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Kuwait 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 Kuwait

KEY POINTS

All figures have been converted into USD

Yearly sunshine (sun hours per year)

Annual sunshine in the region can be expected to average around 300 sunny days per year.

This provides a significant opportunity for solar energy generation.

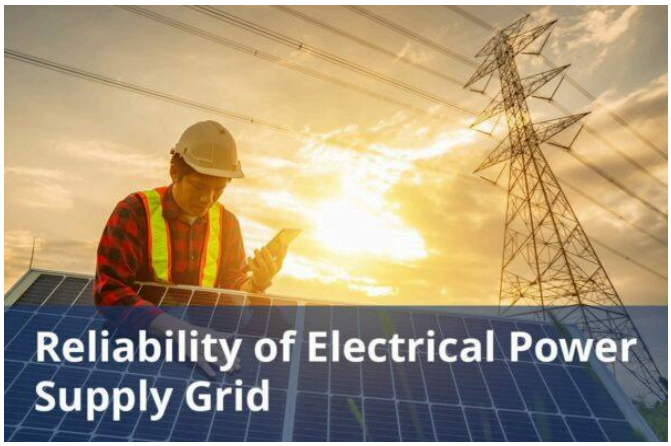
kWh per kWp installed

A well-placed solar panel system can generate approximately 1,400 kWh/kWp annually in optimal conditions.

This value can vary based on location and system efficiency.

Average cost per kWh from utility company

Residential Electricity Prices:
- For 0-100 kWh: $0.135/kWh
- For 100-600 kWh: $0.135/kWh
- For 600-1000 kWh: $0.1945/kWh
- For consumption above 1000 kWh: $0.2196/kWh



Reliability of electrical power supply grid

Solar panel systems typically have a reliability rate of over 95% during daylight hours.

This means they are generally dependable sources of renewable energy.




DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

As of the latest reports, there have been over 2.5 million solar panels installed across the region, contributing to the local energy grid.

This installation rate is continuously increasing.

Total solar panel production capacity (projected)

Estimates suggest that by 2025, solar panel installations may exceed 5 million units in the region.

This growth is driven by advancements in technology and increased adoption of renewable energy solutions.

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

Average costs for solar panel installations:
- Small residential system: $3,500
- Medium residential system: $8,000
- Large residential system: $12,000
- Commercial installations average around $25,000.

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

Currently, around 20% of the region's electricity is generated from renewable sources, with solar energy contributing a significant portion of this total.

This percentage is expected to grow as the adoption of solar technology increases.

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

On average, solar panels can generate energy for approximately 5-7 hours daily during peak sun hours.

Availability can fluctuate based on weather conditions and time of year.

Number of residential solar panel installations

Residential solar systems can vary in configuration but typically consist of anywhere from 15 to 30 panels depending on energy needs.

Most average around 20 panels.

Total number of solar farms (installed and projected)

The total number of solar farms operational in the region is around 150, serving both local and wider markets.

This includes both small and large-scale installations.

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

Off-grid market demand for solar panels:
According to Data Bridge Market Research, the Kuwait Solar Photovoltaic (PV) System Market was valued at USD 121.82 million in

2022 and is expected to reach USD 680.90 million by 2030, registering a CAGR of 22.80% during the forecast period of 2023-2030.

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

On-grid market demand for solar panels:
During the time frame of the forecast, the solar energy market in Kuwait is expected to register a compound annual growth rate (CAGR) of more than 7%.

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

Average monthly income of workers in solar industry:
A solar energy systems engineer in Kuwait typically earns around 4,107.10 USD. Salaries range from 2,019.64 USD (lowest) to 6,388.82 USD (highest).
A renewable energy engineer in Kuwait typically earns around 4,530.84 USD. Salaries range from 2,242.09 USD (lowest) to 6,998.86 USD (highest).

Population of the country

Population of the country:

As of 2024, the current population of Kuwait was estimated to be 4349380 million people.

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

Average overhead costs of solar panel production:
The overhead costs for solar panel production in Kuwait typically range from 20% to 25% of the total production cost.

- Labor costs for operating machinery, assembling panels, and quality checks are significant. Average labor costs are around 58.67 USD daily.

- Utility costs Utilities such as water, electricity, heating, and cooling are generally reasonable in Kuwait. Basic (Electricity, Heating, Cooling, Water, and Garbage) ranges from 22.17 USD-81.49 USD.

- Administrative expenses associated with the management of the production process are substantial.

- Quality control expenses incurred to ensure the solar panels meet performance and safety standards include testing and inspections.

- The average rent for multi-owned commercial buildings in Kuwait can vary.

A summary of the energy infrastructure

A summary of the energy infrastructure:
Kuwait's energy infrastructure is a comprehensive system that includes the generation, transmission, and distribution of electricity.

- Total Installed Capacity: As of 2018, Kuwait's total installed electricity capacity reached 18.8 million kilowatts (kW).

- Electricity Generation: In 2021, electricity generation in Kuwait reached 71.22 TWh.

- Electricity Consumption: The total electricity consumption in 2022 was 63.80 billion kWh.

- Clean Energy Transition: Kuwait aims to increase its clean energy production, with a strategic energy diversification plan aiming to have 15% of its energy production from renewable energy sources by 2030.

Some of the government regulations surrounding solar panel production

Some of the government regulations surrounding solar panel production:
Kuwait Municipal Council to discuss Solar Panel Regulations:
There is a proposal that seeks to introduce a regulatory framework for construction activities, specifically focusing on the incorporation of solar panels in government and private buildings.

- Renewable Energy Regulatory Development Authority: The Ministry of Electricity, Water, and Renewable Energy oversees the development and implementation of policies related to renewable energy projects.

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

Government initiatives in solar panel production:
Kuwait's government lacks policies that would boost the solar energy sector, few of its initiatives include:

- Feed-in tariff: Kuwait is working on a solar feed-in tariff where owners of solar panels get to sell unused power back to the national grid.

- Project investment: Future plans include developing a 2 GW wind and solar project and a 3 GW solar plant through public-private partnerships.

- Research and development: The Kuwait Institute for Scientific Research has partnered with Spain's TSK Group to establish the first solar thermal energy plant with a production capacity of 50 MW.

Notable solar projects in the country (installed and projected)

Notable solar projects in the country:

- Shagaya Solar Project:
Capacity: The project aims to achieve 4 GW of solar power capacity.

- Shagaya Renewable Energy Park:

Capacity: The park comprises of 10 MW of photovoltaic solar capacity.

- North Kuwait Solar:
Capacity: 5000 MW

- Subiya Solar Farm:
Capacity: 30 MW

- Sidrah 500 solar farm:
Capacity: 10 MWp/dc

- Al Abdaliyah solar farm:
Capacity: 60 MW

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

Some of the notable solar companies:

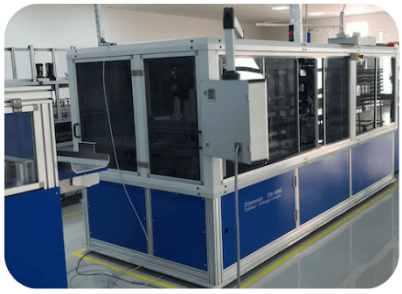
- Solarity Solar Energy:
Specializes in the provision of solar photovoltaic (PV) solutions.

- JinkoSolar Holding Co., Ltd.:
Offers a diverse product portfolio including high-performance solar panels.

- TSK Electrónica y Electricidad SA:
Specializing in solar PV and CSP projects, offering comprehensive solutions.

- Kuwait National Petroleum Company (KNPC):

Aiming to leverage the country’s solar potential to power its operations.



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.

REFERENCES

All References

1. <https://www.climate.top/kuwait/sunlight/> – climate.top “Kuwait” Retrieved June 20, 2024.
2. <https://globalsolaratlas.info/detail?c=29.273522,47.498016,11&r=FRA&s=29.273396,47.497948&m=site> – Global Solar Atlas “Kuwait” Retrieved June 20, 2024.

3. <https://www.globalpetrolprices.com/Kuwait/electricity%5Fprices/>– Global petrol Price “Kuwait electricity Prices” Retrieved June 20, 2024.
4. <https://www.energyconnects.com/news/utilities/2024/april/mitsubishi-power-awarded-major-power-station-upgrade-contract-by-kuwait-to-boost-grid-stability/> – Energy connect “contract by Kuwait to boost grid stability” Retrieved June 26, 2024.
5. <https://www.1arabia.com/2024/05/gulf-cooperation-council-grid-boosts.html> – 1 Arabia “gulf cooperation council grid boost Kuwait’s power supply” Retrieved June 26, 2024.
6. <https://www.powermag.com/press-releases/siemens-energy-awarded-major-service-contract-to-strengthen-kuwaits-power-grid-reliability/> – power “siemens energy awarded major service contract to strengthen Kuwait’s power grid reliability” Retrieved June 26, 2024.
7. <https://www.statista.com/statistics/1337727/kuwait-total-installed-energy-capacity-by-type/> – Statista “total installed energy capacity in Kuwait in 2022, by type” Retrieved June 29, 2024.
8. <https://www.enerdata.net/publications/daily-energy-news/koc-sign-agreement-development-1-gw-solar-capacity-kuwait.html> – Enerdata “KOC signed agreement for the development of 1 GW of solar capacity in kuwait” updated May 10, 2024\. Retrieved June 22, 2024.
9. <https://www.agbi.com/renewable-energy/2023/10/kuwait-to-resurrect-renewable-energy-mega-project/> – AGBI “Kuwait to resurrect renewable energy mega-project” October 2nd, 202 Retrieved June 22, 2024.
10. <https://www.deswater.com/DWT%5Farticles/vol%5F263%5Fpapers/263%5F2022%5F3.pdf> – Retrieved June 29, 2024

11. <https://www.worldometers.info/electricity/kuwait-electricity/#google%5Fvignette> – worldometer “Kuwait electricity” Retrieved June 29, 2024.
12. <https://ourworldindata.org/energy/country/kuwait> – our world in data “Kuwait energy country profile” Retrieved June 29, 2024.
13. <https://blogs.lse.ac.uk/mec/2021/02/11/the-unsustainability-of-kuwaits-energy-system-examining-kuwaits-energy-problem/> – mariam alsaad “the unsustainability of Kuwait’s energy system” Retrieved June 29, 2024.
14. <https://www.thenationalnews.com/news/mena/2024/06/20/kuwait-electricity-power-cuts/> – mena “Kuwait warns of systematic power cuts amid heatwave” Retrieved June 29, 2024.
15. <https://kuwaittimes.com/solar-energy-in-kuwait-benefits-and-challenges/> – Kuwait times “solar energy in Kuwait: benefit and challenges” Retrieved June 22, 2024.
16. <https://www.gem.wiki/Category:Solar%5Ffarms%5Fin%5FKuwait> – global energy monitor “solar farms in Kuwait” Retrieved June 22, 2024.
17. <https://www.databridgemarketresearch.com/news/kuwait-solar-pv-system-market> – Data bridge “empowering off-grid solution” Retrieved June 22, 2024.
18. <https://www.mordorintelligence.com/industry-reports/kuwait-solar-energy-market> – Mordor intelligence “solar energy industry in Kuwait size and share analysis” Retrieved June 22, 2024.
19. <https://www.salaryexplorer.com/average-salary-wage-comparison-kuwait-solar-energy-systems-engineer-c115j12678> – salary explorer

“solar energy system engineers average salary in Kuwait 2024” Retrieved June 22, 2024.
20. <https://www.salaryexplorer.com/average-salary-wage-comparison-kuwait-renewable-energy-engineer-c115j19631> – salary explorer “renewable energy engineer average salary in Kuwait 2024” Retrieved June 22, 2024.
21. https://database.earth/population/kuwait – database. Earth “population in Kuwait” Retrieved June 22, 2024.
22. <https://www.markaz.com/getmedia/661eb37e-9bff-451f-a12b-cb2d959d1a7a/Markaz-Construction-Cost-Report%5FEn%5F20-10-2022.pdf> – retrieved June 29, 2024.
23. <https://www.kuwaitmoments.com/the-cost-of-living-in-kuwait-a-comprehensive-guide-626890.html> \-Kuwait moment “cost of living in Kuwait” Retrieved June 29, 2024.
24. <https://oxfordbusinessgroup.com/reports/kuwait/2022-report/construction-real-estate/renewed-development-an-easing-of-pandemic-related-restrictions-and-ongoing-housing-projects-indicate-future-growth-for-the-industry/> – Retrieved June 30, 2024.
25. <https://www.mdpi.com/2071-1050/12/8/3257> \-sustainability policy for water pricing in kuwait. Retrieved June 30, 2024.
26. <https://www.instantoffices.com/en/kw/office-space/kuwait-city> \-Instant offices “office space for rent in Kuwait” Retrieved June 30, 2024.
27. <https://www.statista.com/outlook/fmo/insurances/non-life-insurances/property-insurance/kuwait> – Statista “property insurance-Kuwait” Retrieved June 30, 2024.
28. <https://www.eia.gov/international/content/analysis/countries%5Flong/

Kuwait/kuwait.pdf> – country analysis brief: Kuwait. Retrieved June 29, 2024.
29. <https://solarmagazine.com/kuwait-commissions-first-solar-power-plant/> – solar magazine “Kuwait’s commission its first solar power plant sidrah 500” Retrieved June 29, 2024.
30. <https://www.helgilibrary.com/indicators/total-electricity-installed-capacity-kw/kuwait/> – Helgi library “Total electricity installed capacity in Kuwait”. Retrieved June 29, 2024.
31. <https://www.globalpetrolprices.com/Kuwait/electricity%5Fprices/>– Global petrol Price “Kuwait electricity Prices” Retrieved June 20, 2024.
32. <https://en.wikipedia.org/wiki/Ministry%5Fof%5FElectricity,%5FWater%5Fand%5FRenewable%5FEnergy%5F%28Kuwait%29> – Wikipedia “Ministry of electricity, water and renewable energy (Kuwait)” Retrieved June 29, 2024.
33. <https://epa.gov.kw/en-us/PlanningDept> – Retrieved June 29, 2024.
34. <https://primroot.com/solar-panel-in-kuwait/> – Primroot “top solar panel in Kuwait: manufacturer and companies guide” Retrieved June 22, 2024.
35. <https://climate.enterprise.press/stories/2022/09/29/kuwait-wants-owners-of-solar-panels-to-be-able-to-sell-power-to-the-grid-82278/> – Enterprise climate “Kuwait wants owners of solar panels to be able to sell power to the grid” Retrieved June 29, 2024.
36. <https://oxfordbusinessgroup.com/reports/kuwait/2022-report/energy-utilities/powering-the-future-incentive-driven-solar-wind-and-hydrogen-development-plans-are-steering-the-uptake-of-cleaner-energy-sources/> – Retrieved June 29, 2024.

37. <https://kuwaitlocal.com/news/kuwait-unveils-monumental-solar-energy-project-for-renewable-energy> – Kuwait local “Kuwait unveils monumental solar energy project for renewable energy” Retrieved June 29, 2024.
38. <https://www.utilities-me.com/news/kuwait-announces-major-milestone-on-3-9-billion-shagaya-solar-project> – Utilities middle east “Kuwait announces major milestone on $3.9 billion shagaya solar project” Retrieved June 22, 2024.
39. <https://www.kisr.edu.kw/en/gi/5/details/> – KISR “shagaya concentrated solar power projects” Retrieved June 22, 2024\.
40. <https://www.gem.wiki/North%5FKuwait%5FSolar> – global energy monitor “North Kuwait solar” Retrieved June 22, 2024.
41. <https://www.gem.wiki/Subiya%5Fsolar%5Ffarm> – global energy monitor “subiya solar farm” Retrieved June 22, 2024.
42. <https://www.gem.wiki/Sidrah%5F500%5Fsolar%5Ffarm> – global energy monitor “sidrah 500 solar farm” Retrieved June 22, 2024.
43. <https://www.gem.wiki/Al%5FAbdaliyah%5Fsolar%5Ffarm> – global energy monitor “Al-abdaliyah solar farm” Retrieved June 22, 2024.

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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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