



# Qatar 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.

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Gain comprehensive insights into the statistics and metrics surrounding the solar production industry in Qatar

## KEY POINTS

All figures have been converted into USD



## Yearly sunshine (sun hours per year)

Average yearly sunshine:

- Average yearly sunshine is around 2500 hours.
- This equates to approximately 6.85 hours per day.



### kWh per kWp installed

kWh generated per kWp installed:

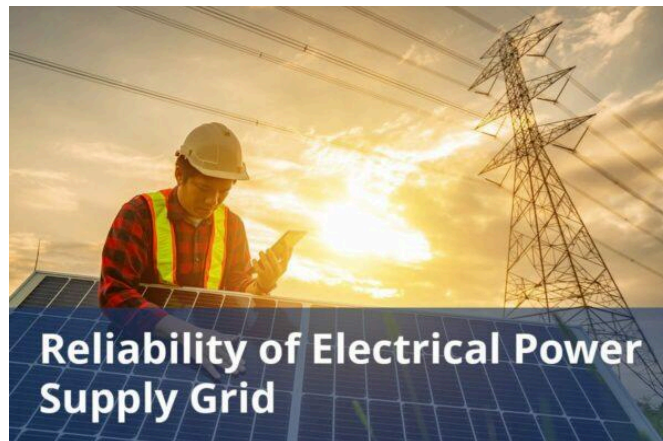
- A typical solar panel system can generate about 1200 kWh per kWp installed annually.



### Average cost per kWh from utility company

Average cost of electricity:

- The average cost of residential electricity is \$0.135/kWh.



## Reliability of electrical power supply grid

Reliability of solar energy:

- Solar energy systems can operate at about 80% reliability under optimal conditions.
- Factors affecting reliability include weather patterns and system maintenance.



# DETAILED INFORMATION

All figures have been converted into USD

**Total solar panel production capacity (installed)**

Total number of solar panels installed:

- As of 2022, over 1 million solar panels have been installed nationwide.

## **Total solar panel production capacity (projected)**

Projected total solar panels:

- It is estimated that by 2030, the number of installed solar panels could double.

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

Average costs of solar panel installations:

- The average cost of solar panel installations is around \$2.50 per watt.

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

Percentage of electricity from solar:

- Solar energy currently accounts for about 3% of the total electricity generation.

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

Availability of solar energy:

- Solar power is generally available during daylight hours, with peak production around noon.

## **Number of residential solar panel installations**

Number of residential solar panels:

- On average, a residential system consists of 20 to 30 solar panels.

## **Total number of solar farms (installed and projected)**

Number of solar energy farms:

- There are currently over 100 utility-scale solar energy farms operational across the country.

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

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

- Current Demand:

The off-grid solar market in Qatar is relatively small, primarily driven by remote areas and certain industrial applications. The current installed capacity is estimated to be around 5 MW.

- Projected Demand:

The off-grid solar market is projected to grow modestly, mainly focused on providing electricity to remote locations and supporting sustainable development initiatives.

Companies like Salzburg Trading And Contracting Services and Mutian offer high-efficiency off-grid solar inverters suitable for harsh environments.

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

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

- Current Demand:

The total confirmed grid-connected solar capacity in Qatar is at least 800.8 MW, consisting of the 800 kW Namkoo Solar system and the 800 MW Al Kharsaah solar power project.

- Projected Demand:

Qatar wants more renewable energy, targeting 4 GW of solar photovoltaic capacity by 2030. This will raise the share of renewables from 5% to 18%, with a focus on both large-scale projects and the mainly off-grid market.

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

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

- Solar Energy Systems Engineer: 14,083 QAR approximately \$3,880 per month.
- Solar Energy Installation Manager: 20,500 QAR approximately \$5,650 per month.
- Other Solar Manufacturing Roles at Qatar Solar Technologies:
  - Laboratory Technician: 7,407 – 12,963 QAR (\$2,040 – \$3,570) per month
  - Chemist: 9,478 QAR (\$2,610) per month
  - Field Operator: 10,170 – 12,458 QAR (\$2,800 – \$3,430) per month
  - Instrument Technician: 12,963 QAR (\$3,570) per month
  - Safety Engineer: 34,068 QAR (\$9,370) per month

## **Population of the country**

Population of the country:

- The population of Qatar is estimated to be around 2.7 million as of July 2024.

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

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

- Factory Rent:

- Birkat Al Awamer: Renting a 1,000 sqm warehouse costs around \$4,900, while a 2,000 sqm warehouse costs approximately \$10,900 per month.

- Industrial Area: Smaller warehouses, such as a 550 sqm space, cost around \$4,400 per month.

- Electricity Costs:

- The average cost of electricity in Qatar from the utility company is approximately \$0.032 per kWh for households and \$0.036 per kWh for businesses.

- Water Costs:

- The tariff for water is around \$1.21 per cubic meter for industrial purposes.

- Mortgages and Financing:

- The QCB Lending Interest Rate QCBLR is 6.25 percent.

## **A summary of the energy infrastructure**

A summary of the energy infrastructure:

- Qatar's energy sector is transforming. Once reliant solely on fossil fuels, it's now embracing renewable energy, particularly solar power, for a more sustainable future.

- Dominant Energy Source:

Qatar boasts significant reserves of oil and natural gas, making them a cornerstone of its economy. Natural gas is the primary fuel used for domestic energy consumption within Qatar.

- Solar Power on the Rise:

Qatar aims for a significant renewable energy contribution, targeting 18% of its energy needs to be met by solar power by 2030.

## **Some of the government regulations surrounding solar panel production**

Some of the government regulations surrounding solar panel production:

- Qatar National Renewable Energy Strategy (QNRES):

This strategy aims to increase and diversify the utilization of renewable energy sources, specifically solar energy.

- Regulations and Standards:

Kahramaa has published regulations, standards, and specifications for electricity generation, transmission, and distribution, including solar, ensuring quality assurance and safety for standalone solar PV systems.

- Balanced Approach:

The QNRES emphasizes a balanced approach, combining large-scale renewable energy installations with high-efficiency thermal generation powered by natural gas, ensuring the transition to renewable energy does not compromise the reliability and resilience of the electricity system.

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

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

- Qatar National Renewable Energy Strategy (QNRES):

This strategy aims to enhance renewable energy utilization, specifically solar energy.

- Investments in Solar Power Plants:

Qatar has invested significantly in solar power plants, for instance, the Mesaieed Solar Power Plant and the Ras Laffan Solar Power Plant.

- Incentives and Support:

Kahramaa promotes solar power adoption by introducing incentives for renewable energy programs.

- Renewable energy auction:

This mechanism facilitates the development of solar projects through competitive bidding.

- Feed-in Tariff (FiT):

The government offers a FiT scheme that provides a fixed price for electricity generated from solar PV systems, encouraging private investment in renewable energy.

- Net Metering:

Introduced in 2023, this allows consumers to sell excess electricity back to the grid, encouraging the adoption of solar systems.

## **Notable solar projects in the country (installed and projected)**

Notable solar projects in the country (installed and projected):

- Installed projects:

- Al-Kharsaah Solar Power Plant:

- Location: 80 km west of Doha, Qatar.

- Capacity: 800 MWp (installed solar capacity).

- Status: Operational since October 2022.

- Qatar Foundation Solar PV Park:
  - Location: Education City, Doha.
  - Capacity: 1.68 MW.
  - Status: Operational.
- Qatar Solar Technologies (QSTec) Solar Farm:
  - Location: Al Khawr.
  - Capacity: 1.10 MW.
  - Status: Operational.
- Qatar Student Housing Solar PV Park:
  - Location: Unspecified, likely within Education City, Doha.
  - Capacity: 0.8 MW.
  - Status: Operational.
- Projected Projects:
  - Mesaieed Solar Power Plant:
    - Location: Mesaieed Industrial City.
    - Capacity: 410 MW.
    - Status: Planned.
  - Ras Laffan Solar Power Plant:
    - Location: Ras Laffan Industrial City.
    - Capacity: 470 MW.
    - Status: Planned.

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

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

- Qatar Solar Technologies (QSTec):

Founded in 2010, QSTec is a joint venture between Qatar Foundation, SolarWorld and the Qatar Development Bank, focusing on developing advanced solar technologies and manufacturing solar panels.

- Qatar Foundation:

Established in 1995, Qatar Foundation promotes research, development, and deployment of solar energy solutions, possessing the largest pipeline of PV installations in Qatar.

- Qatar Solar Energy (QSE):

Founded in 2009, QSE specializes in developing, manufacturing, and supplying solar panels, earning the distinction of being the first vertically integrated PV manufacturer in the MENA region.

- Al Emadi Solar:

A 100% Qatari-owned company, Al Emadi Solar is a leading renewable energy company in Doha providing solar products and services.

- Smartium Qatar:

Smartium is a supplier of crystalline solar PV modules and an integrator of solar PV systems.

- Salzburg Solar & Water Treatment Plant:

This Spanish-based supplier in Qatar offers high-quality European solar energy 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.

[www.jvg-thoma.com](http://www.jvg-thoma.com)

## Contact & Further Information

For further discussion or clarification of manufacturing-related aspects, please contact:

**J.v.G. Technology GmbH**

[www.jvg-thoma.com](http://www.jvg-thoma.com)

[info@jvg-thoma.com](mailto:info@jvg-thoma.com)