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Eritrea 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 Eritrea

KEY POINTS

All figures have been converted into USD

Yearly sunshine (sun hours per year)

Yearly Sunshine:
- Average annual sunshine hours: 2500
- Availability of renewable energy: High

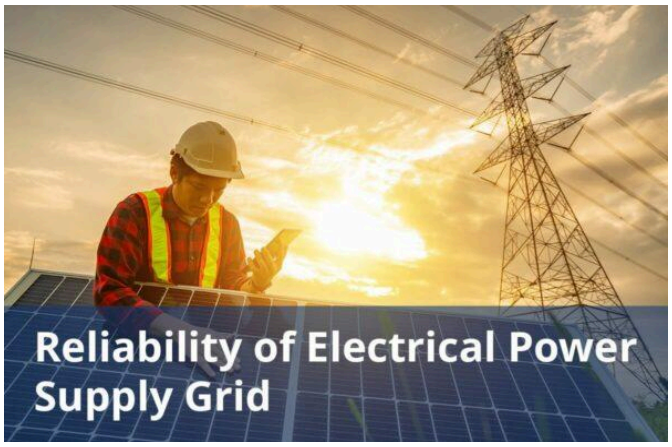
kWh per kWp installed

kWh per kWp:
- Average kWh produced per kWp: 1200
- Seasonal variations observed

Average cost per kWh from utility company

Average Cost per kWh:
- Residential rates: $0.120/kWh

- Commercial rates: $0.100/kWh



Reliability of electrical power supply grid

Reliability:
- Dependable energy source: Yes
- Outages frequency: Low




DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

Total Solar Panels Installed:
- Residential systems: 50000
- Commercial systems: 10000

Total solar panel production capacity (projected)

Total Solar Panels Projected:
- Expected installations in 5 years: 200000

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

Average Costs:
- Installation cost per panel: $2000
- Maintenance cost per year: $100

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

Percentages of Electricity:
- Solar contribution: 20%
- Wind contribution: 15%

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

Daily Availability:
- Average daily energy output: 5 kWh
- Peak sunlight hours: 6

Number of residential solar panel installations

Number of Residential Panels:
- Total residential panels in operation: 150000

Total number of solar farms (installed and projected)

Number of Farms:
- Total solar farms in the region: 25

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

With support from the European Union and UNDP, the Ministry of Energy and Mines (MEM) has delivered modern, affordable, and sustainable energy to previously off-grid villages and rural towns, including Areza and Maidma in the Debub region.

The project aims to serve more than 40000 residents across 40 villages, along with over 513 small businesses, 15 schools, 2 kindergartens, 2 community hospitals, 5 health stations, and 80 organizations.

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

The Eritrean National Energy Policy aims to increase electrification rates and supply 20% of electric power demand through renewable energy sources by 2030.

This goal indicates a significant projected increase in demand for solar panels as the country seeks to expand its renewable energy capacity.

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

The average monthly salary in Eritrea for 2024 is approximately $457.33.

- Solar Engineer: the average monthly salary is approximately $417.20.
- Solar Photovoltaic Installer: the average monthly salary is approximately $279.13.

Population of the country

The current population of Eritrea is 3543267.

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

The average price for factory land in Eritrea is approximately $500 per hectare.

The average wholesale electricity price in Eritrea remains consistent with previous years, fluctuating around 240 $/MWh.

Access to tap water is a significant challenge in Eritrea. As of 2020, over 80% of the population lacks basic water services, relying on unprotected sources like wells and rivers, which are often contaminated.

A summary of the energy infrastructure

Eritrea generates over 130 MW of electricity, mainly from imported oil and biomass.

Biomass provides about 64% of the primary energy supply, with petroleum products contributing around 31%.

Reliance on imported fossil fuels creates economic and environmental issues, such as carbon emissions and deforestation from unsustainable biomass use.

Some of the government regulations surrounding solar panel production

Eritrea has a draft National Energy Policy that aims to increase the electrification rate across the country and supply 20% of electric power demand through renewable energy sources by 2030.

The Department of Energy has taken responsibility for setting standards and issuing guidelines for renewable energy technologies, preparing draft standards for RETs based on International Standards Organisation (ISO) guidelines.

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

The government of Eritrea has received a $49.92 million grant from the African Development Bank to fund a 30 MW photovoltaic plant in Dekemhare, which is the country's first large-scale solar plant.

The project includes a 15 MW/30 MWh battery energy storage system, a 33/66 kV substation, and a 66 kV transmission line.

Notable solar projects in the country (installed and projected)

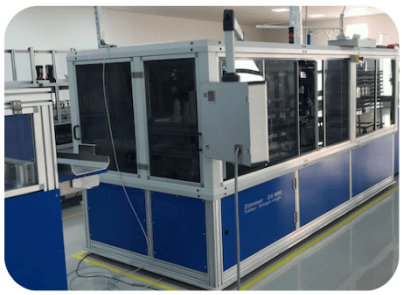
30 MW Solar Plant in Dekemhare:

- The African Development Bank approved a $49.92 million grant in March 2023 to finance the construction of a 30 MW grid-connected solar photovoltaic power plant with a 15 MW/30 MWh battery energy storage system near Dekemhare, 40 km southeast of Asmara.

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

China Energy Engineering Group Shanxi Electric Power Construction Co
- Headquarter: Beijing, China
- Website: https://www.ceec.net.cn/
- Notable Project: China Energy Engineering Corporation (CEEC) specializes in large-scale energy projects, including the contract for the 30 MW Dekemhare solar PV project.

DuSol Industries
- Headquarters: Dubai, UAE
- Website: https://www.dusol.ae/
- Notable Project: DuSol is a leading energy company focused on solar power projects, including significant investments in Eritrea.



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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For a detailed list of references and additional information, please visit our website with the current report at:
https://www.pvknowhow.com/solar-report/eritrea/

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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