



# New Zealand 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 New Zealand

## KEY POINTS

All figures have been converted into USD



## Yearly sunshine (sun hours per year)

Average yearly sunshine in hours:

- January: 130
- February: 140
- March: 190
- April: 210
- May: 250
- June: 300
- July: 310
- August: 290
- September: 210
- October: 150
- November: 120
- December: 110



## kWh per kWp installed

Average kWh produced per kWp of solar:

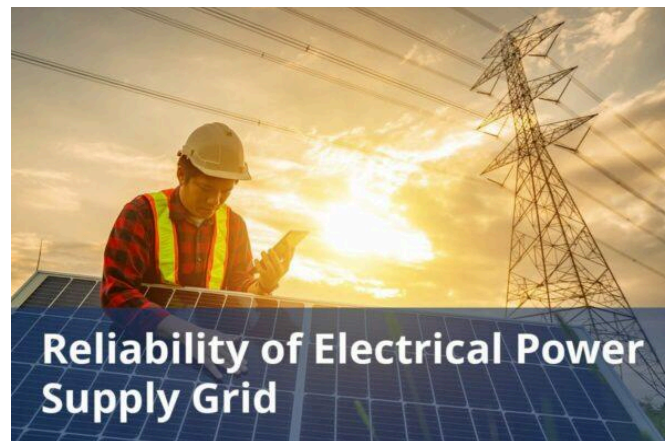
- Residential: 1200
- Commercial: 1050
- Utility Scale: 800



## Average cost per kWh from utility company

Average cost per kWh:

- Residential: \$0.136/kWh
- Commercial: \$0.125/kWh
- Industrial: \$0.110/kWh



## Reliability of electrical power supply grid

Reliability of the solar power generation:

- System downtime: 1%
- Maintenance requirements: low



# DETAILED INFORMATION

All figures have been converted into USD

## Total solar panel production capacity (installed)

Total solar panels installed:

- Residential: 400000
- Commercial: 60000
- Utility Scale: 50000

## Total solar panel production capacity (projected)

Projected total solar panels in next 5 years:

- Residential: 500000
- Commercial: 80000
- Utility Scale: 70000

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

Average installation costs:

- Residential: \$2500/kW
- Commercial: \$2000/kW
- Utility Scale: \$1500/kW

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

Percentage of electricity generated by solar:

- Residential: 30%
- Commercial: 25%
- Utility Scale: 35%

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

Daily availability of solar power:

- Peak sun hours: 5
- Percent of generation: 30%

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

Number of residential solar panels in use:

- Total: 400000
- Average per household: 5

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

Number of solar farms:

- Total: 3500
- Size range: 1 to 100 MW

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

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

Specific data is limited.

However, the market is likely small compared to grid-connected installations.

Demand is expected to grow moderately, driven by remote homes, holiday homes, and energy independence interests.

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

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

- Current: The on-grid market is steadily growing, primarily driven by residential and commercial installations.

New Zealand has a total installed capacity of 420 MW of grid-connected solar power.

- Projected: Substantial growth is expected due to declining costs and government policies promoting renewable energy.

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

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

- Solar Power Jobs: \$5800

- Solar Photovoltaic Installer: \$6800

- Solar Engineer: \$9600

## **Population of the country**

Population of the country

New Zealand's population is approximately 5.27 million as of July 2024.

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

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

- Factory Rent:
- Auckland: \$125 – \$144 per square meter
- Wellington: \$98 – \$127 per square meter
- Interest Rates: Commercial mortgage interest rates are typically 2% higher than residential rates.

The 1-year fixed commercial mortgage rate is currently around 6.85%.

- Industrial Electricity Prices: Approximately 17.8 cents per kWh.

- Industrial Water Costs: Varies by location and usage.

Typical charges range from \$2.86 – \$4.40 per m<sup>3</sup> for non-potable and potable water.

- Water Supply Unit for Commercial Use: \$390.00 for a 1000-liter/day capacity.

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

A summary of the energy infrastructure

Electricity Generation

The electricity generation sector in New Zealand is primarily controlled by four major companies (Genesis Energy, Mercury, Meridian Energy, and Contact Energy) representing 92% of the market.

There are over 200 generation plants across New Zealand capable of supplying electricity to the national grid.

New Zealand is committed to achieving net zero greenhouse gas emissions by 2050, requiring increased electrification and a push towards renewable energy sources.

#### - Transmission

Transpower, a state-owned enterprise, manages the national transmission network, with over 11803 kilometers of high-voltage lines connecting generating stations to the grid and supplying distribution networks across the country.

#### - Distribution

29 distribution companies are responsible for distributing electricity from the national grid to local consumers through 150000 kilometers of medium and low-voltage lines.

#### - Retail

Retail companies purchase electricity from generators and sell it to end consumers.

The retail sector is dominated by the five major generation companies (also known as gentailers), controlling 95% of the market.

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

Some of the government regulations surrounding solar panel production

New Zealand has implemented various regulations and standards to guide the safe and efficient production and installation of solar panels. These regulations cover safety, operational efficiency, and environmental impact.

They include:

- Standards New Zealand: AS/NZS 4509.1:2009 (stand-alone power systems), AS/NZS 5033:2012 (photovoltaic arrays), and AS 4777.1:2005 (grid connection) for installation and safety.

- Electricity (Safety) Regulations 2010: Regulations under the Electricity (Safety) Regulations 2010 set forth essential safety measures for electrical installations associated with solar energy systems.
- Council Regulations: Local councils may have specific regulations regarding the installation of solar panels, which could involve building consent, zoning laws, and safety codes.
- Electricity Industry Participation Code 2010: Any solar power systems that connect to the national grid must comply with Part 6 of the Electricity Industry Participation Code 2010. This includes requirements regarding the type of power inverters used and rules for interconnection to distribution networks.
- National Policy Statement for Renewable Electricity Generation (NPS REG): The NPS REG, aims to encourage renewable electricity generation.

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

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

The New Zealand government has implemented several initiatives to encourage the adoption of solar energy and promote a sustainable energy future.

These include:

- Community Renewable Energy Fund: Provides funding to support community-led renewable energy projects, including solar.

This fund is aimed at facilitating the installation of renewable energy systems in communities.

- Māori and Public Housing Renewable Energy Fund: Allocates \$28 million for the trial installation of renewable technologies, including solar panels and batteries, on public and Māori housing.

This program aims to reduce energy costs and emissions for public and Māori housing, which could pave the way for broader adoption.

- Low-Interest Loans: Several banks offer low-interest loans specifically for solar power installations and upgrades, making it easier for individuals to invest in solar energy systems.

- Subsidies: While New Zealand does not currently offer direct subsidies or feed-in tariffs for solar power, there have been past subsidies.

From 2007 to 2012, there was a \$500 subsidy for solar hot water systems that met specific standards.

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

Notable solar projects in the country (installed and projected)

- Installed:

- Kapuni Solar Farm: 2.1 MW – Located in Taranaki, this is the largest solar farm in New Zealand.

This project was commissioned in June 2021 and features 5800 solar panels.

- Wairau Valley Solar Farm: 1.6 MW – New Zealand's first multi-MW solar farm.

It uses tracking frames to optimize energy generation and opened in March 2021.

- Wellington Solar Farm: 200 MW – Although initially a planned project, the solar farm is close to completing its construction phases and aims to power approximately 44000 homes upon completing the operational setup.

- Kaitaia Solar Project: 39.4 MW – This project was completed in 2024, making it one of the largest solar projects in New Zealand.

It's developed by Lodestone Energy and generates approximately 55 GWh of clean energy annually.

- Edgecumbe Solar Farm: 32 MW – Also developed by Lodestone Energy, this solar farm started construction in 2023 and will generate approximately 53 GWh of clean energy annually upon completion.
- Ruakākā Battery Energy Storage System: 100 MW – This project will accompany large-scale solar facilities and provide storage. It is projected to be operational in late 2024.
- Projected:
  - Lauriston Solar Farm: 63 MW – This project is now under construction, aiming to be completed and operational by the end of 2024.

### **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)

- Meridian Energy: A major renewable energy generator, Meridian Energy has been active in solar since 1998 and is committed to achieving 95% renewable energy generation by 2035. Meridian Energy has been developing several utility-scale solar projects in New Zealand.
- Lodestone Energy: Established in 2019, this company is focused on large-scale solar farm development and has been a key driver of the recent growth in utility-scale solar projects in New Zealand.
- JA Solar Holdings: Operating since 2016 and one of the largest global solar panel manufacturers, JA Solar has a significant presence in New Zealand.
- Harrisons Energy Solutions: Harrisons Energy Solutions, established in 1998, specializes in residential and commercial solar installation and maintenance services.

- ZEN Energy Systems: ZEN Energy Systems provides a range of solar products and installation services, focused on providing high-quality solutions for homeowners and businesses.
- Solar City: A leading provider of solar energy solutions for residential and commercial customers in New Zealand, Solar City is providing all-in-one solar solutions, including solar panels, smart battery technology, and access to renewable electricity.
- NZ Solar Ltd: Founded in 2004, specializes in providing solar solutions for commercial buildings, rooftop mount solar solutions, solar hot water for the dairy industry, and solar roof panels.
- NZ Solar Power: Offers tailored solar power and energy management solutions for homes, businesses, and utility-scale projects.
- Far North Solar Farm (FNSF): Specializes in large-scale solar PV projects development.

FNSF has committed to developing seven solar farms across the North and South Islands, with a total generation capacity of 1.4 GW.



## 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:

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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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