Solar PV Energy Benefits to Brazil

**Evolution of the Solar Photovoltaic Energy in Brazil**


**Distributed Generation State Ranking**


**Brazilian Electricity Matrix:** 176,225 MW*

- **Centralized Solar PV:** 3,427 MW (1.9%)
- **Mineral Coal:** 3,583 MW (2.0%)
- **Natural Gas:** 14,822 MW (8.0%)
- **Oil and Other Fossil Fuels:** 9,142 MW (5.0%)
- **Biomass:** 15,350 MW (8.3%)
- **Wind Power:** 18,559 MW (10.1%)
- **Hydropower:** 109,351 MW (59.3%)
- **Imports:** 8,170 MW (4.4%)

*The matrix total capacity does not include imports.

**Municipality Ranking**


- **Cuiabá - MT** | 76.1 1.3%
- **Brasília- DF** | 73.2 1.2%
- **Teresina - PI** | 62.9 1.0%
- **Uberlândia - MG** | 59.6 1.0%
- **Rio de Janeiro - RJ** | 58.1 1.0%
- **Fortaleza - CE** | 51.8 0.9%
- **Goiânia - GO** | 48.4 0.8%
- **Belo Horizonte - MG** | 35.5 0.6%
- **Campo Grande - MS** | 33.8 0.6%
- **Petrolina - PE** | 31.9 0.5%

- **Rio Grande do Sul** | 1074.5 17.8%
- **Mato Grosso** | 754.2 12.5%
- **Rio Grande do Norte** | 450.7 7.5%
- **Paraná** | 341.9 5.7%
- **Goiás** | 319.2 5.3%
- **Rio de Janeiro** | 256.4 4.3%
- **Santa Catarina** | 238.9 4.0%
- **Ceará** | 206.3 3.4%
- **Bahia** | 202.2 3.3%
- **Pernambuco** | 174.5 2.9%
- **Mato Grosso do Sul** | 172.2 2.9%
- **Pará** | 144.1 2.4%
- **Piauí** | 130.0 2.2%
- **Maranhão** | 123.3 2.0%
- **Rio Grande do Norte** | 118.5 2.0%
- **Paraíba** | 109.1 1.8%
- **Espírito Santo** | 108.9 1.8%
- **Tocantins** | 77.7 1.3%
- **Distrito Federal** | 73.2 1.2%
- **Rondônia** | 60.0 1.0%
- **Alagoas** | 48.8 0.8%
- **Sergipe** | 36.3 0.6%
- **Amazonas** | 31.7 0.5%
- **Acre** | 25.0 0.2%
- **Amapá** | 8.8 0.1%
- **Roraima** | 3.7 0.1%
Centralized Generation


Installed capacity (MW) and status of granted solar PV power plants of the regulated market and of the free market per state:

Price Development of Solar PV Energy in the Energy Auctions of the Regulated Electricity Market


Electricity Generation Records

Source: ONS/MME, 2021.

DAILY AVERAGE
May 25th, 2021
819.2 MW average with a capacity factor of 28.2%

DAILY MAXIMUM
May 20th, 2021
2,245.9 MW at 11 a.m. with instantaneous capacity factor of 77.4%

1.4% of the electricity supplied in Brazil was generated from solar PV energy in September 2020.

Value Chain


Number of national manufacturers from the solar PV sector registered at the BNDES FINAME financing program:

Brazil needs a competitive and fair industrial policy for the solar PV sector, reducing the prices of components and equipment made in the country and creating more jobs, technology and innovation.

Solar PV Distributed Generation by Consumer Type in Brazil


Distributed Generation


Distributed microgeneration (up to 75 kW) and minigeneration (above 75 kW up to 5 MW) solar PV systems installed at homes, commercial buildings, industries, rural properties and public buildings.

96.7% is the share of solar PV installed capacity in distributed microgeneration and minigeneration, leading the segment by far.

99.9% of all distributed micro and minigeneration connections are from solar PV systems.

520,596 Solar PV systems connected to the grid.

655,348 consumer units (0.7% from the total) receiving electricity credits through net-metering.

Solar PV was the most competitive energy since 2019 auctions.

R$ 106.26 billion Estimated total investment in granted solar PV power plants.

27.7 GW Total capacity of granted solar PV power plants.

Source: ONS/MME, 2021.

Data updated in accordance with the new BNDES re-accreditation procedure with the FINAME.


68
Solar PV System (kit)
10
Solar PV Inverter
9
Tracker
7
PV Module
1
String Box
1
Battery

Data updated in accordance with the new BNDES re-accreditation procedure with the FINAME.