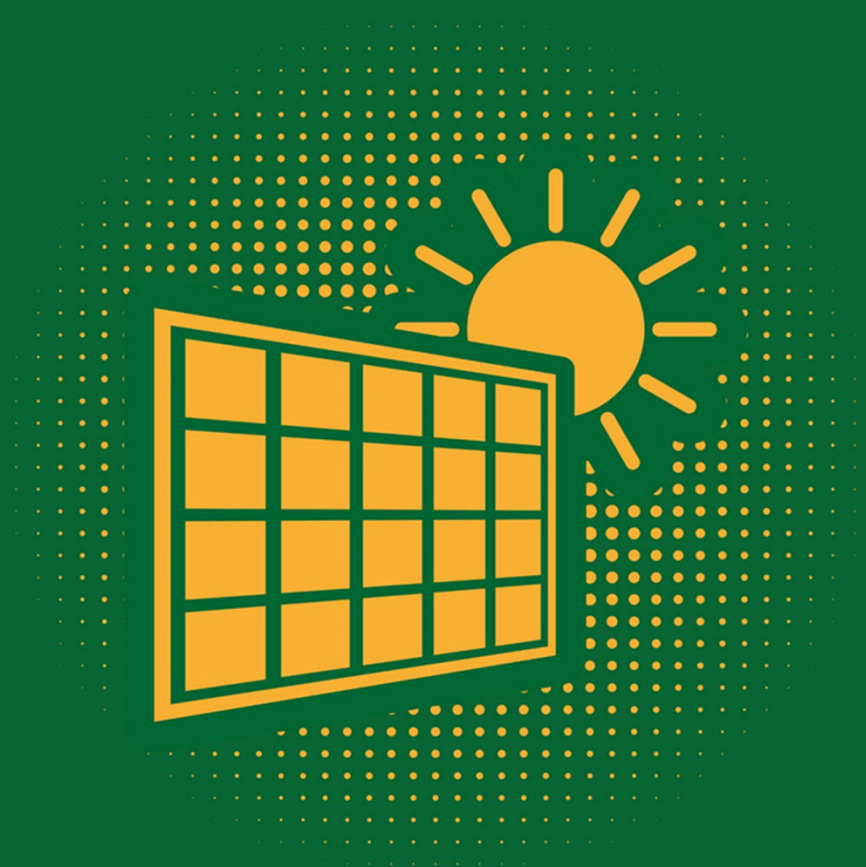


Status and Prospects of the Brazilian Solar PV Market



Dr. Rodrigo Lopes Sauaia
Chief Executive Officer (CEO)

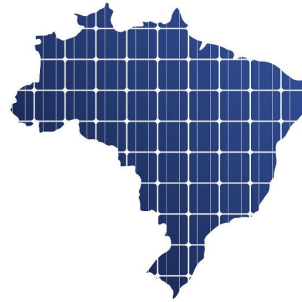
Discover new opportunities for
the growing PV market in Brazil

Munich (Germany) | May 12th, 2022

About us



Represent and promote the solar PV sector in Brazil and abroad.



Monitor the development of the Brazilian solar PV market.



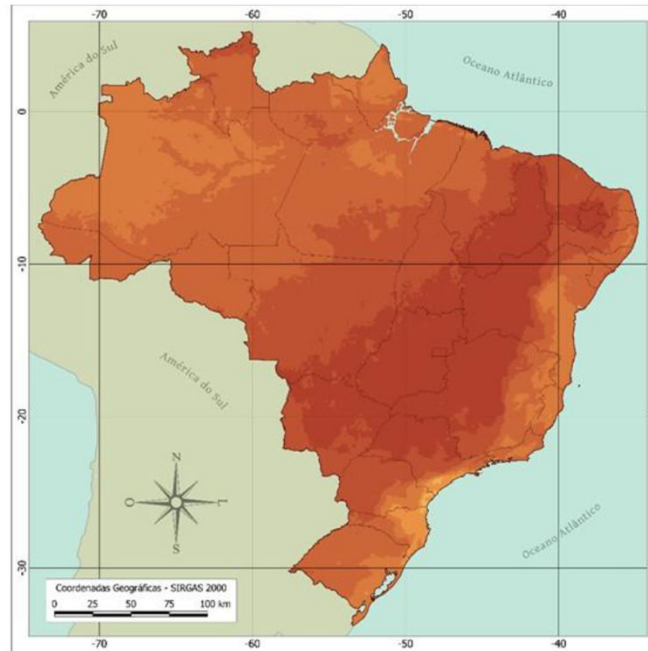
Serve as the sector meeting ground and focal point for debates.

- ✓ Presence in **26 states + Federal District.**
- ✓ **National and international** companies.

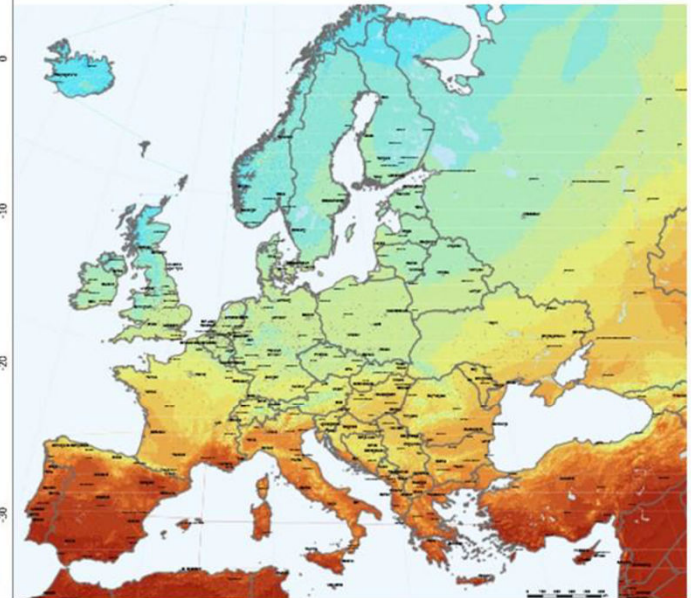
Solar resource in Brazil



Brazil has **one of the best solar resources in the world**. A solar PV system in Brazil produces, on average, twice as much electricity as the same system installed in Germany or the United Kingdom.



Módulos fotovoltaicos orientados para o Norte

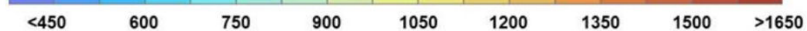


Módulos fotovoltaicos orientados para o Sul

Irradiação Total H_{TOT} Anual [$kWh/m^2.ano$]



Produtividade Anual [$kWh/kW_p.ano$]



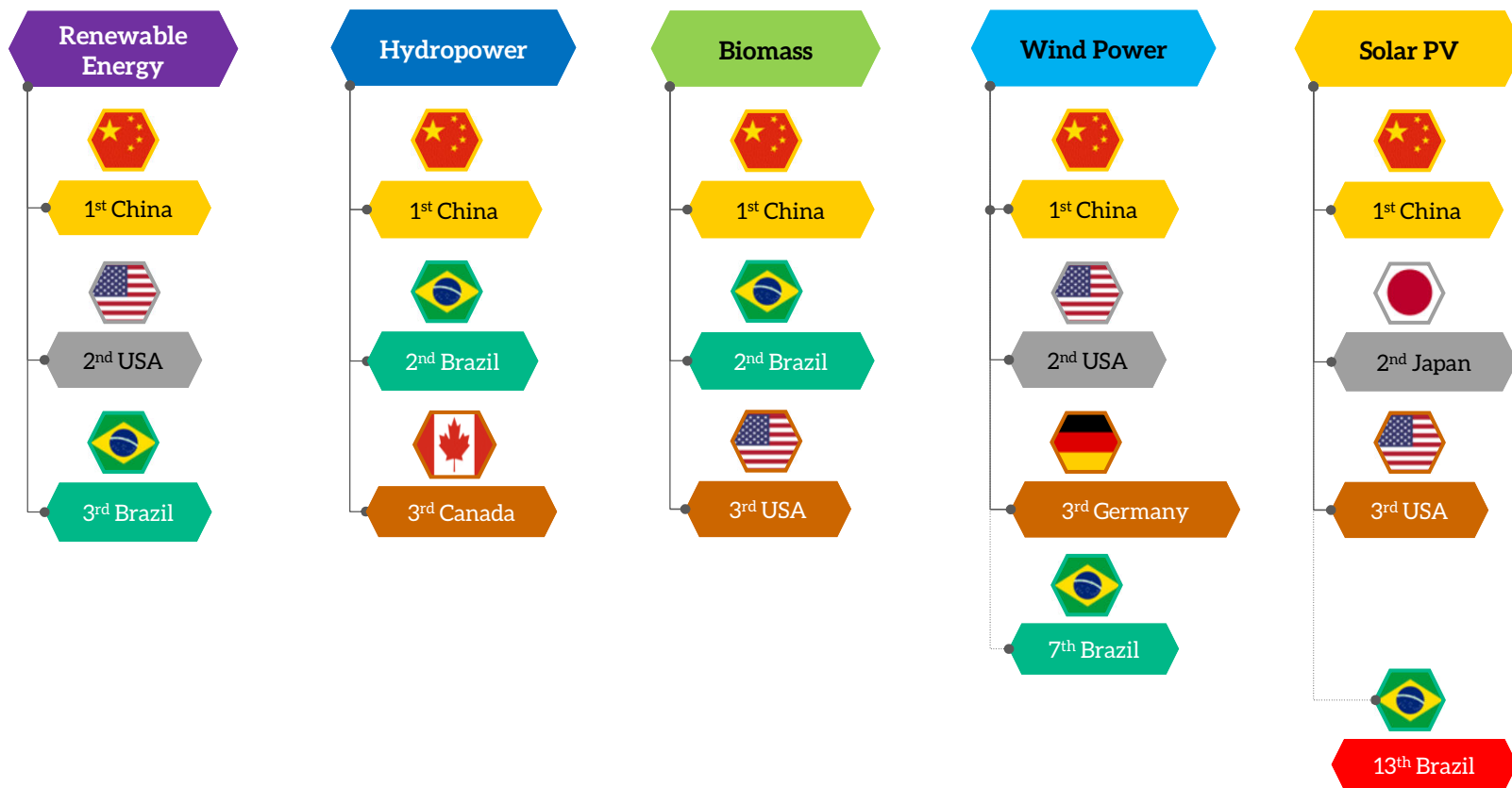
Irradiação Total H_{TOT} Anual no plano inclinado

Energia Elétrica Total Anual Estimada gerada com inclinação ideal para um sistema de $1kW_p$ e taxa de desempenho 0,75

Source: G. M. Tiepolo, PhD thesis, PUCPR, 2015.

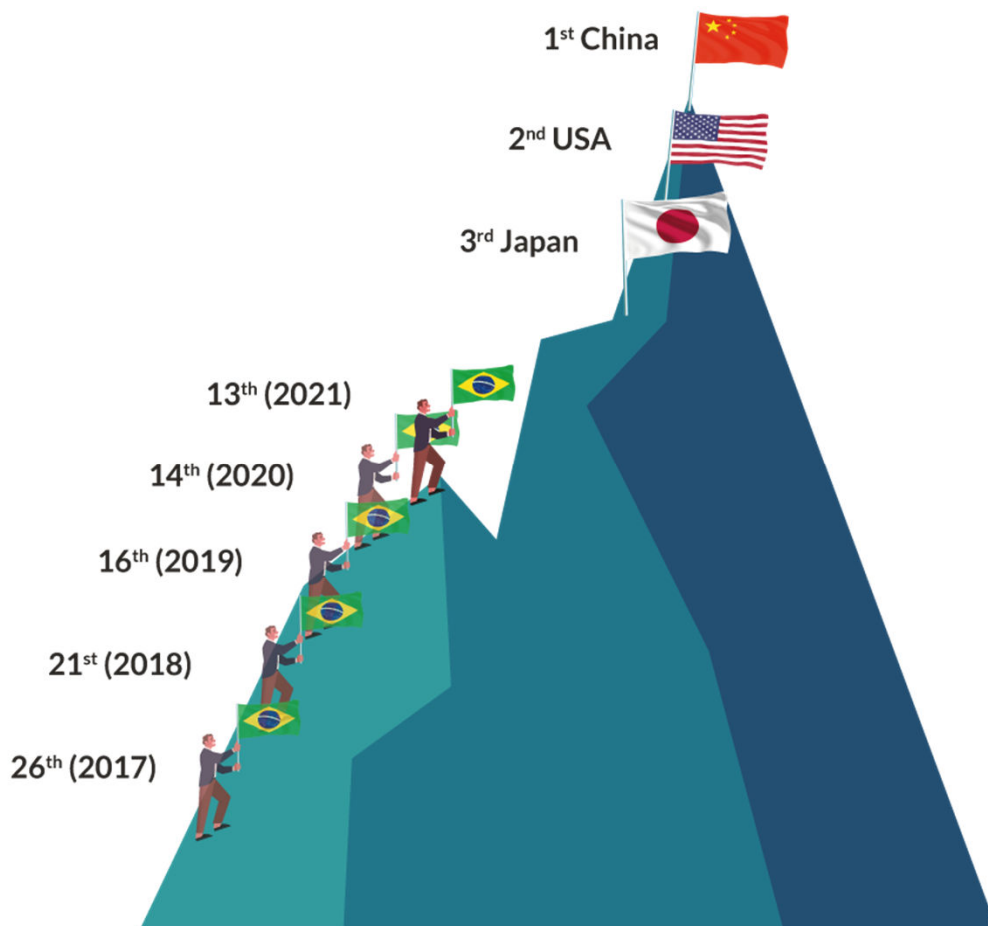
The global renewable energy market

- Brazil **leads** in hydro, biomass and wind power, but is lagging in solar PV.



Brazil's evolution in the world ranking

World ranking of solar PV installed capacity



Position	Country	Cumulative capacity until 2021 (GW)
1 st	China	306.4
2 nd	USA	93.7
3 rd	Japan	74.1
4 th	Germany	58.4
5 th	India	49.4
6 th	Italy	22.6
7 th	Australia	19.0
8 th	Korea	18.1
9 th	Vietnam	16.6
10 th	Franch	14.7
11 th	Netherlands	14.2
12 th	UK	13.7
13th	Brazil	13.6
14 th	Sppain	13.4

Benefits of solar PV to Brazil in numbers



✓ More than **R\$ 78.5 billion** in new investments.



✓ More than **450 thousand** accumulated new jobs.



✓ More than **15.0 GW** operational.



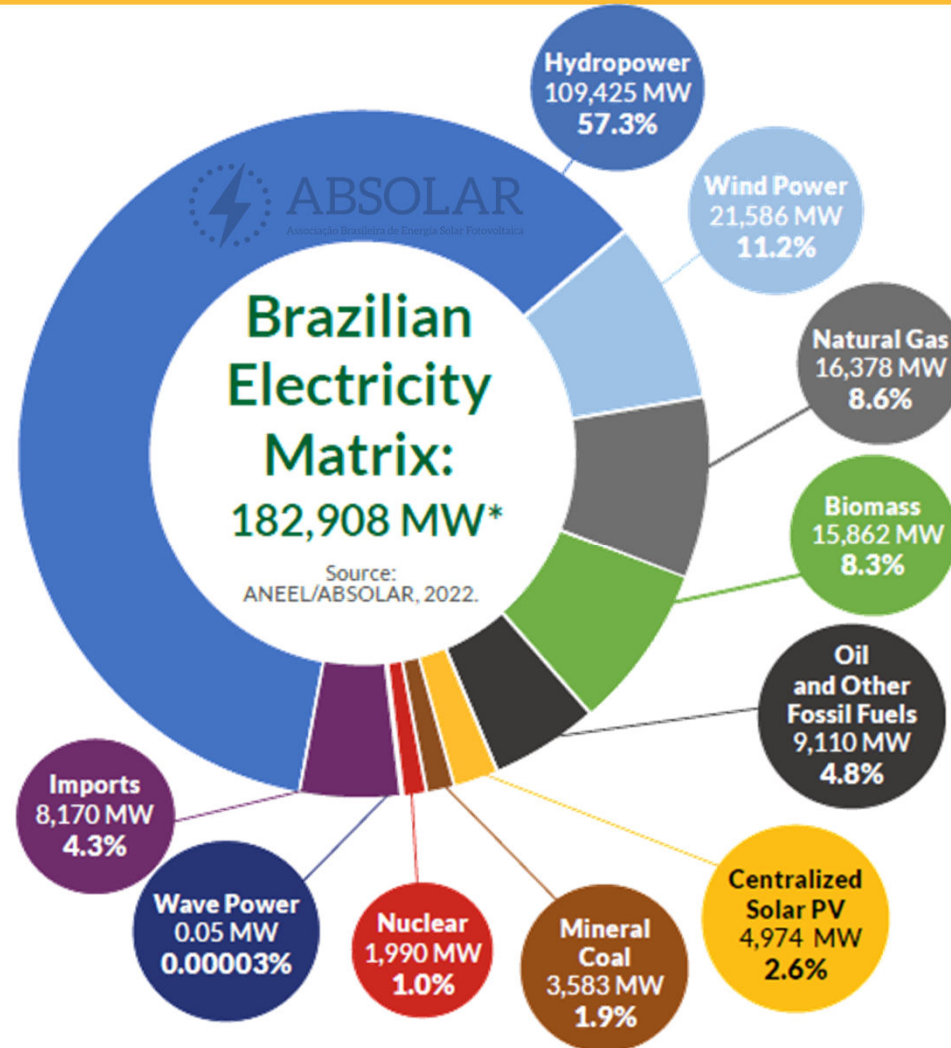
✓ More than **20.8 milions** avoided tons of CO₂.



✓ More than **R\$ 21.7 billion** in public taxes.

What is the share of each source in the matrix?

Installed capacity in operation in Brazil

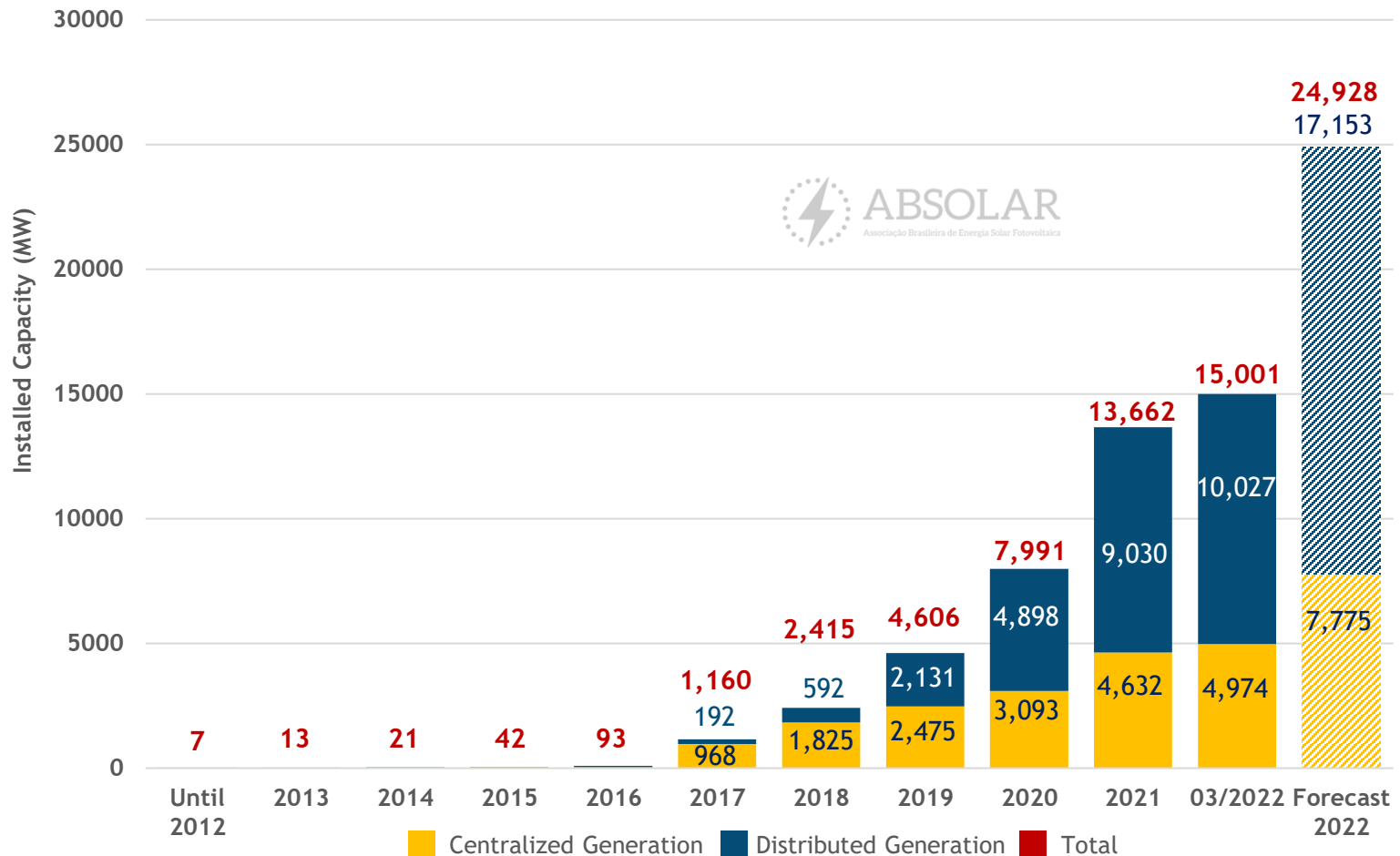


*The matrix total capacity does not include imports.

Evolution of solar PV in Brazil

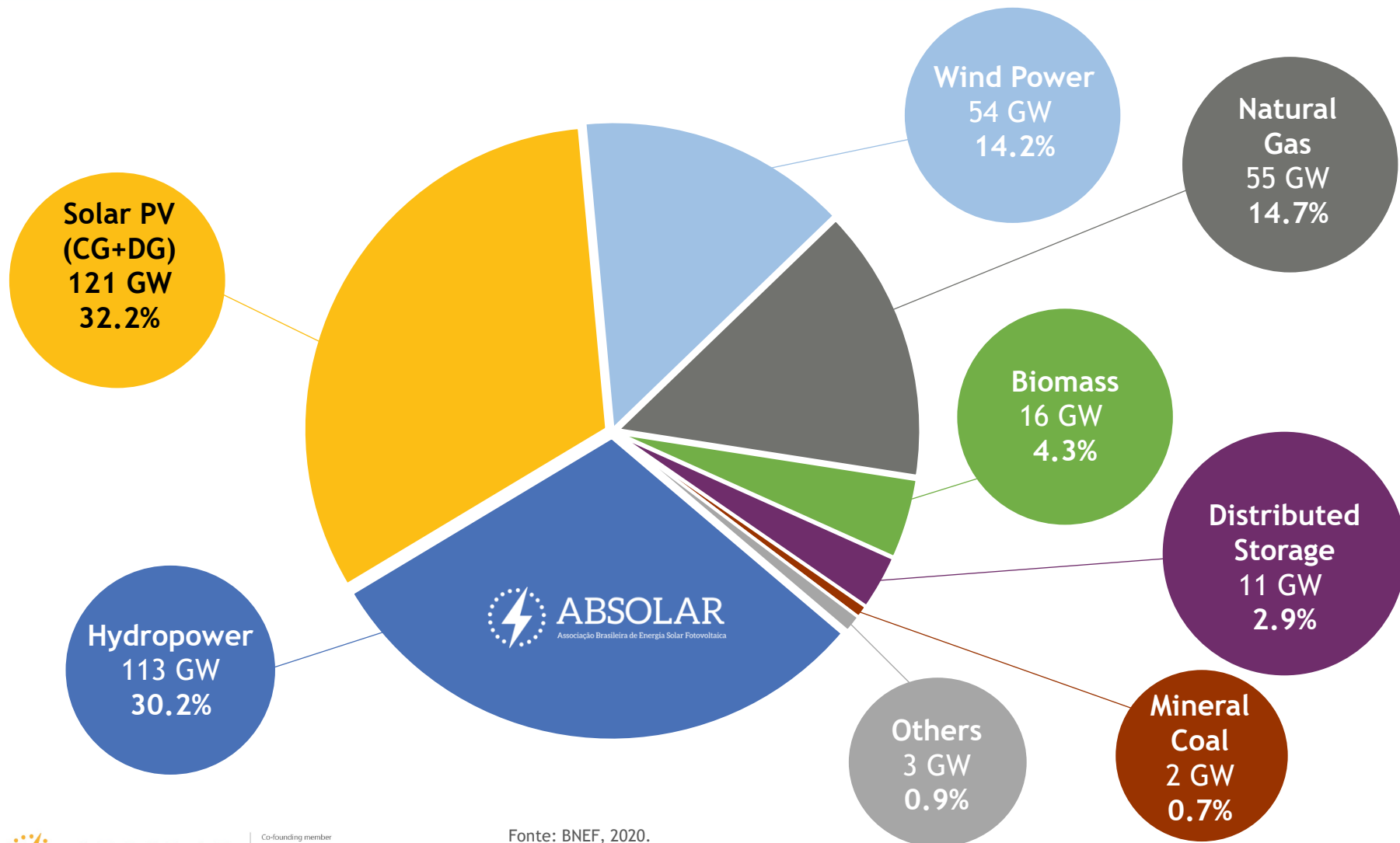


Since 2012, the solar PV sector in Brazil has created more than 450 thousand cumulative jobs



Source: ANEEL. 2022. Adapted by ABSOLAR. Last update: 07/04/2022.

BNEF forecast of the Brazilian electricity matrix by 2050

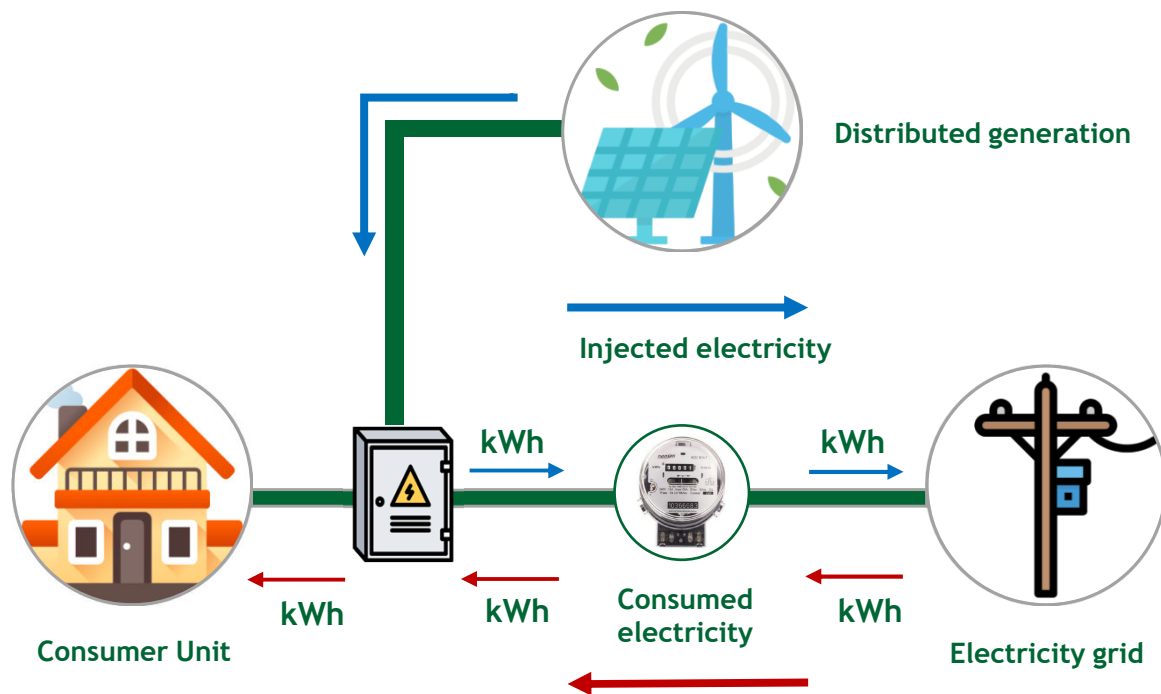


Fonte: BNEF, 2020.

Distributed generation PV

Brazilian Electricity Regulatory Agency (ANEEL) - REN n° 482/2012

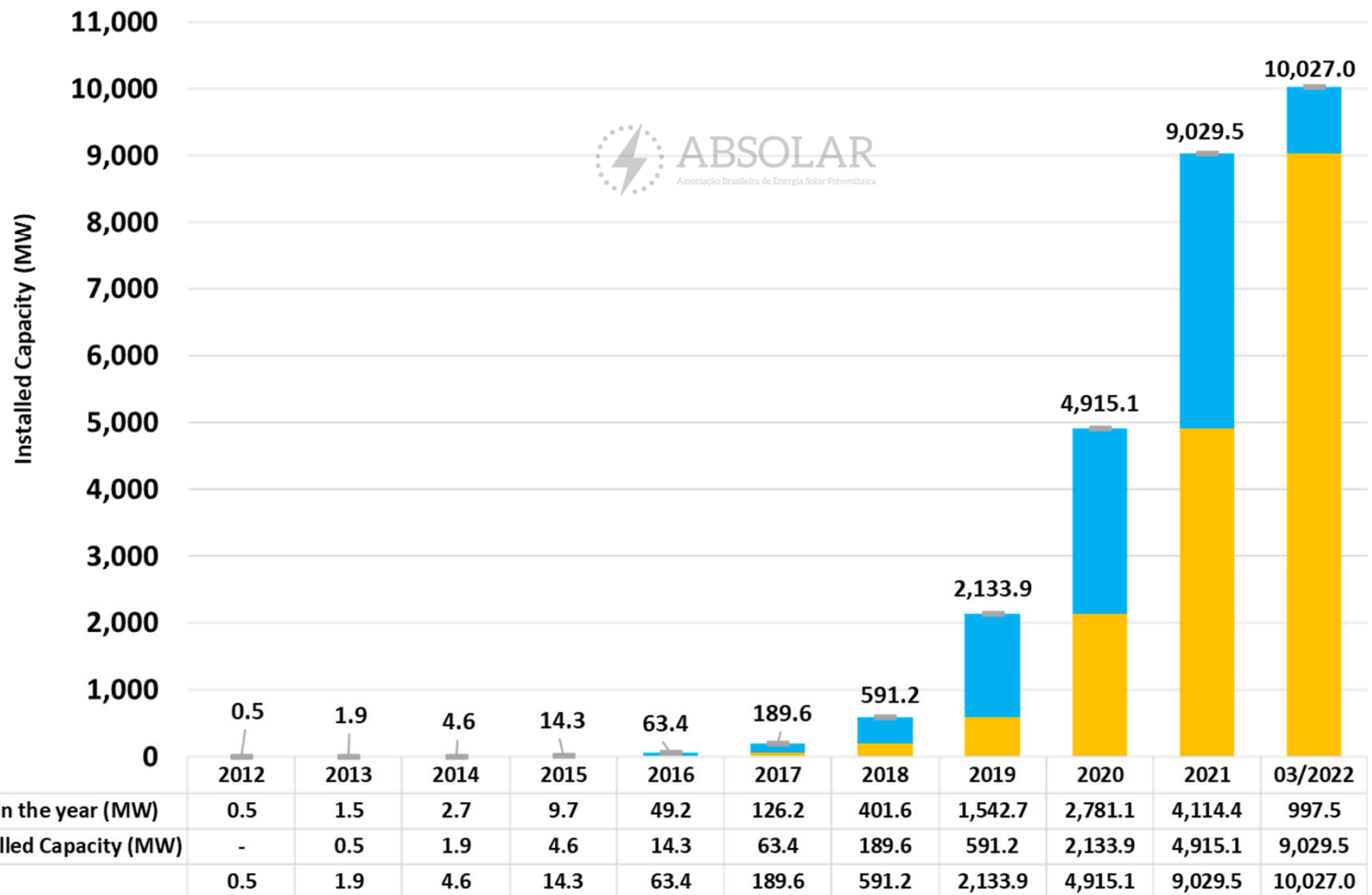
- **National net-metering regulation:** inspired by successful international cases.
- **Several net-metering mechanisms in a single regulation:** local net-metering, virtual net-metering and community solar.



Distributed generation PV



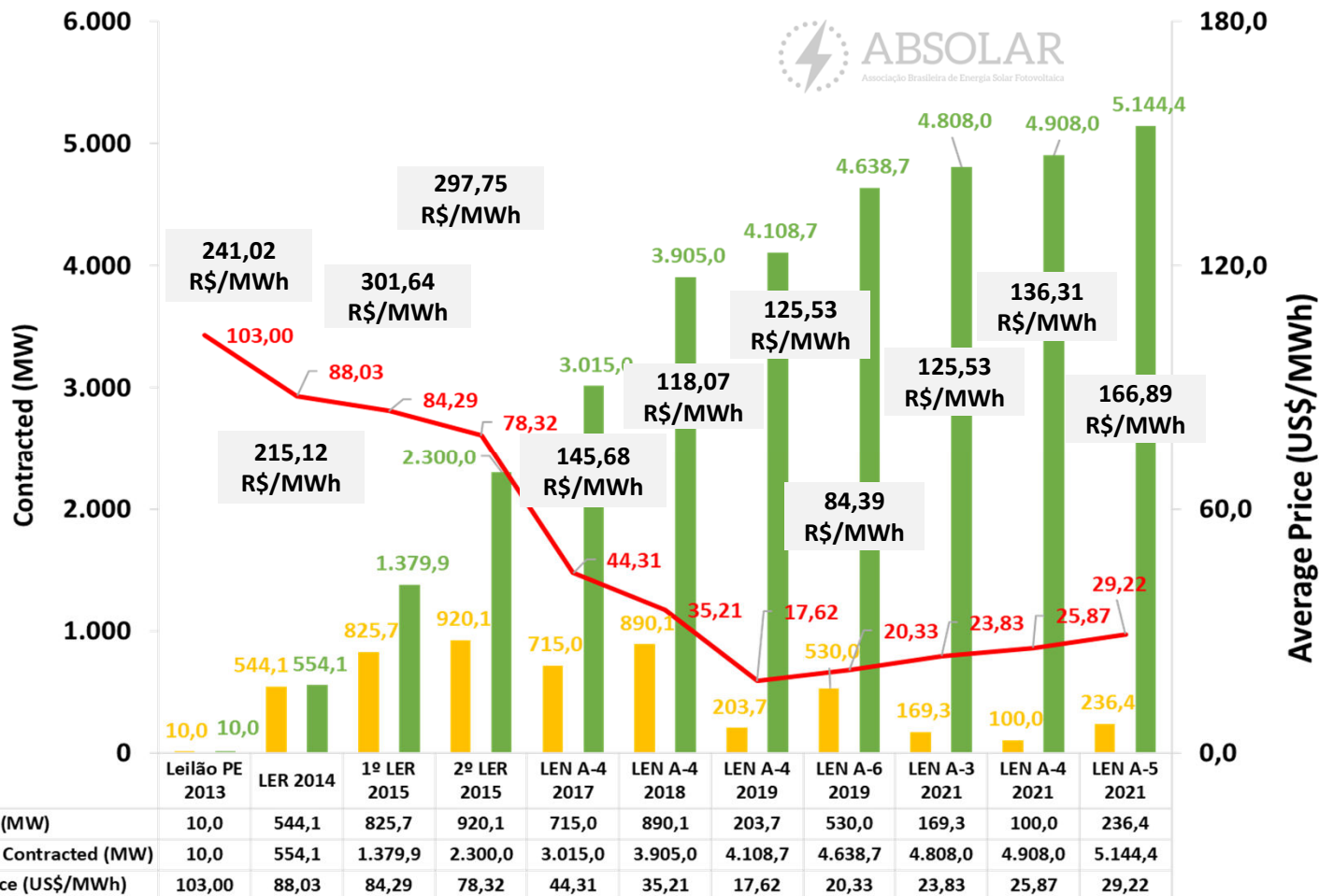
Distributed generation solar PV installed capacity (MW) in Brazil



Source: ANEEL, 2022. Adapted by ABSOLAR. Last update: 04/07/2022.

Centralized generation PV

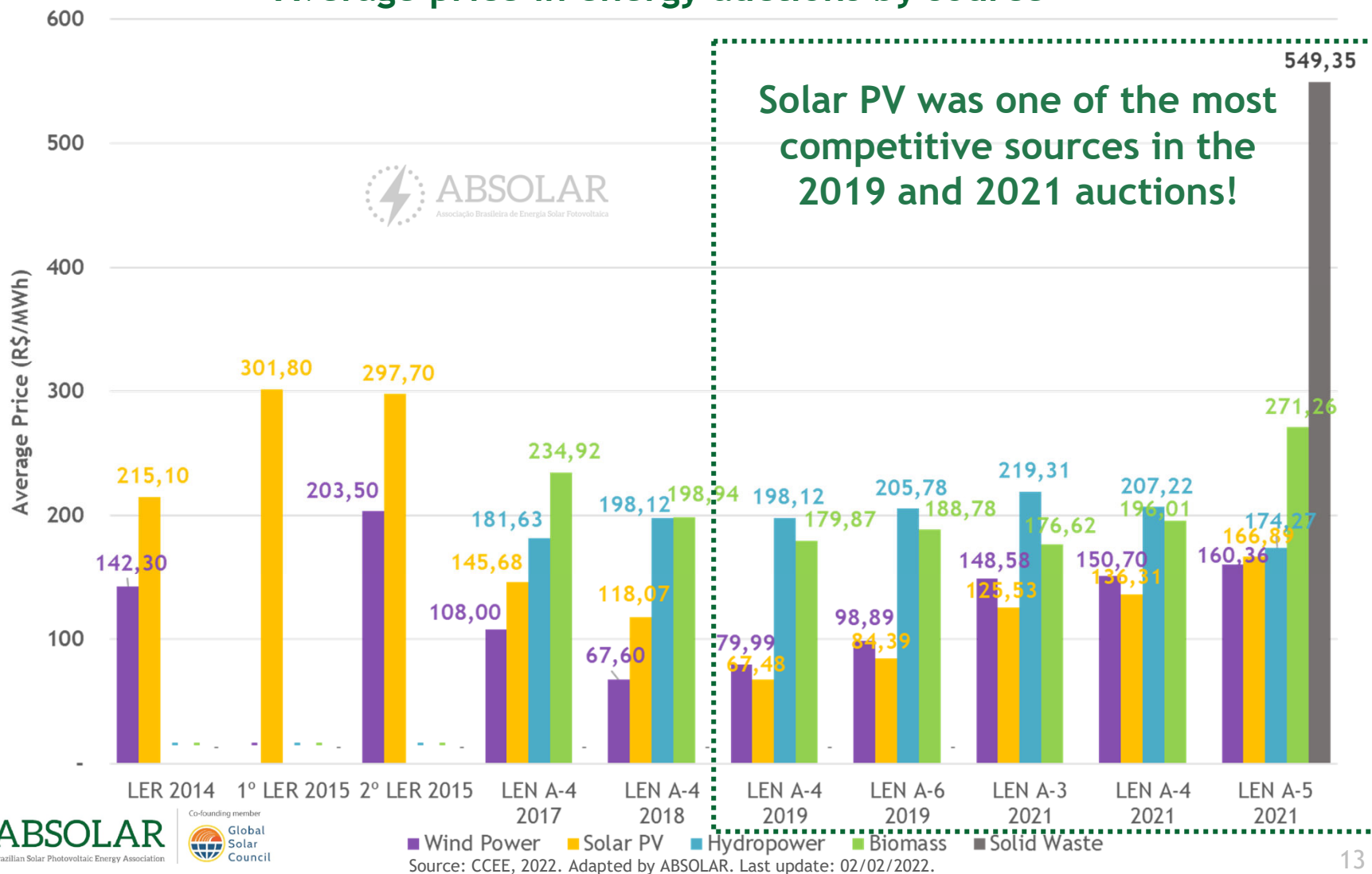
Large-scale solar PV power plants in energy auctions



Centralized generation PV



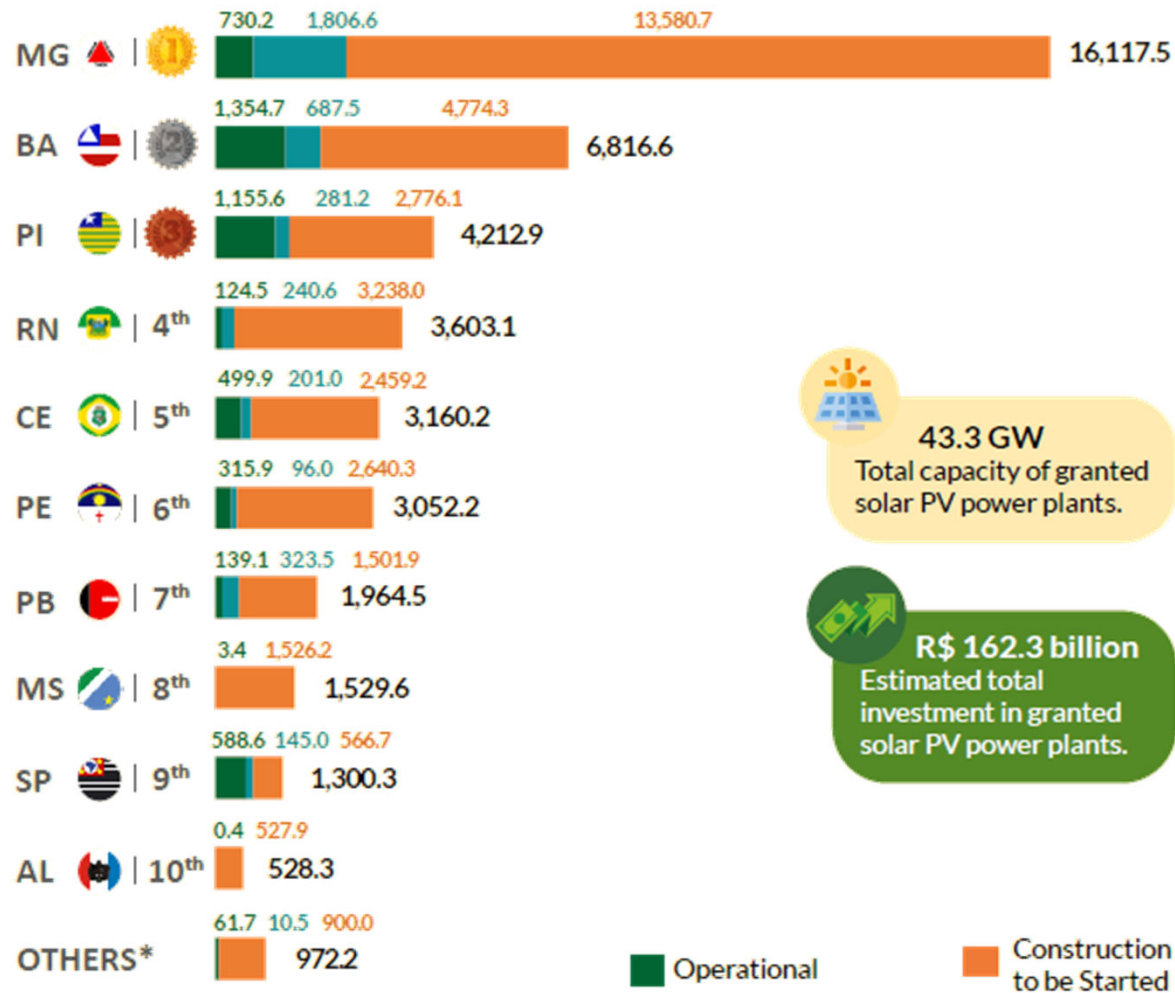
Average price in energy auctions by source



Centralized generation PV



Installed capacity (MW) and status of centralized generation PV by State



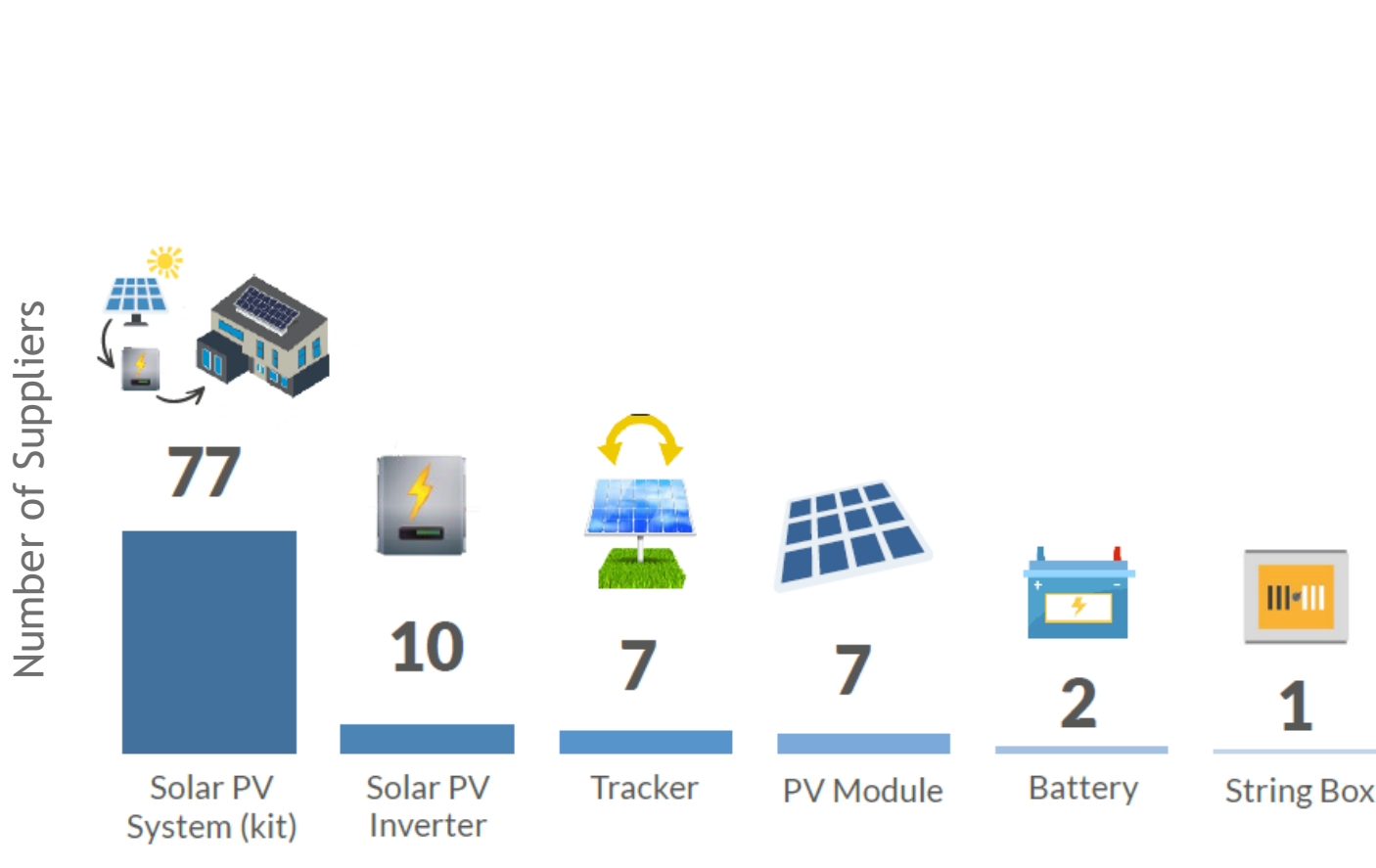
*Power Plants located in 15 Brazilian states

Source: CCEE, 2022. Adapted by ABSOLAR. Last update: 04/07/2022.

Solar PV value chain



Number of national PV equipment suppliers registered at BNDES FINAME



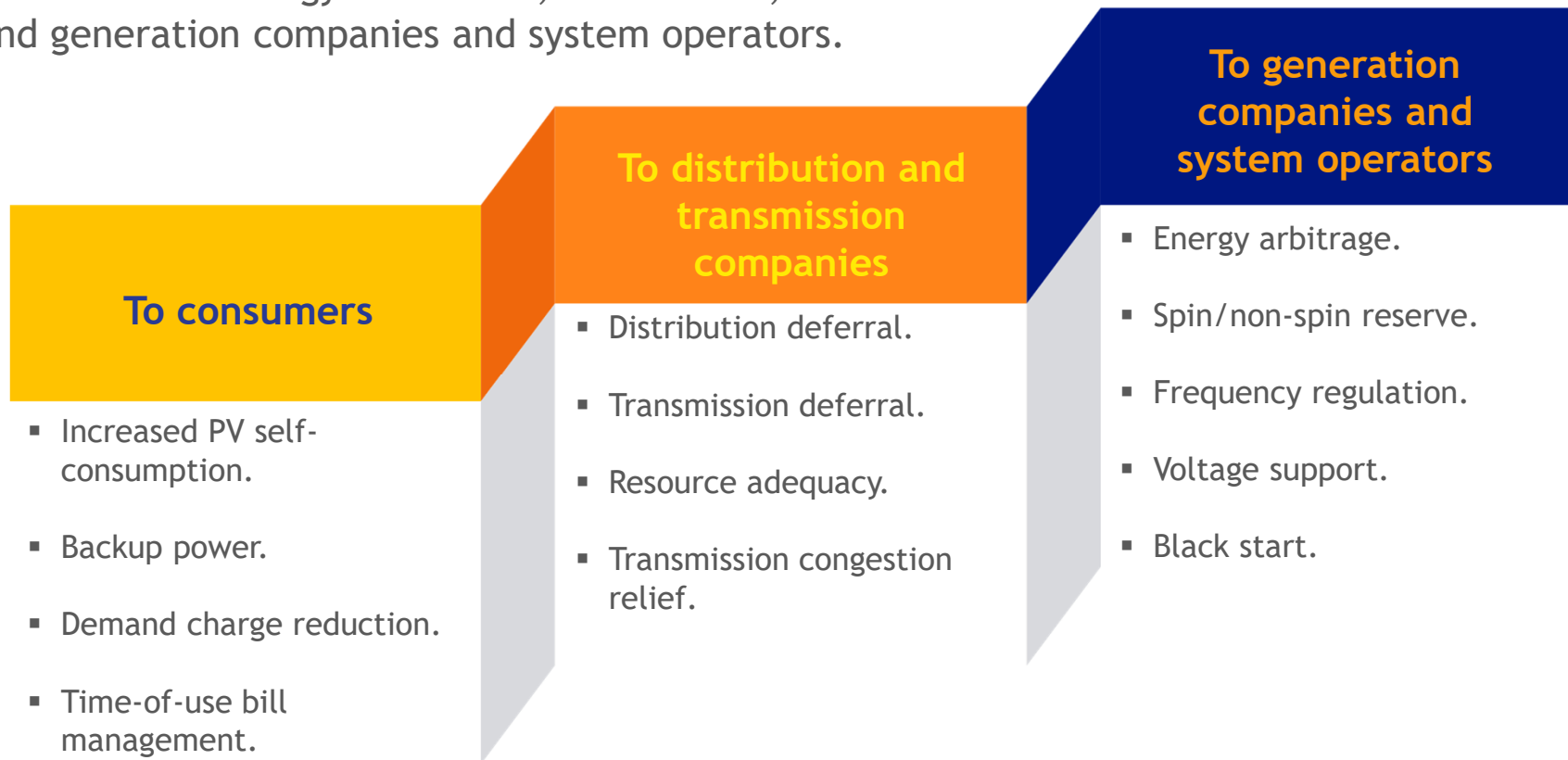
Updated data according to the new BNDES re-accreditation procedure to FINAME.

Source: BNDES/ABSOLAR, 2022. Last update: 04/07/2021.

Electrical energy storage



Electrical energy storage (EES) can perform **important services** for energy consumers, distribution, transmission and generation companies and system operators.



Electrical energy storage

Opportunities and challenges in Brazil

- Brazil can take advantage of the recent price reduction in ESSs and good practices in business models and regulation.
- In addition to R&D projects, the first commercial storage projects in Brazil are being implemented.

Main challenges:

- Regulation;
- Tax burden;
- Financing; and
- Technical standards.



ABSOLAR established a specific **storage working group** to prepare **recommendations** to promote energy storage in Brazil.

Our members



Last update: 04/07/2022.

Our members



Our members



Our members



Our members



Our members



Our members



Our members



Our members



Our members



Our members



Become an ABSOLAR member!

Join forces with us!



www.absolar.org.br/associe-se.html
associativo@absolar.org.br



Thank you for your attention!

Special thanks to Intersolar Europe for the kind invitation and partnership!



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