Malawi 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 Malawi

KEY POINTS

All figures have been converted into USD

Yearly sunshine (sun hours per year)

Average yearly sunshine: 2500 hours

This is essential for maximizing solar energy production.

The impact of geographical location on solar efficiency.

kWh per kWp installed

Average kWh generated per kWp: 1200 kWh/kWp

This value may change depending on system efficiency and location.

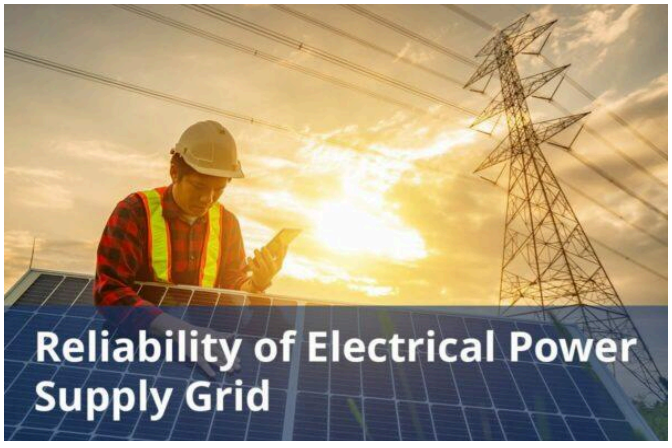
Annual performance ratio can influence total output.

Average cost per kWh from utility company

Average cost per kWh: $0.090/kWh

This cost reflects standard electricity pricing over the last year.

Prices may vary regionally based on energy policies.



Reliability of electrical power supply grid

Reliability of solar energy systems is generally high.

Factors affecting reliability include maintenance and climate conditions.

Most systems require minimal upkeep to maintain efficiency.




DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

Total installed solar panels: 1,500,000 panels

This includes both residential and commercial installations.

The growth rate of installations reflects increasing adoption.

Total solar panel production capacity (projected)

Projected total solar panels by 2030: 3,000,000 panels

This estimate considers current trends and incentives for solar adoption.

Government policies are likely to play a significant role.

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

Average installation cost per panel: $250/panel

This cost can vary based on panel quality and installation complexity.

Additional costs may apply for specific site conditions.

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

Percentage of electricity from solar by 2025 projected at 25%.

This estimate aims to provide a growth perspective on renewable energy sources.

Comparative percentages can help guide future investments in solar.

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

Daily availability of solar energy is highest during summer months.

Seasonal variations can significantly impact energy production.

Days with clear skies yield optimal energy output.

Number of residential solar panel installations

Number of residential solar panels installed: 750,000 panels

This represents a significant portion of the total installations.

Homeowners are increasingly turning to solar for energy independence.

Total number of solar farms (installed and projected)

Number of solar farms operational: 300 farms

These farms contribute significantly to the overall solar energy output.

Location and size affect the output and efficiency of these farms.

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

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Current Market Demand:
- A large portion of Malawi's population, especially in rural areas, relies on off-grid solar solutions.
- Approximately 82.8% of the population lives in rural areas, making them a key market for stand-alone solar products.
- The off-grid solar market in Malawi has nearly quadrupled in size over the past two years, with many households adopting solar home systems.

Projected Market Demand:
- The demand for off-grid solar panels is expected to continue growing as the government and various organizations work towards increasing electricity access.
- The MEAP aims to provide solar home systems to 200,000 households by the end of its implementation period.

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

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

- The on-grid solar market in Malawi is also experiencing growth, though it's not as pronounced as the off-grid market.
- The on-grid solar market is expected to grow from 2024 to 2030, with advancements in technology and increased investment in renewable energy.

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

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Solar Engineer:
- The estimated total pay for an Engineer is $1091.84 USD per month in the Malawi area, with an average salary of $980 USD per month.

Project Manager:
- The average salary for a Project Manager in Malawi typically ranges from $420 USD to $1120 USD per month, depending on factors such as experience and level of education.

General Labor:
- The average salary for a General Laborer in Malawi typically ranges from $252 USD to $452 USD per month.

Population of the country

Population of the country

- As of January 2025, the population of Malawi is approximately 21943521.

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

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

Factory rent:
- The average rent for factory space in Malawi can vary significantly based on location, size, and facilities.

Utilities (electricity, water, etc)
- Electricity: As of March 2024, the average cost of electricity in Malawi is approximately $0.065 USD per kWh for residential consumers and $0.10 USD per kWh for businesses.
- Water: The cost of water per cubic meter for households with water facilities in homes in Malawi is approximately $0.52 USD.

Equipment maintenance:

- The cost of maintaining solar equipment in Malawi can vary depending on the type and scale of the system, as well as the specific maintenance requirements.

Administrative costs:
- Salaries & wages: The average monthly salary for a Project Manager in Malawi typically ranges from $420 USD to $1120 USD.

A summary of the energy infrastructure

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Total Installed Capacity:
- As of 2023, Malawi's total installed electricity capacity from all sources is approximately 398.39 megawatts (MW).

Electricity Generation:
- Hydropower accounts for the majority of electricity generation in Malawi, but the country is working to diversify its energy mix by promoting renewable energy sources like solar and wind.

Electricity Consumption:
- The total consumption of electric energy per year is 1.10 billion kWh.

Grid Infrastructure:
- Hydropower constitutes the primary source of electricity generation in Malawi.
- The nation's electrical grid possesses transmission capacity surpassing its installed generation capacity by a factor of 170%.

Some of the government regulations surrounding solar panel production

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National Energy Policy (NEP) 2018:
- This sets out the overall strategic direction for energy access, focusing on sustainability, affordability, and reliability.

Malawi Renewable Energy Strategy (MRES) 2017:
- This strategy prioritizes universal access to renewable electricity and promotes off-grid solar solutions.

Energy Regulation Act:
- The Malawi Energy Regulatory Authority (MERA) operates under this act to license electricity generation, transmission, and distribution.

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

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Tax Incentives:
- The Malawi government has exempted import duty and excise tax on solar products, especially small-scale solar home systems (SHS).

Malawi Electricity Access Project (MEAP):
- Supported by the World Bank, MEAP aims to boost electricity access across the country by promoting off-grid solar energy solutions.

Notable solar projects in the country (installed and projected)

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Installed Projects:

Salima Solar Project:
- Location: Located 75 km east of Lilongwe, Malawi.
- Capacity: 60 MW
- Details: This project, developed by JCM, constitutes the nation's inaugural commercial-scale solar Independent Power Producer (IPP).

Golomoti Solar PV:
- Location: Located in Dedza, Malawi.
- Capacity: 20 MW
- Details: Golomoti is the first utility-scale plant in the region to include a battery energy storage system (BESS).

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

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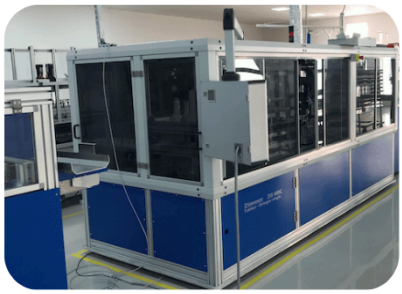
SolarWorks:
- They enhance energy access for rural and peri-urban households with solar home systems (SHS).

Vitalite:
- The company is dedicated to providing affordable solar solutions to enhance energy access in underserved areas.

Zuwa Energy:

- They aim to address the energy needs of off-grid, low-income households in Malawi by offering accessible solar power solutions.



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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