

INFOWIND BRAZIL

Infowind nº 8 | Update 2018 November, 11.



**INDUSTRY
SIZE
IN BRAZIL**

14.34_{GW}

OF INSTALLED
CAPACITY

568

WIND
FARMS

MORE THAN:
7,000

TURBINES IN
OPERATION

OPERATING
IN **12**
STATES

AND HOW MANY ENERGY DO THEY GENERATE?

WHAT DOES THIS GENERATION MEAN?



AN AVERAGE OF 25 MILLION
HOUSEHOLDS WERW SUPPLIED
BY WIND POWER MONTHLY IN 2017



AROUND
75 MILLION
PEOPLE



During the last 12 months (Sep/17 through Aug/18) wind generated a total of 47 TWh of wind energy



This represents a 24% increase compared to the last 12 months (Sep/16 through Aug/17)



This is 8,4% of all the energy fed into the National Interconnected System in 2017.

(Source: CCEE/ ABEEólica)



Considering the auctions and contracts performed within the free market, Brazil will have approximately 18 GW of wind energy capacity installed until 2024

RECORDS

NORTHEAST

On September 13, 2018, **74.12% of all energy used in the northeast** came from wind farms operating at a 76.58% capacity factor.

SOUTH

On September 1st, 2017, **13,72% of the energy used in the south** came from wind farms operating at 77,22% capacity factor.

NORTH

On September 13, 2017, **3,95% of energy used in north** came from wind farm at a 97,65% capacity factor.

SIN National Integrated System

On September 12, 2017, **13,98% of all energy used in the National Integrated System** came from wind farms operating at a 72,30% capacity factor.

FAVORABLE WINDS IN BRAZIL

Average capacity factor in
Brazil (Sep/17 - Aug/18)

42.5%

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

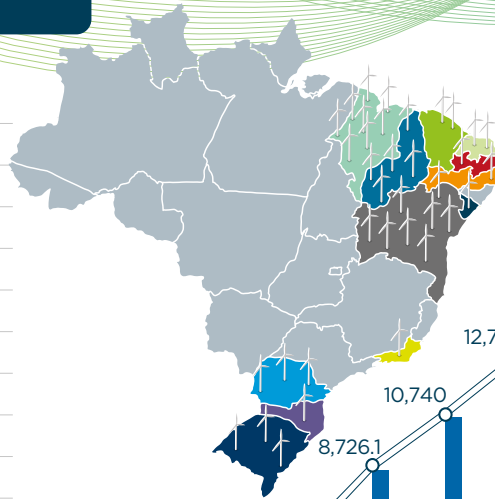


Stable
(Speed)

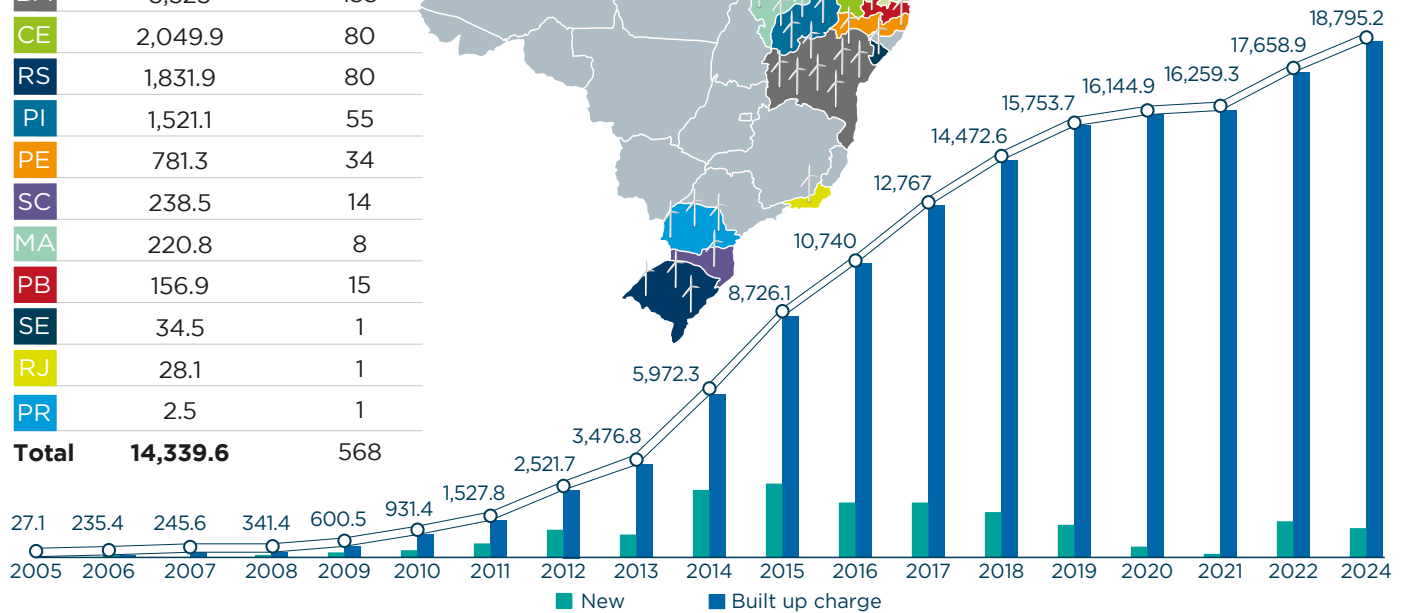
Such winds are abundant in Brazil, especially in the northeast and south.

INSTALLED CAPACITY AND WIND FARMS BY STATE

STATE	POTENCY (MW)	FARMS
RN	3,949.3	146
BA	3,525	133
CE	2,049.9	80
RS	1,831.9	80
PI	1,521.1	55
PE	781.3	34
SC	238.5	14
MA	220.8	8
PB	156.9	15
SE	34.5	1
RJ	28.1	1
PR	2.5	1
Total	14,339.6	568



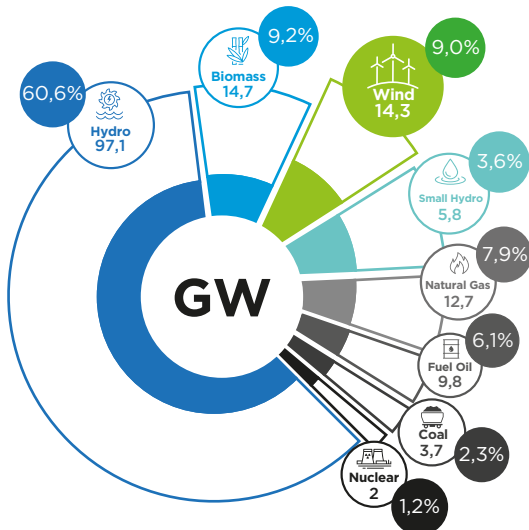
GROWTH OF INSTALLED CAPACITY (MW)



Source: ANEEL/ABEEólica

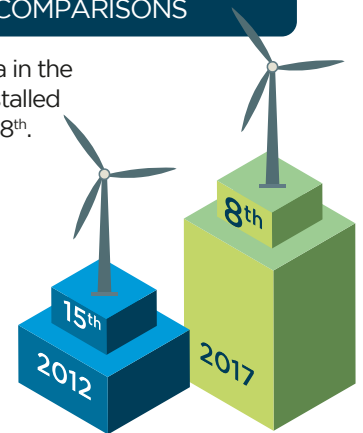
Future data in the chart above comes from contracts already confirmed in auctions and transactions completed in the free market. New auctions will add further capacity in coming years.

SOURCES OF ENERGY IN BRAZIL (GW)



INTERNATIONAL COMPARISONS


Brazil passed Canada in the World Ranking of installed capacity, and is now 8th. In 2012, Brazil was ranked 15th.



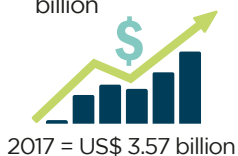
Source: ANEEL/ABEEólica

Source: GWEC

CONTRIBUTIONS TO WIND ENERGY IN BRAZIL

Every MW installed creates  15 jobs
 Meaning wind energy has already created 190 thousand jobs.







From 2010 to 2017 the investment in the sector was US\$ 32 billion



Wind energy avoided the emission of about 23 million tons of CO₂ in 2017. This is equivalent to the annual emissions of some 18 million automobiles



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 2017 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.