



# Saudi Arabia 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 Saudi Arabia

## KEY POINTS

All figures have been converted into USD



## Yearly sunshine (sun hours per year)

Annual average sunshine hours: 2600 hours/yr

Solar energy generation can significantly reduce energy bills.

Understanding local climatic conditions is essential for solar panel efficiency.



**kWh per kWp installed**

Energy production per installed kW of solar capacity: 1200 kWh/kW

Higher values indicate better performance.

Effective installations capitalize on local sunshine data.

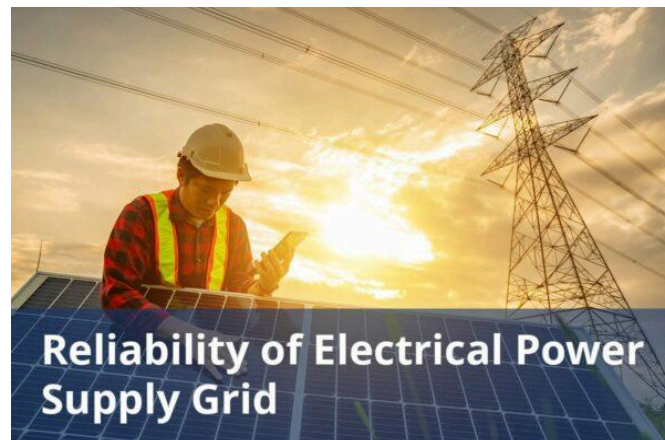


## Average cost per kWh from utility company

Average residential electricity cost: \$0.133/kWh

Costs vary based on region and market conditions.

Investing in solar reduces reliance on market prices.



## Reliability of electrical power supply grid

Reliability of solar PV systems: 95%

Component quality and installation standards impact reliability.

Regular maintenance ensures optimal performance.



## DETAILED INFORMATION

All figures have been converted into USD

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

Total installed solar panels: 20 million panels

This figure accounts for residential, commercial, and utility-scale systems.

Growth trends indicate a continued increase in installations.

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

Projected solar panel installations by 2030: 50 million panels

This estimate reflects expected market growth and policy support.

Regulatory frameworks enhance installation forecasts.

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

Average costs of solar systems: \$3000/kW

Incentives can lower upfront costs for consumers.

Economies of scale are achieved in larger projects.

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

Percentage of electricity from solar sources: 15%

Growth in capacity is expected to raise this proportion significantly.

State incentives influence adoption rates.

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

Average daily solar availability: 5 hours/day

Performance varies based on seasonal and geographic factors.

Monitoring systems optimize resource management.

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

Number of residential solar panels: 10 million panels

The residential market drives innovation and efficiency advancements.

Adoption rates vary widely by location.

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

Total number of solar farms: 3000 farms

Solar farms contribute significantly to grid energy supply.

Investment in large-scale projects is growing.

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

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

Current:

- Data related to Total off-grid PV installations installation in Saudi Arabia is not available.

Projected:

- Sungrow partners with Larsen & Toubro to supply 165MW of PV inverters and 160MW/760MWh for an off-grid energy storage system for Saudi Arabia's AMAALA project.

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

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

Current:

- IRENA estimated that the Total On-grid Solar Capacity installed in Saudi Arabia was 2.5 GW in 2023.

Projected:

- Under the Vision 2030, Saudi Arabia aims to produce 40 GW of On-Grid electricity through photovoltaics by 2030.

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

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

- The average monthly salary of a photovoltaic installer in Saudi Arabia is 2,606 USD.

- The average monthly salary of a Solar Energy Systems Engineer in Saudi Arabia is 4,226 USD.

## **Population of the country**

Population of the country

As of Monday, December 30, 2024, Saudi Arabia has a population of 34261080.

Saudi Arabia's Population density is 16 people per kilometer square.

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

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

Estimate for Factory Rent:

- The average monthly rent for a warehouse in Saudi Arabia is 6.31 USD /m<sup>2</sup>/month.

Industrial Electricity Rates:

- For industries having consumption of less than 6000 kWh, average electricity Tariffs are 0.0405 USD/kWh.
- For industries categorized under heavy consumption, average electricity tariffs are 0.0486 USD/kWh.

Water Costs:

- The average prices for different types of water for industries are as follows:
  - Drinking water: \$1.74/m<sup>3</sup>
  - Renewable water: \$0.74/m<sup>3</sup>
  - Wastewater: \$0.86/m<sup>3</sup>

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

A summary of the energy infrastructure

Total installed electricity generation capacity:

- 91.678 GW in 2023.

Total generation:

- 422.9 TWh in 2023.

Per capita Electricity Generation:

- 11445 kWh in 2023.

Generation mix:

- The total electricity production in Saudi Arabia in 2023 was 422.87 TWh, with gas contributing the largest share at 265.04 TWh (62.68%), followed by oil at 152.05 TWh (35.96%).

Solar energy provides a modest 4.32 TWh (1.02%), while wind accounts for 1.45 TWh (0.34%).

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

Some of the government regulations surrounding solar panel production

SASO (Saudi Standards, Metrology and Quality Organization) Certification:

- Mandatory for all solar panels imported or manufactured in Saudi Arabia to obtain certification from SASO.

- The regulatory framework references IEC standards, including IEC 61215, IEC 61646, and IEC 61730-1/2.

- Compliance with ISO 9000 and ISO 14001 standards is also required for PV module certification.

- The SASO mandates the use of the PQ Mark for solar panels to demonstrate compliance with Saudi Arabian standards and ensure product quality and safety.

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

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

- Saudi Arabia is heavily investing in solar energy as part of its Vision 2030 plan to diversify its economy and reduce its reliance on fossil fuels.
- The National Renewable Energy Program (NREP) is a key driver of solar energy development in Saudi Arabia. It has launched several large-scale solar projects.
- The Ministry of Industry and Mineral Resources announced tax exemptions and other facilities for companies involved in the production of electricity and renewable energy.
- In November 2024, Desert Technologies announced a \$200 million investment in a new solar panel manufacturing plant in Jeddah.

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

Notable solar projects in the country (installed and projected)

Sudair Solar PV Project:

- Location: Sudair Industrial City.
- Capacity: 1500 MW.
- Significance: Will provide electricity to about 185000 households.
- Commissioned: partially commissioned in 2023.

Sakaka Solar PV Park:

- Capacity: 405 MW.
- Location: Al Jouf.
- Commissioned: 2020.
- Significance: This was the first utility-scale renewable project under the National Renewable Energy Program (NREP).

Rabigh Solar PV Park:

- Capacity: 400 MW.
- Location: Makkah.

- Commissioned: 2023.
- Impact: Expected to power over 45000 households.

## **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)

ACWA Power:

- ACWA Power is a Saudi Arabian company that develops, constructs and operates power generation and desalination, including solar power plants. They have a portfolio of 30 GW of power capacity globally.
- Website: [www.acwapower.com](http://www.acwapower.com)

Saudi Aramco Energy Ventures:

- Saudi Aramco Energy Ventures is a subsidiary of Saudi Aramco. They invest in and partner with companies that develop innovative energy technologies, including solar energy.
- Website: [www.saudiaramcoventures.com](http://www.saudiaramcoventures.com)

SunPower:

- SunPower is a global solar energy company that designs, manufactures, and delivers solar panels and solar power systems.
- Website: [www.sunpower.com](http://www.sunpower.com)

Trina Solar:

- Trina Solar is a Chinese solar panel manufacturer with a global presence, including in Saudi Arabia.
- Website: [www.trinasolar.com](http://www.trinasolar.com)

Jinko Solar:

- Jinko Solar is a Chinese solar panel manufacturer with a global presence, including in Saudi Arabia.
- Website: [www.jinkosolar.com](http://www.jinkosolar.com)

Desert Technologies:

- Desert Technologies is a Saudi Arabian company that specializes in the design, installation, and maintenance of solar power systems.



## 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/saudi-arabia/>

# 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)