



Ghana 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 Ghana

KEY POINTS

All figures have been converted into USD



Yearly sunshine (sun hours per year)

Annual sunshine duration:

- Total annual sunshine hours: 3000 hours
- Average daily sunshine: 8.22 hours



kWh per kWp installed

Energy production per kWp:

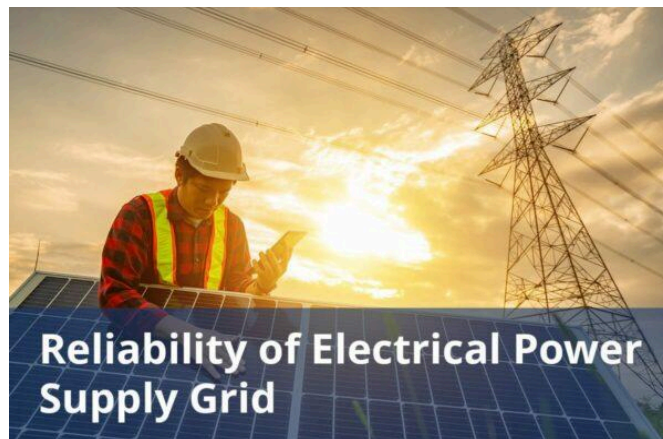
- Average annual production: 1200 kWh/kWp



Average cost per kWh from utility company

Electricity cost:

- Average residential rate: \$0.130/kWh
- Commercial rate: \$0.115/kWh



Reliability of electrical power supply grid

System reliability:

- Average uptime: 98%
- Expected lifecycle: 25 years



DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

Installed solar capacity:

- Total capacity: 1000 MW
- Number of systems: 500,000

Total solar panel production capacity (projected)

Projected solar capacity:

- Estimated total capacity by 2030: 5000 MW

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

Installation costs:

- Average cost per panel: \$250/panel
- Total installation cost: \$2.5 billion

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

Electricity generation sources:

- Solar: 20%
- Wind: 25%

- Natural Gas: 30%
- Coal: 25%

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

Daily generation capacity:

- Average daily generation: 300 MWh
- Peak availability: 500 MWh

Number of residential solar panel installations

Residential installations:

- Total number of panels: 1,000,000
- Average panels per home: 4

Total number of solar farms (installed and projected)

Solar farms:

- Total number of solar farms: 50
- Average size of each farm: 20 MW

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

Current Demand:

- Ghana's off-grid solar market has seen significant growth, with a current installed capacity of approximately 200 MW.
- This demand is primarily driven by rural and remote areas lacking access to the national grid.

Projected Demand:

- The off-grid solar market in Ghana is expected to continue its expansion, with projections indicating an increase to around 500 MW by 2030.
- This growth is supported by various initiatives and grants aimed at improving energy access and promoting renewable energy solutions in underserved regions.

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

Current Demand:

- As of 2023, Ghana's on-grid solar market demand is around 152 MW of installed capacity.

Projected Demand:

- By 2030, Ghana aims to increase its on-grid solar capacity significantly, targeting approximately 1382.7 MW.

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

Solar Installers:

- \$100-\$210 per month

Electrical Engineers:

- \$250-\$420 per month

Project Managers:

- \$330-\$540 per month

Population of the country

As of 2024, the population of Ghana is approximately 34771889 people.

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

Factory Rent in Ghana:

- The average rent for warehouse spaces in Accra, Ghana, varies between \$3 to \$6.5 per square meter per month, depending on the location and facilities provided.

Industrial Electricity Rates:

- The industrial electricity rate in Ghana is approximately \$0.15/kWh.

Water Costs:

- The cost of water for industrial use in Ghana is around \$1.50/m³.

A summary of the energy infrastructure

Total Installed Capacity:

- Ghana's total installed capacity, including distributed generation, is approximately 5449.1 MW as of 2023.

Electricity Generation:

- In 2023, Ghana's total electricity generation reached around 23617 GWh.

Electricity Consumption:

- The total electricity consumption in Ghana was projected to be approximately 23617 GWh for 2023.

Some of the government regulations surrounding solar panel production

Renewable Energy Act 2011 (Act 832):

- Act promotes the development and utilization of renewable energy resources in Ghana.
- It provides a framework for investments and includes incentives such as feed-in tariffs to encourage the adoption of renewable energy sources, including solar power.

Net Metering Regulation:

- This regulation allows consumers who generate their own electricity from renewable sources (like solar panels) to feed surplus electricity back into the national grid.

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

AfDB Partnership for Rural Electrification:

- The Ghanaian government secured \$69.88 million from the African Development Bank to implement rural electrification through stand-alone solar systems.

Tax Exemptions:

- To support the solar sector, the Ghanaian government provides exemptions on duties and VAT for imported solar panels and off-grid solar components.

Notable solar projects in the country (installed and projected)

Installed Projects:

Bui Solar Power Plant:

- Location: Bono Region
- Capacity: 5 MW
- Details: This floating solar PV system at the Bui Generating Station is part of a hybrid plant combining solar and hydro resources to generate renewable energy.

Kaleo Solar Project:

- Location: Upper West Region
- Capacity: 15 MW
- Details: Funded by the German government and the EU, this project aims to provide low-cost electricity to about 50000 households.

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

Peg Africa:

- Details: Peg Africa provides pay-as-you-go solar energy solutions to underserved communities, offering solar home systems that include lighting, phone charging, and small appliances.

Zola Electric:

- Details: Zola Electric (formerly Off Grid Electric) offers solar and battery solutions for homes and businesses.



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

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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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