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Barbados 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 Barbados

KEY POINTS

All figures have been converted into USD

Yearly sunshine (sun hours per year)

Annual Sunshine Hours:
- Average yearly sunshine: 2500 hours
- Best locations: 3000 hours

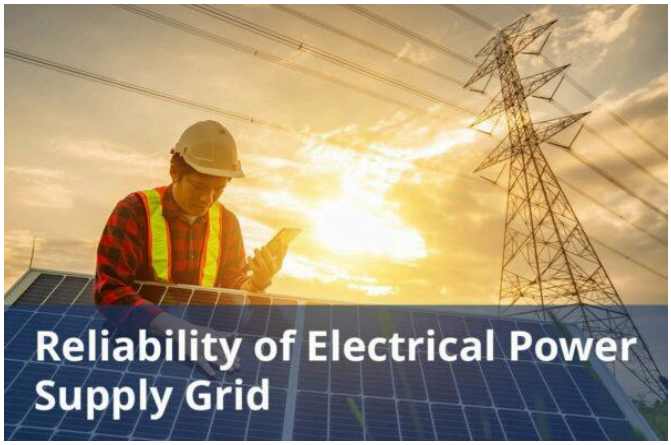
kWh per kWp installed

kWh Generation per kWp:
- Average generation: 1200 kWh/kWp
- Variability based on location: 1000 - 1400 kWh/kWp

Average cost per kWh from utility company

Average Cost of Electricity:
- Residential prices: $0.135/kWh

- Commercial prices: $0.125/kWh
- Industrial prices: $0.100/kWh



Reliability of electrical power supply grid

Reliability of Solar Power:
- Average uptime: 98%
- Downtime reasons: Maintenance, Weather




DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

Total Solar Panels Installed:
- National total: 2 million panels

- Estimated output: 1.5 GW

Total solar panel production capacity (projected)

Projected Solar Panel Installation:
- Yearly installation forecast: 500,000 panels
- Long-term forecast: 5 million panels by 2030

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

Average Costs for Installation:
- Residential installation: $2.80/Watt
- Commercial installation: $2.50/Watt
- Industrial installation: $2.20/Watt

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

Percentage of Total Electricity from Solar:
- Current contribution: 5%
- Target by 2030: 20%

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

Daily Availability of Solar Power:
- Peak production hours: 10 AM - 4 PM
- Average daily generation: 5 kWh/day

Number of residential solar panel installations

Residential Solar Panels:
- Average number per household: 20 panels
- Total households with solar: 1 million

Total number of solar farms (installed and projected)

Number of Solar Farms:
- Total solar farms: 500 farms
- Average size: 10 MW per farm

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

Barbados has made remarkable progress in solar energy adoption, with solar photovoltaic (PV) systems achieving over 25% penetration across the island.
The government has streamlined the process for homeowners to install PV systems on their roofs
by minimizing regulatory hurdles, promoting widespread adoption.
Additionally, the government has launched programs specifically for low-income families,
farmers, fisherfolk, vendors, and artisans, offering financial assistance to lower
the upfront costs of Barbados solar energy installations.
These grants are designed to make renewable energy more accessible and affordable,
fostering energy independence and sustainability for economically disadvantaged households.

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

Over the past decade, solar water heating (SWH) has been the predominant solar technology in Barbados,
with more than 50000 installations laying the groundwork for the expansion of solar photovoltaic (PV) systems.
By 2015, there were over 710 grid-tied solar-PV rooftop installations,
along with more than 100 pending applications for grid connections.
As of 2022, the total number of solar installations on the island exceeded 1500.
The demand for on-grid solar systems in Barbados remains high,
with over 200 MW of applications awaiting approval as of late 2021.

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

The average monthly salary in Barbados is approximately $1650.
- Solar Energy Systems Engineer: the average monthly salary is approximately $1643.
- Solar Energy Installation Manager: the average monthly salary is approximately $2178.
- Solar Photovoltaic Installer: the average monthly salary is approximately $870.

Population of the country

The current population of Barbados is 282517.

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

Estimate for Factory Rent

The average monthly rent prices for industrial spaces in Barbados vary based on location
and specific property features, ranging approximately $8 - $8.50 per m2.

Industrial Electricity Rates
As of March 2024, the average electricity price for businesses in Barbados is approximately $0.378/kWh.

Water Costs
The water tariff for business users in Barbados is organized into a tiered pricing structure
implemented by the Barbados Water Authority. The rates are as follows:
- $2.48 per m³ for the first 8 m³
- $3.10 per m³ for 9 to 20 m³
- $4.66 per m³ for 21 to 40 m³
- $7.78 per m³ for usage over 40 m³.

Monthly salaries of workers in solar industry in Barbados ranges from $870 to $2178,
depending on the position.

A summary of the energy infrastructure

Barbados has historically relied heavily on fossil fuels,
with approximately 93% of its electricity generated from these sources.
However, there has been a significant push towards renewable energy, particularly solar power,
which accounts for about 7.34% of the current energy mix.
The government aims to achieve 100% renewable energy and carbon neutrality by 2030,

with a target to increase the share of renewables significantly over the coming years.
The electricity infrastructure includes a network of approximately 116 km of transmission lines,
along with about 2800 km of distribution lines.
The total installed capacity of BL&P is around 239.1 MW,
with peak demand reaching approximately 135 MW.

Some of the government regulations surrounding solar panel production

The regulatory landscape for solar panel production and installation in Barbados is primarily governed
by the Electric Light and Power Act of 2013, which mandates licensing for grid-tied solar photovoltaic (PV) installations.
This act establishes a framework for independent power producers (IPPs) to operate and outlines the
licensing requirements necessary for them to supply electricity.
Currently, the Department of Energy and Telecommunications (DoET) is reviewing procurement and installation practices
to inform a new licensing regime that will include local and foreign vendors in the solar PV market.

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

The Barbadian government has introduced the Accelerated Investment Premium Programme in 2021,
offering a 25% premium for investments in solar and wind technologies above 1 megawatt (MW)
and up to 3 MW, and a 20% premium for systems above 3 MW and up to 5 MW.

The government established the Energy Smart Fund, capitalized with a loan of $10 million from the Inter-American Development Bank (IADB). This fund provides financial and technical support for renewable energy (RE) and energy efficiency (EE) projects,
including the installation of solar PV systems.

Notable solar projects in the country (installed and projected)

Saint Lucy Solar PV Park
- Location: Saint Lucy, Barbados
- Capacity: 10 MW
- Status: Commissioned in September 2016.

Community Solar Gardens Project
- Location: Across 11 parishes in Barbados
- Capacity: 60 MW
- Status: In development; discussions on tariff rates are ongoing.

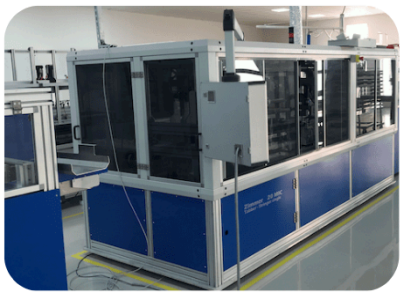
HDF RSB Hydrogen Solar PV Park
- Location: Saint Philip, Barbados
- Capacity: 50 MW
- Status: Expected to be commissioned in 2024.

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

Deltro Solar
- Headquarters: Mississauga, Canada
- Website: https://deltro.ca/
- Details: Deltro is establishing a state-of-the-art solar panel manufacturing facility in St. Michael,

which will be the first of its kind in the Caribbean.

Solar Dynamics Ltd.
- Headquarters: Bridgetown, Barbados
- Website: https://solardynamics.co/
- Details: Solar Dynamics specializes in solar energy solutions, including residential and commercial installations.



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

1. Weather and climate (n.d.). Weather and climate in Barbados. Retrieved October 24, 2024, from

<https://www.wheelerandbrand.com/destinations/caribbean/weather-and-climate-in-barbados/>
2. International Renewable Energy Agency (2024, July 31). Energy profile – Barbados. Retrieved October 24, 2024, from <https://www.irena.org/-/media/Files/IRENA/Agency/Statistics/Statistical%5FProfiles/Central%20America%20and%20the%20Caribbean/Barbados%5FCentral%20America%20and%20the%20Caribbean%5FRE%5FSP.pdf>
3. Global Petrol Prices (2024, March). Barbados electricity prices. Retrieved October 24, 2024, from <https://www.globalpetrolprices.com/Barbados/electricity%5Fprices/>
4. Barbados underground (2023, September 24). 40 electricity outages in 2023 so far. Retrieved October 24, 2024, from <https://barbadosunderground.net/2023/09/24/40-electricity-outages-in-2023-so-far/>
5. National Renewable Energy Laboratory (2015, June). Energy Snapshot Barbados. Retrieved October 24, 2024, from <https://www.nrel.gov/docs/fy15osti/64118.pdf>
6. International Renewable Energy Agency (2024). Renewable energy statistics 2024\. Retrieved October 24, 2024, from <https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2024/Jul/IRENA%5FRenewable%5FEnergy%5FStatistics%5F2024.pdf>
7. Business Barbados (2022, January 31). Sun, Sand, Sea and Solar. Retrieved October 24, 2024, from <https://www.businessbarbados.com/articles/sun-sand-sea-and-solar>
8. Barbados Today (2023, November 2). Energy mix. Retrieved October 24, 2024, from <https://barbadostoday.bb/2023/11/02/energy-mix/>
9. Barbados Today (2023, January 10). FTC announces new rates for power sold to national grid. Retrieved October 24, 2024, from <https://barbadostoday.bb/2023/01/10/ftc-announces-new-rates-for-power-sold-to-national-grid/>

10. Solar Barbados (2014, July 7). Cost of electricity in Barbados. Retrieved October 24, 2024, from <https://www.solarbarbados.com/2014/07/07/cost-of-electricity-in-barbados/>
11. Low carbon power (2022). Electricity in Barbados in 2022\. Retrieved October 24, 2024, from <https://lowcarbonpower.org/region/Barbados>
12. A greener life, a greener world (2021, January 8). How Barbados will reach 100% renewable energy. Retrieved October 24, 2024, from <https://agreenerlifeagreenerworld.net/2021/01/08/how-barbados-will-reach-100-renewable-energy/>
13. Solar Barbados (2019, May 9). First utility scale solar farm (10MW) in Barbados. Retrieved October 24, 2024, from <https://www.solarbarbados.com/2019/05/09/first-utility-scale-solar-farm-10mw-in-barbados/>
14. PV Magazine (2023, November 20). Barbados to build 60 MW of community solar gardens. Retrieved October 24, 2024, from <https://www.pv-magazine.com/2023/11/20/barbados-to-build-60-mw-of-community-solar-gardens/>
15. Inter-American Development Bank (2024, August 19). A Renewable-Energy-Powered Future for Barbados. Retrieved October 24, 2024, from <https://blogs.iadb.org/energia/en/a-renewable-energy-powered-future-for-barbados/>
16. Barbados Loop News (2022, March 15). BUDGET ’22: Bajan homeowners can install PV systems with less red tape. Retrieved October 24, 2024, from <https://barbados.loopnews.com/content/budget-22-bajan-homeowners-can-install-pv-systems-less-red-tape>
17. Barbados Today (2024, May 3). Put low-income folks in our green energy future. Retrieved October 24, 2024, from <https://barbadostoday.bb/2024/05/03/put-low-income-folks-in-our-green-energy-future/>

18. Stantec & EU programme (2022, February). Final Evaluation – 11th EDF Barbados Renewable Energy and Energy Efficiency Sector Budget Support Programme. Retrieved October 24, 2024, from <https://international-partnerships.ec.europa.eu/document/download/b85fafa2-80fc-4f25-b1ba-2241f2c20446%5Fen?filename=evaluation-report-2021-f-2869-barbados-redacted%5Fen.pdf&prefLang=bg>
19. UNDP (2015, Julz 30). Disaster Risk and Energy Access Management (DREAM): Promoting Solar Photovoltaic Systems in Public Buildings for Clean Energy Access, Increased Climate Resilience and Disaster Risk Management. Retrieved October 24, 2024, from <https://info.undp.org/docs/pdc/Documents/BRB/91628%20DREAM%20Project%20ProDoc%20Final%20as%20at%20July%2030%202015.pdf>
20. World salaries (n.d.). Average Salary in Barbados for 2024\. Retrieved October 24, 2024, from <https://worldsalaries.com/average-salary-in-barbados/>
21. World salaries (n.d.). Average Solar Energy Systems Engineer Salary in Barbados for 2024\. Retrieved October 24, 2024, from <https://worldsalaries.com/average-solar-energy-systems-engineer-salary-in-barbados/>
22. World salaries (n.d.). Average Solar Photovoltaic Installer Salary in Barbados for 2024\. Retrieved October 24, 2024, from <https://worldsalaries.com/average-solar-photovoltaic-installer-salary-in-barbados/>
23. World salaries (n.d.). Average Solar Energy Systems Engineer Salary in Barbados for 2024\. Retrieved October 24, 2024, from <https://worldsalaries.com/average-solar-energy-systems-engineer-salary-in-barbados/>
24. Worldometers (n.d.). Barbados population. Retrieved October 24, 2024, from <https://www.worldometers.info/world-population/barbados-population/

#:~:text=The%20current%20population%20of%20Barbados,latest%20United%20Nations%20data1>.
25. Barbados Property search (n.d.). Warehouse Spaces in XS Building, Salters. Retrieved October 24, 2024, from <https://www.barbadospropertysearch.com/for-rent/warehouse-spaces-xs-buildingsalters>
26. Barbados water authority (n.d.). FAQ / How to calculate your Bill? Retrieved October 24, 2024, from <https://barbadoswaterauthority.com/faq/>
27. NVEST estates (n.d.). Office Space for Rent in Barbados. Retrieved October 24, 2024, from <https://nvestestates.com/office-space-for-rent-barbados/>
28. Statista (2024, September). Property Insurance – Caribbean. Retrieved October 24, 2024, from <https://www.statista.com/outlook/fmo/insurances/non-life-insurances/property-insurance/caribbean#gross-written-premium>
29. Global Energy Monitor (2022, May 2). Energy profile: Barbados. Retrieved October 24, 2024, from <https://www.gem.wiki/Energy%5Fprofile:%5FBarbados>
30. The Barbados Light & Power Co. Ltd. (n.d.). How We Generate Electricity. Retrieved October 24, 2024, from <https://www.blpc.com.bb/index.php/company/how-we-serve-you/how-we-generate-electricity>
31. UNDP (2012). Sustainable energy for all, Rapid assessment gap analysis – Barbados. Retrieved October 24, 2024, from <https://seforall.org/sites/default/files/Barbados%5FRAGA%5FEN.pdf>
32. Green Policy Platform (2017). Barbados national energy policy (2017 – 2037). Retrieved October 24, 2024, from [https://www.greenpolicyplatform.org/sites/default/files/downloads/policy-database//BARBADOS%29%20Barbados%20National%20Energy%20Policy%20%282017-2037%29.pdf](https://www.greenpolicyplatform.org/sites/default/files/downloads/policy-database/BARBADOS%29%20

Barbados%20National%20Energy%20Policy%20%282017-2037%29.pdf)
33. ECLAC (2019). National energy efficiency monitoring report of Barbados. Retrieved October 24, 2024, from <https://repositorio.cepal.org/server/api/core/bitstreams/68de1c7a-4ee4-4028-b074-944e21359f60/content>
34. Barbados Today (2021, March 30). Govt offers incentives for renewable energy investments. Retrieved October 24, 2024, from <https://barbadostoday.bb/2021/03/30/govt-offers-incentives-for-renewable-energy-investments/>
35. Energy Division – Government of Barbados (n.d.). Sustainable Energy Investment Programme (Energy Smart Fund 1). Retrieved October 24, 2024, from <https://energy.gov.bb/our-projects/sustainable-energy-investment-programme-energy-smart-fund-1/>
36. Power Technology (2024, July 10). Power plant profile: HDF RSB Hydrogen Solar PV Park, Barbados. Retrieved October 24, 2024, from <https://www.power-technology.com/data-insights/power-plant-profile-hdf-rsb-hydrogen-solar-pv-park-barbados/>
37. Deltro group (n.d.). Solar panel manufacturing – Empowering communities. Retrieved October 24, 2024, from <https://deltro.ca/deltro-solar/>
38. ENF Solar (n.d.). Solar System Installers in Barbados. Retrieved October 24, 2024, from <https://www.enfsolar.com/directory/installer/Barbados>
39. Suneco (n.d.). Top 10 Solar Street Light Manufacturers & Suppliers in Barbados. Retrieved October 24, 2024, from <https://www.sunecolighting.com/street-light-manufacturers-suppliers-in-usa/>

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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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