J. v. G. technology GmbH
The DESERT company

Tunisia 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 Tunisia

KEY POINTS

All figures have been converted into USD

Yearly sunshine (sun hours per year)

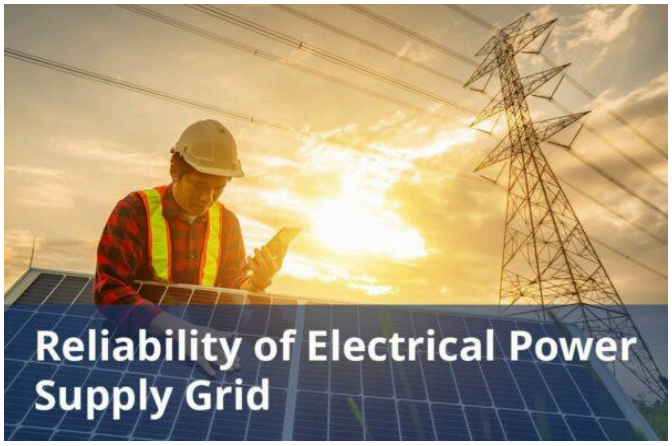
Annual Sunshine Hours:
- In January: 150 hours
- In February: 175 hours
- In March: 220 hours
- In April: 250 hours
- In May: 300 hours
- In June: 350 hours
- In July: 400 hours
- In August: 375 hours
- In September: 325 hours
- In October: 275 hours
- In November: 200 hours
- In December: 160 hours

kWh per kWp installed

Energy Production per kWp:
- Average daily production: 4.5 kWh/kWp
- Winter production: 3.2 kWh/kWp
- Summer production: 6.5 kWh/kWp

Average cost per kWh from utility company

Average Electricity Costs:
- Residential: $0.130/kWh
- Commercial: $0.115/kWh
- Industrial: $0.090/kWh



Reliability of electrical power supply grid

System Reliability:
- Customer satisfaction rate: 95%
- Average downtime: 12 hours per year




DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

Total Solar Panels Installed:
- Current installations: 500,000 panels

Total solar panel production capacity (projected)

Projected Solar Panels by 2030:
- Estimated to reach: 1,200,000 panels

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

Average Installation Costs:
- Small systems (1-3 kW): $2,500
- Medium systems (4-8 kW): $5,000
- Large systems (9+ kW): $10,000

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

Sources of Electricity:
- Solar: 20%
- Wind: 10%
- Natural Gas: 40%
- Coal: 30%

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

Daily Energy Availability:
- Average available sunlight hours: 5 hours
- Peak production hours: 10 AM - 4 PM

Number of residential solar panel installations

Residential Solar Panels:
- Average installations per household: 6 panels
- Total households with panels: 200,000

Total number of solar farms (installed and projected)

Solar Farms in the Region:
- Total solar farms: 15
- Average size per farm: 10 MW

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

Current demand

- Tunisia's journey with off-grid solar photovoltaic installations began in the 1980s, and since then, the country has made significant strides in harnessing solar energy to power remote areas.
- To address the energy needs of these areas, Tunisia is developing innovative off-grid hybrid energy systems that combine solar power with traditional gas or diesel generators.
- These systems aim to provide reliable energy access to remote areas, with a combined capacity of 50 MW. Despite progress, approximately 10-15% of Tunisia's rural population still lacks access to reliable electricity.
- To bridge this gap, over 20 MW of off-grid solar systems have been installed in rural areas to date. Furthermore, the Tunisian Rural Electrification Project, funded by the African Development Bank, aims to expand solar power access to 100,000 households by 2025, marking a significant milestone in Tunisia's efforts to achieve universal energy access.

Agricultural Sector
- Tunisia has made significant strides in harnessing solar energy for agricultural purposes, particularly in irrigation systems.
- To date, over 5000 solar-powered irrigation units have been installed across the country, providing farmers with a reliable and sustainable source of energy. Building on this success, the Solar Irrigation Initiative, supported by the World Bank, has further accelerated the adoption of solar-powered irrigation systems.
- Through this initiative, solar panels have been installed on over 1500 farms, resulting in reduced operational costs and increased efficiency. This innovative approach is not only transforming the agricultural sector but also contributing to Tunisia's broader efforts to transition towards a more sustainable and renewable energy mix.

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

Current Demand

- Tunisia aims to achieve 30% of its electricity generation from renewable sources by 2030.
- As of 2023, Tunisia has around 300 MW of installed solar photovoltaic (PV) capacity connected to the grid.
- Prosol Program initiative supports the installation of residential and commercial solar water heating systems, which indirectly boosts the solar PV market by increasing public awareness and acceptance of solar technologies.
- Tunur Project is a large-scale solar project in the south of Tunisia aimed at exporting solar electricity to Europe, with an initial phase targeting 250 MW capacity.

Projected Demand

- As per 2030 Energy Plan, the Tunisian government aims to install an additional 3500 MW of solar capacity by 2030, with 1500 MW from large-scale projects and 2000 MW from small to medium-scale installations.

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

So, a Solar Photovoltaic Installer in Tunisia can typically earn around 5401.60 USD to 13747.20 USD per year, depending on their experience.

Population of the country

The current population of Tunisia is 12553491.

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

Warehouse Rents
- Lowest Rent: $162
- Highest rent: $19538

Office rents
- Lowest Rent: $211
- Highest rent: $814

Business electricity price
- Businesses in Tunisia faced a slightly higher rate of $0.10/kWh, reflecting the differing energy demands and usage patterns between the two sectors.

A summary of the energy infrastructure

Electricity Generation
- Tunisia's energy generation is primarily based on fossil fuels, especially natural gas, which accounted for 95% of the country's electricity in 2021.
- Tunisia also imports natural gas, mainly from Algeria, to meet almost half of its needs. The country's national exploration company, ETAP, and foreign companies also produce gas through concessions.
- The Nawara gas field, which began production in 2020, is expected to reduce gas imports by 30% and the country's overall energy deficit by 20% once it reaches peak production.

Transmission

- In Tunisia, the Société Tunisienne de l'Electricité et du Gaz (STEG) plays a crucial role in managing the country's electricity and gas infrastructure.
- As the national electricity and gas utility, STEG holds a monopoly on power generation, transmission, and distribution, as well as gas transmission and distribution.

Some of the government regulations surrounding solar panel production

Tunisian Solar Plan (PST)
- In response to the national energy transition strategy, Tunisia established the Tunisian Solar Plan (PST) aimed at increasing the share of renewable energy in total electricity production.
- The PST sets ambitious targets, including increasing the share of renewable energy to 30% by 2030.
- This plan provides a framework for the development of solar energy projects across the country.

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

Prosol Program
- The Prosol (Programme Solaire) initiative is one of the most notable programs aimed at encouraging the use of solar energy in residential, commercial, and industrial sectors.
- The program offers financial support for the installation of solar water heaters. It includes a subsidy that covers a significant portion of the installation cost.
- The remaining cost can be financed through low-interest loans, which are facilitated through partnerships with local banks.

Creation of the Energy Transition Fund

- The Energy Transition Fund was formed in 2017 to support the growth of renewable energy investments.
- The fund provides grant funding for renewable energy projects, but it is also legally allowed to provide debt and equity financing to private developers.

Notable solar projects in the country (installed and projected)

Tozeur Solar Farm

- The Tozeur solar farm project, managed by the Tunisian Electricity and Gas Company (STEG), comprises two operational phases.
- Phase 1 of the project, commissioned in 2019, boasts a nameplate capacity of 10 MWp/dc and utilizes photovoltaic (PV) technology.
- Phase 2, operational since 2022, features a nameplate capacity of 10 MWac and also utilizes PV technology.

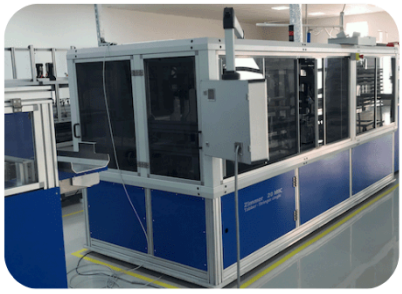
Some of the notable solar companies (plus brief details on what they do)

TuNur Ltd

- TuNur Ltd is a pioneering renewable energy, transmission, and green hydrogen developer strategically positioned at the crossroads of Europe and Africa.
- Aligning with the Tunisian Government's ambitious goal of achieving 30% renewable energy in its energy mix by 2030, TuNur is committed to being a long-term partner in supporting this vision.

Ansaldo Energia

- Ansaldo Energia is a full-service provider of proven, flexible solutions for the power generation 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/tunisia/

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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