



# Luxembourg 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.

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

## KEY POINTS

All figures have been converted into USD



## Yearly sunshine (sun hours per year)

Yearly Sunshine:

- Average annual sunshine hours: 2000 hours
- Monthly average sunshine: 166.67 hours
- Seasonal variations in sunshine: Yes



**kWh per kWp installed**

kWh per kWp:

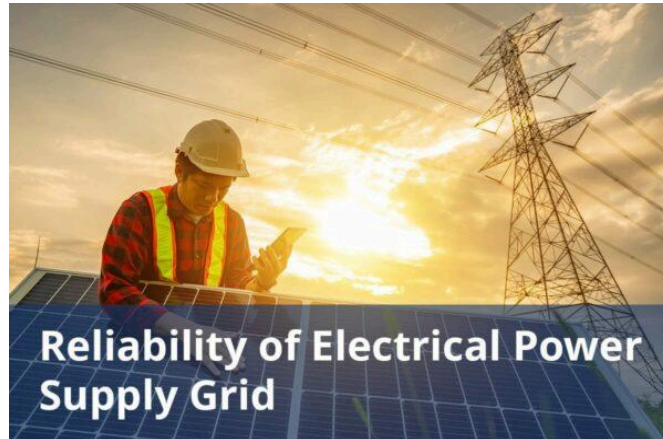
- First year: 1300 kWh/kWp
- 20-year average: 1100 kWh/kWp
- System degradation consideration: Yes



## Average cost per kWh from utility company

Average Cost per kWh:

- Current residential rate: \$0.12/kWh
- Proposed rate increase: \$0.01/kWh
- Variable costs included: Yes



## Reliability of electrical power supply grid

Reliability:

- Average annual uptime: 98%
- Reliability during peak hours: High
- Backup systems in place: Yes



# DETAILED INFORMATION

All figures have been converted into USD

## Total solar panel production capacity (installed)

Total Solar Panels Installed:

- Current total installations: 100000 panels
- Yearly addition: 5000 panels
- Selection criteria for projects: Yes

## Total solar panel production capacity (projected)

Total Solar Panels Projected:

- 5-year projection: 150000 panels
- Estimated growth rate: 10%
- Market factors considered: Yes

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

Average Costs:

- Installation cost per panel: \$400/panel
- Maintenance cost per year: \$50/panel
- Deterioration cost factor: considered

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

## Percentages of Electricity:

- Residential consumption: 30%
- Commercial consumption: 50%
- Industrial consumption: 20%

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

### Daily Availability:

- Average daily energy production: 5 kWh
- Seasonal variations: Yes
- Factors affecting availability: Weather, location

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

### Number of Residential Panels:

- Total homes with solar: 30000
- Average panels per home: 4
- Trends in adoption: Increasing

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

### Number of Farms:

- Total solar farms: 20
- Average size of farm: 5 MW
- Expansion potential: High

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

### Current Demand:

- Rural Areas: Rural areas in Luxembourg are experiencing higher solar panel demand compared to urban areas.
- Capacity: The geographical distribution shows that rural regions, such as Wincrange, have a much higher rate of solar capacity per inhabitant compared to urban centers like Luxembourg City.
- Productivity: Rural buildings generally have better exposure to sunlight due to fewer obstructions and larger roof areas, contributing to higher photovoltaic production.

### Future Demand:

- Government and Industry Initiatives: The increasing number of solar installations in rural areas, supported by government and company projects, reflects a growing emphasis on harnessing solar energy in these regions.
- Future Growth: With the continued expansion of solar projects and anticipated installations, the demand for solar panels in rural areas is expected to rise further.

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

### Current Demand:

- The installed capacity of on-grid solar panels in Luxembourg includes both small residential setups and larger commercial and industrial projects.
- Historical projects have included significant installations, such as 292 kW of grid-tie systems using high-efficiency mono-crystalline panels.

- Recent projects involve rooftop solar installations with a total investment of \$1.5 million for solar PV modules in Luxembourg and Belgium.
- These installations contribute to reducing carbon emissions and provide financial benefits through feed-in tariffs.

Projected Demand:

- Future demand for on-grid solar panels is expected to rise due to increasing government incentives and a shift towards renewable energy.
- Market expansion is anticipated with more residential and commercial rooftop installations as technology advances and costs decrease.
- Innovations in solar technology, including higher efficiency panels and integrated monitoring systems, are likely to drive further growth.

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

A Solar Photovoltaic Installer in Luxembourg would earn approximately:

- Typical annual salary: \$40570
- Lowest average salary: \$21235
- Highest average salary: \$60014

### **Population of the country**

The current population of Luxembourg is 674329.

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

Estimate for Factory Rent

- Monthly Average Warehouse Rental Cost:
- Luxembourg-Hollerich:
  - Rent: \$6254
  - Description: Warehouse of 4586 sq ft dimensions in the Hollerich district, providing ample room for various commercial needs.
- Luxembourg-Hamm:
  - Rent: \$4505
  - Description: In Hamm, warehouse spans 3045 sq ft, making it suitable for mid-sized operations.
- Luxembourg-Gare:
  - Rent: \$53
  - Description: A small 43 sq ft space in the Gare area, ideal for very limited storage needs or a small office.
- Luxembourg-Bonnevoie:
  - Rent: \$7950
  - Description: 3229 sq ft warehouse in Bonnevoie is priced higher but offers a larger space for extensive storage or commercial use.

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

### Electricity Generation:

- In 2022, bioenergy was the leading source of electricity generation in Luxembourg, contributing 32.7 percent to the total power production.
- Wind energy was the second-largest contributor, accounting for 28.3 percent of the country's power mix.
- Overall, more than 85 percent of Luxembourg's electricity production came from renewable sources that year.

### Transmission & Distribution:

- The Grand Duchy of Luxembourg is served by two high-voltage double lines from Germany, connected through the Trier and Bauler substations.
- Additionally, Luxembourg has an interconnection with Belgium.

Energy Access:

- In 2022, the World Bank reported that access to electricity in Luxembourg was 100% of the population.

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

Regulatory Framework:

- The deployment of renewable energy in Luxembourg, including solar panels, is governed by various regulations.
- Notably, Council Regulation (EU) 2022/2577 mandates expedited procedures for granting building permits for renewable energy systems.
- For solar energy systems and co-located energy storage systems, the time limit for issuing building permits is set at a maximum of 3 months.
- Installations with capacities up to 50 kW receive tacit approval if the mayor does not respond within one month.
- However, these expedited timelines do not apply in cases involving cultural or historical heritage, national defense, or protected areas.

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

Increased Subsidies: Since January 1, 2023, subsidies for self-consumption solar PV installations have been raised to 62.5%.

Reduced VAT: The VAT on new solar PV installations has been reduced to 3% from the beginning of 2023.

Higher Taxable Income Threshold: The taxable income threshold for PV installations has been raised to 30 kW.

Self-Consumption Metering: Starting in September 2023, systems up to 30 kW used for self-consumption are exempt from the requirement to install a second meter.

Plug-and-Play Systems: Solar systems that can be installed on balconies are now exempt from administrative requirements.

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

Current Solar Projects:

- ArcelorMittal Differdange Floating Solar Farm:
  - Location: Differdange, Luxembourg
  - Capacity: 3 GWh/year
  - Details: Inaugurated in October 2021, this floating solar farm features 25000 square meters of solar panels across a 5.7-hectare surface.
- Beidweiler Solar Park:
  - Location: Beidweiler, Luxembourg
  - Capacity: Beidweiler I: 4.9 MWp
  - Beidweiler II: 2.8 MWp
  - Details: Part of Luxembourg's largest solar installations, this park was developed for RTL Group and Enovos.

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

Company Name: prosolar.lu

- Products and Services:
  - Photovoltaic Systems: Installation of complete photovoltaic systems.
  - Solar Panels: Sales and installation of solar panels.
  - Car Chargers: Installation of car charging systems.
  - Heat Pumps: Provision and installation of heat pumps.

Company Name: Letz Green Renewables

- Products and Services:

- Solar Panels: High-efficiency modules from brands such as JinkoSolar, Soluxtec, and Viessmann.



## 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/luxembourg/>

# 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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