J. v. G. technology GmbH
The DESERT company

Democratic Republic of the Congo 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 Democratic Republic of the Congo

KEY POINTS

All figures have been converted into USD

Yearly sunshine (sun hours per year)

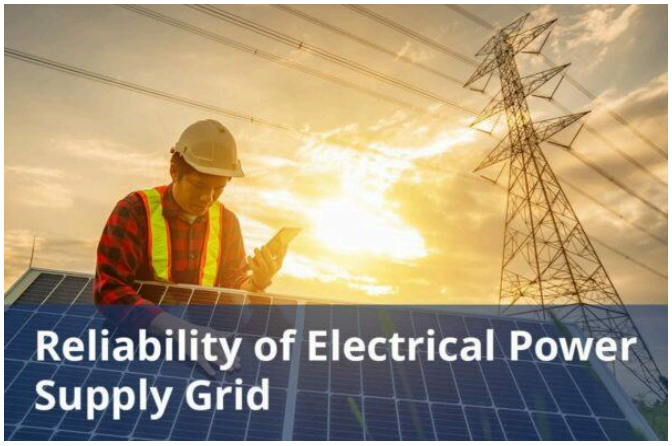
Average Yearly Sunshine:
- Annual average sunshine: 3000 hours
- Monthly average sunshine: 250 hours
- Daily average sunshine: 8 hours

kWh per kWp installed

kWh Produced per kW of Installed Capacity:
- Average kWh per kW: 1200
- Monthly average kWh: 100
- Daily average kWh: 3.33

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 of Solar Systems:
- System uptime percentage: 95%
- Maintenance required: 2 times a year
- Average lifespan: 25 years




DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

Total Solar Panels Installed:
- Total capacity: 10000 kW
- Number of panels: 5000
- Average capacity per panel: 2 kW

Total solar panel production capacity (projected)

Projected Future Solar Panel Installation:
- Projected total capacity for next year: 12000 kW
- Expected number of new panels: 6000
- Average capacity growth: 2 kW

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

Average Costs of Solar Panel Installation:
- Average installation cost: $2500
- Cost per kW installed: $1250/kW
- Additional costs (permitting, etc.): $300

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

Percentage of Electricity from Solar:
- Residential solar: 20%
- Commercial solar: 15%
- Industrial solar: 10%

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

Daily Availability of Solar Energy:
- Average solar hours: 8 hours
- Peak production time: 11 AM to 3 PM
- Expected energy production: 90 kWh

Number of residential solar panel installations

Number of Residential Solar Panels:
- Total residential systems: 1000
- Average panels per system: 4
- Total residential panels installed: 4000

Total number of solar farms (installed and projected)

Number of Solar Farms:
- Total operational farms: 50
- Average size of farm: 2000 kW
- Total capacity of farms: 100000 kW

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

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Due to the limited electricity grid in the DRC, there is significant potential for off-grid solar solutions. The DRC could become the first country where off-grid connections outnumber grid connections. However, the pico-solar sector is still in its early stages, with only a few companies.

Current Demand:
- As of 2020, the off-grid solar energy demand in the Democratic Republic of Congo (DRC) was estimated at 30788.6 MWh.

Projected Demand:
- Off-grid solar energy demand is expected to reach an approximate 85819.1 MWh by 2030 due to limited grid supply, which has led to a high demand for off-grid solar solutions. The Democratic Republic of Congo (DRC) has significant potential for mini-grid connections, with an estimated 61 million people eligible for connection in the future.

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

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Current Demand:
- As of 2023, the installed capacity for on-grid solar photovoltaic (PV) systems in the Democratic Republic of the Congo (DRC) was 25 MW.

Projected Demand:

- The Democratic Republic of the Congo (DRC) has significant potential for solar energy, with an estimated capacity of 70 GW. Major projects include a 1000 MW solar power project, with the first phase covering 200 MW.

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

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

The average monthly salary of a solar industry worker is not readily available. However, as of November 25, 2023, the minimum wage in the Democratic Republic of the Congo (DRC) is set at $2.47 USD per day, which amounts to $54.54 USD per month. This wage can vary depending on factors such as experience, location, and the specific employer.

Population of the country

Population of the country

The current population of the Democratic Republic of the Congo (DRC) is approximately 110.7 million people.

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

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

The overhead costs for solar panel production in DRC typically range from 20% to 25% of the total production cost.

Labor costs:
- Minimum Wage: As of recent data, the minimum wage in the DRC is set at $2.47 USD per day.
- Average Salary: The average monthly salary for workers in the DRC can range from $50 to $150 USD. This range can vary significantly based on the industry, with higher wages typically found in sectors like mining and international organizations.

Utilities:
- Industrial Electricity Prices: Approximately $0.068/kWh.
- Energy Generation Costs: For solar companies generating their own power, the cost can be around $0.12/kWh.

A summary of the energy infrastructure

A summary of the energy infrastructure

Democratic Republic of Congo's energy infrastructure is a comprehensive system that includes generation, transmission, and distribution of electricity.

Total Installed Capacity:
- As of 2022, the total installed electricity capacity in the Democratic Republic of Congo (DRC) reached approximately 2980.721 MW. This capacity is predominantly sourced from hydroelectric power, which accounts for about 2901.6 MW (97.54%). The remaining capacity comes from diesel generators (75.6 MW, 2.35%) and solar power (3.5 MW, 0.11%).

Electricity Consumption:
- The DRC's total electricity consumption is approximately 11250 million kWh per year.

Some of the government regulations surrounding solar panel production

Some of the government regulations surrounding solar panel production

The Democratic Republic of Congo (DRC) has several regulations and policies in place to support the production and deployment of solar panels:

- Importation Process, Duties, and Taxes: The DRC has specific regulations regarding the importation of solar panels and related equipment. These regulations include duties and taxes that companies must comply with to bring solar products into the country.
- Quality Standards: The government has established quality standards for solar products to ensure they meet certain performance and safety criteria, enhancing the reliability and efficiency of solar products.

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

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The government of the Democratic Republic of Congo (DRC) supports solar panel producers through various initiatives and partnerships aimed at boosting renewable energy production and infrastructure:

- Partnerships and Agreements: The DRC government collaborates with international organizations and private companies to develop large-scale solar projects. For instance, the Africa Finance Corporation

(AFC) and SkyPower Global have signed a joint development agreement to implement a 1000 MW solar power project.

Notable solar projects in the country (installed and projected)

Notable solar projects in the country (installed and projected)

Installed Projects:
- Nuru's Solar Hybrid Sites: Nuru operates several solar hybrid sites, which includes the installation of a 1.3 MW site in Goma, the largest off-grid mini-grid in sub-Saharan Africa in 2017. In addition to these, Nuru has constructed two other solar hybrid sites in Beni and the Oriental Province, namely Tadu and Faradje.

- Kinshasa Solar City: Sun Plus has launched a 1000 MWp solar PV project near Kinshasa. This project will involve multiple solar photovoltaic power plants around the capital.

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

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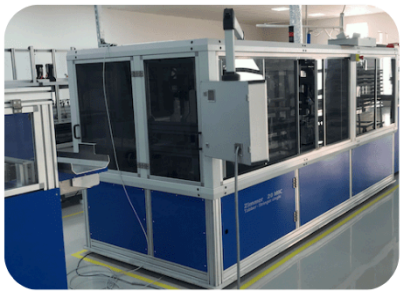
- Nuru: Nuru, which means 'light' in Swahili, is dedicated to enhancing connectivity in the DRC. They deployed Congo's first solar-based mini-grid in 2017 and have several solar hybrid sites, including the largest off-grid mini-grid in sub-Saharan Africa.

- Altech Group: Altech provides clean energy products and services, including solar home systems and solar lamps. They have a wide

distribution network and aim to eliminate energy poverty in the DRC by 2030.



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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https://www.pvknowhow.com/solar-report/democratic-republic-of-the-congo/

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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