Benefits of Wind Energy

- Generates income and improves life for landowners with lease for placement of towers
- It is renewable, it does not pollute, it contributes for Brazil to fulfill its objectives in the Climate Agreement
- Wind parks do not emit CO₂
- Enables land-owners to continue planting or growing their animals
- One of the best cost-effective energy tariffs
- Provides training and qualifications for local labor
- Through a comparison between a group of municipalities that have wind farms and another that does not, it was possible to conclude that in the municipalities where there are wind farms: to identify that in the municipalities that received their installation:
  - real GDP increased by 21.15% (period 1999 to 2017)
  - the MHDI grew about 20% (2000 to 2010 period)

Brazilian electricity matrix in GW

- Total generation in 2020: 216.9 TWh
- 21.0% of generation was from wind energy
- 56.2% of generation was from hydro energy
- 10.0% of generation was from biomass
- 9.3% of generation was from natural gas
- 8.9% of generation was from solar photovoltaic
- 8.8% of generation was from wind energy
- 5.1% of generation was from natural gas
- 4.63% of generation was from biomass
- 2.5% of generation was from small hydro
- 2.0% of generation was from fuel oil
- 1.9% of generation was from other renewables

Industry size in Brazil

- 21.03 GW of installed capacity
- 777 Wind Farms
- 9,042 Turbines in operation
- 12 States
- 532.55 MW in test operation, which should go into operation in the coming weeks

How many energy do they generate?

- 57.0 TWh of wind energy were generated in 2020
- 10.0% of all the generation injected into the National Interconnected System in the period
- 1.9% growth over the previous year

What represents this generation?

- 28.8 Million of households per month can be supplied
- 86.4 Million of benefited inhabitants

Brazil will have about 33.05 GW of wind power installed capacity until 2026*

*Considering auctions already carried out and contracts signed in the free market

Contributions to wind energy in Brazil

- 21.2 Million tons of CO₂ avoided in 2019 equivalent to the emission of about 20.9 million cars.
- 15 jobs are created for each MW installed
### Capacity installed and Number of Wind Farms by State

<table>
<thead>
<tr>
<th>State</th>
<th>Installed Capacity (MW)</th>
<th>Wind Farms</th>
<th>Wind Turbines</th>
</tr>
</thead>
<tbody>
<tr>
<td>BB</td>
<td>6,435.63</td>
<td>210</td>
<td>2,655</td>
</tr>
<tr>
<td>RN</td>
<td>5,572.95</td>
<td>209</td>
<td>2,329</td>
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<tr>
<td>SC</td>
<td>2,496.94</td>
<td>97</td>
<td>1,121</td>
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<td>RS</td>
<td>2,437.25</td>
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<td>1,025</td>
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<tr>
<td>PI</td>
<td>1,835.89</td>
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<td>830</td>
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<tr>
<td>MA</td>
<td>897.37</td>
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<tr>
<td>SE</td>
<td>628.44</td>
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<tr>
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<td>17</td>
</tr>
<tr>
<td>PR</td>
<td>2.50</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

**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.**

### Wind Farms in Test Operations

- Wind farms in test operations in MW = 532.55 MW
- Number of wind farms = 18
- Number of wind turbines = 137

### Records by area

- **NE** 104.4% of the energy consumed in Northeast subsystem came from wind farms, with generation of 11,680.00 MWmed. (06/AUG/2020)
- **S** 14.04% of the energy consumed in South subsystem came from wind farms, with a capacity factor of 87.77% and generation of 1,755.79 MWmed. (25/MAY/2020)
- **N** 6.36% of the energy consumed in North subsystem came from wind farms, with a capacity factor of 95.98% and generation of 408.87 MWmed. (21/DEC/2019)
- **SIN** 18.40% of the energy consumed in National Interconnected System came from wind farms, with a capacity factor of 62.57% and generation of 12,486.08 MWmed. (08/APR/2019)

### International comparisons

**GWEC**

Brazil is ranked 7th in the World Ranking of wind energy installed capacity. In 2012, Brazil was ranked 15th.

### Favorable winds in Brazil

- **34%** is the Capacity Factor approx. global average.
- **40.6%** was the average Capacity Factor in Brazil in 2020.
- **59.1%** was the largest average monthly Capacity Factor that wind energy in Brazil achieved during the “Wind Harvest” period in 2020.

**Did you know?**

- 80% of Brazilian wind farms are in the Northeast, a region that has one of the best winds in the world for producing wind energy.
- The favorable winds for producing wind energy are more constant, have a stable speed and do not change direction frequently.

*Source: ANEEL/ABEEólica*