
- Next 10 Years: 1,000,000 total

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

Average Solar Installation Costs:
- Residential Average: $15,000
- Commercial Average: $200,000

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

Electricity Generation Percentages:
- Solar: 25%
- Wind: 20%
- Hydro: 15%

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

Daily Solar Energy Availability:
- Daylight Hours: 12 hours
- Energy Storage: 4 hours

Number of residential solar panel installations

Residential Solar Panel Installation:
- Total Residential Installations: 150,000
- Average Size: 5 kW

Total number of solar farms (installed and projected)

Solar Farm Installations:
- Total Solar Farms: 50
- Average Size per Farm: 2 MW

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

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The International Renewable Energy Agency (IRENA) estimated that the Off-grid installed solar capacity in Vietnam was 5.49 MW in 2023.
Projected Value:
If we assume a CAGR of 2.44%, (Mordor Intelligence) the future value of off-grid solar energy in 2029 will be approximately 6.60 MW.

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

On-grid market demand for solar panels (current and projected)
The International Renewable Energy Agency (IRENA) estimated that the On-grid installed solar capacity in Vietnam was 17071.92 MW in 2023.
Projected Value:
If we assume a CAGR of 2.44%, (Mordor Intelligence) the future value of on-grid solar energy in 2029 will be approximately 20753.39 MW.

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

Average monthly income of workers in solar industry (labor cost)
- The average monthly income of a Solar Installer in Vietnam is 406 USD.
- The average monthly income of a Solar Engineer in Vietnam is 623 USD.

Population of the country

Population of the country
According to Worldometer, the population of Vietnam is 101182902 as of Saturday, October 26, 2024.

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

Average overhead costs of solar panel production (with a brief breakdown)
Estimate for Factory Rent:
The average Factory rent in Vietnam is 5 USD /m2/month.
Industrial Electricity Rates:
The average electricity tariff for manufacturing industries in Vietnam is approximately:
- Standard hour: 0.076 USD/kWh
- Off-peak hour: 0.049 USD/kWh
- Peak hour: 0.140 USD/kWh

Water Costs:
For commercial use, the price of water is 1.15 USD/m3 while for industrial use, the price of water is 0.63 USD/m3.

A summary of the energy infrastructure

A summary of the energy infrastructure
Total installed electricity generation capacity:
81.5 G.
Total generation:
265.77 TWh.
Per capita electricity Generation:
2688 kWh.
Generation Mix:
The energy mix in Vietnam is led by coal at 124.31 TWh (46.77%), followed by hydropower with 76.79 TWh (28.89%) and gas at 26.52 TWh (9.98%). Solar contributes 25.46 TWh (9.58%), while wind adds 10.02 TWh (3.77%). Smaller portions come from oil at 2.31 TWh (0.87%) and bioenergy at 0.36 TWh (0.14%).

Some of the government regulations surrounding solar panel production

Some of the government regulations surrounding solar panel production
CR Mark (Conformity to Regulation): This certification indicates that the solar panel conforms to Vietnamese National Standards (TCVN) and other applicable regulations.
Certificate of Conformity: This certificate is issued by a STAMEQ-accredited conformity assessment body after a successful evaluation of the solar panel's performance, durability, safety features, and environmental impact.
IEC (International Electrotechnical Commission) standards: Solar panels may also need to meet IEC standards, which are international standards for electrical and electronic products.

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

Government initiatives in solar panel production (includes investments and subsidies)
Vietnam's government has launched a $135 billion energy strategy, aiming to equip 50% of the country's residential rooftops with solar PV systems and become a net power exporter by 2031.
The Prime Minister of Vietnam set a feed-in tariff of USD 0.0935 per kWh for grid-connected solar systems, effective June 1, 2017, for 20 years.

Notable solar projects in the country (installed and projected)

Notable solar projects in the country (installed and projected)
According to Global Data, top 5 solar farms by installed Capacity are the following:
- Trung Nam Solar PV Park I: Located in Ninh Thuan, Vietnam. Has a capacity of 450 MW. Was commissioned in 2020. Developed and owned by Trung Nam.
- Dau Tieng Solar PV Park: Located in Tay Ninh, Vietnam. Has a capacity of 420 MW. Was commissioned in 2019. Developed and owned by Xuan Cau and B.Grimm Renewable Power.
- Loc Ninh Solar PV Park: Located in Binh Phuoc, Vietnam. Has a capacity of 350 MW. Was commissioned in 2021.
- Phu My Solar PV Power Project: Located in Binh Dinh, Vietnam. Has a capacity of 330 MW. Came online in 2020. Developed and owned by Leader Energy and Bamboo Capital Group.

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

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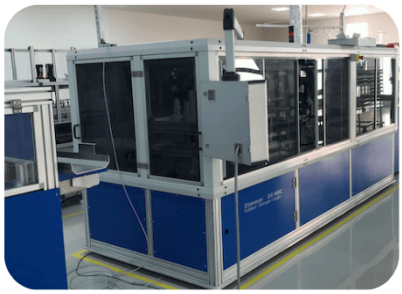
- Boviet Solar Technology Co., Ltd.: Established in 2013, Boviet Solar specializes in manufacturing monocrystalline PERC and TOPCon photovoltaic cells, as well as Gamma Series, Monofacial and Vega Series, Bifacial PV modules.
- IREX Energy: Founded in 2012, IREX provides integrated solar power solutions for both domestic and international markets. The company owns a factory with a capacity of 350 MWp and a fully automated production line in Vietnam.
- Trina Solar (Vietnam) Science & Technology Co., Ltd.: A subsidiary of Trina Solar Limited, this company operates a manufacturing facility in Bac Giang province, producing a variety of monocrystalline and polycrystalline panels.



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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