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Greece 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 Greece

KEY POINTS

All figures have been converted into USD

Yearly sunshine (sun hours per year)

Yearly Sunshine:
- Average yearly sunshine hours: 3000 hours
- Peak sunlight hours: 5-7 hours/day

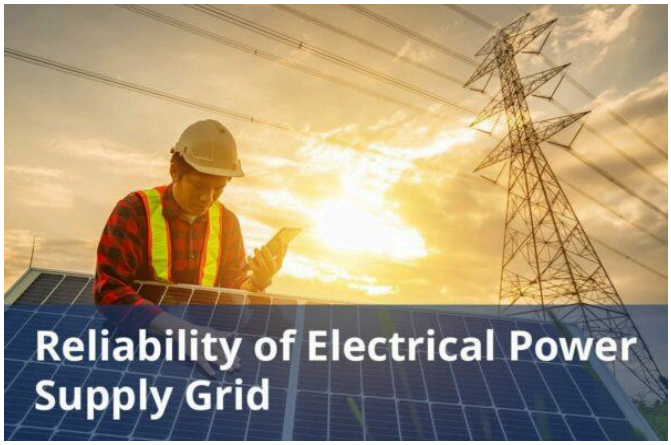
kWh per kWp installed

kWh per kWp:
- Average kWh produced per kWp: 1200 kWh
- Factors affecting production: geographical, seasonal, and system efficiency

Average cost per kWh from utility company

Average Costs per kWh:

- Residential cost: $0.125/kWh
- Commercial cost: $0.155/kWh
- Industrial cost: $0.175/kWh



Reliability of electrical power supply grid

Reliability:
- System uptime: 98%
- Common failure rates and maintenance schedules




DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

Total Solar Panels Installed:

- Total installed panels: 2 million
- Estimated output: 2 GW

Total solar panel production capacity (projected)

Projected Solar Panel Installation:
- Future installations: 5 million panels by 2030
- Anticipated increase in capacity: 5 GW

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

Average Costs:
- Average cost for residential installation: $2.50/watt
- Financing options available: loans, leases, PPAs

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

Percentages of Electricity:
- Solar contribution to total electricity: 20%
- Other sources of energy: wind, hydro, fossil fuels

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

Daily Availability:
- Average daily electricity generation: 500 kWh
- Generation variability by season

Number of residential solar panel installations

Number of Residential Panels:
- Typical household: 20 panels
- Total households with solar: 1 million

Total number of solar farms (installed and projected)

Number of Solar Farms:
- Total solar farms: 150
- Average size of a farm: 10 MW

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

Current Demand:
- The off-grid solar market in Greece is relatively small, primarily serving remote areas with limited grid access.
- However, the growth of the solar market is also driven by utility-scale and residential (off-grid) installations.

Projected Demand:
- The off-grid market is expected to grow modestly as the cost of solar technology continues to fall.
- The off-grid solar panel market in isolated islands is expected to see particular growth due to their reliance on imported fuels.

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

Current Demand:
- Greece’s on-grid solar market has been growing steadily, driven by government incentives and falling solar costs.

- In 2022, Greece connected 1.4 GW of new photovoltaic (PV) projects to the grid, bringing the cumulative capacity to 5.5 GW.
- This trend continued in 2023, with an expected addition of around 1.6-1.7 GW.

Projected Demand:
- The on-grid market is expected to continue its growth as Greece aims to meet its renewable energy goals.
- The projected capacity for grid-connected solar is estimated to reach 29.6 GW by 2030.

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

The average monthly salary of workers in the solar industry in Greece is as follows:
- Solar Engineer: $1300-$1800
- Photovoltaic Engineer salary is slightly higher: $2600
- Manufacturing and Labor Worker: $1800

Population of the country

As of August 2024, the population of Greece is approximately 10298040 people.

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

The cost includes:
- Factory Rent – The highest average rental prices are found in the northern suburbs of Athens, where they are around $12.1 per square

meter, followed by the city center at approximately $11.1 per square meter.
- In contrast, lower rental prices can be observed in Larissa, central Greece, where costs are about $6.1 per square meter.

- Mortgage Interest Rates – As of June 2024, the average mortgage interest rate in Greece is 4.12%.

- Industrial Electricity Prices – As of December 2023, the electricity price for industrial users in Greece is approximately $0.24/kWh.

- Water Prices – In Greece, the cost of water for industrial use varies depending on the volume consumed. Here are the general rates:
- Up to 1000 cubic meters: $0.92 per cubic meter
- Over 1000 cubic meters: $1.09 per cubic meter.

A summary of the energy infrastructure

Greece is actively investing in the development of renewable energy sources, particularly solar energy Greece, to reduce dependence on fossil fuels and achieve its climate goals. This transition requires a robust energy infrastructure, which includes the following components:
- Transmission System Operator (IPTO): IPTO is the Independent Power Transmission Operator in Greece, responsible for managing the high-voltage grid, ensuring reliable and efficient electricity transmission across the country.
- Distribution System Operator (HEDNO): The Hellenic Electricity Distribution Network Operator (HEDNO) is responsible for the distribution of electricity to end-users across Greece.
- Public Power Corporation (PPC): PPC is the main electricity generation company in Greece, responsible for supplying power to a large portion of the country.

- Greece's Grid and Interconnection: Greece's national electricity grid is interconnected with other European grids, enabling the import and export of electricity.
- Island Green Energy: Greece has a significant number of islands. The government is actively investing in renewable energy solutions for these islands to reduce their reliance on fossil fuels.

Some of the government regulations surrounding solar panel production

Greece has established a comprehensive legal framework to support the development of the solar industry, aiming to promote renewable energy and achieve its climate targets. Key legislation includes:
- Law 3468/2006 (Renewable Energy Sources Law): This law provides the foundation for promoting and regulating renewable energy production in Greece. It outlines the process for obtaining permits, connecting to the grid, and operating renewable energy installations.
- Law 4685/2020 (Renewable Energy Sources Law): This revised law aimed at streamlining the licensing process for renewable energy projects, promoting investments and simplifying administrative procedures.
- Law 4951/2022: This law focuses on further promoting renewable energy sources, including solar, and enhancing the energy sector's overall sustainability.
- Net Metering Regulations: Greece has implemented net metering regulations allowing consumers with small-scale solar systems to offset their electricity consumption using the energy generated by their own solar panels.

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

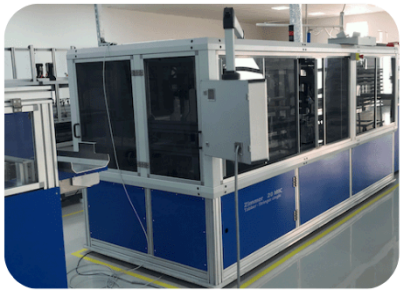
The Greek government has introduced several initiatives and incentives to promote the adoption of solar energy. These include:
- Funding for Vulnerable Groups: The government provides financial assistance for vulnerable households to install solar systems, making renewable energy more accessible.
- Operational Permits and Licensing: The government has streamlined the process for obtaining operational permits and licenses for renewable energy projects, making it easier for developers to bring solar projects online.
- Reduced VAT Rate: Greece applies a reduced VAT rate (from 24% to 6%) for solar energy installations, making it more affordable for consumers.

Notable solar projects in the country (installed and projected)

Installed Solar Projects:
- Enipeas Solar Project: Located in the regions of Larissa and Fthiotida, with a capacity of 560 MWp. It is one of the largest solar sites in Europe.
- PPC Ptolemaida Solar PV Park: With a capacity of 550 MW, this park is one of the largest solar power plants in Greece and is located in the region of Ptolemaida, Western Macedonia.
- Faethon Project (Midwestern Greece): Set to be completed by mid-2025, with two photovoltaic units with a combined capacity of 504 MW and integrated thermal storage units.
- Seli Solar Project (309 MW): Under development, with construction expected to be completed by 2025
- Peloponnese: This large-scale project in the Peloponnese region, has a capacity of 160 MW.

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

Notable solar companies:
- ELPE Renewables: A subsidiary of Hellenic Petroleum, ELPE Renewables focuses on developing and operating renewable energy projects, including significant solar investments.
- Meeco Services Hellas S.A.: Specializing in developing and operating solar power plants, Meeco Services Hellas S.A. is known for its sustainable solutions and international projects.
- Juwi Holding AG: A global player in the renewable energy sector, Juwi Holding AG develops, finances, and operates solar and wind projects.



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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