



# Morocco 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.

**Disclaimer:** This document represents an independent market and manufacturing analysis. It is provided for informational and educational purposes only and does not constitute a commercial offer, binding proposal, or contractual commitment.

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

## KEY POINTS

All figures have been converted into USD



## Yearly sunshine (sun hours per year)

Annual Sunshine Hours:

- Average yearly sunshine: 1,500 hours
- Peak sunshine: 6 hours/day
- Seasonal variation: Summer months have more sunshine



**kWh per kWp installed**

Energy Output:

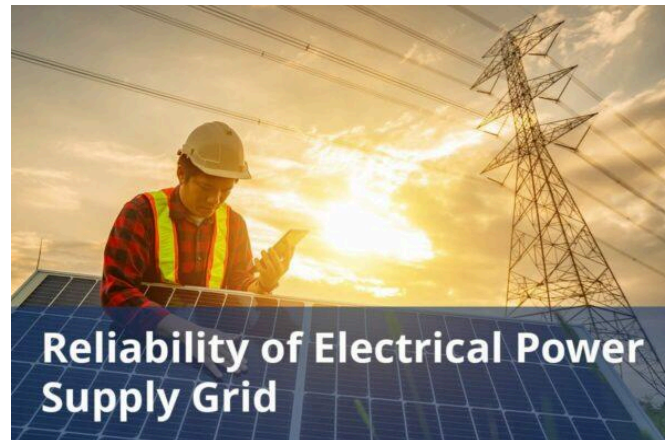
- Average energy output per kWp: 1,200 kWh/year
- Efficiency ratings: Vary by panel type



**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:

- Expected lifespan of solar panels: 25 years
- Average downtime: Less than 2% annually



# DETAILED INFORMATION

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

Installed Capacity:

- Total solar panels installed: 1,000,000 units
- Total capacity: 3 GW

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

Future Projections:

- Expected installation by 2025: 3 million units
- Projected capacity: 10 GW

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

Cost Analysis:

- Average installation cost per panel: \$2,000
- Expected maintenance cost per year: \$100

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

Electricity Generation:

- Percentage of electricity from solar: 20%
- Potential for increase: 30% by 2030

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

Daily Solar Energy Availability:

- Average daily solar energy: 5 kWh/m<sup>2</sup>
- Variations by month noted

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

Residential Installations:

- Number of homes with solar: 500,000
- Growth rate per year: 10%

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

Solar Farms:

- Number of operational solar farms: 150
- Total land area used: 5,000 acres

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

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

- Market Size: More than 50 thousand off- grid PV systems, covering more than 100 thousand homes, were installed during the program, and IRENA assessed a total off-grid PV capacity higher than 20 MW.

- Growth Projection: Morocco aims to increase renewables in its electricity mix to 52% by 2030, comprising 20% solar, 20% wind, and 12% hydro.

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

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

- Current: As of 2022, Morocco has a renewable energy capacity of 3.45 gigawatts, making it one of the largest renewable energy markets on the African continent.
- Projected: The Solar Energy market in Morocco is projected to grow by 3.76% between 2024 and 2028, resulting in a market volume of 1.24 Gigawatts-hours in 2028.

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

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

- Solar Design Engineer: \$1,760.00 USD per month
- Solar Sales Manager: \$2,217.00 USD per month
- Solar Sales Representative: \$2,116.00 USD per month
- Labor Working in Solar: \$500.00 - \$1,000.00 USD per month
- Solar Electrician: \$825.04 USD per month

## **Population of the country**

Population of the country:

As of the latest data, the population of Morocco is approximately 38.2 million people.

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

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

- Raw Material Costs: Raw materials such as silicon, aluminum, and copper are significant contributors to the overall cost. The prices of these materials fluctuate based on global supply and demand.
- Labor Costs: Labor costs in Morocco are relatively moderate compared to many other countries. The average labor cost for solar panel manufacturing is around \$5.00 to \$10.00 per hour.
- Minimum Wage: Public Sector: Around \$370.00 USD per month. Private Sector: \$315.00 USD per month or \$1.65 USD per hour.
- Agricultural Sector: Daily minimum wage of around \$8.00 USD.
- Average Salary: The average sits around \$500.00 USD per month but can vary significantly by industry, experience, and location.
- Utility Costs: The energy-intensive nature of solar panel production requires substantial electricity.
- Electricity Cost: The cost of electricity for industrial users in Morocco is approximately \$0.106/kWh.
- Facility Maintenance: Maintenance costs, including rent, equipment maintenance, and repairs, range from \$2,000.00 to \$6,000.00 per month depending on the facility's size and location.
- Total Overhead Costs: Combining these various components, the total overhead costs for solar panel production in Morocco are typically around 20-30% of the total production cost.

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

A summary of the energy infrastructure:

- Imported Hydrocarbons: Morocco heavily depends on imported hydrocarbons for its energy needs, with approximately 90% of energy being imported.
- Renewable Energy: The country has made significant strides in renewable energy. As of 2022, the share of renewable energy in the electrical capacity mix stood at 38%, equivalent to 4,154 MW.
- Renewable Energy Projects: The Moroccan Agency for Sustainable Energy (MASEN) supports renewable energy projects, offering a streamlined process for private project developers. Independent Power Producers (IPPs) can develop renewable energy projects and sell electricity to consumers.

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

Some of the government regulations surrounding solar panel production:

- Reform of Law 13-09 on Renewable Energy: The Moroccan government has comprehensively reformed the legal framework governing the renewable energy sector.
- Self-Generation of Electricity: Law 82-21 now governs the self-production of electrical energy, providing guidelines for self-generating electricity.

- Renewable Energy Projects: The Moroccan Agency for Sustainable Energy (MASEN) supports renewable energy projects, offering a streamlined process for private developers.

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

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

- Investment in Solar Projects: Morocco has invested \$5.2 billion in solar projects so far.
- Renewable Energy Goals: Morocco aims to generate 80% of its electricity from renewable energy resources by 2050.
- Exporting Energy: Morocco plans to export energy to Spain, Portugal, and the United Kingdom.

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

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

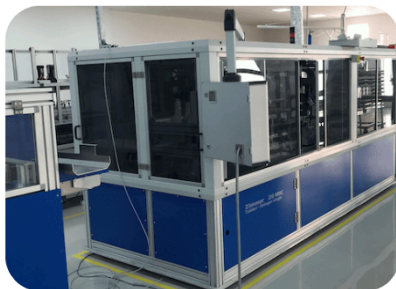
- Project Name: Noor Ouarzazate Solar Complex:
  - Installed Capacity: 750 GWh Per Annum
  - Location: Drâa-Tafilalet region of Morocco
- Project Name: Noor Laayoune Solar PV Park:
  - Installed Capacity: 84.50 MW
  - Location: Laayoune-Sakia, El Hamra, Morocco
- Project Name: Xlinks Morocco-UK Solar Project:
  - Installed Capacity: 7,000 MW

- Location: Guelmim-Oued Noun, Morocco

## **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):

- Cleanergy Morocco: Renowned for its expertise in designing and implementing solar projects, Cleanergy offers comprehensive services from feasibility studies to installation and maintenance of solar systems.
- ALROMAR ENERGIE: A prominent player in Morocco's solar market, ALROMAR ENERGIE provides turnkey solutions for residential, commercial, and industrial sectors.
- Green Energy Solutions: Dedicated to sustainable development, Green Energy Solutions designs customized photovoltaic systems tailored to meet specific energy requirements.
- Solaris Maroc: A leading provider of integrated renewable energy solutions, Solaris Maroc contributes to Morocco's solar growth.
- Volta Solar, Jet Energy, and Suntech Morocco are also notable players in the Moroccan solar industry.



# 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/morocco/>

# 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)

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