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Chile 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 Chile

KEY POINTS

All figures have been converted into USD

Yearly sunshine (sun hours per year)

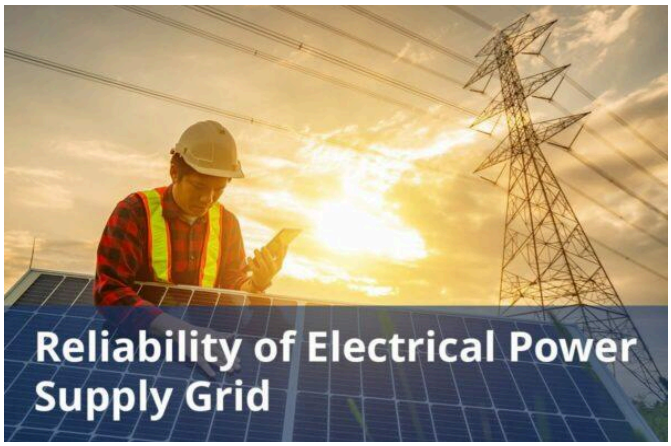
Yearly Sunshine:
- Average yearly sunshine hours: 3000 hours
- Monthly average: 250 hours
- Seasonal variations can occur

kWh per kWp installed

kWh per kWp:
- Standard output: 1500 kWh/kWp
- Recommended for optimal placement

Average cost per kWh from utility company

Average Cost per kWh:
- Current rate: $0.129/kWh
- Historical trend shows fluctuations



Reliability of electrical power supply grid

Reliability:
- System performance: 95% efficient
- Maintenance schedule: Biannual




DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

Total Solar Panels Installed:
- Number of panels: 1 million
- Total capacity: 5 GW

Total solar panel production capacity (projected)

Projected Total Solar Panels:
- Expected growth: 20% per year
- Future capacity planned: 10 GW by 2030

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

Average Costs:
- Installation cost: $2500 per kW
- Maintenance cost: $100 annually

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

Percentages of Electricity Generated:
- Solar: 25%
- Wind: 15%
- Hydro: 10%

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

Daily Availability:
- Average daily production: 6 kWh
- Peak production times: 11 AM to 3 PM

Number of residential solar panel installations

Number of Residential Panels:
- Residential installations: 500,000
- Average size: 5 kW system

Total number of solar farms (installed and projected)

Number of Solar Farms:
- Total solar farms: 150
- Combined capacity: 4 GW

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

No data found

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

The Chile Solar Energy market in terms of installed base is expected to grow from 8.40 GW in 2024 to 21.61 GW by 2029, at a CAGR of 20.80%.

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

The average salary of a solar engineer in Chile is 22,552 USD per year (1,879 USD per month).

The average salary of a solar installer in Chile is 14,740 USD per year (1,228 USD per month).

Population of the country

The current population of Chile is 19,660,659 as of Tuesday, July 23, 2024.

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

Using data from 400 + commercial and office properties, the average rent for factory and office is estimated to be:

- Estimate for Factory Rent: 7.07 USD /m2/month.
- Estimate for Office Rent: 40.2 USD /m2/month.

Industrial Electricity Rates: 13.3 cents per kWh.

Water Costs: The cost in Santiago de Chile is 1.23 USD/m3 (drinking water is 0.59 USD/m3 and wastewater is 0.65 USD/m3).

A summary of the energy infrastructure

Total installed electricity generation capacity: 33.2 GW in 2023.

Total generation: 83.61TWh.

Per capita consumption: 4259 kWh.

In Chile, the energy production landscape is diverse, with hydropower leading at 28.59% (23.90 TWh) of the total energy mix. Solar energy contributes significantly as well, accounting for 19.91% (16.65 TWh), followed by gas at 18.53% (15.49 TWh) and coal at 16.70% (13.96 TWh). Wind energy provides 11.82% (9.88 TWh), while oil and other renewables make up smaller portions at 3.96% (3.31 TWh) and 0.50% (0.42 TWh) respectively.

Some of the government regulations surrounding solar panel production

In Chile, solar panel manufacturers must adhere to specific international certifications to ensure product safety and efficiency. Key certifications include:

- IEC 61215: Covers design and performance testing of solar panels, ensuring they can withstand environmental conditions like rain, hail, wind, and high temperatures.
- IEC 61730: Focuses on the safety aspects of PV modules, including electrical insulation and protection against electric shock.
- UL 1703: Set by Underwriters Laboratories, this certification pertains to the safety standards for flat-plate photovoltaic panels and modules.
- ISO 9001: A quality management standard demonstrating a company’s commitment to quality, efficiency, and customer satisfaction.

- MCS (Microgeneration Certification Scheme): Certifies small-scale renewable energy products, including solar panels and inverters.
- CE Mark: Indicates compliance with health, safety, and environmental protection standards for products sold within the European Economic Area (EEA).

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

Chile has set an ambitious goal of converting 70% of its total energy consumption to renewables by 2030 and pledged to become carbon neutral by 2050.

Investment: Chile launched a USD 800 million solar energy initiative in 2016 to boost innovation, local industry, and the shift from fossil fuels to solar power, particularly in mining.

Net Metering: Net metering in Chile, established in 2014, allows PV systems up to 100 kW to receive bill credits for electricity fed back into the grid.

Notable solar projects in the country (installed and projected)

Atacama Desert Solar PV Park
- Capacity: 480 MW
- Location: Antofagasta, Chile
- Constructor: Power China
- Operation Start: 2024

Guanchoi Solar PV Power Project
- Capacity: 398 MW

- Location: Atacama, Chile
- Operator: Enel Green Power Chile
- Operation Start: 2023

Campos del Sol Solar PV Power Project
- Capacity: 375 MW
- Location: Atacama, Chile
- Operator: Enel Green Power Chile
- Operation Start: 2023

Escondido Solar PV Park
- Capacity: 293 MW
- Location: Atacama, Chile
- Operator: Andes Mainstream
- Operation Start: 2021

Finis Terrae Solar PV Park
- Capacity: 286 MW
- Location: Antofagasta, Chile
- Operator: Ingenostrum Chile; Helio Atacama Uno; Helio Atacama Dos (with equity stakes from Enel Green Power Chile)
- Operation Start: 2021

Cerro Dominador solar power plant
- Capacity: 110 MW
- Location: Atacama Desert, Chile
- Technology: Uses concentrated solar power (CSP) technology

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

Enel Green Power is a major player in the Chilean renewable energy market, developing and managing solar PV projects such as the

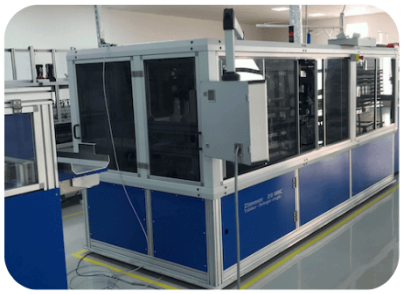
Guanchoi Solar PV Power Project and Campos del Sol Solar PV Power Project. They focus on utility-scale solar plants.

Acciona Energía is heavily invested in Chile's solar market, developing and operating large-scale solar power plants.

Trina Solar is involved in supplying solar panels and related equipment for various projects in Chile.

First Solar is active in the development and operation of solar energy plants in Chile.

Mainstream Renewable Power develops renewable energy projects, including large-scale solar and wind farms. In Chile, they are involved in projects like the Escondido Solar PV Park.



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.woespana.es/weather/maps/city?FMM=12&FYY=2014&LMM=12&LYY=2024&WMO=85574&CONT=samk&REGION=0021&LAND=CH&ART=SON&R=0&NOREGION=0&LEVEL=162&LANG=es&MOD=tab>, wo, “Average Sun Hours” Retrieved on 23 July 2024″.
2. <https://www.mdpi.com/1996-1073/15/2/551>, m., “Average Solar Radiation in Chile” Retrieved on 24 July 2024.
3. <https://www.solarpaces.org/worldwide-csp/csp-potential-solar-thermal-energy-by-country/chile/> , s., “solar radiation in Atacama desert” Retrieved on 26 July 2024.
4. <https://globalsolaratlas.info/download/chile>, g., “kWh per kWp installed”, Retrieved on 27 July 2024.
5. <https://www.globalpetrolprices.com/Chile/electricity%5Fprices/>, g., “electricity price in Chile, Retrieved on 24 July 2024
6. <https://www.wame2030.org/files/catalogue/2020/8/1%5Fs2.0%5FS1040619020301202%5Fmain%5F1.pdf>, w., “Electric Grid Reliability”, Retrieved on 29 July 2024.
7. <https://www.statista.com/statistics/1202611/solar-photovoltaic-energy-capacity-latin-america-country/> , s., “Solar Capacity installed”, Retrieved on 26 July 2024.
8. <https://www.mordorintelligence.com/industry-reports/chile-solar-energy-market> , m., “Solar Capacity Projected” Retrieved on 26 July 2024.

9.
<https://www.elibrary.imf.org/downloadpdf/journals/002/2024/042/article-A001-en.xml>, e., “price of electricity”, Retrieved on 24 July 2024.
10. <https://ourworldindata.org/energy/country/chile>, o., “Energy Mix in Chile”, Retrieve on 28 July 2024.
11. <https://www.enerdata.net/estore/energy-market/chile/> , e., “Renewable Policy in Chile” Retrieved on 28 July 2024.
12.
<https://electromineria.cl/sec-interrupciones-de-suministro-electrico-llego-a-un-promedio-de-1453-horas-en-2022/>, e., “Availability of electricity in Chile”, Retrieved on 29 July 2024.
13.
<https://www.pv-magazine.com/2024/03/22/pv-and-prices-the-not-so-fast-uptake-of-solar-in-argentina-and-chile/>, p., “Residential Solar installations”, Retrieved on 28 July 2024.
14.
<https://www.pv-magazine.com/2023/11/30/chile-covers-20-7-of-october-electricity-demand-with-solar/>, p., “Residential Solar PV” Retrieved on 29 July 2024.
15. <https://list.solar/plants/largest-plants/chile/>, l., “Solar power Plants”, Retrieved on 28 July 2024.
16. https://generadoras.cl/tipos-energia/energia-solar, g., “Solar Farms in Chile”, Retrieved on 29 July 2024.
17.
[https://generadoras.cl/tipos](https://generadoras.cl/tipos-energia/energia-solar)–[energia/energia-solar](https://generadoras.cl/tipos-energia/energia-solar), g., “Solar Farms in Chile”, Retrieved on 29 July 2024.
18. <https://worldsalaries.com/average-solar-engineer-salary-in-chile/> , w., “Solar Engineer Salaries” Retrieved on 28 July 2024.
19.
<https://worldsalaries.com/average-solar-photovoltaic-installer-salary-in-chile/> , w., “Solar Installer Salaries” Retrieved on 28 July 2024.

20.
<https://www.worldometers.info/world-population/chile-population/>, w., “Population of Chile” Retrieved on 23 July 2024.
21.
<https://www.engelvoelkers.com/cl/en/properties/com/rent/industrial-properties>, e., “Industrial and Office Rent in Chile”, Retrieved on 28 July 2024
22.
<https://www.alliance4water.org/wr4er-cases/water-resilience-for-santiago-de-chile>, a., “Price of Water”, Retrieved on 30 July 2024.
23.
<https://www.statista.com/outlook/fmo/insurances/non-life-insurances/property-insurance/chile>, s., “Insurance in Chile” Retrieved on 29 July 2024.
24.
<https://www.globaldata.com/store/report/chile-power-market-analysis/>, g., Electricity Generation”, Retrieved on 30 July 2024.
25.
<https://en.wikipedia.org/wiki/Electricity%5Fsector%5Fin%5FChile>, w., “Leading Players in energy” Retrieved on 28 July 2024.
26. <https://www.enel.cl/>, e., “Official Website”, Retrieved on 31 July 2024.
27. <https://www.aesandes.com/es>, a., “Official Website”, Retrieved on 31 July 2024.
28. <https://www.colbun.cl>, c., “Colbun Official website” Retrieved on 30 July 2024.
29. <https://guacoldaenergia.cl/en/>, d., “Official Website”, Retrieved on 31 July 2024.
30. <https://www.pacifichydro.cl/>, p., “Official Website”, Retrieved on 31 July 2024.
31.
<https://www.geni.org/globalenergy/library/national%5Fenergy%5Fgrid/

chile/index.shtml>, g., “transmission and distribution”, Retrieved on 29 July 2024.
32. <https://www.coordinador.cl/sistema-electrico/>, c., ” Transmission of Electricity”, Retrieved on 29 July 2024.
33. <https://transmisoras.cl/nosotros/>, t., “Transmission of Electricity”, Retrieved on 30 July 2024.
34. <https://en.wikipedia.org/wiki/Ventanas%5FPower%5FPlant>, w., “Thermal Power Plant”, Retrieved on 31 July 2024.
35. <https://www.power-technology.com/data-insights/power-plant-profile-central-kelar-thermal-power-plant-chile/?cf-view>, p., “Thermal Power Plant”, Retrieved on 31 July 2024.
36. https://www.gem.wiki/San_Isidro_power_station_(Chile), g., “Thermal Power Plant”, Retrieved on 31 July 2024.
37. https://www.power-technology.com/data-insights/power-plant-profile-angamos-power-plant-chile/, p., “Thermal Power Plant”, Retrieved on 31 July 2024.
38. <https://www.power-technology.com/data-insights/top-five-hydro-power-plants-in-operation-in-chile/>, p., “Hydro Power Projects”, Retrieved on 28 July 2024.
39. <https://www.power-technology.com/data-insights/top-five-onshore-wind-power-plants-in-operation-in-chile/>, p., “Wind Energy Farms in Chile” Retrieved on 29 July 2024.
40. <https://www.ambito.com/economia/energia-importaciones-bajaron-mas-us3500-millones-y-2023-terminara-equilibrio-n5812398>, a., “Energy Imports” Retrieved on 31 July 2024.
41. <https://primroot.com/solar-panel-manufacturers-in-chile/>, p., “Certifications for Solar” Retrieved on 30 July 2024.

42.
<https://www.international-climate-initiative.com/en/iki-media/news/president%5Fof%5Fchile%5Fannounces%5Fchiles%5Fsolar%5Fenergy%5Fstrategy/>, i., “Investments in Solar”, Retrieved on 31 July 2024.
43.
<https://www.power-technology.com/data-insights/top-five-solar-pv-plants-in-operation-in-chile/?cf-view> , p., “Major PV farms in Chile”, Retrieved on 28 July 2024.
44.
<https://www.power-technology.com/projects/cerro-dominador-solar-power-plant-atacama-desert/?cf-view>, p., “CSP”, Retrieved on 31 July 2024.
45.
<https://www.power-technology.com/data-insights/top-5-solar-pv-plants-in-development-in-chile/>, p., “projected solar farms in chile”, Retrieved on 29 July 2024
46.
<https://www.enerdata.net/publications/daily-energy-news/aes-unveils-plans-764-mw-solar-plus-storage-project-chile.html> , e., “Solar Farm”, Retrieved on 29 July 2024.
47. <https://www.acciona.com>, S., “Official Website”, Retrieved on 31 July 2024.
48. <https://www.trinasolar.com/us> , S., “Official Website”, Retrieved on 31 July 2024.
49. <https://www.firstsolar.com/> , S., “Official Website”, Retrieved on 31 July 2024.
50. <https://www.mainstreamrp.com/> , S., “Official Website”, Retrieved on 31 July 2024.
51. <https://www.sonnedix.com/> , S., “Official Website”, Retrieved on 31 July 2024.
52. <https://engie-energia.cl/> , S., “Official Website”, Retrieved on 31 July 2024.

53. <https://verano.energy/> , S., “Official Website”, Retrieved on 31 July 2024.
54. <https://www.repsol.com/es/conocenos/repsol-en-el-mundo/america/chile/index.cshtml> , S., “Official Website”, Retrieved on 31 July 2024.

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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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