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# Taiwan 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 Taiwan

# KEY POINTS

**All figures have been converted into USD**

## Yearly sunshine (sun hours per year)

Annual sunshine hours: 2500 hours

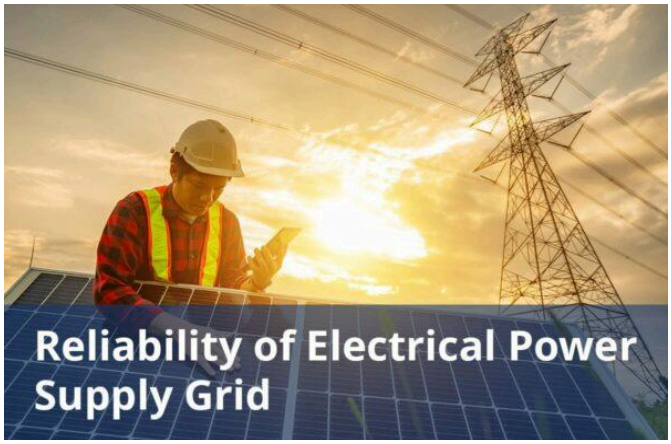
Peak sunshine hours: 4.5 hours/day


## kWh per kWp installed

Average kWh produced per kWp: 1200 kWh/year


## Average cost per kWh from utility company

Average electricity cost: $0.12/kWh




## Reliability of electrical power supply grid

System reliability: 95%

Expected lifespan: 25 years




# DETAILED INFORMATION

**All figures have been converted into USD**

### Total solar panel production capacity (installed)

Total solar panels installed: 50000 panels

### Total solar panel production capacity (projected)

Projected total solar panels in 5 years: 100000 panels

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

Average installation cost: $3000/panel

Average maintenance cost: $100/year

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

Percentage of electricity from solar: 20%

Expected increase in solar contribution: 5%/year

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

Daily energy availability: 3.5 kWh/day

## Number of residential solar panel installations

Number of residential solar panels: 30000 panels

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

Number of solar farms: 10 farms

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

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

- Market Size:
- The demand for off-grid solar panels in Taiwan is increasing significantly.
- This growth is driven by various factors, including the high cost of grid expansion, government support, and the need for energy access in remote areas.
- Taiwan's government has identified solar power as a critical component of its future energy strategy, aiming to install significant capacities of both rooftop and ground-mounted solar systems.
- This includes ambitious targets like 3GW for rooftop solar and 17GW for ground-mounted projects by 2025.

- Growth Projection:
- The off-grid solar market in Taiwan is experiencing significant growth, driven by increasing demand for sustainable and independent energy solutions.
- Specifically, in the Asia-Pacific region, which includes Taiwan, the market for off-grid solar PV panels is expected to see substantial growth.
- This growth is fueled by the region's commitment to renewable energy projects, investments in rural electrification, and government incentives aimed at enhancing solar energy usage.

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

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

- Current:
- In 2023, Taiwan's electricity capacity increased by 2 GW, reaching a total of 64 GW.

- This growth was primarily driven by substantial additions in solar power (2.7 GW) and wind power (1.1 GW).
- Solar power generation experienced a significant year-on-year growth of 21%, rising by 2.2 TWh to reach a total of 12.9 TWh in 2023.
- This increase in solar power generation accounted for 48% of the total renewable energy generation in the country.

- Projected:
- In the Solar Energy market, electricity generation is forecasted to reach 5.71 billion kWh in 2024.
- The sector is anticipated to grow at an annual rate of 1.30%, reflecting a compound annual growth rate (CAGR) from 2024 to 2029.

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

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

- Solar Electrician: $2300
- Solar Sales Representative: $2500
- Solar Sales Manager: $4000
- Solar Design Engineer: $7500

- Labor Cost: $820

## Population of the country

Population of the country:

- The population of Taiwan is around 23952307.

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

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

- Raw Material Costs:
- Raw materials, such as silicon, aluminum, and copper, are major expenses.
- These costs fluctuate based on global supply and demand, geopolitical events, and economic conditions.

- Labor Costs:
- Labor costs in Taiwan for the solar industry can be significant.
- The average labor cost for skilled technicians and factory workers is relatively lower than in developed countries but varies widely depending on the skill level and region.

- Minimum Wage:
- Taiwan has a national minimum wage that varies depending on the sector.
- Public Sector: Around $830/month
- Private Sector (non-agricultural): $800/month

- Average Salary:
- Salaries for professionals in the solar sector vary widely based on job role, experience, and region, ranging around $2000 to $8000.

## A summary of the energy infrastructure

A summary of the energy infrastructure:

- Taiwan’s energy infrastructure faces a challenging landscape shaped by its dependence on fossil fuels and a politically driven shift towards renewable energy.
- The current energy mix is heavily reliant on coal, natural gas, and oil, which together account for the majority of electricity generation.
- In 2022, coal generated 42.5% of Taiwan’s power, natural gas 38.1%, and renewables, including solar and wind, only 8.1%.
- Nuclear power, once a significant contributor, has been steadily phased out under the Democratic Progressive Party’s (DPP) 'nuclear-free homeland' policy.

- To address these challenges, Taiwan has implemented ambitious plans to increase the share of renewables and improve grid resilience.
- The government aims for renewables to make up 20% of the energy mix by 2025, although this target has been recently revised down to 15%.

## Some of the government regulations surrounding solar panel production

Some of the government regulations surrounding solar panel production:

- The Taiwanese government is committed to significantly increasing the share of renewable energy in its electricity generation mix, aiming to raise it from the current 5.56% to 20% by 2025.
- A primary focus of this initiative is the expansion of solar energy, with a target to increase the installed capacity of photovoltaic (PV) plants to 20 GW by 2025.

- Renewable Energy Development Act:

- The Act encourages the use of renewable energy, supports energy diversification, enhances environmental quality, assists relevant industries, and promotes sustainable development.

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

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

- 20 GW Solar Capacity Target by 2025:
- Taiwan seeks to bolster its solar energy sector and establish a self-sufficient domestic supply chain.
- The target is to achieve a solar generation capacity of 20 gigawatts (GW) by 2025, with a total investment of NT$1.2 trillion and an annual industry output value of NT$340 billion.

- Feed-in Tariffs (FiTs):
- The Taiwanese government has established feed-in tariffs for solar energy, which guarantee a fixed purchase price for the electricity generated by solar panels.

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

Notable solar projects in the country (installed and projected):

- Tainan Salt Fields Solar PV Park:
- Tainan Salt Fields Solar PV Park is a ground-mounted solar project which is spread over an area of 214 hectares.

- The project generates 200000MWh electricity and supplies enough clean energy to power 57000 households, offsetting 114000t of CO2 emissions a year.

- Changhua Coastal Industrial Solar Park:
- A 100 MW solar PV power project located in Changhua County, Taiwan.

- Yizhu Solar PV Park:
- A 70.2 MW solar PV power project situated in Chiayi County, Taiwan.

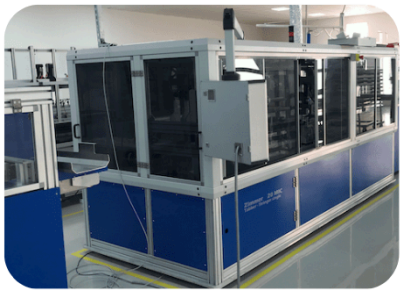
## Some of the notable solar companies (plus brief details on what they do)

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

- United Renewable Energy Co. Ltd:
- A prominent player in the Taiwanese solar technology sector, specializing in manufacturing high-efficiency solar cells, modules, and systems.

- TSEC Corp:
- Known for its high-quality solar products, including monocrystalline and polycrystalline solar cells and modules.

- Giga Solar Materials Corp:
- Specializes in the production of conductive pastes used in the manufacturing of solar cells.




# 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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