

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

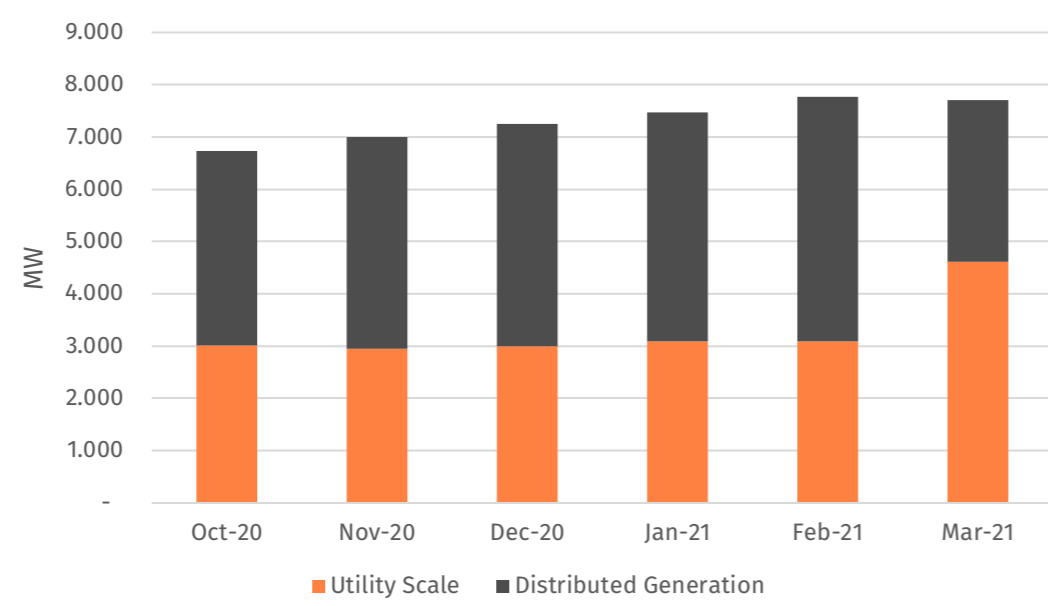
Energy Matrix



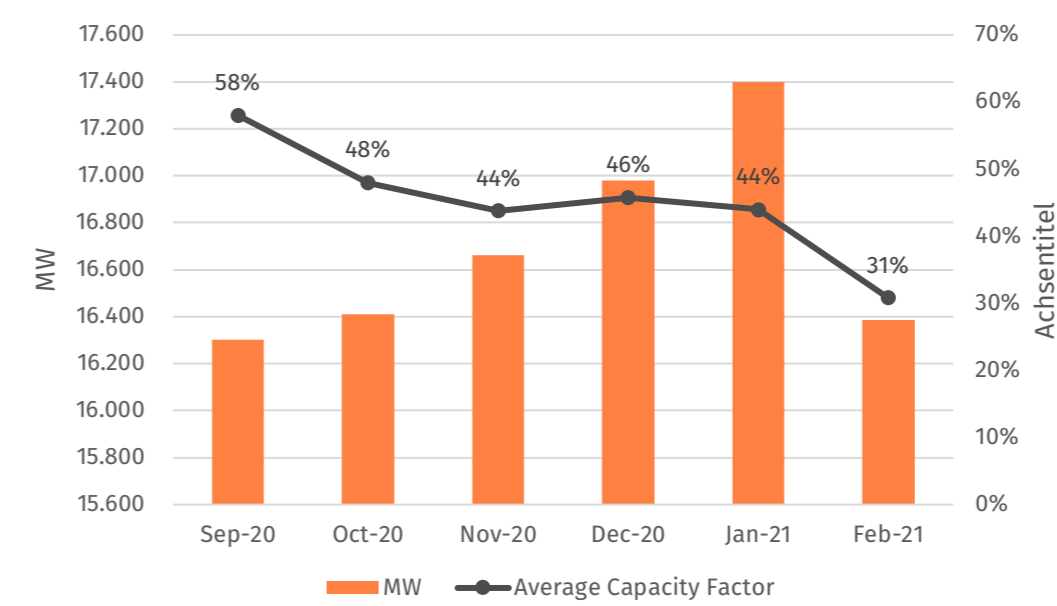
Total installed generation capacity¹ 177 GW

1: does not include distributed generation capacity

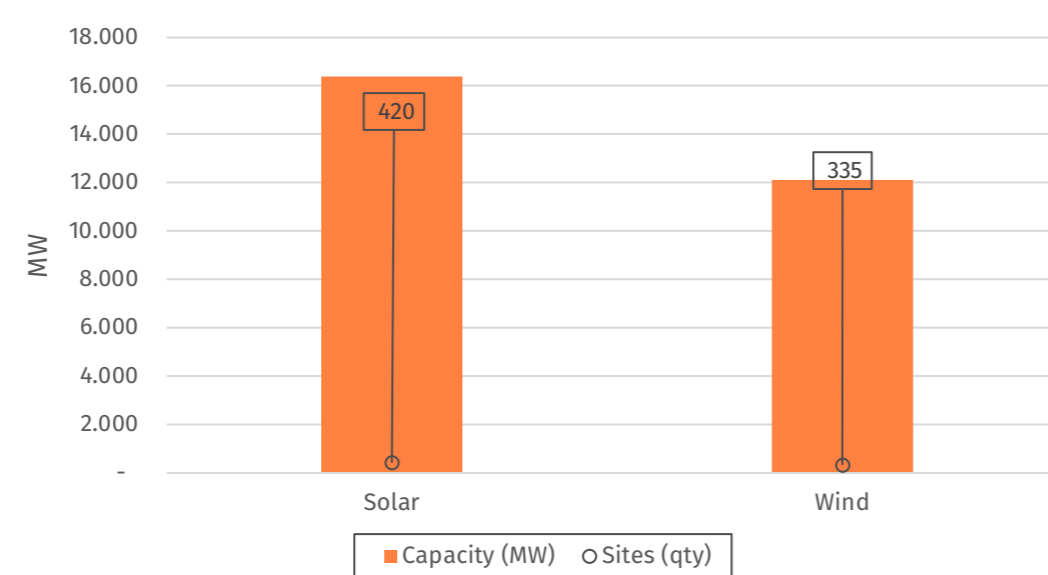
Solar Installed capacity evolution last 6 months



Wind Installed capacity evolution last 6 months



Capacity under development - Solar and Wind



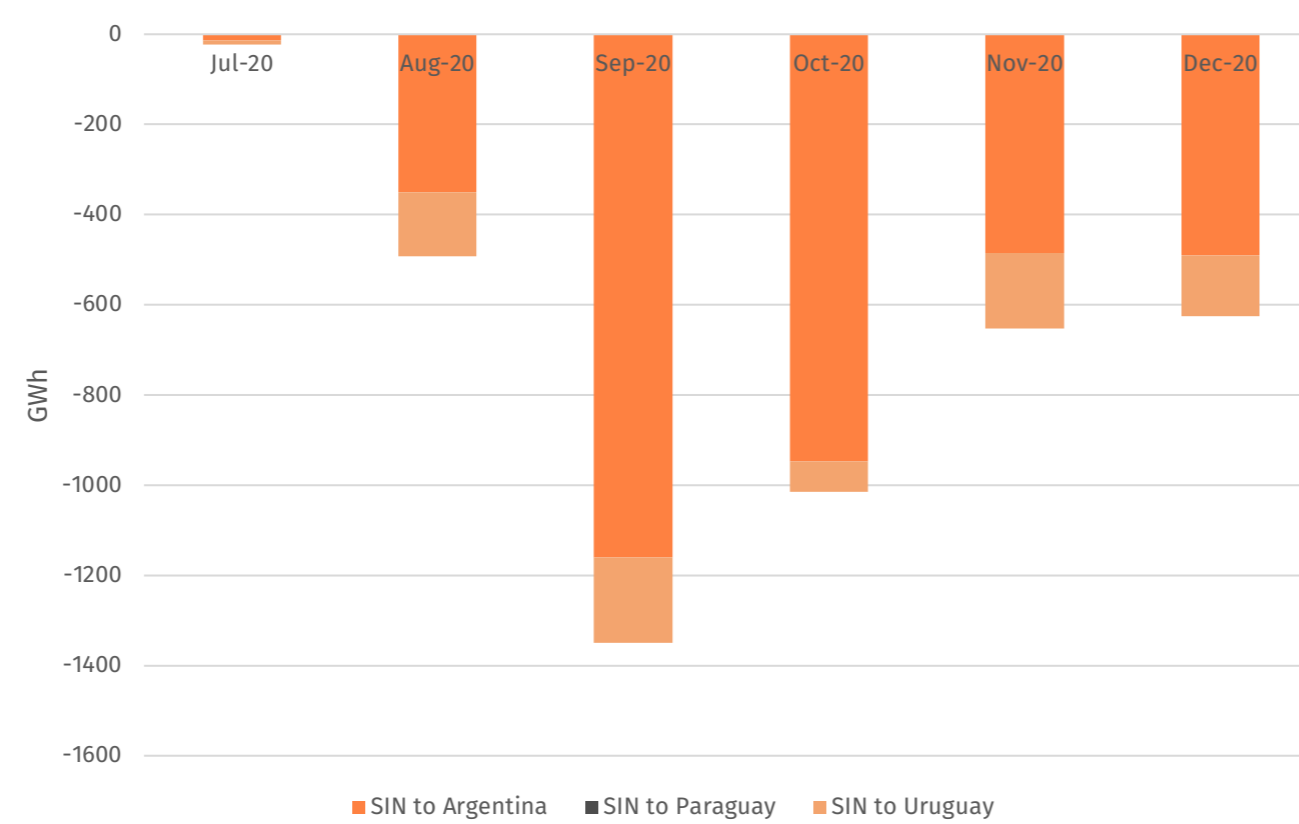
Mangifera's Probability Index²

Solar	91%
Wind	86%

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 inexact 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.

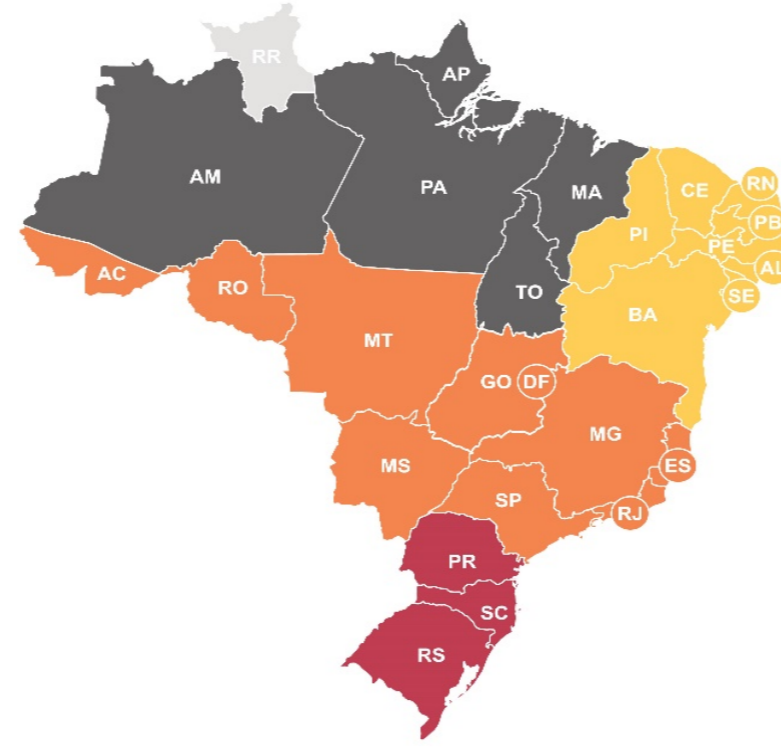
Import / Export Balance

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.

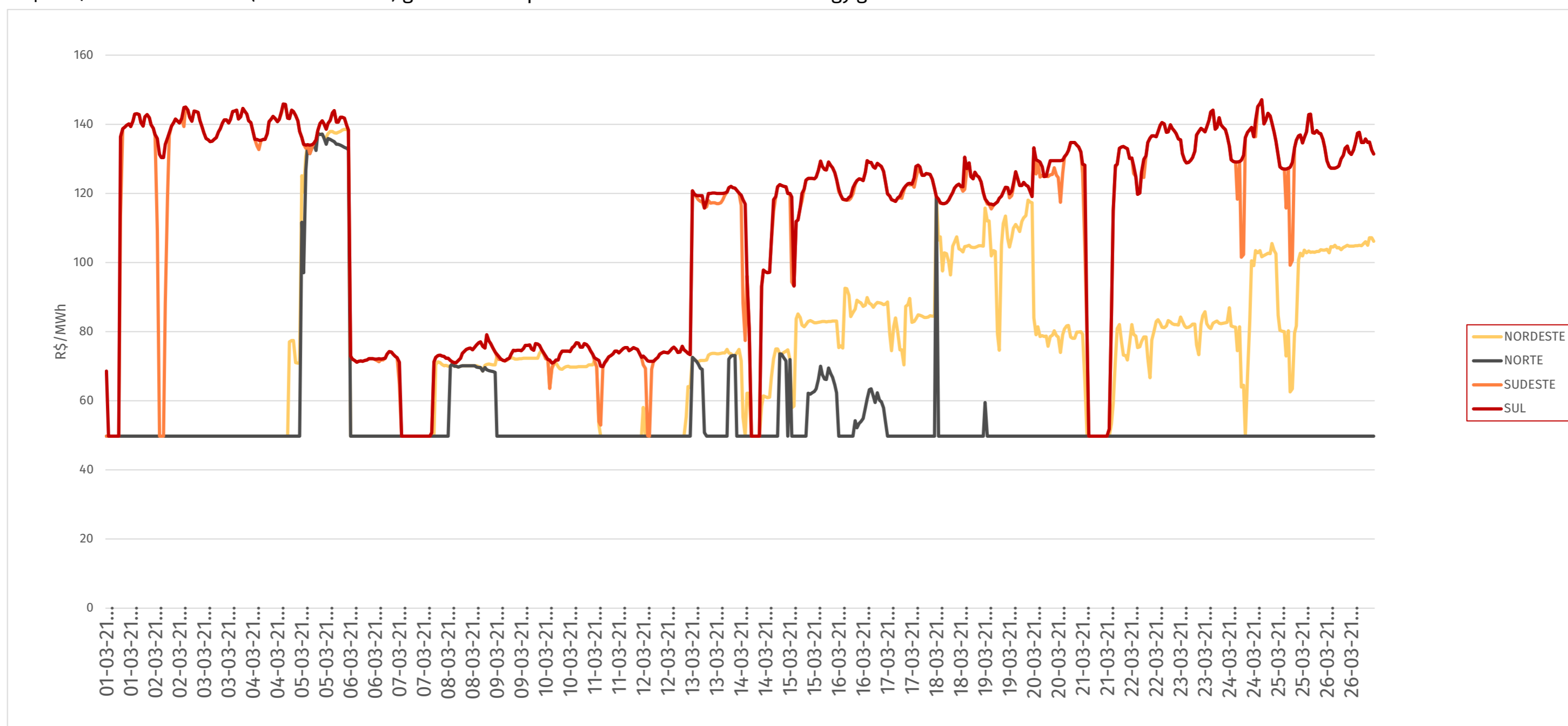
SPOT PRICES



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

On 01-01-2021, a new way of pricing the Short Term Market in Brazil was implemented, the hourly PLD, which seeks to give more dynamism to the sector and bring prices closer to the reality of the market. It is published daily, for the following 24 hours, for each of the submarkets in the SIN. Values are limited to a minimum hourly value (minimum hourly PLD), a maximum hourly value (maximum hourly PLD) and a daily limit (structural maximum PLD). They are: Minimum Hourly PLD R \$ 49,77/MWh, Maximum Hourly PLD R \$ 1.197,87/MWh and Structural Maximum PLD R \$ 583,88/MWh.

March is typically known for intensive rains, leading to high water inflow and elevated hydropower generation. Impact on spot prices led to lower weekly averages of R\$ 70,71 and a maximum of R\$ 126,23. Water inflows are expected to reach 83% of the long-term average for the system, with 77% in the Southeast; 67% in the South; 69% in the Northeast and 108% in the North. High inflow averages in the North submarket brought the region's spot price to the minimum on the greater part of 28 month. in the Southeast, the third operating week of the month saw a positive detachment between the CMO - Marginal Cost of Operation - and the PLD of more than R\$ 340/MWh. Renewable (wind and solar) generation represented 11.6% of the SIN's energy generation.



[Follow day by day prices update in our interactive monitoring tool.](#)

Average price in current month and change to previous month (R\$/MWh)

	March	February	Change
Northeast	74,9	170,5	↓ -35,77%
North	54,9	170,6	↓ -34,16%
Southeast	109,9	171,1	↓ -56,08%
South	111,3	169,1	↓ -67,82%

Average price in the solar hours³ (R\$/MWh)

	March	February	Change
Northeast	74,2	172,9	↓ -35,64%
North	54,6	173,4	↓ -34,45%
Southeast	111,7	173,6	↓ -57,12%
South	112,4	171,4	↓ -68,52%

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 and

Average spot price in the peak hours⁴ (R\$/MWh)

	March	February	Change
Northeast	78,8	174,6	↓ -32,71%
North	56,4	175,5	↓ -31,78%
Southeast	118,2	175,7	↓ -54,84%
South	118,2	173,3	↓ -67,88%

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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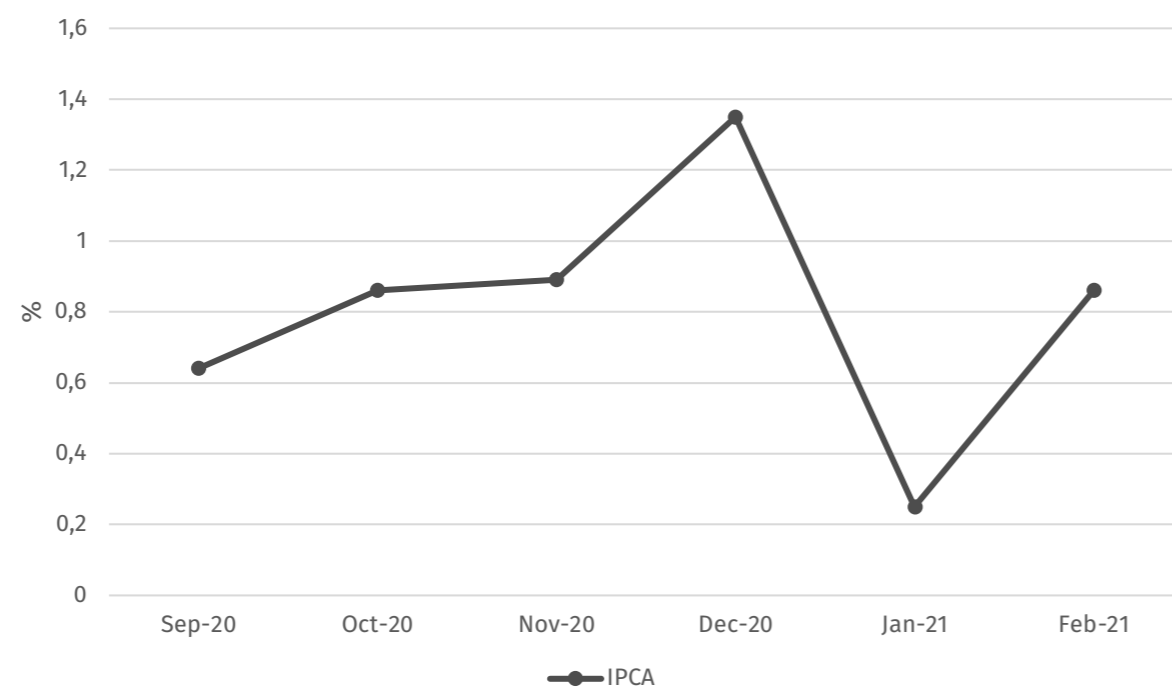
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FINANCIAL INDICATORS

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

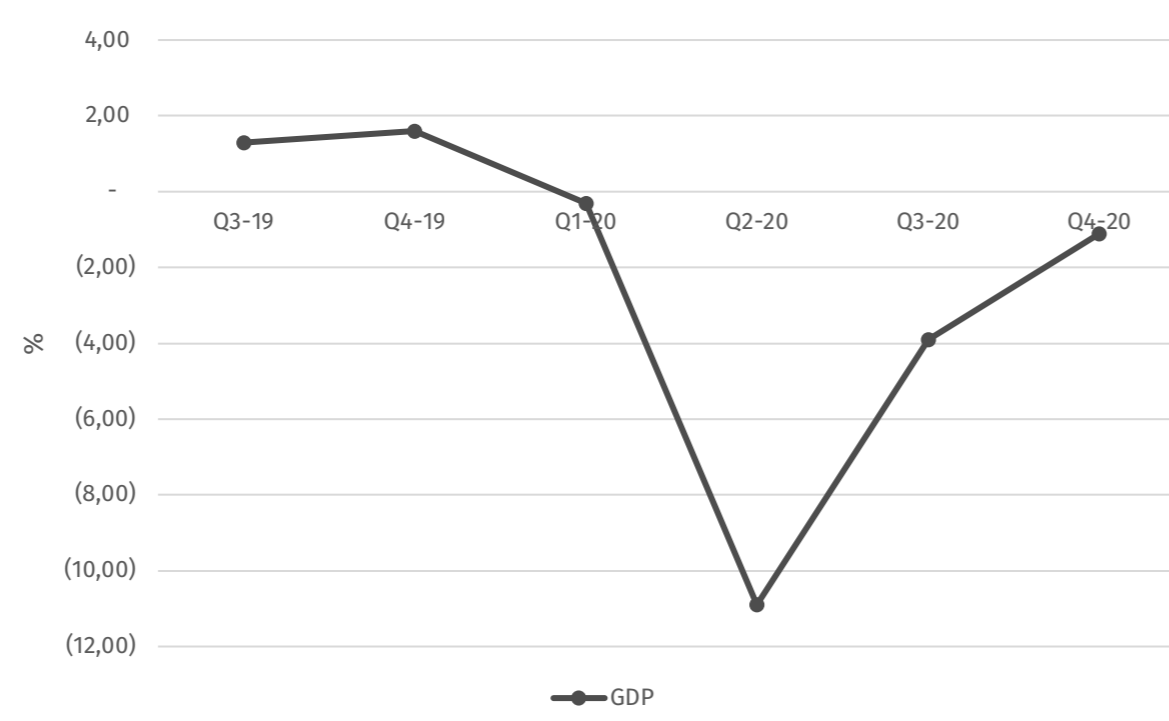
5,20%

Year to date

1,11%

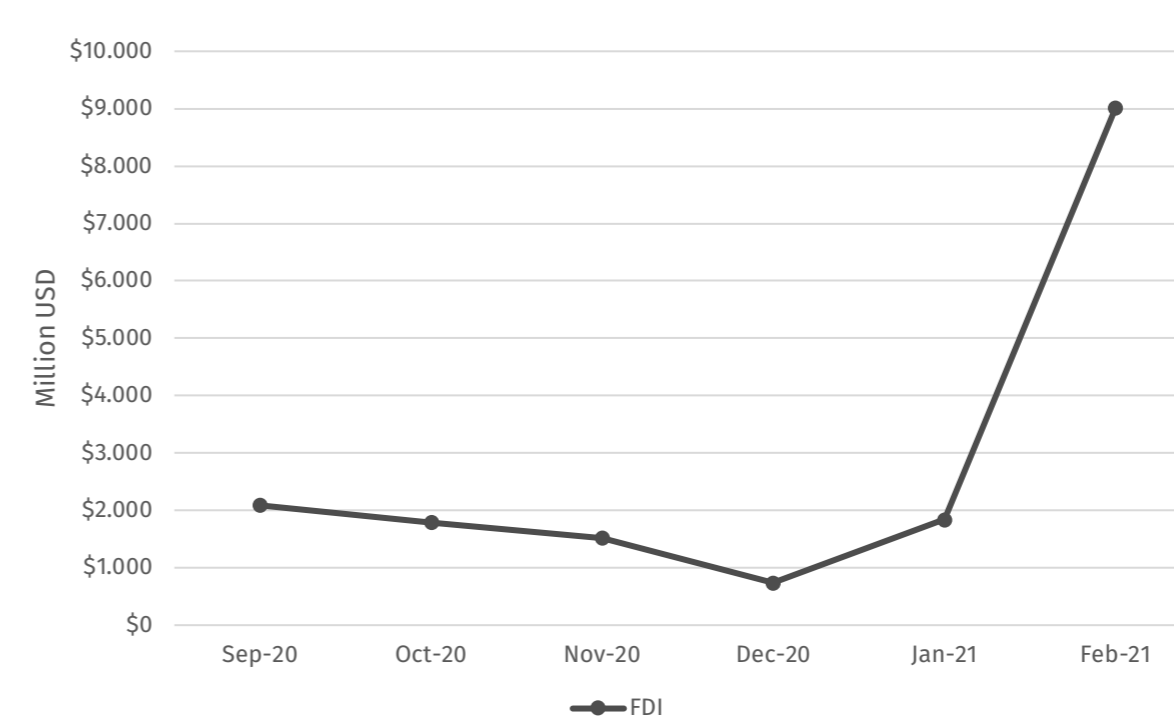
GDP

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
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ONS
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