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Egypt 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 Egypt

KEY POINTS

All figures have been converted into USD

Yearly sunshine (sun hours per year)

Average yearly sunshine in the region is approximately 2200 hours.

This availability allows for effective solar energy generation throughout the year.

kWh per kWp installed

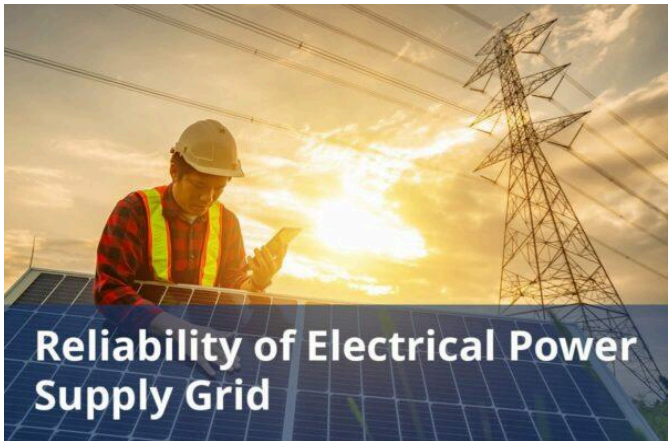
Typically, a solar panel system can generate about 1300 kWh per kWp installed annually.

This value may vary based on local conditions and system efficiency.

Average cost per kWh from utility company

The average cost of electricity from the grid is $0.130/kWh.

This figure represents a typical rate for residential customers.



Reliability of electrical power supply grid

The reliability of solar power systems is generally high, with advances in technology improving efficiency and reducing downtime.

Maintenance is crucial to ensure systems operate effectively.




DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

As of recent reports, a total of 150,000 solar panels have been installed across the region.

This figure reflects ongoing adoption of renewable energy.

Total solar panel production capacity (projected)

Projections suggest that by 2025, the number of installed solar panels could exceed 200,000.

Continued investment and incentives are key factors driving this growth.

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

Installation costs for solar panels have decreased significantly, averaging around $2.80 per watt.

This trend is expected to continue as technology improves.

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

Currently, solar energy accounts for approximately 15% of the total electricity generation in the area.

This percentage is projected to grow as more systems are deployed.

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

Daily solar energy availability varies, but peak hours typically occur between 10 AM and 4 PM.

During this time, solar generation is at its highest.

Number of residential solar panel installations

There are around 80,000 residential solar panel installations in the region.

This number is steadily increasing as more homeowners adopt solar technology.

Total number of solar farms (installed and projected)

There are approximately 500 solar farms currently operating within the region.

These farms contribute significantly to the overall energy supply.

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

The off-grid solar panel market in Egypt is thriving, driven by supportive government policies, decreasing solar module prices, and the country's abundant solar potential.

Egypt's geography, with vast desert areas, provides significant solar photovoltaic potential, exceeding 2000 kWh/KWp/year.

Several projects are underway to harness this potential:

- Juwi's solar battery hybrid power plant for Sukari Gold Mines, claimed to be the world's largest solar hybrid project at an off-grid mine, featuring a 36MW solar array and 7.5MW battery energy storage system
- Siwa Oasis Solar PV Park, which has a dedicated off-grid section providing electricity to nearby villages and communities, generating 17551 MWh electricity and powering 6000 households while offsetting 14000 t of CO2 emissions annually.
- The United Nations Development Programme (UNDP) implemented projects to provide off-grid solar power systems to remote and marginalized communities in Egypt, including in Qena, Sohag, and Aswan governorates.
- KarmBakeries installed off-grid solar power systems to operate bakeries in several villages, providing electricity and employment opportunities.
- The UNDP's "Hayat" project brought off-grid solar power systems to remote and marginalized communities in Qena, Sohag, and Aswan governorates.

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

On-Grid Dominance:
- Egypt has connected substantial solar capacity to the grid, including large-scale ground-mounted projects like the 1.4 GW Benban Solar Park.
- The government's Feed-in Tariff (FiT) program has been instrumental in attracting investments and promoting the development of grid-connected solar power plants.
- Government Initiatives:
- The New and Renewable Energy Authority (NREA) collaborates with the National Project Grid-Connected Small-Scale Photovoltaic

Systems (Egypt-PV) to promote small-scale solar projects (<500 kW) and support the overall solar PV market.
- Future Prospects:
- Over the medium term, the declining price of solar PV modules, supportive policies, and increasing energy demand are expected to drive further growth.
- 10 GW project is part of Egypt's "Green Corridor Initiative," aimed at increasing renewable energy use.

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

The average salary for a renewable energy engineer in Egypt ranges from 315 to 630 USD per month, depending on experience and qualifications.

The average solar energy system installer gross salary in Egypt is 3441.23 USD or an equivalent hourly rate of 1.68 USD.

An entry-level solar energy system installer (1-3 years of experience) earns an average salary of 2541.84 USD.

On the other end, a senior-level solar energy system installer (8+ years of experience) earns an average salary of 4277.83 USD.

Population of the country

As of May 18, 2024, Egypt's population is 114263940.

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

The specific power plant costs of PV in Egypt are between $1300 and $2000/kWp.

As of May 2024, the average cost of solar panels in Egypt is $2.54 per watt.

A summary of the energy infrastructure

Egypt's strategic location makes it a critical player in international energy markets, thanks to its extensive energy infrastructure.

The Suez Canal, a 193 km artificial waterway connecting the Red Sea to the Mediterranean Sea, and the Suez-Mediterranean Pipeline (SUMED), a 42-inch pipeline transporting crude oil from the Gulf of Suez to the Mediterranean Sea, are two vital components of this infrastructure.

Egypt's energy strategy aims to increase the supply of electricity generated from renewable sources to 20% by 2022 and 42% by 2035.

Some of the government regulations surrounding solar panel production

The maximum allowed generation capacity of the PV plant is 30MW.

Electricity Law No. 87 of 2015 governs the development and regulation of renewable energy, empowering the Egyptian Electricity Regulatory Agency (ERA).

Investment Law No. 72 of 2017 offers financial incentives such as tax holidays and reduced tax rates on profits from renewable energy projects.

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

Feed-in Tariff (FiT):
- Provides guaranteed prices for renewable energy producers, ensuring a predictable income over 25 years for solar projects and 20 years for wind projects.
- The FiT program has seen two rounds with specific tariffs, decreasing from USD 14.34 cents/kWh in Round 1 to USD 8.40 cents/kWh in Round 2 for solar projects.

Land Allocation:
- Land for renewable projects is provided at discounted prices, significantly reducing initial capital expenditure and making projects more feasible.

Notable solar projects in the country (installed and projected)

Zafarana Solar Park:
- Location: Zafarana, on the Red Sea coast.
- Capacity: 50 MW (initial phases).

Kom Ombo Aswan Solar Project:
- Location: Near Aswan, Egypt.
- Capacity: 26 MW.

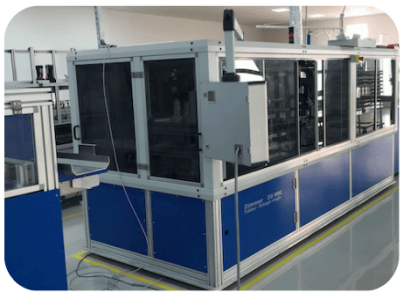
Nubian Suns Feed-in Tariff Program:
- Location: Various locations across Egypt.
- Capacity: Multiple projects totaling around 1.4 GW.

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

Cairo Solar:
- Established date: 2014
- Global headquarters: Cairo, Egypt
- Overview: Cairo Solar is an EPC (Engineering, Procurement, and Construction) and financing company focused on solar energy projects.

ACWA Power:
- Established date: 2008
- Global headquarters: Saudi Arabia
- Overview: ACWA Power is a Saudi Arabian company specializing in power generation and desalination.

Masdar:
- Established date: 2006
- Global headquarters: Abu Dhabi, UAE
- Overview: Masdar focuses on renewable energy and green hydrogen, positioning the UAE as a leader in sustainability.



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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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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