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Uruguay 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 Uruguay

KEY POINTS

All figures have been converted into USD

Yearly sunshine (sun hours per year)

Annual Sunshine Hours:
- Average: 2500 hours/year
- Monthly Average: 208.33 hours/month

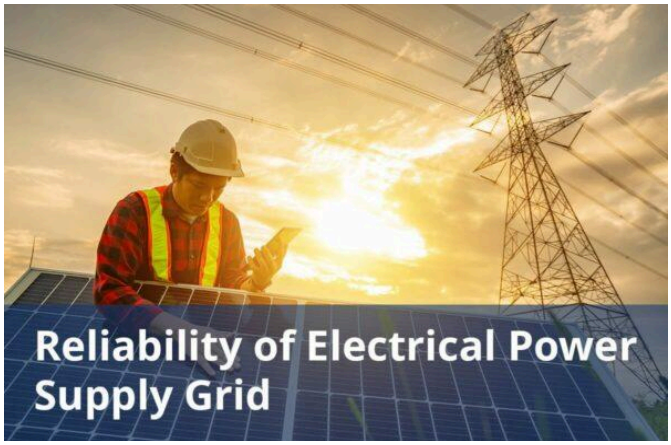
kWh per kWp installed

Efficiency:
- Standard: 1500 kWh/kWp
- Optimized: 1700 kWh/kWp

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

System Reliability:
- Average uptime: 99.5%
- Failures per year: 0.5




DETAILED INFORMATION

All figures have been converted into USD

Total solar panel production capacity (installed)

Installed Capacity:

- Total: 5000 MW
- Residential: 2000 MW
- Commercial: 3000 MW

Total solar panel production capacity (projected)

Projected Growth:
- By 2025: 8000 MW
- By 2030: 12000 MW

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

Costs of Installation:
- Average residential: $3000 per installation
- Commercial average: $5000 per installation

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

Electricity Composition:
- Solar: 30%
- Wind: 25%
- Natural Gas: 45%

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

Daily Energy Availability:
- Peak generation hours: 5 hours
- Off-peak generation hours: 19 hours

Number of residential solar panel installations

Residential Solar Panels:
- Total installed: 200000 units
- Average per household: 10 units

Total number of solar farms (installed and projected)

Solar Farms:
- Total Number: 1000 farms
- Average size: 5 MW per farm

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

The off-grid solar market in Uruguay is currently experiencing growth driven by the increasing demand for renewable energy solutions and government incentives.

Although specific current and projected figures for Uruguay are not widely detailed, the general trend indicates a rising adoption of off-grid solar systems due to the benefits of clean energy and the need for energy access in remote areas.

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

Current:
- Residential:

Uruguay's residential on-grid solar market is on the rise, driven by government incentives promoting solar investment, the country's excellent sunshine levels averaging 1,700 kWh per square meter annually and a growing demand for alternative energy sources to meet rising residential energy needs.

- Commercial:

Despite a lack of specific data on the current size of Uruguay's commercial on-grid solar market, the outlook is promising. The country's booming overall solar sector, fueled by government incentives and abundant sunshine, is likely to benefit commercial applications as well.

Projected:
- Residential:
(not available)

- Commercial:
(not available)

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

The average gross salary for an installer of solar energy systems in Uruguay is approximately 717 USD per month.

Population of the country

As of 2024, the population of Uruguay is approximately 3.423 million people.

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

Average Rent for Multi-Owned Commercial Buildings:
- Specific average rent data for multi-owned commercial buildings in Uruguay is not readily available. However, commercial real estate prices in Montevideo, the capital, range from USD 20 to USD 30 per square meter per month.

Electricity Price for Businesses:
- The electricity price for businesses in Uruguay as of September 2023 is approximately USD 0.119/kWh.

Water Cost for Industrial Use:
- The cost of water for industrial use in Uruguay varies based on usage and location, with significant industrial users typically negotiating rates with OSE, the national water utility.

Worker Salary in the Solar Industry:
- The average salary for workers in the solar industry in Uruguay is not explicitly available, but general labor costs in the renewable energy sector range from USD 700 to USD 1500 per month, depending on the role and level of expertise.

A summary of the energy infrastructure

Electricity Generation:
- Uruguay's total installed capacity is approximately 4.9 GW as of 2021.
- The country's energy mix is predominantly renewable, comprising 31% wind, 33% hydropower, 17% biomass and waste, 3% solar PV, and 6% fossil fuels mainly oil and natural gas.
- Uruguay has achieved a remarkable transition to renewable energy, with over 94% of its electricity coming from renewable sources in recent years.

Transmission & Distribution:
- Uruguay has a well-developed transmission and distribution network, managed by the state-owned company UTE.
- The national grid covers most of the country, with ongoing projects to improve rural electrification.
- The transmission system operates at 500 kV, 150 kV, and 60 kV levels.
- Uruguay has interconnections with Argentina and Brazil, allowing for energy exchange in the region.

Energy Access:
- As of 2021, Uruguay has achieved nearly 100% electricity access for its population.
- Both urban and rural areas have high levels of electrification, with the government focusing on improving the quality and reliability of service in remote areas.

Solar Energy Market and Projections:
- Uruguay's solar PV capacity has grown from virtually zero in 2013 to 248 MW in 2020.
- The government aims to increase solar PV capacity to 1 GW by 2025.

- Residential on-grid solar installations are growing, supported by net metering policies and decreasing technology costs.

Some of the government regulations surrounding solar panel production

Uruguay's solar panel production and installation are governed by several key regulations aimed at promoting renewable energy and ensuring environmental sustainability. These include:

National Energy Policy 2005-2030:
- This policy outlines Uruguay's commitment to increasing the share of renewable energy in its energy mix setting specific targets and providing a strategic framework for energy development.

Law No. 18.585 (2009):
- Known as the Renewable Energy Promotion Law this law provides incentives for renewable energy projects including tax benefits and subsidies to encourage investment in solar and other renewable energy sources.

Decree 173/010 (2010):
- This decree provides additional regulations to support the implementation of Law No. 18.585 detailing the specific incentives available for renewable energy projects including feed-in tariffs and net metering.

Decree 133/013 (2013):
- This decree aims to address the growing demand for electrical energy and the consequent need to incorporate electricity generation

capacity into the national system, increase alternative forms of generation and promote relevant national technological development.

Decree 451/007:
- This decree mandates environmental impact assessments for all large-scale energy projects including solar installations to minimize their environmental footprint and ensure sustainable development.

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

In Uruguay, the government has taken several initiatives and made significant investments to promote solar panel production and the broader adoption of solar energy. Here are some key initiatives and investments:

200MW Tender Program (2013):
- The Government of Uruguay launched a 200MW tender program to attract private sector participation in the development of solar photovoltaic power plants. This initiative aimed to increase the share of renewable energy in Uruguay's energy matrix.

Fiscal Incentives for PV Panel Makers:
- The Ministry of Industry, Energy and Mining and the Ministry of Economy and Finance have proposed the establishment of fiscal incentives for the production of solar modules in the country. These incentives are designed to spur the development of the local solar panel manufacturing industry.

Investment Promotion Law:

- Uruguay's Investment Promotion Law offers various incentives for investing in the manufacturing, implementation and utilization of solar energy. This law provides benefits such as tax exemptions and other financial incentives to encourage investment in renewable energy projects.

Public-Private Partnerships:
- The government has facilitated public-private partnerships to finance and develop large-scale solar projects. For example, Atlas Renewable Energy secured $$114.4 million in long-term financing for its solar PV projects in Salto, Uruguay.

Renewable Energy Innovation Fund (REIF):
- The REIF is an instrument that supports the implementation of Uruguay's energy policy by providing financial support for renewable energy projects. This fund aims to promote innovation and the development of new renewable energy technologies including solar energy.

Notable solar projects in the country (installed and projected)

Installed:
- La Jacinta Solar Park:
  Capacity: 64 MW, Location: Salto Department
  Details: One of the largest solar parks in Uruguay operational since 2015.

- Alto Cielo Solar Park:
  Capacity: 17 MW, Location: Salto Department

Details: Operational since 2017, contributing significantly to the national grid.

- Natelu Solar Park:
  Capacity: 50 MW, Location: Salto Department
  Details: Operational since 2018, part of Uruguay's push towards renewable energy.

Projected:
- Pampa Solar Park:
  Capacity: 100 MW, Location: Tacuarembó Department
  Details: Expected to be operational by 2025, this project aims to further increase Uruguay's renewable energy capacity.

- Durazno Solar Park:
  Capacity: 75 MW, Location: Durazno Department
  Details: Scheduled for completion by 2024, this project is part of Uruguay's ongoing renewable energy initiatives.

- Cerro Largo Solar Park:
  Capacity: 50 MW, Location: Cerro Largo Department
  Details: Planned to be operational by 2026, this project will contribute to the national grid.

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

UTE (Administración Nacional de Usinas y Trasmisiones Eléctricas):
- UTE is the state-owned utility company in Uruguay, responsible for the generation, transmission and distribution of electricity. It has been a key player in the country's renewable energy transition developing and

operating several solar power projects including both large-scale solar farms and smaller distributed solar installations.

Fotowatio Renewable Ventures (FRV):
- FRV is a global developer of renewable energy projects including solar and wind power. In Uruguay FRV has developed significant solar projects such as the La Jacinta Solar Park one of the largest in the country contributing to the national renewable energy capacity.

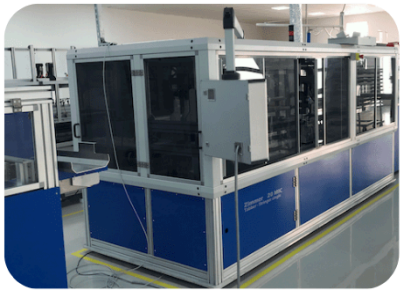
Atlas Renewable Energy:
- Atlas Renewable Energy is a leading renewable energy company in Latin America focusing on the development, construction and operation of renewable energy projects. The company has been involved in the development of solar projects in Uruguay supporting the country's renewable energy goals.

Solarpack:
- Solarpack is a multinational company specializing in the development, construction and operation of large-scale solar photovoltaic plants. Active in Uruguay, Solarpack has developed solar projects that help increase the country's renewable energy capacity.

Enel Green Power:
- Enel Green Power is a global leader in the development and management of energy generation from renewable sources. The company has been involved in various renewable energy projects in Uruguay including solar power plants that contribute to the national grid.

Abengoa:
- Abengoa is an international company that applies innovative technology solutions for sustainability in the infrastructure, energy and water sectors. In Uruguay, Abengoa has been involved in the

construction and operation of solar power projects supporting the country's renewable energy initiatives.



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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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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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