

MANGIFERA MONTHLY

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Mangifera Monthly is your regular statistical insight into the Brazilian renewable energy market. A set of technical and financial indicators carefully curated for the international investment community to provide a comprehensive overview of the sector in the past 4-weeks, against recent months. Sign-up to the newsletter to stay informed with this monthly quick-reference guide to the most important trends impacting a Brazilian energy sector undergoing significant reform. For more detailed analyses, tailored reports, and bespoke financial modelling visit Mangifera Analytics.

RENEWABLE ENERGY GENERATION IN NUMBERS

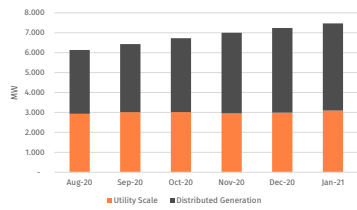
Energy Matrix



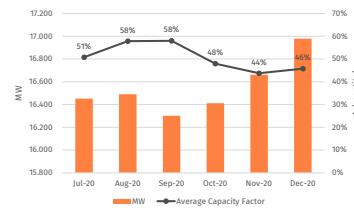
Total installed generation capacity¹ 176 GW

¹: does not include distributed generation capacity

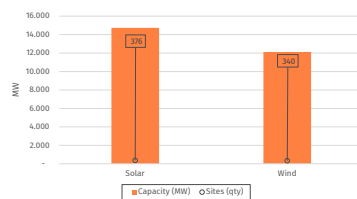
Solar Installed capacity evolution last 6 months



Wind Installed capacity evolution last 6 months



Capacity under development - Solar and Wind



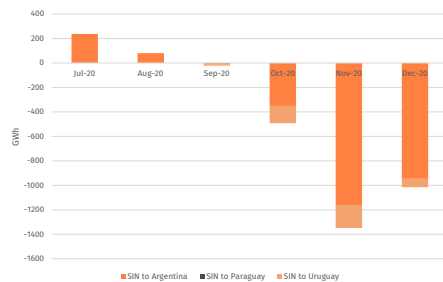
Mangifera's Probability Index²

Solar	98%
Wind	90%

²: The Mangifera's Probability Index is an estimate of the portion of the capacity under development, i.e. projects under construction or already approved but not yet in construction, that are likely to be finalized. The Probability index is inspects in nature and reflects the aggregated portion of the expansion capacity that is approved but presents such a delay either in construction or in the ready-to-build phase, that the financial feasibility (for a regular investor under fair market assumptions) is questionable.

Import / Export Balance

Across its borders, the Brazilian Interconnection System (SIN) is connected to Argentina, Uruguay and Paraguay, enabling electricity exchange with these countries.



Positive numbers mean a positive export balance to Brazil.
Negative numbers mean a positive import balance to Brazil.

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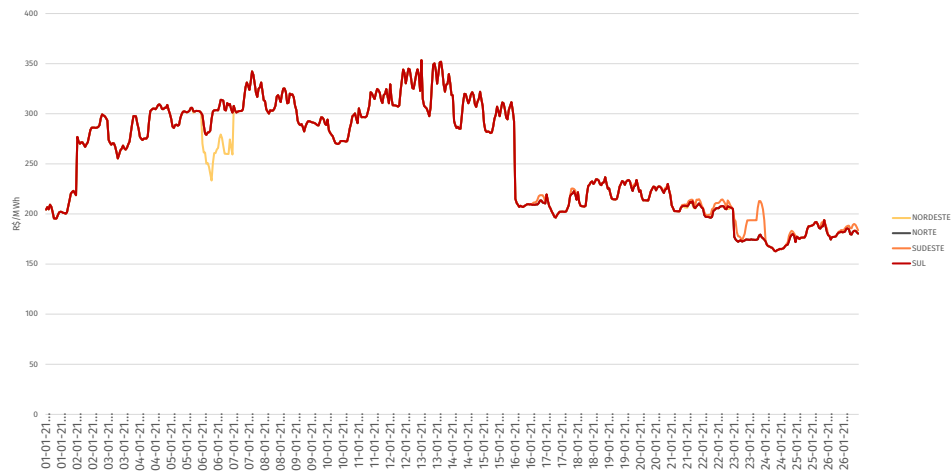
SPOT PRICES



Sistema Interligado Nacional (SIN) is Brazil's national interconnected system consisting of several individual power systems normally operating with a number of transmission lines.

For the first 25 days of January, the water reservoir levels in the SIN (National Interconnected System) were of 22.98% in the Southeast submarket, 51.42% in the Northeast, 30.60% in the North, and 33.39% in the South. Reservoir levels in the Northeast are, compared to other submarkets, the highest in the period due to the performance of wind power plants, accounting for 45.7% of the generation.

One of the main factors that influences the PLD variations is the difference between the predicted and actual affluences. We can see that happening on the 7th, 12th and 13th, when the hourly PLD reached the highest prices with final averages for the day hitting over R\$ 315.00. Historically, the first month of the year has quite an elevated rain incidence, which increases the reservoirs' levels. Other factors impacting the hourly PLD in the period are: import/export, network expansion, availability, demand, and storage. On average, these factors account altogether for 51% of the PLD's variations.



Average price in the solar hours* (R\$/MWh)

	January	December	Change
Southeast	258,5	286,8	↓ -9,87%
South	257,5	286,8	↓ -10,24%
Northeast	255,8	270,3	↓ -5,39%
Northeast	257,4	286,1	↓ -10,02%

3: Solar hours: The term solar hours is a proxy for the period between 7 am and 5 pm regardless of the region and season of the year. The accurate solar hours per region and state may vary.

Average spot price in the peak hours* (R\$/MWh)

	January	December	Change
Southeast	263,9	291,3	↓ -9,39%
South	261,3	291,3	↓ -10,30%
Northeast	259,4	278,5	↓ -6,85%
Northeast	261,3	291,2	↓ -10,27%

4: Peak hours account for the period between 6 pm and 9 pm on week days, regardless of public holidays. The spread between peak prices and solar hour prices supports the financial feasibility of distributed solar projects.

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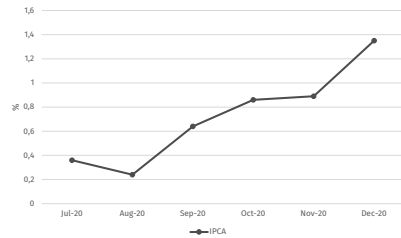
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FINANCIAL INDICATORS

IPCA - (Inflation)

The IPCA - Extended National Consumer Price Index - measures the change in the cost of living of families with an average income of 1 to 40 minimum wages.



Last 12 months

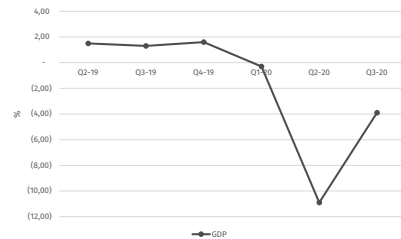
4,52%

Year to date

4,52%

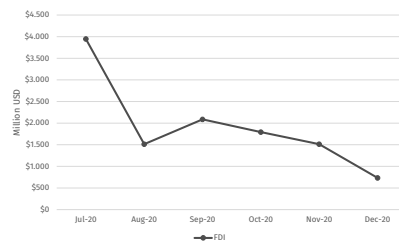
GDP

Evolution of GDP in time, comparing its performance quarter by quarter



FOREIGN DIRECT INVESTMENT

Net inflows of foreign direct investments received from abroad, including equity capital and intercompany loans



Sources

ANEEL
ABSOLAR
ONS
Trading Economics
Banco Central
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