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Tanzania 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 Tanzania

KEY POINTS

All figures have been converted into USD

Yearly sunshine (sun hours per year)

Annual Sunshine Hours:
- Average yearly sunshine: 3000 hours
- Peak sunshine: 8 hours/day

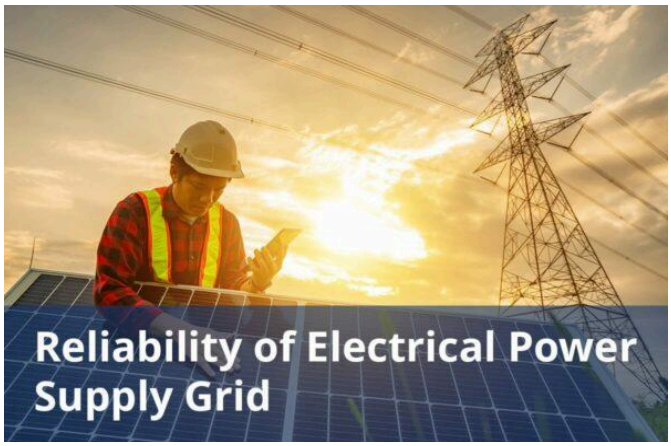
kWh per kWp installed

Energy Output:
- Average energy output: 1200 kWh/kWp/year

Average cost per kWh from utility company

Residential Electricity Prices:

- For 0-100 kWh: $0.135/kWh
- For 100-600 kWh: $0.135/kWh
- For 600-1000 kWh: $0.1945/kWh
- For consumption above 1000 kWh: $0.2196/kWh



Reliability of electrical power supply grid

System Reliability:
- Average uptime: 99%




DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

Total Installed Panels:
- Total solar panels installed: 5000 MW

Total solar panel production capacity (projected)

Projected Growth:
- Total solar capacity projected by 2030: 10000 MW

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

Average Installation Costs:
- Average cost of solar installation: $2500/kW

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

Electricity Sources:
- Percentage from solar: 20%
- Percentage from wind: 30%
- Percentage from fossil fuels: 50%

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

Daily Energy Availability:

- Average daily availability: 4 hours

Number of residential solar panel installations

Residential Solar Panels:
- Number of residential solar panels: 200000

Total number of solar farms (installed and projected)

Solar Farms:
- Number of solar farms: 150

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

Tanzania has installed around 6 MW of solar off-grid PV countrywide, expanding renewable energy access.

Lighting Africa is working to establish a sustainable commercial market for high-quality solar lanterns and solar home systems in Tanzania, aiming to benefit 6.5 million individuals by the end of 2019 while in the first half of 2021, off-grid solar lighting product sales reached 174,000 units, a 9% rise from the previous half-year.

While cash sales held steady, pay-as-you-go (PAYGo) sales surged by 22%, fueling the overall growth.

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

Current Capacity: As of now, Tanzania has 1 MW of installed solar PV capacity.

Projected Demand: According to the Power System Master Plan (PSPM) 2007-2031, Tanzania aims to develop 120 MW of solar photovoltaic (PV) capacity by 2018 in the short term. Additionally, several private companies have shown interest in building solar plants with capacities ranging from 50 to 100 MW, further boosting the country's renewable energy prospects.

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

The average minimum salary range for Industrial and Commercial Sectors in Tanzania is approximately $36.76-$147.04 per month.

Population of the country

Tanzania's population stands at approximately 68.77 million as of August 2024.

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

The breakdown of average overhead cost of solar panel production in Tanzania include:

- Labor costs: the labor cost in Tanzania varies depending on the industry and the type of work; Tanzania's minimum wage is approximately $60 USD/month, effective January 2023

- Utility Cost: Electricity Prices:
- Industrial Sector: Approximately $62.5 USD per megawatt hour (MWh).
- Commercial Sector: Around $78.6 USD per MWh.
- Water cost: Industrial water tariffs in Tanzania, such as in Dar es Salaam $0.92 USD /cubic meter, are generally higher than residential rates due to greater demand.

- Factory rental costs: in Tanzania vary by location and size. Here are some approximate rates: Dar es Salaam ($4-$22 USD/sq.m/month), Arusha ($8 USD/sq.m/month).

A summary of the energy infrastructure

Tanzania is endowed with diverse renewable energy resources, ranging from biomass and mini-hydro to geothermal, solar and wind. Tanzania's power sector is dominated by state-owned TANESCO (Tanzania Electricity Supply Company Limited).

TANESCO owns most of the country's transmission and distribution network, and more than half of its generating capacity. Currently, Tanzania's total power installed capacity is 1602 MW.

Installed Capacity: 1602 MW
- Hydroelectric: 568 MW
- Thermal: 951.6 MW
- Other Renewables: 82.4 MW

Some of the government regulations surrounding solar panel production

National Energy Policy: Updated in 2022, this policy aims to achieve a 6GW renewable energy capacity by 2025. It includes provisions to promote solar energy and other renewables.

Regulatory body: Tanzania's energy sector is regulated by Energy and Water Utilities Regulatory Authority (EWURA), which has the authority to:

- Issue licenses for electricity supply
- Approve and enforce tariffs and fees
- Oversee terms and conditions of electricity supply
- Approve new electricity supply installations

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

Solar panel production efforts have been further enhanced by Government support through VAT and tariff exemptions for imports of small solar products assisting companies with business models pegged to mobile phone.

Pay-As-You-Go (PAYG) financing schemes Decentralized renewable energy can fast-track energy access in rural villages through innovative PAYGO systems. While seven regions have high electricity access rates, five regions – Kigoma, Manyara, Shinyanga, Songwe, and Rukwa – need improvement, with access rates below 65%.

Notable solar projects in the country (installed and projected)

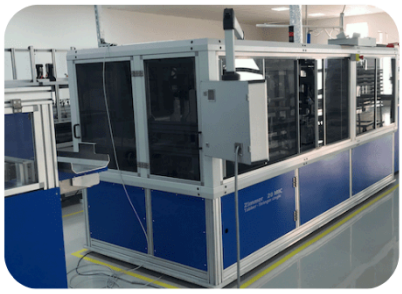
Kishapu Solar Power Station:
- Capacity: first phase (50 MW), second phase (100 MW)
- Location: Shinyanga region in northern Tanzania
- Status: construction start in June 2023, to be completed within the next 12 months.

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

Photons Energy Ltd is a Tanzanian EPC company providing comprehensive solar energy solutions, from design to operation, for residential and commercial clients. We also distribute genuine renewable energy components from global manufacturers.

Ensol provides end-to-end solar energy project development and management, from feasibility studies to operation and maintenance. Their services include energy audits, EPC solutions for various solar applications, and sustainable O&M services, ensuring optimal performance and reliability.

Zara Solar offers tailored solar solutions for Tanzania, prioritizing safety and quality. Specializes in solar PV imports, sales, and installations, their off-grid systems provide clean electricity for homes and communities without reliable grid access, capitalizing on Tanzania's high solar irradiation and vast energy needs.



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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