Bosnia and Herzegovina 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 Bosnia and Herzegovina

KEY POINTS

All figures have been converted into USD

Yearly sunshine (sun hours per year)

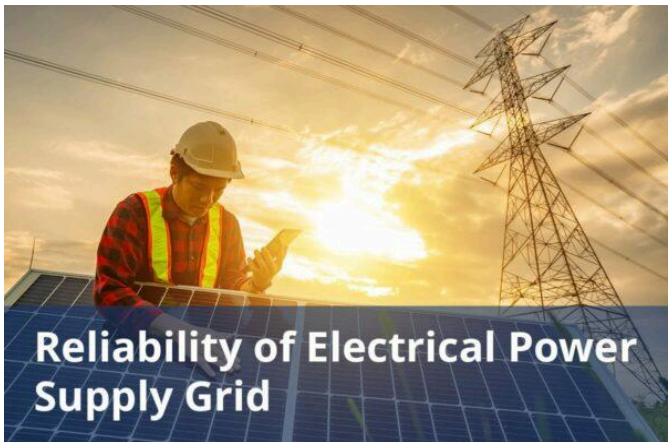
Average yearly sunshine hours:
- Southern regions: 3000 hours
- Northern regions: 2500 hours
- Mountainous areas: 2800 hours

kWh per kWp installed

kWh produced per kWp installed:
- For optimal conditions: 1200 kWh/kWp
- For average conditions: 1000 kWh/kWp
- For suboptimal conditions: 800 kWh/kWp

Average cost per kWh from utility company

Average electricity costs:
- Residential: $0.120/kWh
- Commercial: $0.150/kWh
- Industrial: $0.100/kWh



Reliability of electrical power supply grid

Reliability of solar energy:
- Consistent energy production during sunny days
- Dependence on weather conditions
- Reduced output during cloudy weather




DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

Total solar panels installed:
- As of 2023: 500000 panels
- Projected for 2024: 600000 panels
- Goal by 2025: 700000 panels

Total solar panel production capacity (projected)

Projecting future solar panel installations:
- 2025: 700000 panels
- 2030: 1000000 panels
- 2040: 2000000 panels

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

Average costs of solar energy systems:
- Installation cost per panel: $250/panel
- Maintenance cost per year: $50/panel
- Lifespan of panels: 25 years

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

Percentage of electricity from solar:
- Current: 15%
- Projected for 2025: 25%
- Goal for 2030: 35%

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

Daily solar energy availability:
- On average: 5 hours/day
- Peak production days: 8-10 hours/day
- Low production days: 3-4 hours/day

Number of residential solar panel installations

Number of residential solar panels:
- Total installations: 300000 panels
- Average per home: 20 panels
- Total homes with solar: 15000 homes

Total number of solar farms (installed and projected)

Number of solar farms:
- Total: 100 farms
- Largest farm size: 500 acres
- Smallest farm size: 20 acres

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

Currently, there is no publicly accessible database documenting the number of consumer solar PV installations,
as individuals generating their own electricity are not mandated by law to acquire a permit.
Due to the lack of a proper regulatory framework,
including improvements in energy audits and certification of buildings procedures,
the number of consumer or residential rooftop solar PV installations remains relatively low.

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

Approximately 5000 households have enrolled in the initiative backed by the Electric Power Industry of the Republic of Srpska,
aimed at subsidizing the installation of future prosumers' rooftop systems.

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

The average gross monthly salary in Bosnia is approximately $700.
Solar Engineer – $1234
Solar Thermal Installer – $806
Designer of Solar Energy Systems – $1222

Population of the country

The current population of Bosnia and Herzegovina is 3194168 people.

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

Estimate for Factory Rent
The average price of factory rent is approximately $1.7 – $4 per sqm.
Industrial Electricity Rates
The average industrial electricity price is $0.08/kWh as of May 2023.

Electricity prices for industrial users in Bosnia and Herzegovina are 40% lower than the EU average.

Water Costs

Water rate for industrial use is $1.87/m³.

Salaries and Wages:

Workers in the solar industry earn average monthly incomes in the range of $800 to $1230.

Rent for Office Space

Rental prices for commercial properties range from $11 to $22 for central areas,

and $5.5 to $11 for suburban areas.

Insurance

The average spending per capita in the Property Insurance market is estimated to $111.90 in 2024.

A summary of the energy infrastructure

Electric power generation is a key sector of economic activity in BiH.

The country is a net exporter of electrical energy.

The generating capacity is about 16000 GWh.

Bosnia's energy sector is dominated by thermal and hydroelectric power generation.

The country has a diversified energy mix,

with almost 40% of electricity coming from hydropower and 60% from thermal (coal-fired) power plants.

However, the energy infrastructure is fragmented,

with three state-owned power companies operating along ethnic/geographic lines rather than for technical reasons.

The three state-owned electric power generation and distribution companies are: Elektroprivreda BiH (EPBiH),

Elektroprivreda Republika Srpske (EPRS), and Elektroprivreda Hrvatske Zajednice Herceg-Bosna (EPHZHB).

Bosnia needs to invest over $6 billion to modernize and expand its energy infrastructure,
including upgrading power generation facilities and the electricity grid.

Some of the government regulations surrounding solar panel production

Bosnia and Herzegovina has recently adopted new laws to promote renewable energy,
including the Law on Renewable Energy Sources in Republika Srpska and the Law on Energy in the Federation of Bosnia and Herzegovina.
These provide a more stable regulatory framework for solar energy investments.
The new laws distinguish between small-scale solar projects (up to 500 kW) and large-scale solar projects (over 500 kW).
Small projects are eligible for feed-in tariffs and other financial incentives,
while large projects must go through a competitive bidding process.
To develop a solar project in Bosnia,
investors must go through a multi-step approval process,
including obtaining concessions, environmental permits,
grid connection approvals, energy permits, and work permits.

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

The government of Bosnia and Herzegovina has recently taken several initiatives to promote the development of solar energy,
including investments in large-scale solar projects and subsidies for citizens to install solar panels:

- In March 2020, the government awarded a 50-year concession to EFT International Investments Holding for a 60 MW solar power plant in Bileća municipality,
with an estimated investment of $62 million.
- In October 2020, the government granted a concession to the public utility Elektroprivreda RS for a 100 MW solar plant in Trebinje,
with an estimated investment of $86 million.
- In January 2023, the government granted a 50-year concession to ETMAKS company for the construction of the Nevesinje solar park,
a 500 MW project worth $483 million.
- In April 2024, UNDP presented the first Interactive Solar Atlas in Bosnia,
a web platform providing data on solar potential,
to motivate citizens and facility owners to use solar panels with the support of the government.
- The government has allocated about $2 billion to enhance the country's renewable energy output,
including solar, over the next five years.

Notable solar projects in the country (installed and projected)

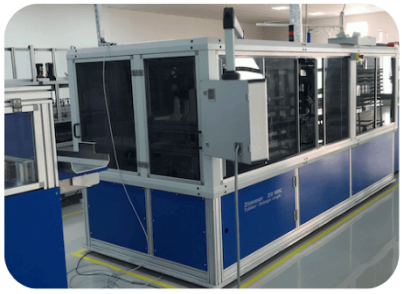
Solar Projects which installation started but is not fully completed:
- Bileća Solar Plant (60 MW): In March 2020,
the government awarded a 50-year concession to EFT International Investments Holding for a 60 MW solar power plant in Bileća municipality,
with an estimated investment of $62 million.
- Trebinje Solar Plant (100 MW): In October 2020,
the government granted a concession to the public utility Elektroprivreda RS for a 100 MW solar plant in Trebinje,
with an estimated investment of $86 million.

- Nevesinje Solar Park (500 MW): In January 2023,
the government granted a 50-year concession to ETMAKS company for the construction of this 500 MW project worth KM $483 million.
It will consist of one 200 MW plant and six units with a capacity of 50 MW each.

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

ETMax is a leading company in the solar energy industry in Bosnia and Herzegovina,
based in Banja Luka. Founded in 2012,
they specialize in designing and constructing high-efficiency photovoltaic power plants.
With over 60 MWp of installed capacity and more than 300 completed plants,
ETMAX is committed to quality and innovative solutions.
EFT Group is a prominent energy trading and investment company headquartered in London.
Operating across Central and Southeastern Europe,
they trade power on various European exchanges and deliver around 18 TWh of electricity annually.
In Bosnia and Herzegovina,
EFT has significantly invested in sustainable energy projects,
including the Stanari Thermal Power Plant.
GP Toming is a leading construction company in Bosnia and Herzegovina,
headquartered in Drinovci, specializing in the development of photovoltaic power plants.
Since entering the renewable energy sector in 2012,
Toming has successfully completed numerous solar energy projects,

including notable installations like the Hodovo 1 and Ljubuški solar power plants.



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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