



Iran 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.

Disclaimer: This document represents an independent market and manufacturing analysis. It is provided for informational and educational purposes only and does not constitute a commercial offer, binding proposal, or contractual commitment.

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

KEY POINTS

All figures have been converted into USD



Yearly sunshine (sun hours per year)

Yearly Sunshine:

- Average daily sunshine hours: 5
- Total yearly sunshine: 1825 hours



kWh per kWp installed

Kilowatt hours per kilowatt peak (kWh/kWp):

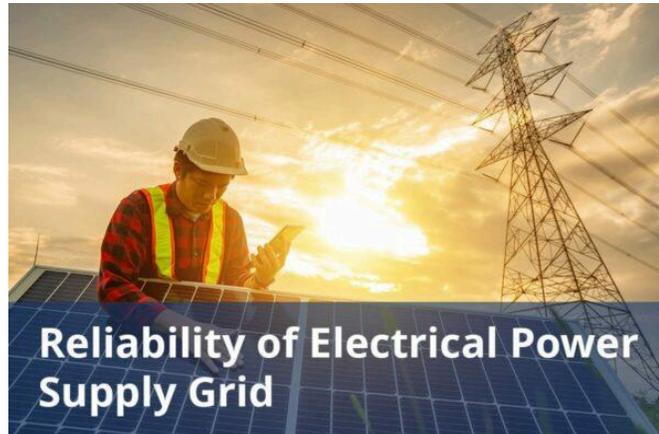
- Average kWh produced per kWp: 1200



Average cost per kWh from utility company

Average cost per kWh:

- Residential average: \$0.130/kWh
- Commercial average: \$0.150/kWh



Reliability of electrical power supply grid

System reliability:

- Average uptime: 98%
- Maintenance frequency: Twice a year



DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

Total solar panels installed:

- Total panels: 1000000

Total solar panel production capacity (projected)

Projected total solar panels:

- Year 2025 projection: 1500000

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

Average costs:

- Average upfront cost: \$3000
- Average installation cost: \$600

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

Percentages of electricity generation:

- Solar: 20%
- Wind: 15%
- Fossil Fuels: 65%

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

Daily availability:

- Average daily generation capacity: 6000 kWh

Number of residential solar panel installations

Number of residential panels:

- Total residential panels: 500000

Total number of solar farms (installed and projected)

Number of solar farms:

- Total number of solar farms: 250

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

The off-grid solar panels market in Iran is driven by the desire for cost-effective, sustainable living solutions.

- Iran's remote and rural areas face significant challenges in accessing electricity, but off-grid solar panels offer a viable solution.
- By harnessing solar energy, communities not connected to the national grid can enjoy reliable electricity through solar panels, lanterns, home systems, and mini-grids.
- This, in turn, improves residents' quality of life, enhances educational opportunities through better lighting, and enables small businesses to operate more efficiently.

- As a result, the demand for off-grid solar panels is increasing, driven by the need to address energy access challenges and bridge the gap in these underserved areas.
- By adopting off-grid solar solutions, Iran can promote energy inclusivity and sustainable development in its most remote regions.

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

Iran's on-grid solar energy sector holds great promise due to the country's high solar irradiance, making it an ideal location for solar power projects.

- The government has implemented supportive policies and feed-in tariffs to encourage investment in solar energy.
- Notable projects like the 10 MW Kerman Solar Park and the 5 MW Mobarakeh Solar Power Plant demonstrate the potential for growth.
- However, the sector faces significant obstacles, including economic sanctions that hinder access to advanced technology and financial resources, outdated grid infrastructure in need of upgrades, and bureaucratic challenges that complicate the investment process.
- Despite these hurdles, recent developments indicate progress through international partnerships with countries like China and Germany, as well as efforts to boost local solar panel manufacturing.

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

Typical Annual Salary: **\$8,352.00**

- Lowest Average Salary: **\$4,262.39**

- Highest Average Salary: **\$12,844.81**

Population of the country

As of July 31, 2024, the current population of the Islamic Republic of Iran is 89,864,912.

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

Average Warehouse Rental Cost

- Iran's logistics real estate sector is facing significant challenges, particularly in Tehran, where there is a substantial shortage of modern warehouse space.
- The city requires an additional 2-3 million square meters of Grade A warehouse space, but current capacity only meets a mere 10% of this need.
- This shortage has resulted in high costs due to the fragmentation and inefficiency of existing facilities, leading to logistics costs that are approximately 60% higher compared to well-managed warehouses.
- An estimate of current costs of available costs is as follow:
- Small: \$2000 to \$5000/Month

- Medium: \$5000 to \$10000/Month

- Large: \$10000 to \$20000/Month

Business Electricity Price

- As of October 2023, electricity prices for industry in Iran were \$3.9 cents per kilowatt-hour (kWh)

A summary of the energy infrastructure

Iran's electricity generation is predominantly fueled by fossil fuels, with natural gas being the primary source (86%) and oil contributing around 7% as of 2023.

- In contrast, clean energy sources play a relatively minor role, with hydropower being the largest contributor at 4%, followed by wind and solar power at a mere 0.6%.

- However, Iran's power sector emissions have nearly tripled over the last two decades, prompting the government to recognize the need for a transition towards renewable energy.

- To address this, the government plans to increase its renewable energy capacity, aiming to reduce its dependence on fossil fuels and mitigate the environmental impact of its power sector.

Some of the government regulations surrounding solar panel production

The main laws governing renewable energy include the Law on Modification of Energy Consumption Pattern (LMECP) and the Sixth Five-Year Development Plan Law (6th FYDPL).

- These laws provide the foundation for developing, operating, and selling renewable energy, including solar power.

Licensing and Permits:

- Construction License: To start a solar PV project, developers must obtain a construction license from the Renewable Energy and Energy Efficiency Organization (SATBA).

- Grid Connection Permit: A permit from the state-owned utility company Tavanir is required to connect the solar plant to the national grid.

- Environmental License: The project must also secure an environmental license from the Environmental Protection Organization.

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

Framework of energy policies aim to promote renewable energy investments by providing clear regulatory guidelines and financial incentives while addressing potential challenges through structured dispute resolution mechanisms.

Incentives and Support:

- Feed-in Tariffs (FITs): The government offers FITs with annual adjustments to account for inflation and exchange rate fluctuations, ensuring stable returns for investors.

- Tax Breaks and Duty Exemptions: Renewable energy projects benefit from significant tax breaks (5 to 20 years depending on location) and exemptions from import duties on equipment.
- Access to Land: Low-cost or free government land is often available for the construction of renewable energy projects.

Notable solar projects in the country (installed and projected)

Installed Projects

Mokran Solar Power Plants Complex

- Location: Kerman Province.
- Capacity: 20MW
- Details: was built in 2017 with 76912 solar panels.

Mahan Solar Power Plant

- Location: Kerman Province.
- Capacity: 20MW
- Details: was commissioned in July 2017 and has plans to be expanded to 100 megawatts in the future.

Ghadir Solar Project

- Location: Yazd Province.

- Capacity: 50 MW.
- Details: An ambitious project expected to contribute significantly to Iran's renewable energy targets.

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

PARMIS ELECTRICAL INDUSTRY CO.

- Website: [parmis-co.com](http://www.parmis-co.com)
- Location: Rajaei Ave,, Kashan, Arkansas, Iran
- Services: Installation
- Products: Solar Energy

PEYMAN ELECTRIC

- Website: invertergroup.com
- Location: South Lalehzar Ave,, No. 203, Tehran Electric commercial complex, Boshehri Alley, Iran
- Services: Recycling Services
- Products: Battery Charger, Lead Acid Batteries, Rechargeable Battery, Solar Energy, Solar Photovoltaic Products, INVERTERS

Yekta Behineh Tavan

- Website: yektabehan.com
- Location: Unit 305, #5 Ghadir Alley, Azadi Av., Tehran 1458889415, Iran
- Services: Construction, Consulting, Design, Engineering, Installation
- Products: LED Lighting, Solar Photovoltaic Systems, Small Wind Turbines, Solar Water Pumping Systems, Solar Space Heatings/Coolings, Solar Hot Water Heaters.



ABOUT THIS REPORT

This Solar Report is part of the PVKnowHow Knowledge Network, developed by J.v.G. Technology GmbH - a German engineering company, specializing in turnkey solar module production lines (ranging from 20 MW to 500 MW per production line, including multi-line and gigafactory projects exceeding this scale).

All market data, analysis, and conclusions follow JvG's internal consulting standards and international PV market research practices.

REFERENCES

All References

1. Climate Top. (2024). Daylight hours in Tehran, Iran. Retrieved from <<https://www.climate.top/iran/tehran/sunlight/>>
2. Pirzadi, M., & Ghadimi, A. A. (2020). Performance evaluation of the first Iranian large-scale photovoltaic power plant. *_AUT Journal of Electrical Engineering*, 52_(1), 19-30\
<<https://doi.org/10.22060/eej.2020.17593.5320>>
3. Statista. (2024). Household electricity prices worldwide in December 2023, by select country. Retrieved from <<https://www.statista.com/statistics/263492/electricity-prices-in-selected-countries/>>
4. Sinalda. (n.d.). Voltage in Iran. Retrieved from <<https://www.sinalda.com/world-voltages/middle-east/voltage-iran/>>
5. Mordor Intelligence. (2024). Iran solar energy market size & share analysis – Growth trends & forecasts (2024 – 2029). Retrieved from <<https://www.mordorintelligence.com/industry-reports/iran-solar-energy-market>> and <<https://www.mordorintelligence.com/industry-reports/iran-solar-energy-market#:~:in%202022%2C%20around%2083%20MW,at%20the%20end%20of%202022.>>
6. Shokri, U. (2024). Iran’s renewable energy aspirations and geopolitical challenges. Retrieved from <<https://gulrif.org/irans-renewable-energy-aspirations-and-geopolitical-challenges/#:~:in%20Iran%20has%20set%20ambitious%20targets,Governm%20ent%20Initiatives%20and%20Investments>>
7. International Renewable Energy Agency (IRENA). (2018). Renewable power generation costs in 2018\
<<https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/May/IRENA%5FRenewable-Power-Generations-Costs-in-2018.pdf>>
8. Low Carbon Power. (2024). Electricity in Iran in 2023\
<<https://lowcarbonpower.org/region/Iran>>
9. Khatinoglu, D. (2024). Iran’s gas shortage spirals out of control amidst electricity crisis. Retrieved from

<<https://www.iranintl.com/en/202407294923#:~=During%20the%20summer%2C%20Iran%20faces,at%20least%20%248%20billion%20annually>>

10. Tehran Times. (2024). Solar panels to provide nomads with electricity. Retrieved from

<<https://www.tehrantimes.com/news/490771/Solar-panels-to-provide-nomads-with-electricity>>

11. Encyclopedia. (n.d.). Solar power plants in Iran. Retrieved from

<<https://encyclopedia.pub/entry/17841>>

12. Chandak, P. (2024). Iran advances solar park construction with plans for 17 parks nationwide. Retrieved from

<<https://solarquarter.com/2024/02/22/iran-advances-solar-park-construction-with-plans-for-17-parks-nationwide/#google%5Fvignette>>

13. Khorshidsam. (2024). Applications of solar energy in Iran.

Retrieved from

<<https://khorshidsam.com/en/blog/environment-en/applications-of-solar-energy-in-iran/#:~=In%20remote%20and%20rural%20areas,connected%20to%20the%20national%20grid>>

14. Report. (2024). Iran boosts solar panel production, eyes global market. Retrieved from

<<https://report.az/en/other-countries/iran-boosts-solar-panel-production-eyes-global-market/>>

15. World Salaries. (2024). Average solar thermal technician salary in Tehran, Iran for 2024\ . Retrieved from

<<https://worldsalaries.com/average-solar-thermal-technician-salary-in-tehran/iran/>>

16. Worldometer. (2024). Population of Iran. Retrieved from

<<https://www.worldometers.info/world-population/iran-population/>>

17. Bourse and Bazaar. (2018). For Iran warehouse, 'unglamorous' logistics real estate offers resilience and returns. Retrieved from

<<https://www.bourseandbazaar.com/articles/2018/4/9/for-iran-warehouse-unglamorous-logistics-real-estate-offers-resilience-and-returns>>

18. Tehran Offers. (2024). Rent office in Tehran. Retrieved from <<https://tehranoffers.com/property-type/rent-office-in-tehran/>>
19. Enerdata. (2024). Iran energy report. Retrieved from [[https://ember-climate.org/countries-and-regions/countries/iran/](https://www.enerdata.net/estore/country-profiles/iran.html#:~:text=Energy%20Prices&text=Electricity%20prices%20have%20doubled%20since%202019%20for%20both%20households%20(US,country's%20electricity%20consumption%20by%2010%25.](https://www.enerdata.net/estore/country-profiles/iran.html#:~:text=Energy%20Prices&text=Electricity%20prices%20have%20doubled%20since%202019%20for%20both%20households%20%28US,country's%20electricity%20consumption%20by%2010%25.)]20. Ember. (2024). Islamic Republic of Iran. Retrieved from <
21. ResearchGate. (n.d.). Iranian 230- and 400-kV transmission network. Retrieved from <<https://www.researchgate.net/figure/Iranian-230-and-400-kV-transmission-network%5Ffig5%5F260497777>>
22. Enerdata. (2024). Iran energy information. Retrieved from <<https://www.enerdata.net/estore/energy-market/iran/#:~:text=Power%20Consumption,the%20oil%20and%20gas%20sector>>
23. U.S. Energy Information Administration (EIA). (2022). _Country analysis executive summary: Iran_. Retrieved from [https://www.eia.gov/international/content/analysis/countries_long/Iran/pdf/iran_exe.pdf](<https://www.eia.gov/international/content/analysis/countries%5Flong/Iran/pdf/iran%5Fexe.pdf#:~:text=Iran%20exported%20nearly%20840%2C000%20b/d%20of%20petroleum,exports%2C%20according%20to%20Facts%20Global%20Energy%20estimates.>)
24. Nami Associates. (2018). _The legal framework for renewable energy in Iran_. Retrieved from <<https://www.lexology.com/library/detail.aspx?g=f8babca0-3056-4e82-895a-e41d99ec0de7>>
25. Power Technology. (n.d.). _Tose E Energy Khorshidi Ghadir Qom solar PV park, Iran_. Retrieved from

<<https://www.power-technology.com/data-insights/power-plant-profile-tose-e-energy-khorshidi-ghadir-qom-solar-pv-park-iran/>>

26. MAPNA Group. (2023). _MAPNA, Mobarakeh Steel Co. sign contract for building Iran's biggest solar farm_. Retrieved from <<https://mapnagroup.com/21155/mapna-builds-largest-solar-farm/?lang=en>>

27. Emiliano, 2022, Iran launches tender for 4 GW of solar, <<https://www.pv-magazine.com/2022/04/28/iran-launches-tender-for-4-gw-of-solar/>>

For a detailed list of references and additional information, please visit our website with the current report at:

<https://www.pvknowhow.com/solar-report/iran/>

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.

www.jvg-thoma.com

Contact & Further Information

For further discussion or clarification of manufacturing-related aspects, please contact:

J.v.G. Technology GmbH

www.jvg-thoma.com

info@jvg-thoma.com