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Romania 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 Romania

KEY POINTS

All figures have been converted into USD

Yearly sunshine (sun hours per year)

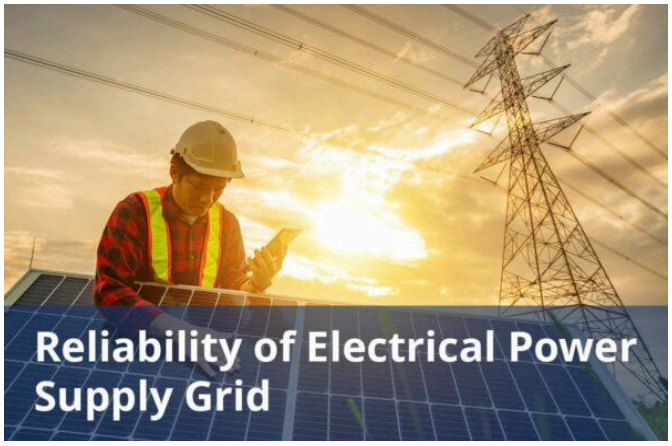
Annual sunshine averages vary by region.
- Desert areas: 300+ sunny days
- Coastal areas: 200-250 sunny days
- Northern regions: 150-200 sunny days

kWh per kWp installed

Solar panel efficiency affects power output.
- Typical efficiency: 15-20%
- Yield: around 1000-1300 kWh per installed kWp per year

Average cost per kWh from utility company

Electricity prices vary by state.
- Average residential price: $0.13/kWh
- In high-priced states: up to $0.20/kWh
- In low-priced states: around $0.10/kWh



Reliability of electrical power supply grid

Solar power reliability depends on sunlight and weather conditions.
- Typical availability: 15-25% of the time




DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

Total solar capacity installed in the U.S. has exceeded 100 GW.

Total solar panel production capacity (projected)

Projected growth of solar panels expected to reach 200 GW by 2030.

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

Costs for solar installations vary:
- Average cost: $3.00-4.00 per watt
- Installation costs: around 20% of total system cost

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

Renewable sources are gaining a share in electricity generation.
- Solar: 2-3% in recent years
- Projected growth to 10% by 2030

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

Solar energy generation is highest during peak sunlight hours.
- Average peak hours: 4-6 hours/day depending on location

Number of residential solar panel installations

Residential solar panel installations have increased significantly in recent years.
- Number of residential systems: over 2 million

Total number of solar farms (installed and projected)

The number of solar farms is on the rise.
- Total solar farms in the U.S.: over 1000

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

Current Demand for off-grid floating solar panels in Romania is relatively niche at the moment, with limited but existing examples such as the 1 MW TMK Hydro energy Power plants.

- The 1 MW floating solar power plant on the Grebla reservoir is a notable example of an off-grid floating solar installation in Romania. This indicates an existing interest and application of off-grid floating solar technology in the country.
- While most large-scale floating solar projects are grid-connected, there is a niche but growing interest in off-grid solutions for specific applications like powering remote areas or smaller communities. However, details on the exact number of off-grid projects are limited.

Projected Demand for off-grid floating solar panels is likely to increase. This could be driven by needs for energy in remote or isolated areas and specific projects requiring off-grid capabilities.

- Although the current focus seems to be on grid-connected floating solar systems, there is potential for future projects and investments in off-grid floating solar solutions, especially if there is a demonstrated need for decentralized energy sources in Romania's remote or underserved areas.
- The increasing focus on battery energy storage systems in Romania's solar sector could support the growth of off-grid floating solar panels, as these systems often pair with storage solutions to provide continuous power independent of the grid.

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

Current Demand for On-Grid Solar Panels in Romania is substantial and rapidly growing.

- The country is set to see significant developments with major projects such as Restart Energy's 500 MW solar park.
- This project alone will supply power to approximately 200000 households and deliver over 800000 MWh annually, underscoring the robust demand for on-grid solar technology.
- Additionally, European Energy has secured grid connection approvals for around 500 MW of solar and wind projects, with a development pipeline exceeding 1.5 GW, further reflecting strong demand for solar infrastructure.

Projected Demand for On-Grid Solar Panels is associated with the Integrated National Energy and Climate Plan (INECP) aims to increase solar capacities to 8.3 GW by 2030. This ambitious target signifies a substantial future demand for on-grid solar panels.

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

A Solar Photovoltaic Installer working in Romania typically earns an average annual salary of about $13600, with a range from $7100 to $20700.

Population of the country

The current population of Romania is 19000759.

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

Average Warehouse Rental Cost in Romania averaged approximately $5.07 per square meter in 2023.

- Romanian large-sized industrial consumers pay an average price of $207 per MWh of electricity.

A summary of the energy infrastructure

In 2023, Romania generated over 70% of its electricity from low-carbon sources, with remaining percentage by hydropower, nuclear energy, wind, and solar.
- However, around 30% of its electricity still relies on fossil fuels.
- Electricity transmission in Romania is solely managed by the National Energy Transport Company, Transelectrica SA.

Some of the government regulations surrounding solar panel production

Law No. 254/2022 aims to streamline the permitting process for renewable energy facilities, including solar projects, especially those developed on agricultural lands with lower soil fertility.
- Law 166/2023 amends the Construction Law No. 50/1991, allowing building permits for renewable energy projects to be issued even without prior urban planning documents.
- Law 155/2020 introduced specific provisions for new storage facilities, particularly in the context of managing electricity generated from renewable sources.

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

Contracts for Difference (CfD) Support Scheme stabilizes income for renewable energy producers by setting a fixed price level, known as the 'strike price.'

- Green Certificates (GCs) Support Scheme was applicable for all renewable energy capacities accredited until 31 December 2016.
- The Ministry of Energy published a draft ordinance to implement and manage funds allocated through the Modernisation Fund aimed at financing renewable energy projects.

Notable solar projects in the country (installed and projected)

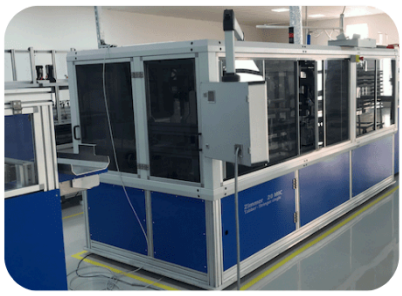
Current Projects:
- Restart Energy's 500 MW Solar Park
 - Location: Romania
 - Capacity: 500 MW
 - Status: Planned construction start in Q2 2025, completion by end of 2026
- European Energy's 500 MW Grid project
 - Location: Romania
 - Capacity: 500 MW
 - Status: Grid connection approvals secured.

Projected Projects:
- CCE's New Projects for 2024
 - Total Planned Capacity: Over 200 MW of ground-mounted solar systems.

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

Company Name: Sunshine Solar Energy
- Website: sunshinesolarenergy.com
- Phone: +40213208525 / +40721585868
- Location: Bucharest, Romania

- Services include land retrieval, authorizations, public tenders, technical solutions, and solar energy development.
Company Name: MSG Romania
- Website: msgromania.ro
- Telephone Number: +40744307714
- Business: Solar parks PV EPC, providing turnkey projects, project development, and EPC services.



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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