

MINISTRY OF
MINES AND ENERGY



MONTHLY ENERGY BULLETIN BRAZIL

April 2023 Edition

JANUARY 23

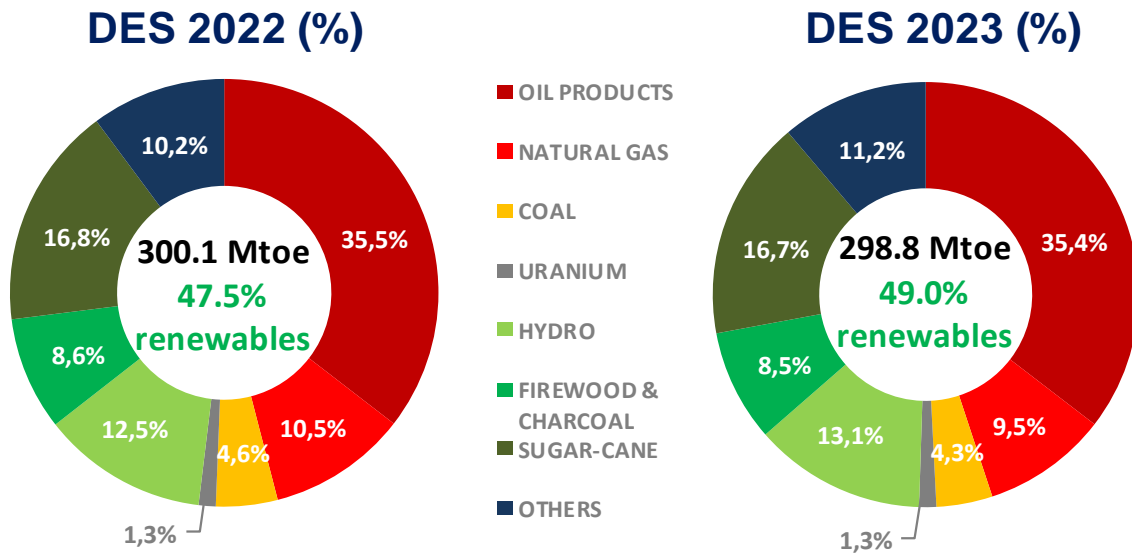
DOMESTIC ENERGY SUPPLY

January data shows a slight reduction in the Domestic Energy Supply (DES)¹ even with an increase in Final Energy Consumption (CFE) for 2023 compared to 2022, mainly due to the reduction in non-renewable energy supply, in greater proportion than the increase in renewable energy supply.

Thus, it is estimated that the share of renewables in the DES will increase in 2023, reaching around 49% of participation (47.7% in 2022 and 44.7% in 2021).

According to the most current survey by the National Supply Company – Conab, sugarcane production has shown a recovery at the end of the year and it is estimated that there will be a 6.0% increase in its production for the 2022/2023 harvest. For sugarcane and corn ethanol, the estimation is for a 2.1% increase in production.

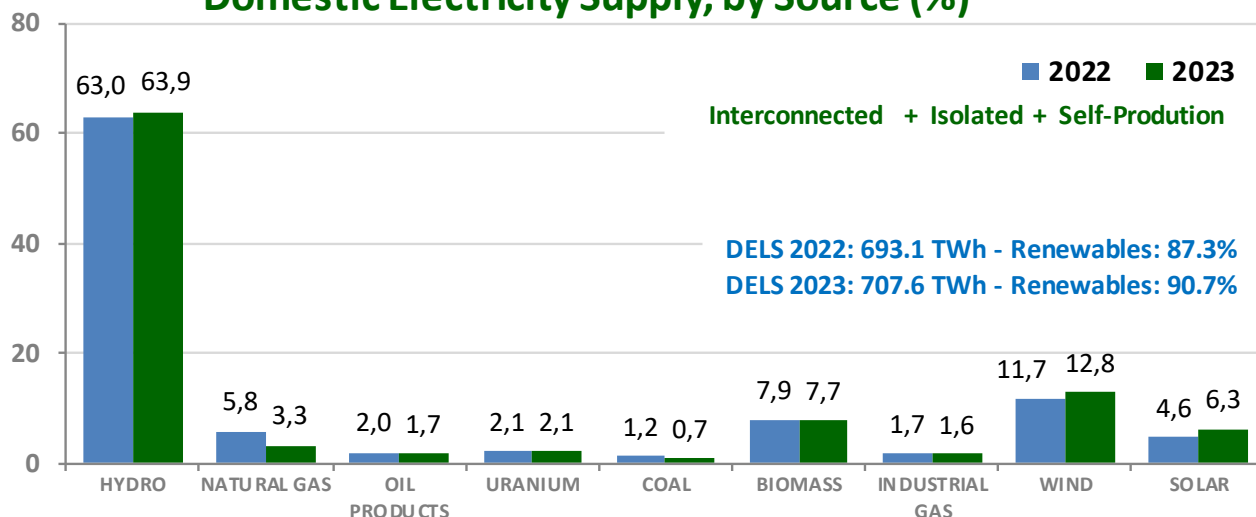
DOMESTIC ENERGY SUPPLY TENDS TO BE MORE RENEWABLE IN 2023



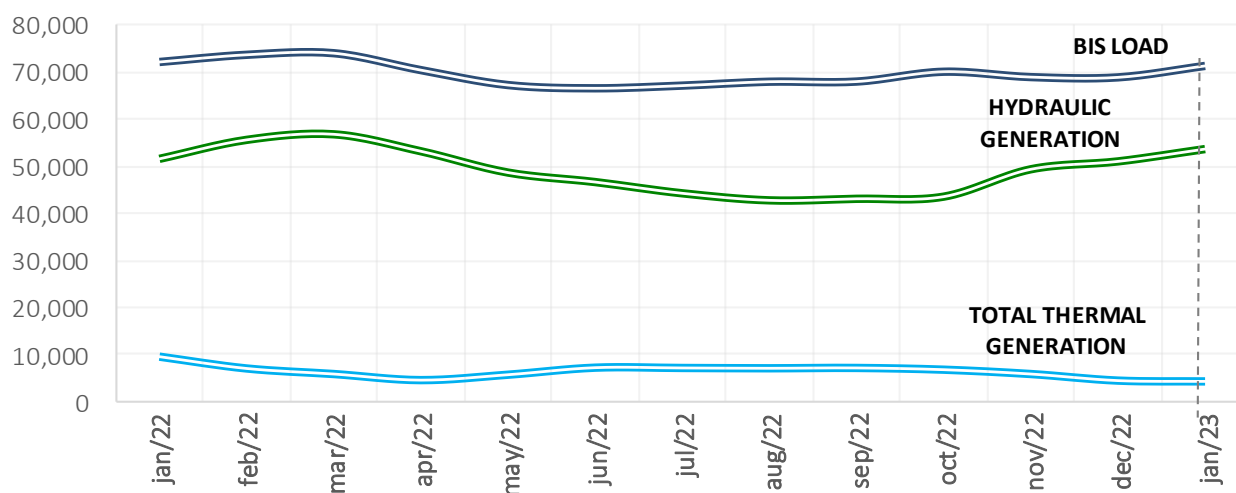
For the Domestic Electricity Supply (DELS)² of 2023, an increase of 2.5% over the previous year is expected, reaching 707.6 TWh, with 90.7% obtained through renewable sources. It should be noticed that DELS accounts for Centralized Generation, Distributed Generation (GD), Self-Production of Energy (APE) and Isolated Systems.

Solar and wind generation should continue to grow in the year. Last year there was a significant growth in solar power (over 78%), driven mainly by Distributed Generation, in addition to growth in wind (over 12%) and hydro (over 16%) generations. The increase in renewable electricity generation in 2022 caused a large reduction in the participation of coal and natural gas thermoelectric plants in the OIEE, which generated less than half compared to 2021 (year of water scarcity).

Domestic Electricity Supply, by Source (%)



Generation - BIS¹ Load - Hydraulic - Thermal Total (MWmed)



¹BIS: Brazilian Interconnected System.

HIGHLIGHTS IN JANUARY 2023

Oil and natural start 2023 growing

Oil and gas production grew this year, showing an increase of 7.6% and 4.2%, respectively.

In 2022, oil and gas average annual production was a record. Oil was just over 3 million barrels/day (bbl/d), 2.5% above the record set in 2020. Natural gas production reached an annual average of 138 million cubic meters per day (m³/day), surpassing by 3.0% the mark of 134 million m³/day, observed in 2021. This is due to the increase in production in the pre-salt layer, which has grown at a rate greater than the reduction in post-salt production.

C gasoline and hydrous ethanol prices continue to fall

The prices of gasoline C and hydrous ethanol fell 23.9% and 23.0% respectively in relation to the same month of the previous year. This is the sixth consecutive month of fall in this indicator for both fuels.

The price drops are a direct effect of Complementary Law No. 194, of June 23, 2022, which defined that, for the purposes of levying the tax provided for in the Brazilian Constitution, fuels, natural gas, electricity,

communications and public transport are considered essential and indispensable goods and services, which cannot be treated as superfluous.

Steel and Mining

Compared to January 2022, steel production decreased by 5.0%, as well as iron ore exports, which decreased by 3.7% in the month. Pig iron exports started the year with a decrease of 5.1%.

Hydraulic supply on the rise

Hydraulic energy supply starts 2023 increasing 4.0% in the year. In the same period last year, compared to 2021, there was an increase of 11.7%. The offer from Itaipu, in relation to January 2022, increased 54.3%.

The increase in hydraulic generation is due to the improvement in rainfall rates, which, combined with the strategies adopted in the management of water scarcity in 2021, enabled higher levels of storage in reservoirs and better management of water resources.

International energy exchange on the rise

In January 2023 the Brazilian energy net export was 1,134 MWavg (to Argentina). Up to April 2022 Brazil was an energy importer from Argentina, however this has changed. Since May 2022, Brazil has exported more than it imported.

Gas and coal consumption for electricity generation in fall

The availability of natural gas for consumption dropped by 21.8% in the previous year, with consumption for public electricity generation falling by 64.3% compared to last year (last available data). For coal, the decline in January for public electricity generation was 43.6%, compared to the same month of the previous year.

Apparent consumption of petroleum products on the rise

The apparent consumption of petroleum derivatives increased by 1.9% in the year, with diesel decreasing by 8.8% while consumption of regular gasoline increased by 15.1%. Automotive ethanol consumption increased by 9.6%.

The energy consumption of light Otto-cycle vehicles (gasoline, ethanol, and natural gas) has shown an increase of 12.1% year-to-date.

Commercial sector electricity consumption in slight rise at the beginning of the year

Electricity consumption in the commercial sector grew by 0.7% compared to January 2022. Residential consumption, on the other hand, grew by 1.8% and industrial consumption had a slight drop of 1.6% compared to last January.

Biodiesel production in fall

Biodiesel production reduced 1.1%, compared to January 2022.

Electricity tariffs continue to fall

All three tariffs (residential, commercial and industrial) fell in relation to the same month of the previous year, for the seventh consecutive month. The declines were 19.4% for the residential sector, 18.7% for the commercial sector and 17.8% for the industrial sector.

The price drops are a direct effect of Complementary Law No. 194, of June 23, 2022, which defined that, for the purpose of levying the tax dealt with in the Brazilian Constitution, fuels, natural gas, electricity, communications and public transport are considered essential and indispensable goods and services, which cannot be treated as superfluous.

Distributed generation installed capacity (DG) solar grows strongly

The growth of solar DG installed capacity in Brazil is still a highlight, increasing by 91.7% compared to January 2022. The centralized solar installed capacity (non-GD) also increases, by 66.6%.

The growth of DG is a reflection of public policies to encourage renewable energy sources and distributed micro and mini-generation, such as Law No. 13,203/2015 and Law No. 14,300/2022. Considered a GD legal framework, this last law generated a “race” in the sector, by ensuring an exemption from a portion of the Tariff for the Use of the Distribution System (TUSD) until 2045.

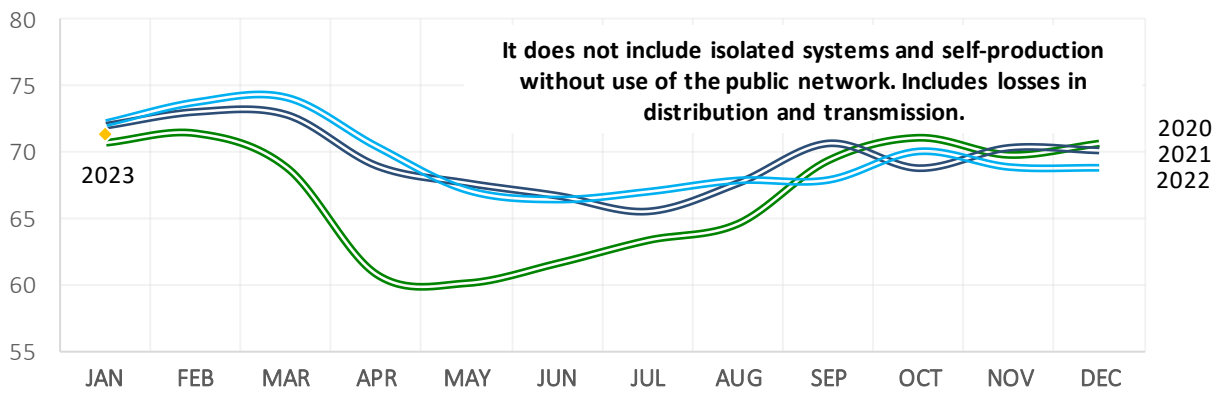
SPECIFICATION	JANUARY					
	IN THE MONTH			ACCUMULATED IN THE YEAR		
	2023	2022	Δ% 23/22	2023	2022	Δ% 23/22
OIL						
PRODUCTION - with Shale Oil and NGL(10 ³ b/d)	3,367	3,130	7.6	3,367	3,130	7.6
IMPORTS AVERAGE PRICE (US\$/bbl FOB)	90.35	82.72	9.2	90.35	82.72	9.2
OIL PRODUCTS						
TOTAL CONSUMPTION (10 ³ b/day)	2,263	2,221	1.9	2,263	2,221	1.9
hereof: DIESEL with biodiesel - (10 ³ b/day)	883	969	-8.8	883	969	-8.8
hereof: GASOLINE C (10 ³ b/day)	762	662.1	15.1	762	662	15.1
CONSUMER PRICE - DIESEL (R\$/l)	6.33	5.49	15.3	6.33	5.49	15.3
CONSUMER PRICE - GASOLINE C (R\$/l)	5.05	6.64	-23.9	5.05	6.64	-23.9
CONSUMER PRICE - LPG (R\$/13 kg)	108.27	102.44	5.7	108.27	102.44	5.7
NATURAL GAS (d)						
PRODUCTION (10 ⁶ m ³ /day)	143	137	4.2	143	137	4.2
IMPORTS (10 ⁶ m ³ /day) (c)	19.4	46.4	-58.2	24.0	45.9	-47.7
NON-UTILIZED AND REINJECTION (10 ⁶ m ³ /day) (c)	73.2	64.0	14.3	71.9	64.2	11.9
AVAILABILITY FOR CONSUMPTION (10 ⁶ m ³ /day) (c)	86.4	114.6	-24.6	90.0	115.1	-21.8
INDUSTRIAL CONSUMPTION (10 ⁶ m ³ /day) (c)	39.4	39.1	0.8	41.4	40.2	3.0
POWER GENERATION CONS. (10 ⁶ m ³ /day) (c)	13.9	41.7	-66.7	15.3	42.9	-64.3
INDUSTRIAL PRICE SE (US\$/MMBtu) (a)(c)	18.38	15.66	17.4	20.73	13.97	48.4
MOTOR PRICE SE (US\$/MMBtu) (c)	19.41	17.04	13.9	20.59	15.25	35.0
RESIDENTIAL PRICE SE (US\$/MMBtu) (c)	49.09	28.35	73.2	48.73	33.38	46.0
ELECTRICITY						
NATIONAL INTERCONNECTED SYSTEM	71,335	72,196	-1.2	71,335	72,196	-1.2
SOUTHEAST/MIDWEST POWER LOAD (MWavg)	40,455	41,452	-2.4	40,455	41,452	-2.4
SOUTH POWER LOAD (MWavg)	12,996	13,778	-5.7	12,996	13,778	-5.7
NORTHEAST POWER LOAD (MWavg)	11,513	11,248	2.4	11,513	11,248	2.4
NORTH POWER LOAD (MWavg)	6,327	5,718	10.7	6,327	5,718	10.7
TOTAL CONSUMPTION (TWh) (b)	42.4	42.5	-0.2	42.4	42.5	-0.2
RESIDENTIAL	13.2	13.1	1.2	13.3	13.1	1.8
INDUSTRIAL	14.5	14.7	-1.6	14.5	14.7	-1.6
COMMERCIAL	8.1	8.0	0.7	8.1	8.0	0.7
OTHER SECTORS	6.5	6.7	-2.5	6.5	6.7	-2.5
PLANTS ENTRY INTO OPERATING (MW)	1274	482	164.2	1,274	482	164.2
RESIDENTIAL PRICE (R\$/MWh)	787	976	-19.4	787	976	-19.4
COMMERCIAL PRICE (R\$/MWh)	757	932	-18.7	757	932	-18.7
INDUSTRIAL PRICE (R\$/MWh)	735	895	-17.8	735	895	-17.8
ETHANOL AND BIODIESEL						
BIODIESEL PRODUCTION (10 ³ b/d)	91	92	-1.1	91	92	-1.1
MOTOR ETHANOL CONSUMPTION (10 ³ b/d)	420	383	9.6	420	383	9.6
ETHANOL EXPORTS (10 ³ b/d)	53	21	156.0	53	21	156.0
HYDRATED ETHANOL PRICE (R\$/l)	3.88	5.04	-23.0	3.88	5.04	-23.0
COAL						
ELECTRICITY GENERATION (MWavg)	530	939	-43.6	530	939	-43.6
IMPORT PRICE (US\$ FOB/t)	247.08	233.21	6.0	247.08	233.21	6.0
NUCLEAR ENERGY						
ELECTRICITY GENERATION - (GWh)	2007	1997	0.5	2,007	1,997	0.5
INDUSTRIAL SECTORS						
STEEL PRODUCTION (10 ³ t/day)	90	94	-5.0	90	94	-5.0
ALUMINIUM PRODUCTION (10 ³ t/day) (c)	2.0	2.1	-7.3	2.2	2.1	2.7
IRON ORE EXPORTS (10 ³ t/day)	741	769	-3.7	741	769	-3.7
PELLETS EXPORTS (10 ³ t/day)	55	39	39.2	55	39	39.2
BIG IRON EXPORTS (10 ³ t/day)	7.6	8.0	-5.1	7.6	8.0	-5.1
PAPER PRODUCTION (10 ³ t/day)	29.5	29.4	0.1	29.5	29.4	0.1
PULP PRODUCTION (10 ³ t/day) (c)	64.7	60.3	7.3	68.1	61.6	10.5
SUGAR PRODUCTION (10 ³ t/day)	16.3	12.8	26.9	16.3	12.8	26.9
SUGAR EXPORTS (10 ³ t/day)	65	43	49.8	65	43	49.8

(a) Consumption range = 20,000 m³/day.

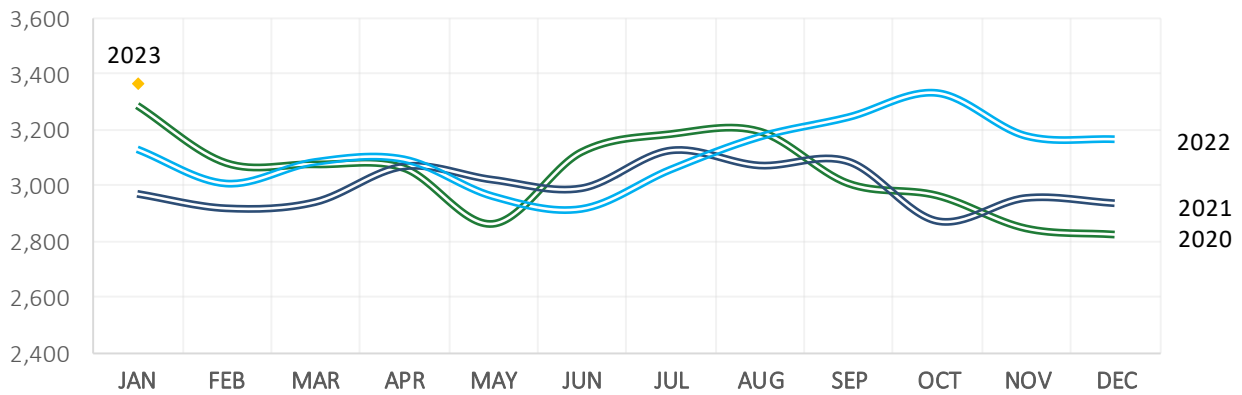
(c) December data.

(b) The traditional self-producers (consumers that do not use public grid) is not included.

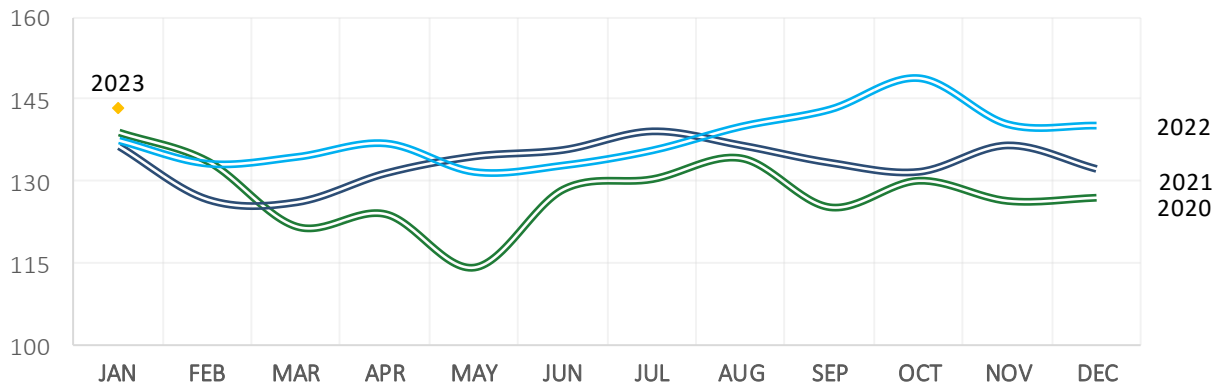
National Interconnected System Power Load (GWavg)



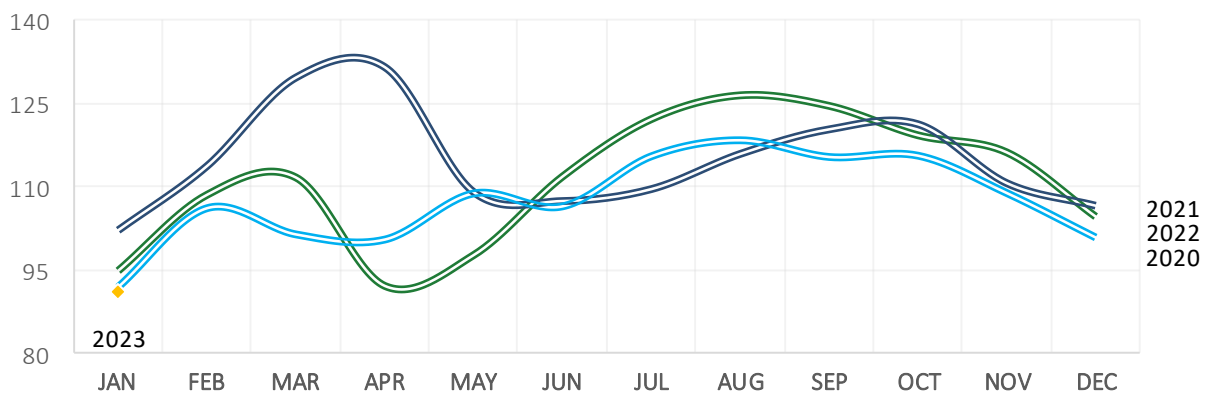
Oil Production (10³ bbl/d)



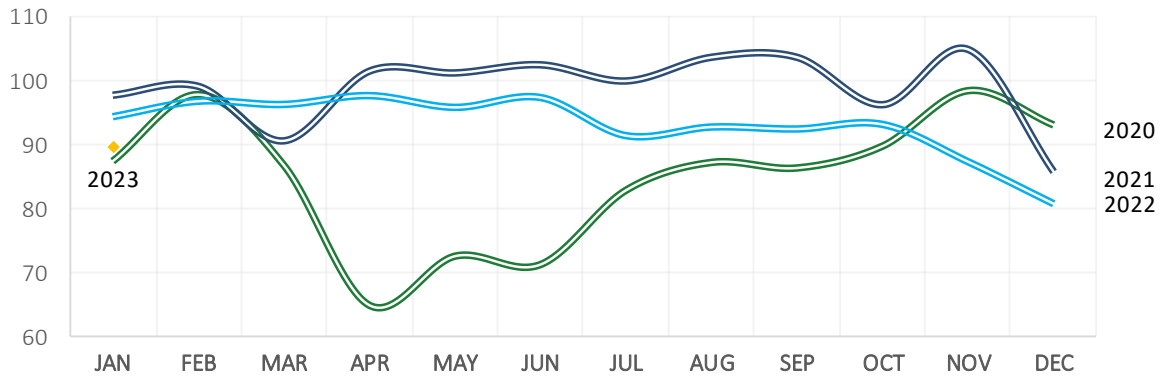
Natural Gas Production (million m³/d)



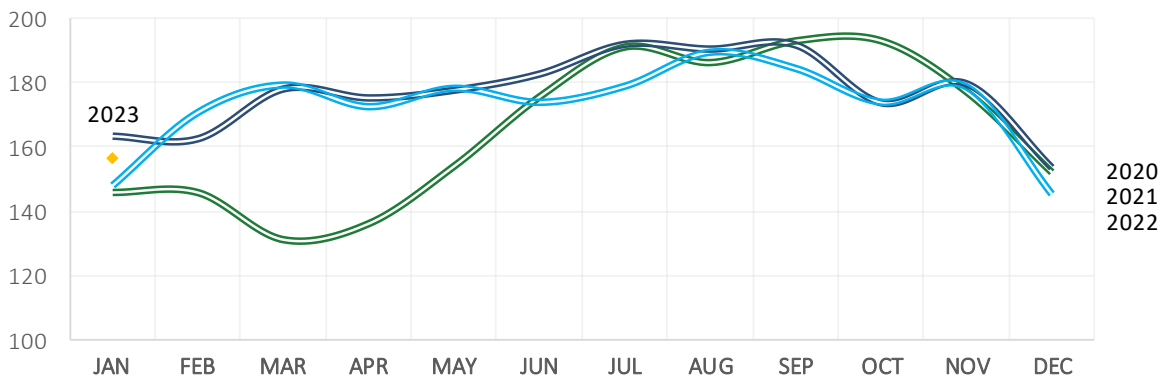
Biodiesel Production (10³ bbl/d)



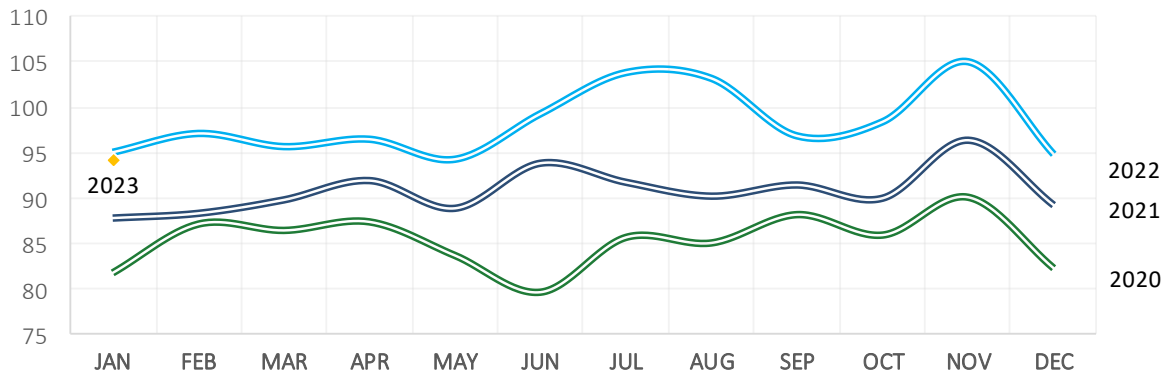
Steel Production (10³ t/d)



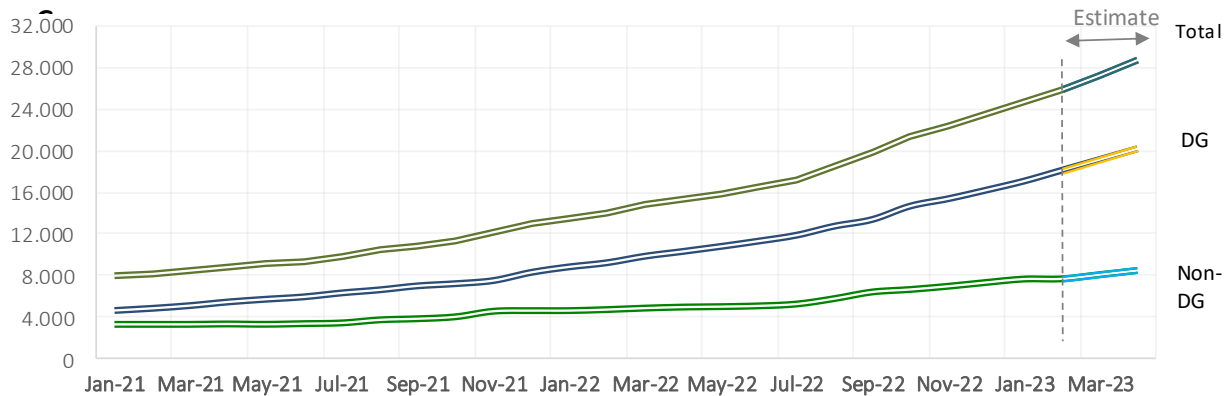
Cement Sales (10³ t/d)



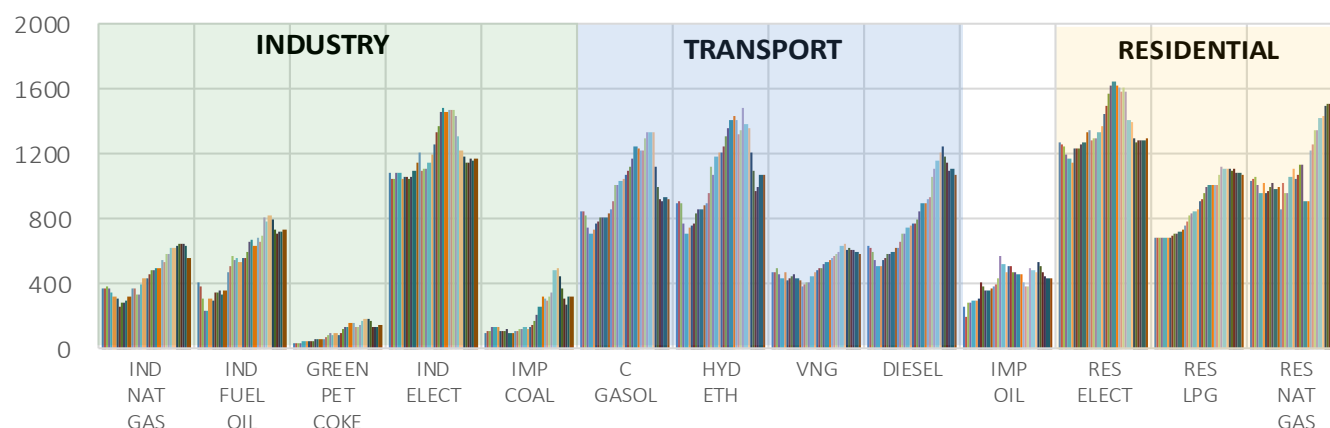
Paper and Pulp Production (10³ t/d)



Photovoltaic Solar Installed Capacity (GW)



Consumer Prices - Jan 2020 to Jan 2023 (R\$/boe)



METHODOLOGICAL NOTES

The bulletin reports the monitoring of energy and non-energy variables that allow estimating the monthly and accumulated behavior of the total energy demand in Brazil.

Total gas demand = domestic production (+) import (-) unused (-) reinjection.

¹ Domestic Energy Supply (DES), or Total Energy Demand, represents the energy necessary to move the economy of a country or region over a period. Includes final energy consumption in the residential sector and in the other economic sectors, including losses in transmission and distribution, losses on power transformation, and the own consumption of the energy sector.

² The 2021 data from DES and DELS already reflect the final results of the 2022 cycle of the National Energy Balance (BEN), coordinated by the Energy Research Company (EPE), in partnership with DIE/SPE/MME, companies and agencies of the Brazilian energy sector.

The Monthly Energy Bulletin uses information and data obtained in the Brazilian energy sector to estimate the behavior of relevant energy indicators, projecting them for the current year, and its data have a lag of up to three months.



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