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Poland 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 Poland

KEY POINTS

All figures have been converted into USD

Yearly sunshine (sun hours per year)

Average yearly sunshine: 2800 hours

This information is critical for determining the potential solar energy production in the region.

kWh per kWp installed

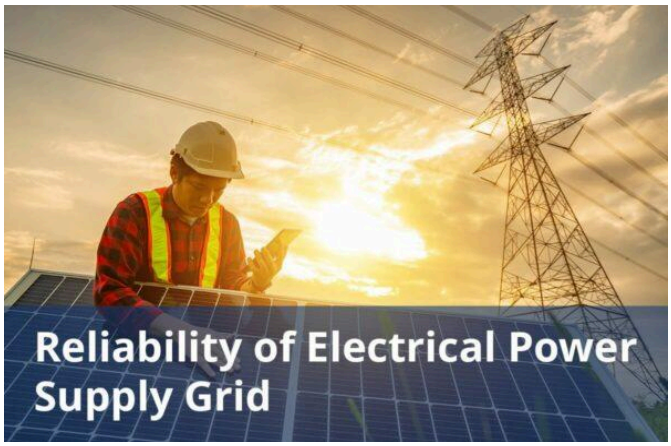
Estimated kWh production per kWp installed: 1200 kWh/kWp per year

This value helps to evaluate how much electricity can be generated based on the size of the solar panel system.

Average cost per kWh from utility company

Average cost of electricity: $0.113/kWh

This represents the general cost households pay for their electricity consumption.



Reliability of electrical power supply grid

System reliability is crucial for ensuring that solar panels are consistently producing energy

Monitoring and maintaining the solar system are necessary for optimal performance.




DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

Total solar panels installed as of the latest report: 1.5 million panels

This figure indicates the growth of solar energy adoption in recent years.

Total solar panel production capacity (projected)

Projected total solar panels to be installed by 2025: 3 million panels

This projection reflects the anticipated demand and growth in renewable energy sources.

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

Average installation cost of solar panels: $2.50/watt

This cost includes equipment, installation, and other associated fees.

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

Percentage of electricity generated from solar: 6%

This statistic shows the renewable energy contribution to the overall energy mix.

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

Daily average availability of solar power: 5 hours

This is an important factor for calculating potential fossil fuel savings.

Number of residential solar panel installations

Number of solar panels installed in residential homes: 800,000 panels

Indicates the penetration of solar technology in residential areas.

Total number of solar farms (installed and projected)

Total number of solar farms operational: 200 farms

These farms contribute to large-scale energy production.

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

Poland has 1,131,973 micro-installations (under 50 kW) of solar panels as of August 2022.

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

By the end of the third quarter of 2023, Poland had 18 GW of solar PV projects with grid connection approvals issued across a total of 6,929 projects.

As of March 31, 2023, 6.2 GW of planned project capacity had secured building permits, while the capacity of those with grid connection approvals added up to 6.7 GW.

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

Solar Engineers: The typical annual salary is around $21,495.76 with a range from about $10,295 to $35,915.
Solar Energy System Installers: The average gross salary is approximately $26,950 per year, which equates to an hourly rate of $12.95. They also receive an average bonus of $480.

Population of the country

Poland's population stands at approximately 40,222,661 people as of June 26, 2024.

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

Factory Rent: Factory rent costs in Poland vary by region. As of Q1 2024:
- Warsaw: $6.16 to $8.40 per sqm per month
- Central Poland (Łódź): $3.70 to €5.04 per sqm

Mortgage Costs: The average mortgage credit interest rate in Poland was 7.58% in March 2024.
Industrial Electricity Rates: The average electricity cost for industrial consumers in Poland is around $0.13 to $0.15/kWh.
Water Costs: The average price for water and sewage in Poland's largest cities was $3.03 per m³ in 2023.
Administrative Costs: Salaries and Wages:
- Solar Engineers: Annual salary is around $21,495.76.
- Solar Energy System Installers: The average gross salary is approximately $26,950 per year, which equates to an hourly rate of $12.95.

A summary of the energy infrastructure

Renewable Energy Transition: Poland is witnessing a substantial growth in renewable energy sources, particularly solar PV. However, grid congestion poses a challenge to further expansion.
Transmission System: Poland's TSO, Polskie Sieci Elektroenergetyczne (PSE), is responsible for grid management and security. The transmission grid, operating at 345 kV and 765 kV, supplied 132.7 TWh in 2020.
Capacity Market: Poland employs a capacity market to ensure adequate electricity supply.
Infrastructure Challenges: Poland faces infrastructure challenges, including grid congestion and the need for modernization, to support the integration of renewable energy sources.

Some of the government regulations surrounding solar panel production

Certification for Installers: To ensure quality and safety, installers of small solar PV systems need to obtain certification through exams conducted by the Polish Technical Inspection Office (UDT).
Building Permit Exemptions: For solar systems up to a certain capacity (50 kW initially, later increased to 150 kW), building permits are not required, streamlining the installation process.
Grid Connection Requirements: Connecting a solar PV system to the grid involves obtaining grid connection conditions (GCC) from the DSO or TSO, followed by a grid connection agreement (GCA) that defines the timeline for connection works. An advance payment of $6,750 per MW is required for securing the GCC.

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

Financial Incentives and Support Programs: Poland has implemented a range of financial incentives and support programs to promote solar PV adoption, including grant programs like “Mój Prąd 4.0,” subsidies for PV systems, and a net billing system for selling excess generation to the grid.
Regulatory Support and Tax Benefits: The government provides robust regulatory support through measures like expanding “balancing” programs (net metering) to support prosumers and reducing VAT for solar power systems from the standard 23% to 8%.
State-Supported Auctions for Large-Scale Installations: To encourage large-scale solar development, state-supported auctions are conducted, with winning projects receiving funding for construction.
Targeted Incentive Programs for Specific Sectors: Specific programs, such as Agroenergia, offer low-interest loans and subsidies to farmers for installing solar power systems.

Notable solar projects in the country (installed and projected)

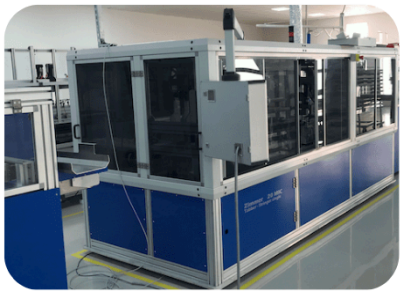
Installed Solar Projects:
- Witnica Solar Park: This 64 MW solar farm located in Witnica, near the German border, is being built without any government subsidies and will sell electricity to a local cement factory through a PPA.
- Tauron Polska Energia: Tauron started construction on a 100 MW solar farm in the northwestern region of Postomino. The farm will be connected to an existing wind farm in Marszewo. It will consist of 135,000 panels with a capacity of 665 Wp each.
- ZE PAK: ZE PAK transformed a former coal site into Poland's largest solar power plant. Located in Adamów brown coal mine in Turek, the 70 MW facility comprises 155,554 photovoltaic modules.

Projected Solar Projects:
- Pomeranian Solar Park: The Pomeranian Voivodeship Solar PV Park is a ground-mounted solar project spanning over 140 hectares. With a capacity of 117 MW, it is currently at the financed stage and is expected to commence construction in 2025.
- NeoInvestments Solar PV Park: This 600 MW solar farm is located in Greater Poland and is currently in the permitting stage.

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

- Poland Green Energy S.A. – A leading solar energy company providing solar panel installation, maintenance, and related services.
- IBC SOLAR POLAND Sp. z o.o. – A prominent solar energy company specializing in the installation and servicing of solar panel systems.

- Felicity Solar Poland SP.ZO.O. – A solar energy company focused on providing comprehensive solar solutions, including panel installation and project management.
- Sonnedix Poland – A subsidiary of the global renewable energy company Sonnedix, they develop, own, and operate solar power plants across Poland.
- Polski Solar – A solar energy company specializing in the installation of rooftop and ground-mounted solar systems for homes and businesses.
- Solair Energy – A solar energy company providing a range of services, including system design, installation, and maintenance.
- Great Solar – A solar energy company focused on the installation of high-quality solar panels and systems for homes and businesses.
- Solarna Polska – A solar energy company specializing in the installation and maintenance of solar power systems.
- KENSOL – A Polish solar panel manufacturer and project developer, specializing in the design, production, and installation of photovoltaic 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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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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