Jamaica 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 Jamaica

KEY POINTS

All figures have been converted into USD

Yearly sunshine (sun hours per year)

Yearly Sunshine:
- Average daily sunshine: 5.5 hours
- Total annual sunshine: 2000 hours

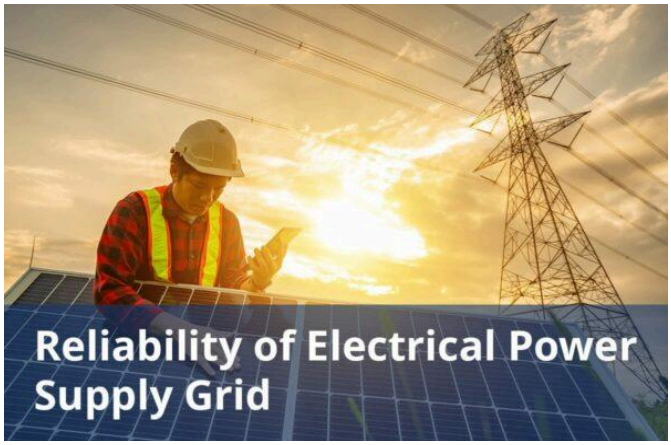
kWh per kWp installed

kWh per kWp:
- Standard efficiency: 1500 kWh/kWp
- High efficiency: 1800 kWh/kWp
- Low efficiency: 1200 kWh/kWp

Average cost per kWh from utility company

Average Cost per kWh:

- Residential: $0.130/kWh
- Commercial: $0.115/kWh
- Industrial: $0.100/kWh



Reliability of electrical power supply grid

Reliability:
- Average downtime: 1.5 days/year
- Maintenance frequency: Quarterly




DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

Total Solar Panels Installed:

- Residential: 500000 panels
- Commercial: 300000 panels

Total solar panel production capacity (projected)

Total Solar Panels Projected:
- Expected by 2030: 2000000 panels
- Planned expansion: 1000000 panels

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

Average Costs:
- Installation: $2500/panel
- Maintenance: $50/panel/year

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

Percentages of Electricity:
- From Solar: 20%
- From Wind: 15%
- From Non-renewable: 65%

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

Daily Availability:
- Peak hours: 10 AM to 4 PM
- Non-peak hours: Other times

Number of residential solar panel installations

Number of Residential Panels:
- Average per household: 20 panels
- Estimated total households with solar: 25000

Total number of solar farms (installed and projected)

Number of Solar Farms:
- Current operating: 30 farms
- Planned: 10 farms

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

Off-grid solar provides essential power in remote areas with unreliable grids, with solar lanterns being a common use.

A PCJ, The Petroleum Corporation of Jamaica, pilot program is providing solar power in Jamaica through solar PV kits to off-grid households.

Despite a 97% electrification rate in the LAC region, including Jamaica, 18.1 million people still lack access, creating substantial demand for off-grid solutions like standalone systems (70%) and mini-grids (30%).

The off-grid market is projected to experience increased demand. Government initiatives aimed at providing off-grid solutions to underserved communities will also contribute to this growth.

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

The on-grid market is robust and growing, driven by government incentives and consumer desire for lower electricity bills.

Net billing policies further encourage on-grid solar adoption.

While the initial National Energy Policy (NEP) targeted 20% renewables by 2030, the government has significantly increased this goal to 50% renewables in the grid by 2030. To reach this goal, the government has tendered 100 MW of utility-scale renewable energy projects, indicating substantial projected growth in on-grid solar capacity.

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

The national minimum wage is approximately $400 per month.

Specialized solar roles like photovoltaic installers offer higher earnings $1,200 per month.

Population of the country

Jamaica’s population is approximately 2.84 million as of September 2024.

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

* Factory Rent: Monthly rental costs for industrial spaces vary significantly, ranging from approximately US$1894 for smaller spaces to upwards of US$46550 for larger facilities.

* Mortgage Rate: The Bank of Jamaica's benchmark interest rate is currently 6.75%.

* Electricity for Industrial Use: The average industrial electricity cost is about $0.248/kWh.

* Water Cost: Industrial water rates begin at $0.84 per 1,000 liters and increase with higher usage.

A summary of the energy infrastructure

* Generation: Primarily relies on imported petroleum, which accounts for over 80% of electricity production.

* Transmission & Distribution: Operated by JPS, the grid consists of approximately 14,000 km of lines at varying voltage levels (24 kV, 13.8 kV, and 12 kV).

* Consumption: Serves around 680,000 residential and commercial customers.

* Access: Electricity access reaches approximately 97% of Jamaican households.

* Independent Power Producers (IPPs): JPS supplements its generation by purchasing nearly 297 MW from IPPs such as Jamaica Energy Partners (JEP), Jamaica Private Power Company (JPPC), Jamalco, and Wigton Wind Farm.

* Challenges: Significant system losses (26.5%) during transmission and distribution negatively impact efficiency.

Some of the government regulations surrounding solar panel production

* National Energy Policy (NEP): Provides a framework for achieving a sustainable energy mix, with a goal of 50% renewables by 2030.

* Integrated Resource Plan (IRP): A 20-year plan for the electricity sector, guiding investment and development.

* Standard Offer Contract: Allows solar PV systems to sell electricity to the national grid under defined terms.

* Government Electrical Inspector: Conducts inspections to enforce safety standards and compliance with regulations.

* Office of Utilities Regulation (OUR): Plays a key role in licensing solar projects.

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

* Tax Credits: Offer financial incentives for individuals and businesses investing in solar energy systems.

* Duty Concessions: Reduce import costs for solar equipment, making it more affordable.

* Grants: The National Housing Trust (NHT) provides financial assistance for solar installations, particularly targeting pensioners.

* Net Billing: Enables residential solar system owners to sell excess electricity back to the grid.

* Low-Interest Loans: Make financing solar projects more accessible and affordable.

* SESR Program (Strengthening Energy Sector Resilience in Jamaica): This program bolstered energy resilience by supporting businesses in adopting solar PV systems, with 23 businesses successfully implementing such systems.

Notable solar projects in the country (installed and projected)

* Installed Projects: Mona Reservoir Floating Solar Project: This project has two components: a pilot project (approximately 50kW, installed in May 2022) and the main project (45 MW). The project utilizes 100 acres of the reservoir's surface and includes battery storage and grid stability equipment. It provides 100% of the Mona Treatment Plant's energy needs.

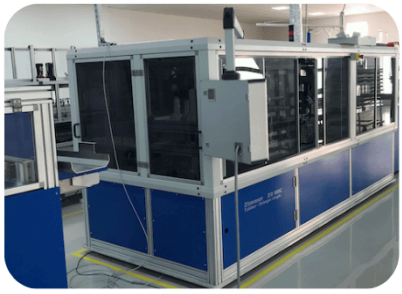
* Projected Projects: JPS Solar Projects: Jamaica Public Service (JPS) is developing multiple new solar plants with a combined planned capacity of 115 MW. These projects are in various stages of development.

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

* Conserve It Ltd: Began providing solar energy solutions in Jamaica in 2003. The company offers a variety of products and services, including solar water heaters, solar pool heating, and solar photovoltaic systems.

* Green Lantan Energy – The Solar Specialist (2011): A leading provider of affordable solar solutions in Jamaica, offering a wide range of products like solar water heaters, PV systems, and energy-efficient lighting, along with comprehensive installation and maintenance services.

* GMc Energy Limited (2016): Focuses on making renewable energy accessible to Jamaicans, providing scalable solar PV systems and energy efficiency consulting to promote independent power generation and cost savings.



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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