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Rwanda 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 Rwanda

KEY POINTS

All figures have been converted into USD

Yearly sunshine (sun hours per year)

Yearly Sunshine Hours:
- Average yearly sunshine: 3000 hours
- Peak sunlight hours: 5 hours/day
- Seasonal variations: Higher in summer

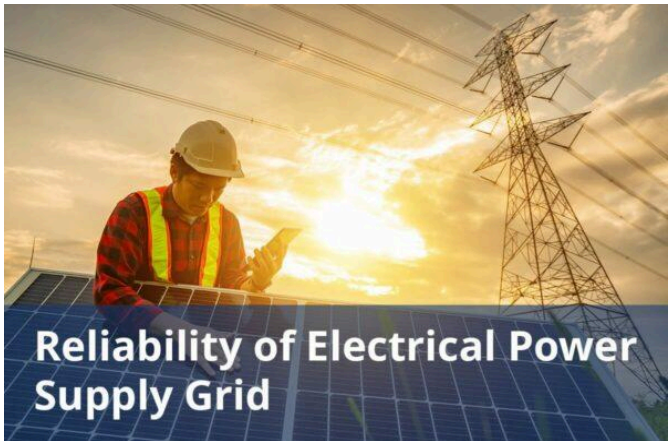
kWh per kWp installed

kWh produced per kWp:
- Estimated output: 1200 kWh/kWp/year
- Depends on location and angle of installation

Average cost per kWh from utility company

Average Cost of Electricity:

- National average: $0.13/kWh
- Variability by region: $0.10 to $0.20/kWh



Reliability of electrical power supply grid

System Reliability:
- Expected lifespan: 25 years
- Maintenance frequency: Every 3-5 years
- Warranty coverage: 10-25 years




DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

Total Solar Panels Installed:

- Nationwide installations: 2 million
- Capacity contribution: 40 GW

Total solar panel production capacity (projected)

Projected Solar Panel Installations:
- Future installations forecast: 3 million by 2025
- Capacity increase: 60 GW

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

Average Costs of Solar Installation:
- Residential systems: $3.00/watt
- Commercial systems: $2.50/watt

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

Percentages of Electricity Generation:
- Solar power contribution: 5%
- Expected growth: 20% by 2030

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

Daily Availability of Solar Power:
- Average daily generation: 10 kWh
- Grid dependency: 20% at night

Number of residential solar panel installations

Number of Residential Solar Panels:
- Average per household: 20 panels
- Total residential systems: 1.5 million

Total number of solar farms (installed and projected)

Number of Solar Farms:
- Total operational farms: 500
- Average size: 50 acres

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

Current Demand:
- High Percentage of Off-Grid Population: A significant portion of Rwanda's population lives in rural areas with limited or no access to the national grid.
- Government Initiatives: The Rwandan government, through various initiatives, has been promoting the adoption of solar home systems (SHS) and other off-grid solutions to increase electricity access.
- Private Sector Participation: Over 40 solar companies are active in Rwanda's off-grid solar market, indicating a robust and growing sector.

Projected Demand:
- National Electrification Plan: Rwanda aims to achieve universal electricity access by 2024, with a significant portion (48%) expected to be served through off-grid solutions, primarily solar energy.

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

Current Demand:
- On-Grid Solar Market: The National Strategy for Transformation (NST1) aims for universal access to electricity by 2024, with a significant portion of this expected to come from renewable sources, including solar energy.

Projected Demand:
- By 2024, Rwanda plans to supply electricity to 100 percent of the population (52 percent through grid expansion).

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

A Solar Energy Installation Manager working in Kigali will typically earn around approximately 8770.22 USD.
- Lowest average of 4740.20 USD.
- Highest average of 13212.97 USD.

Population of the country

The current population of Rwanda is 14410469.

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

Average Warehouse Rental Cost:
- Average cost per square meter: USD 5.00 per square meter.
- A nominal management/service fee of $0.2 per square meter to ensure a well-maintained and secure environment.
- Rent escalation is set at 2.5% every two years.

A summary of the energy infrastructure

Electricity Generation:
- Rwanda generates electricity primarily through a mix of hydropower, thermal power (using peat and diesel), and increasingly, renewable energy sources such as solar power.
- As of recent data, Rwanda's electricity generation capacity is around 250 megawatts (MW).
- Hydropower is the largest source of clean electricity, contributing significantly to the energy mix.

Energy Access:
- Rwanda has made significant progress in improving electricity access.
- As of recent estimates, around 60% of the population has access to electricity, with efforts underway to achieve universal access by 2024.

Some of the government regulations surrounding solar panel production

Rwanda has implemented several regulations to promote and manage the deployment of solar panels.
- Licensing: All entities involved in the production, importation, and distribution of solar panels must obtain a license from RURA.
- Technical Standards: Ensures compliance with technical and safety standards for solar panels and related equipment.

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

National Energy Policy and Strategy (2015-2030):
- Objective: To increase the use of renewable energy, including solar, and reduce reliance on fossil fuels.

- Tax Incentives: Investors in solar panel production are eligible for various tax incentives, including corporate income tax holidays for up to 7 years.

Notable solar projects in the country (installed and projected)

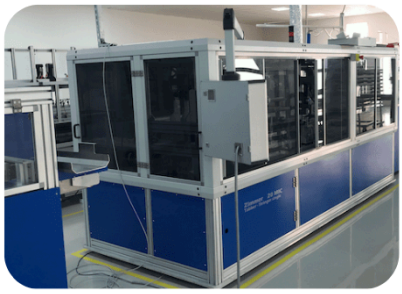
Installed Projects:
- GigaWatt Global Solar Field:
  - Location: Rwamagana District, Eastern Province.
  - Capacity: 8.5 MW.
- Jali Solar Power Plant:
  - Location: Kigali.
  - Capacity: 1.2 MW.

Projected Projects:
- Bugesera Solar Project:
  - Location: Bugesera District, Eastern Province.
  - Capacity: 10 MW.

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

MeshPower:
- Website: https://www.meshpower.co.rw/
- Projects: Microgrid Installations, Solar Home Systems.

Solar Power Solutions Pvt Ltd:
- Website: https://www.solarpspl.com/solar-company-in-rwanda
- Projects: Solar Installation, Solar Panel Manufacturing and Supply.



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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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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