

INFOWIND BRAZIL

Infowind nº 13 | Update 2019 Oct, 20



15.3_{GW}
OF INSTALLED
CAPACITY

613
WIND
FARMS

7,536
TURBINES IN
OPERATION

OPERATING
IN 12
STATES

AND HOW MANY ENERGY DO THEY GENERATE?

WHAT DOES THIS GENERATION MEAN?



AN AVERAGE OF
26.1 MILLION HOUSEHOLDS
WERE SUPPLIED BY WIND
POWER MONTHLY



AROUND
78 MILLION
PEOPLE



In 2018 wind generated a total
of 48.4 TWh of wind energy.



This generation represents 8.6% of the
entire generation injected into the National
Interconnected System in the period.



It was perceived a grown of 14.6% in relation
to the generation of the previous year
(2017) compared to the 1.5% growth of the
generation of the entire SIN generation
(National Interconnected System).

(Source: CCEE/ ABEEólica)



Considering the auctions and contracts performed within the free market, Brazil will have approximately 21.5 GW of wind energy capacity installed until 2023.

RECORDS

NORTHEAST

On September 06th, 2019, **88.8% of all energy used in the northeast** came from wind farms operating at a 75.1% capacity factor and a generation of 8,875 MWmed.

SOUTH

On July 05th, 2019, **13.52% of the energy used in the south** came from wind farms operating at 77.3% capacity factor and generation of 1,543 MWmed.

NORTH

On August 14th, 2019, **5.51% of energy used in north** came from wind farm at a 97.6% capacity factor and generation of 321 MWmed.

SIN National Integrated System

On September 06th, 2019, **17% of all energy used in the National Integrated System** came from wind farms operating at a 75.5% capacity factor and generation of 10,677 MWmed.

FAVORABLE WINDS IN BRAZIL

42%

was the Average Capacity
Factor in Brazil in 2018.

The average capacity
factor for wind farms
worldwide is around

25%

From July to November, the windy season, the capacity
factor for Brazil can be higher than 60%.

Why are winds in Brazil so good?



Same
direction



Constant

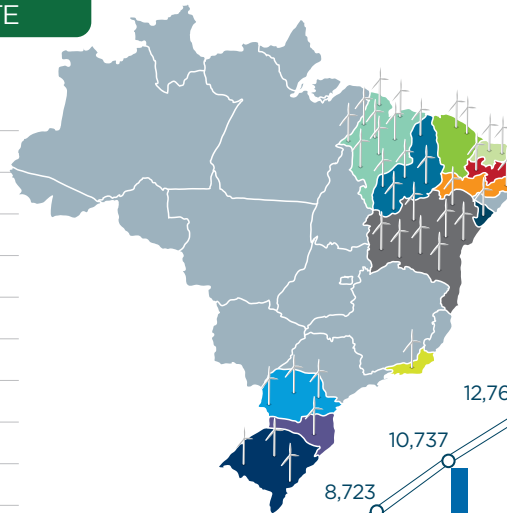


Stable
(Speed)

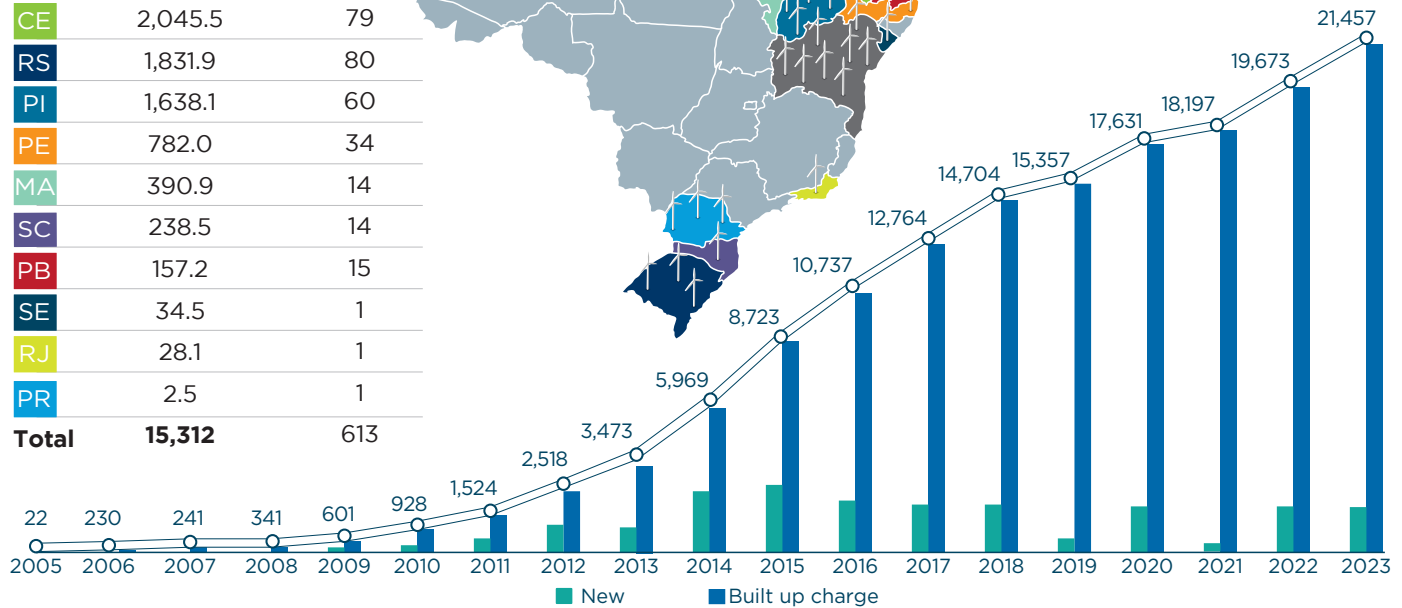
Such winds are abundant in Brazil, especially in the northeast and south.

INSTALLED CAPACITY AND WIND FARMS BY STATE

STATE	POTENCY (MW)	FARMS
RN	4,128.3	153
BA	4,034.4	161
CE	2,045.5	79
RS	1,831.9	80
PI	1,638.1	60
PE	782.0	34
MA	390.9	14
SC	238.5	14
PB	157.2	15
SE	34.5	1
RJ	28.1	1
PR	2.5	1
Total	15,312	613



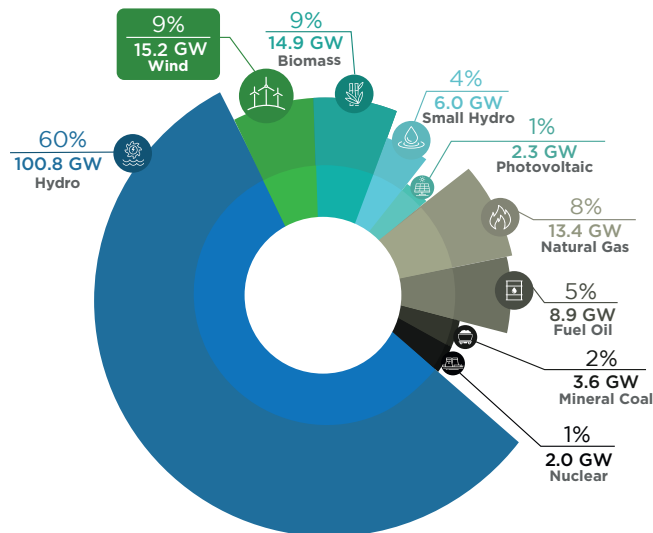
GROWTH OF INSTALLED CAPACITY (MW)



Source: ANEEL/ABEEólica

Future data in the chart above comes from contracts already confirmed in auctions and transactions completed in the free market. New auctions will add further capacity in coming years.

SOURCES OF ENERGY IN BRAZIL (GW)



INTERNATIONAL COMPARISONS

Brazil is ranked 8th in the World Ranking of wind energy installed capacity. In 2012, Brazil was ranked 15th.



Source: ANEEL/ABEEólica

Source: GWEC

BENEFITS OF WIND ENERGY

- Wind power is renewable, non-polluting, has low environmental impact and helps Brazil fulfill its Climate Agreement Goals.
- Wind parks do not emit CO₂.
- The best prices for energy offered at the December 2018 auctions came from wind farms.
- Generates income and improve the quality of life of land-owners who lease their land for wind tower placement. There are now some 6,500 such towers in operation in Brazil. We believe some 4,000 families are receiving over R\$ 10 million a month in total from leasing land for towers.
- Enables land-owners to continue planting their crops or growing their animals.
- Provides training and qualifications for local labor.

CONTRIBUTIONS TO WIND ENERGY IN BRAZIL

From 2011 to 2018 the investment in the sector was US\$ 31,2 billion



2018 = US\$ 1.3 billion

Every MW installed creates = 15 jobs
Meaning wind energy has already created 200 thousand jobs.

Wind energy avoided the emission of about 21 million tons of CO₂ in 2019. This is equivalent to the annual emissions of some 16 million automobiles

