MINISTRY OF
MINES AND ENERGY

BRAZILIAN GOVERNMENT
BRASIL
UNITING AND REBUILDING

MONTHLY ENERGY BULLETIN BRAZIL

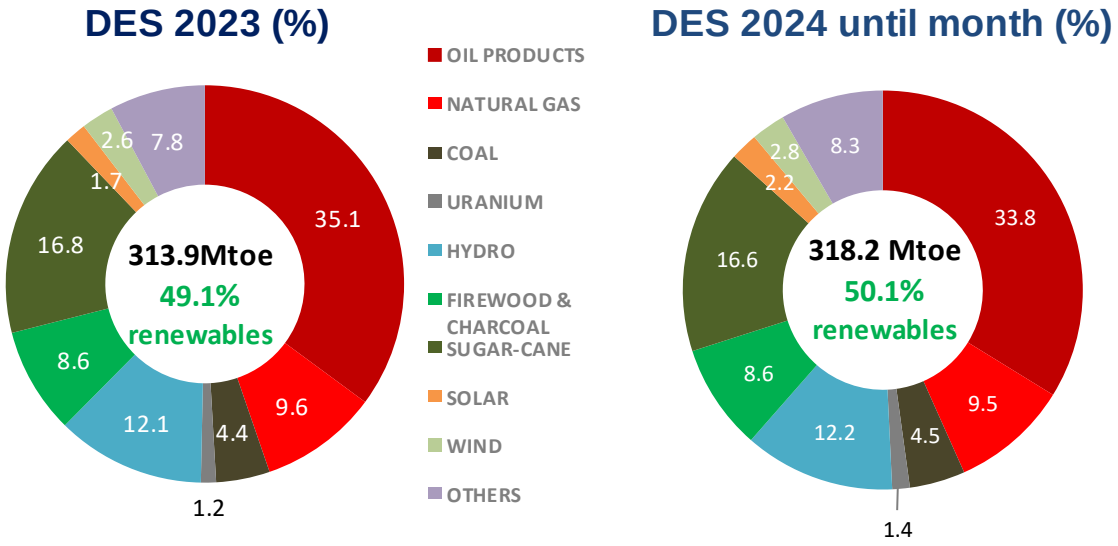
April 2024 Edition
September 24

DOMESTIC ENERGY SUPPLY

Regarding the data up to September 2024, renewables share in the Domestic Energy Supply (DES)[1] is expected to increase to 50.1%, slightly above the previous year (48.1%), mainly due to the greater share of hydraulic and sugarcane products.

According to the most current survey by the Brazilian Supply Company (Conab), it is estimated that there will be an increase of 1.3% in ethanol production from sugarcane and corn compared to the 2023/2024 harvest.

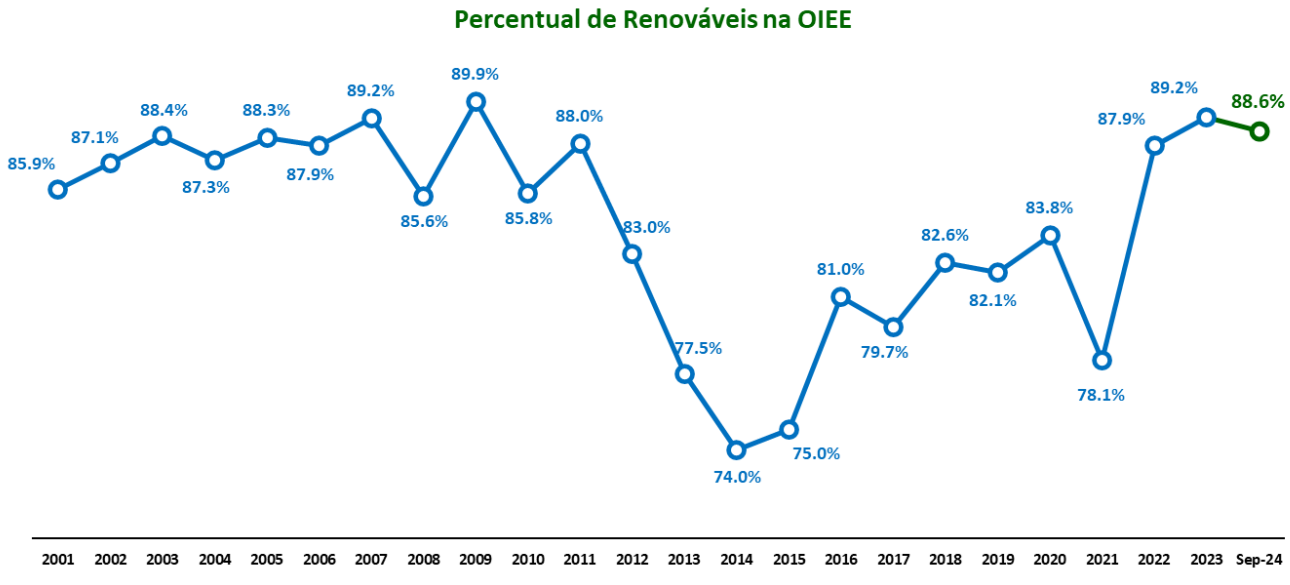
MORE RENEWABLE DOMESTIC ENERGY SUPPLY IN 2024



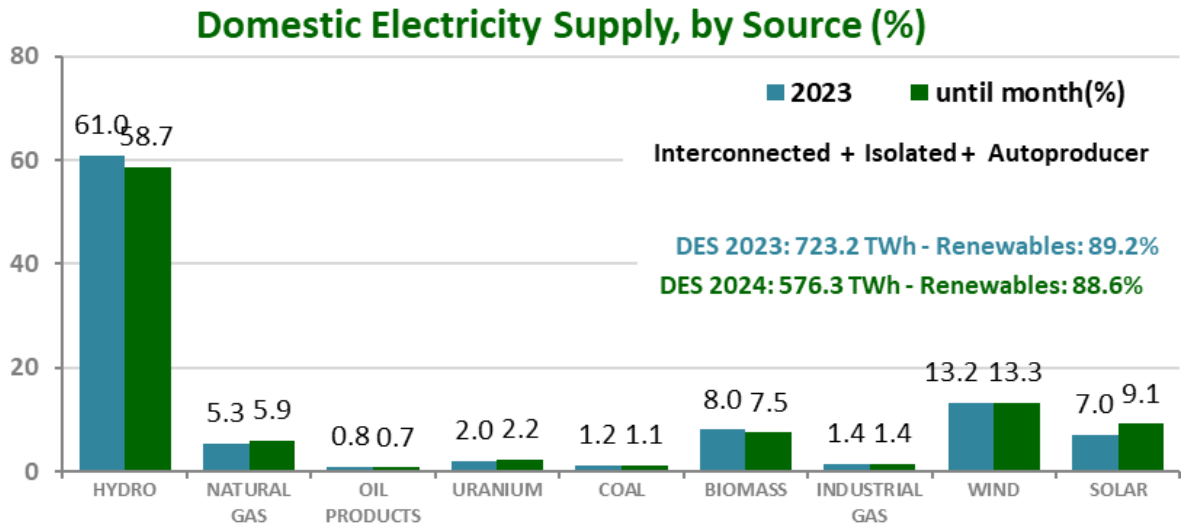
*OTHER: includes other renewable and non-renewable

In 2024, regarding the proportion of renewables in the Domestic Electricity Supply (DELS)[2], it was found that 88.6% were obtained from renewable sources up to September, reaching a cumulative value of 576.3 TWh.

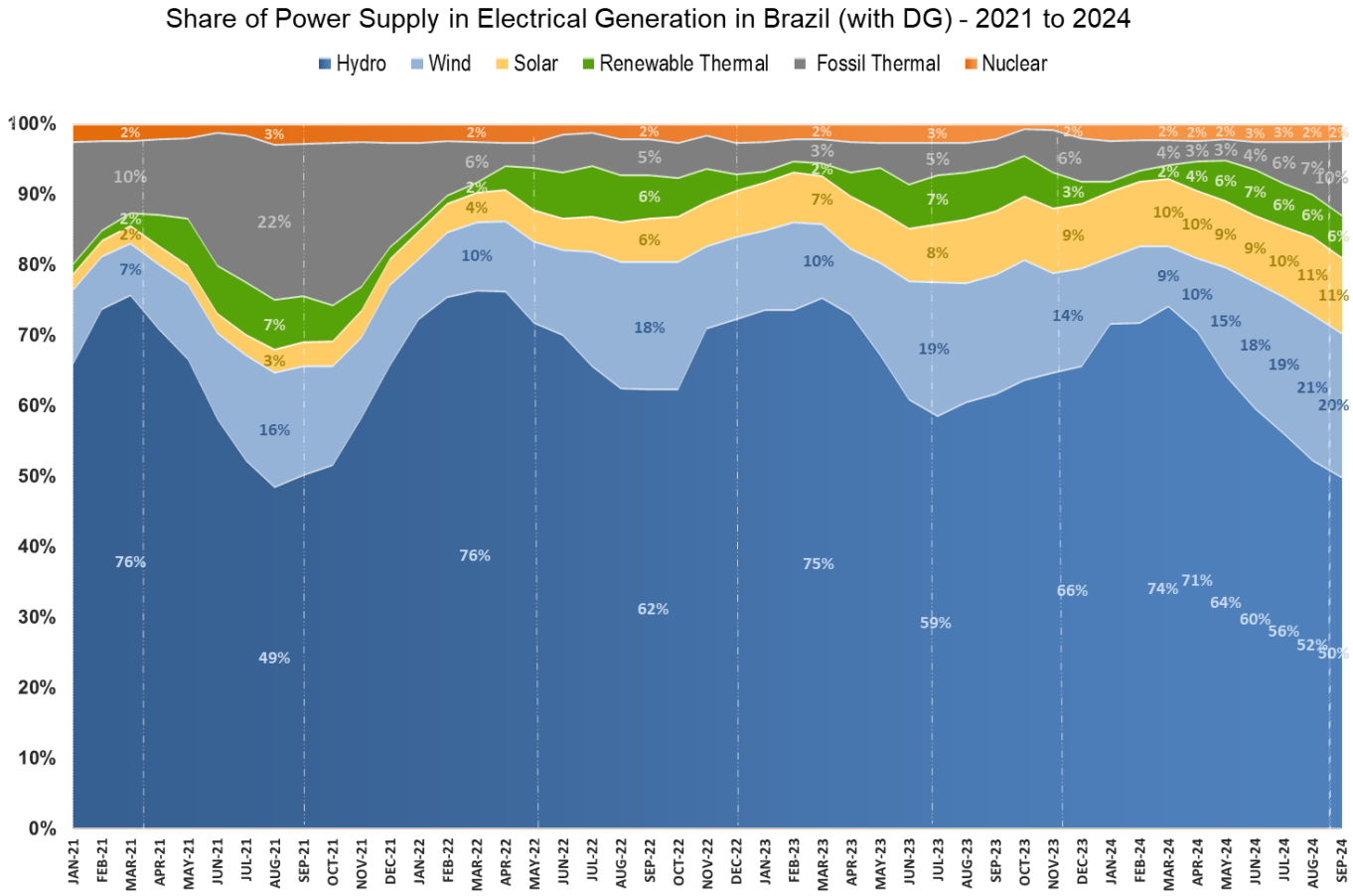
The figure below highlights the significant proportion of renewables in our DELS, contributing to a cleaner energy generation. This is a result of both favorable hydrological conditions and investments in solar and wind energy.



For the first nine months of the year, compared to the same period of the previous year (year-to-date, or YTD), there was a 51.0% increase in generation for centralized solar and 11.0% for wind generation. For hydropower, compared to the average for the whole of last year, generation is around 1.0% higher.



The last two years were more favorable for hydropower generation, compared to 2021, when there was a scenario of water scarcity. The following figure shows how each source participated in monthly power generation. When there was a reduction in hydropower share, biomass and wind sources mostly increased their share, in order to meet the Brazilian electricity demand. Wind and solar shares have increased over the years, due to an increase in installed capacity, mainly due to solar distributed generation.



HIGHLIGHTS IN SEPTEMBER 2024

Oil and gas growing

Oil and gas production increased, rising 0.8% and 2.5% respectively, YTD.

Steel and Mining growing

YTD, steel production grew by 5.3% while aluminum production grew by 8.8% and iron ore exports rose by 5.3%. Meanwhile, pellets exports increased by 11.9%.

Hydraulic supply

The hydraulic energy supply increased by 0.7%, YTD. The monthly average was 50,307 MWavg. Itaipu's supply, for the same period, decreased by 29.4%.

Wind energy supply in high

Wind energy supply up to September 2024 increased by 11.0%, YTD.

For the nine first months of 2024, 3,187 MW of wind power plants came into operation, 4.0% lower than the same period of the last year.

International power energy exchange

In September 2024, Brazil imported 41.0 MWavg from Argentina and 24.0 MWavg fromUruguay.

Slightly falling in natural gas availability

Gas consumption availability fell by 0.9%, YTD.

Coal for electricity power generation rising

Coal public power generation showed an increase of 1.6%, YTD.

Oil derivatives apparent consumption

Apparent consumption of petroleum derivatives reduced by 1.8% in the YTD, diesel B (14% biodiesel) final consumption decreased by 0.3% and regular gasoline consumption reduced by 5.8%.

Energy consumption in light vehicles using Otto cycle fuels (gasoline, ethanol, and natural gas) had an increase of 4.6% year-to-date.

Gasoline and hydrated ethanol prices

Gasoline C price increased by 7.6%, while hydrated ethanol price decreased by 0.7% year-to-date.

Biodiesel production and automotive ethanol consumption in high

Biodiesel production and automotive ethanol consumption increased by 25.0% and 21.8%, respectively, YTD. Automotive ethanol includes anhydrous ethanol mixed with gasoline and hydrated ethanol.

As of April 2023, the mandatory biodiesel blending in diesel oil was increased to 12%, as well as the progressive evolution of this percentage, which should reach 15% by 2026.

A resolution of the National Energy Policy Council - CNPE established new guidelines for the evolution of the mandatory addition of biodiesel to diesel sold to the final consumer.

In February 2025, a new resolution of CNPE temporarily fixed the mandated percentage for the biodiesel blending, with diesel at 14% until a new CNPE decision. Biodiesel replacing fossil diesel contributes to the reduction of greenhouse gas emissions, in addition to reducing the need to import fossil fuels.

Electricity consumption growing

Electricity consumption in the residential sector grew 4.2% compared to September 2023. Industrial consumption increased by 5.8% while commercial consumption grew 1.4%.

Electricity tariffs in high

The three electricity tariffs (residential, commercial and industrial) had increased compared to the previous year. Residential tariffs grew by 3.7%, while for the commercial sector there was an increase of 7.5%, and 9.7% for the industrial sector.

Solar distributed generation installed capacity (DG) rising

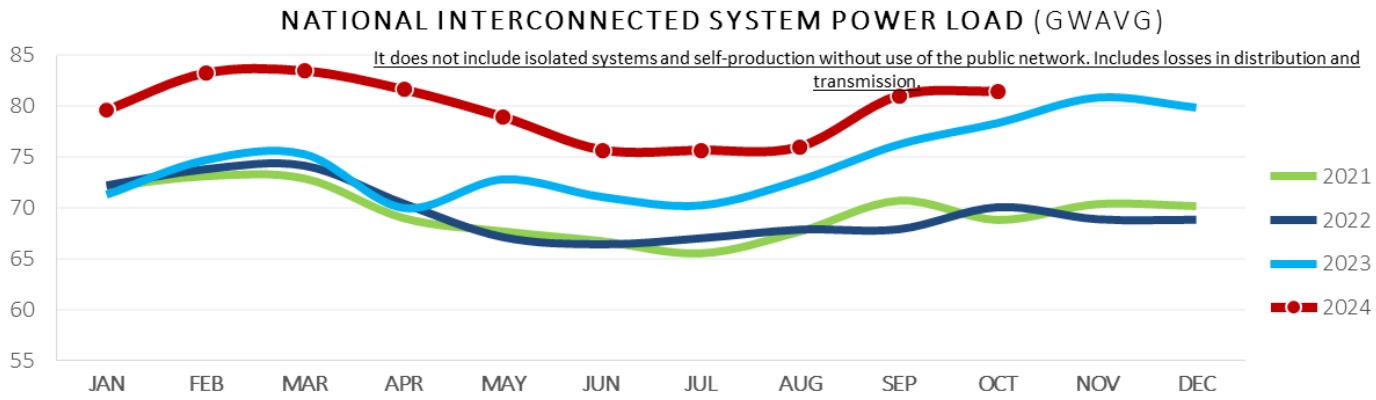
Brazilian solar DG installed capacity is still a highlight and has increased 37.3% compared to September 2023. The centralized solar installed capacity (non-GD) also increases, with a 49.4% growth compared to the same month of the previous year.

For the first nine months of the year, 4,000 MW of installed centralized solar capacity came into operation.

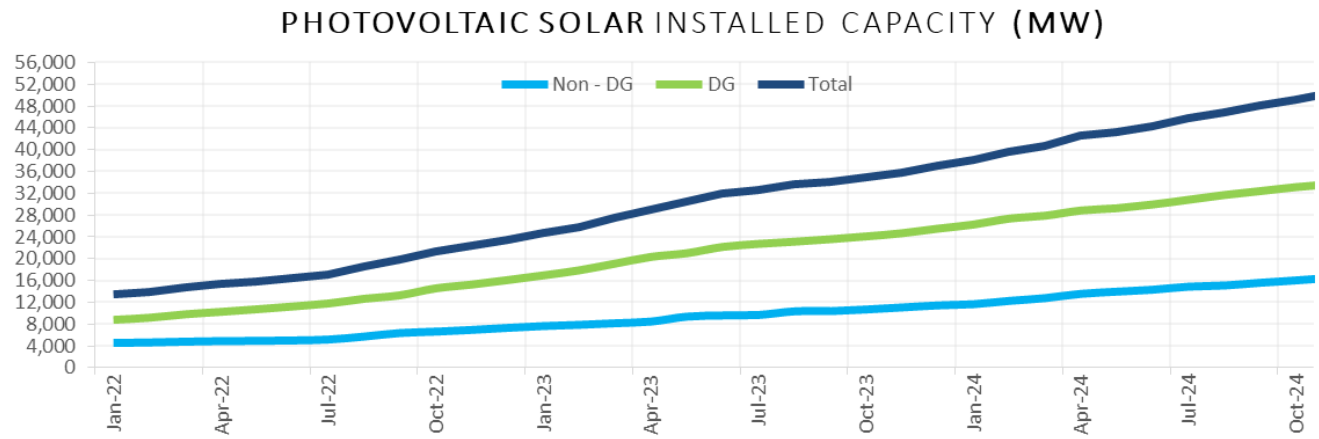
The DG's growth is a result of public policies to encourage renewable energy sources and distributed micro and mini generation, such as Law No. 13,203/2015 and Law No. 14,300/2022, which is considered a legal framework for distributed generation in Brazil.

SPECIFICATION	September IN THE MONTH			ACCUMULATED IN THE YEAR		
	2024	2023	Δ% 24/23	2024	2023	Δ% 24/23
OIL						
PRODUCTION - with Shale Oil and NGL(10^3 b/d)	3,544	*3,757*	-5.7	3,442	*3,414*	0.8
IMPORTS AVERAGE PRICE (US$/bbl FOB)	82.04	*89.28*	-8.1	86.03	*83.41*	3.1
OIL PRODUCTS						
TOTAL CONSUMPTION (10^3 b/day)	2,476	*2,573*	-3.8	2,347	*2,391*	-1.8
hereof: DIESEL with biodiesel - (10^3 b/day)	1,213	*1,245*	-2.5	1,159	*1,163*	-0.3
hereof: GASOLINE C (10^3 b/day)	765	*774.6*	-1.2	748	*795*	-5.8
CONSUMER PRICE - DIESEL (R$/l)	5.94	*6.08*	-2.3	5.91	*5.66*	4.3
CONSUMER PRICE - GASOLINE C (R$/l)	6.08	*5.83*	4.3	5.87	*5.45*	7.6
CONSUMER PRICE - LPG (R$/13 kg)	106.04	*101.41*	4.6	102.47	*105.16*	-2.6
NATURAL GAS (d)						
PRODUCTION (10^6 m^3/day)	170	*158*	7.6	151	*147*	2.5
IMPORTS (10^6 m^3/day)	35.0	*14.9*	134.0	21.8	*17.4*	25.4
NON-UTILIZED AND REINJECTION (10^6 m^3/day)	97.1	*83.6*	16.2	86.5	*79.1*	9.3
AVAILABILITY FOR CONSUMPTION (10^6 m^3/day)	107.8	*89.3*	20.6	86.5	*85.7*	0.9
INDUSTRIAL CONSUMPTION (10^6 m^3/day) **(d)**	40.1	*39.0*	2.8	39.0	*39.7*	-1.7
POWER GENERATION CONS. (10^6 m^3/day) **(d)**	33.1	*10.9*	203.0	15.3	*11.3*	34.7
INDUSTRIAL PRICE SE **(b)** (US$/MMBtu) - consumption range of 20,000 m^3/day **(d)**	18.72	*19.29*	-3.0	19.50	*21.01*	-7.2
MOTOR PRICE SE (US$/MMBtu) **(d)**	23.23	*27.00*	-14.0	24.76	*27.57*	-10.2
RESIDENTIAL PRICE SE (US$/MMBtu) **(d)**	47.40	*52.88*	-10.4	49.93	*52.99*	-5.8
ELECTRICITY						
NATIONAL INTERCONNECTED SYSTEM	81,031	*76,257*	6.3	79,449	*72,693*	9.3
SOUTHEAST/MIDWEST POWER LOAD (MWavg)	46,640	*43,541*	7.1	45,090	*41,321*	9.1
SOUTH POWER LOAD (MWavg)	*12,961*	*12,618*	2.7	13,672	*12,531*	9.1
NORTHEAST POWER LOAD (MWavg)	*12,994*	*12,425*	4.6	12,981	*11,855*	9.5
NORTH POWER LOAD (MWavg)	*8,436*	*7,673*	9.9	7,706	*6,987*	10.3
TOTAL CONSUMPTION (TWh) **(a)**	46.3	*44.5*	4.1	46.4	*43.5*	6.8
RESIDENTIAL	14.2	*13.6*	4.2	14.6	*13.3*	9.4
INDUSTRIAL	16.9	*16.0*	5.8	16.4	*15.6*	5.3
COMMERCIAL	8.1	*8.0*	1.4	8.5	*8.0*	7.0
OTHER SECTORS	7.0	*6.8*	3.1	6.9	*6.6*	4.5
PLANTS ENTRY INTO OPERATING (MW)	723	*224*	223.0	7,789	*7,274*	7.1
RESIDENTIAL PRICE (R$/MWh)	698	*862*	-19.1	857	*827*	3.7
COMMERCIAL PRICE (R$/MWh)	887	*830*	6.9	855	*795*	7.5
INDUSTRIAL PRICE (R$/MWh)	859	*785*	9.5	837	*763*	9.7
ETHANOL AND BIODIESEL						
BIODIESEL PRODUCTION (10^3 b/d)	171	*142*	21.0	155	*124*	25.0
MOTOR ETHANOL CONSUMPTION (10^3 b/d)	574	*522*	10.0	570	*468*	21.8
ETHANOL EXPORTS (10^3 b/d)	34	*62*	-45.1	34	*41*	-18.1
HYDRATED ETHANOL PRICE (R$/l)	4.05	*3.64*	11.3	3.79	*3.82*	-0.7
COAL						
ELECTRICITY GENERATION (MWavg)	1365	*805*	69.6	844	*830*	1.6
IMPORT PRICE (US$ FOB/t)	160.64	*152.93*	5.0	186.32	*223.78*	-16.7
NUCLEAR ENERGY						
ELECTRICITY GENERATION - (GWh)	2006	*1704*	17.7	1,949	*1,902*	2.5
INDUSTRIAL SECTORS						
STEEL PRODUCTION (10^3 t/day)	96	*86*	12.2	92	*88*	5.3
ALUMINIUM PRODUCTION (10^3 t/day) **(c)**	3.1	*2.5*	24.2	3.0	*2.7*	8.8
IRON ORE EXPORTS (10^3 t/day)	1,146	*1,126*	1.8	990	*940*	5.3
PELLETS EXPORTS (10^3 t/day)	80	*61*	29.9	73	*65*	11.9
BIG IRON EXPORTS (10^3 t/day)	12.6	8.4	50.4	10.2	10.3	-0.8
PAPER PRODUCTION (10^3 t/day)	31.3	*30.4*	3.0	31.2	*28.4*	9.7
PULP PRODUCTION (10^3 t/day)	69.4	*62.2*	11.5	68.4	*66.2*	3.2
SUGAR PRODUCTION (10^3 t/day)	214.9	*224.3*	-4.2	129.8	*126.2*	2.9
SUGAR EXPORTS (10^3 t/day)	129	*149*	-13.5	106	*85*	25.1

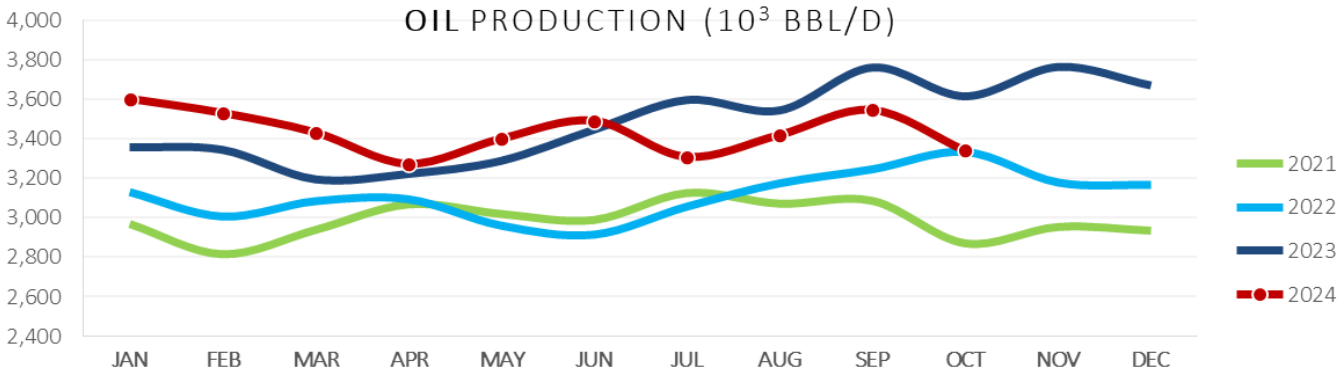
(a) The traditional self-producers (consumers that do not use public grid) is not included. **(b) SE is the acronym of Southeast**
(c) Estimated Data **(d) Data from last month**



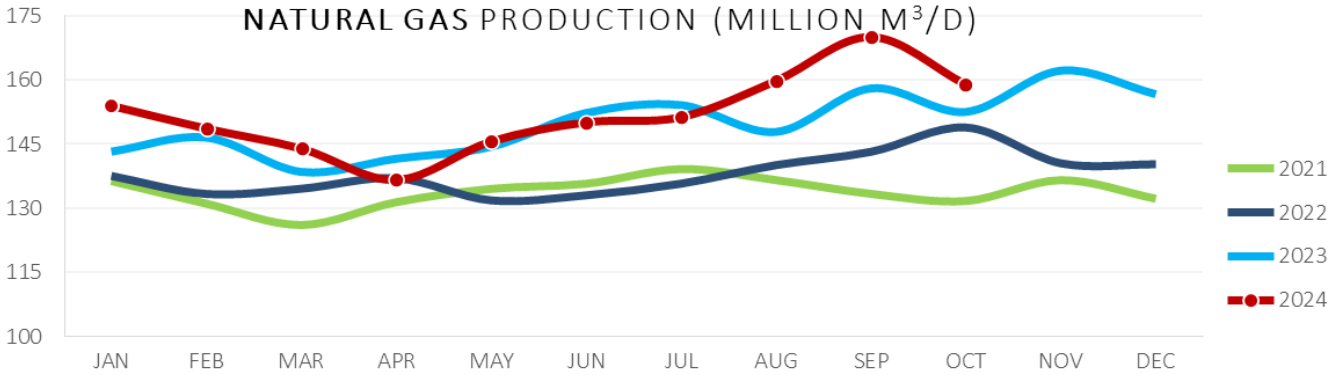
Source: National Electric System Operator (ONS)



Source: Eletric Energy Secretary of Ministry of Mines and Energy



Source: National Petroleum Agency



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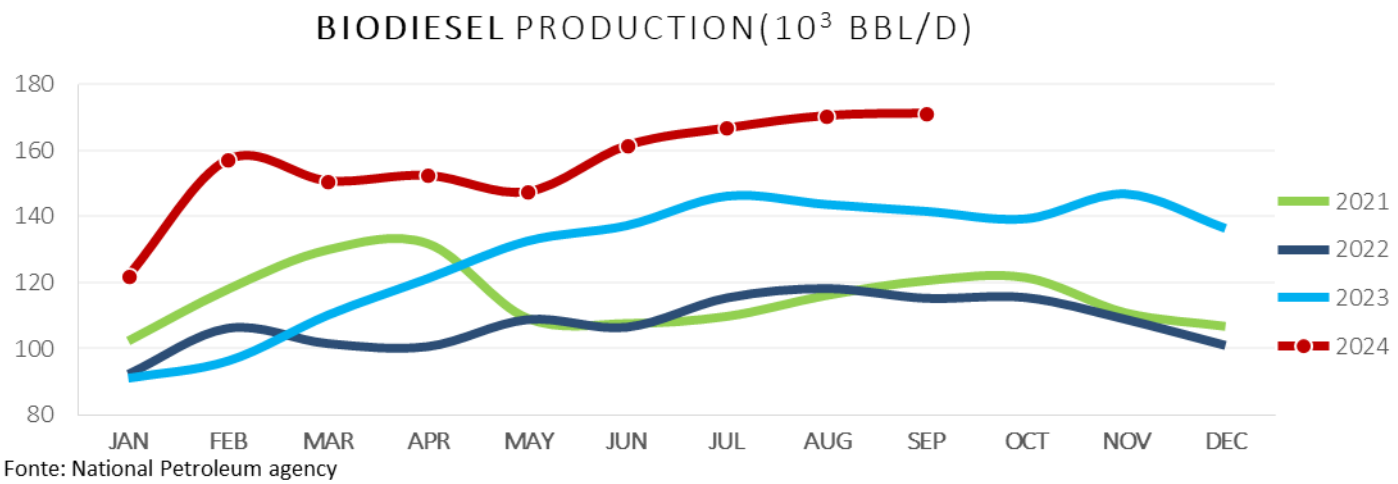
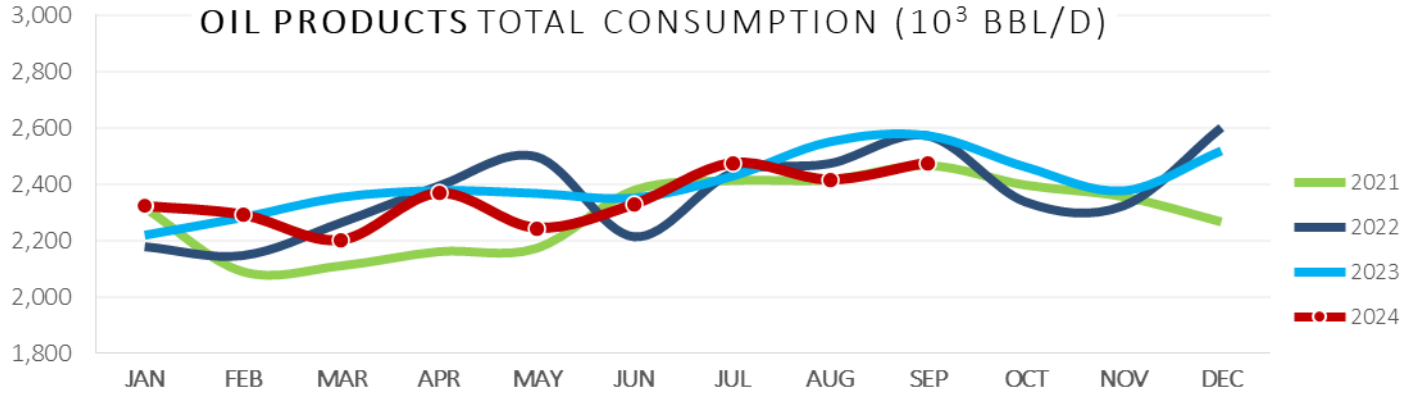


Fonte: National Petroleum agency



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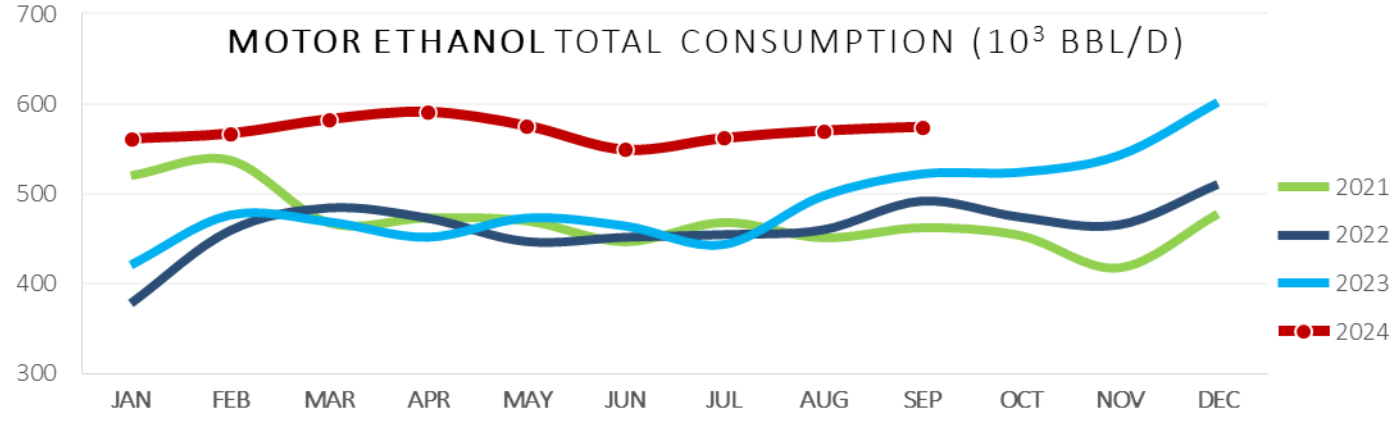
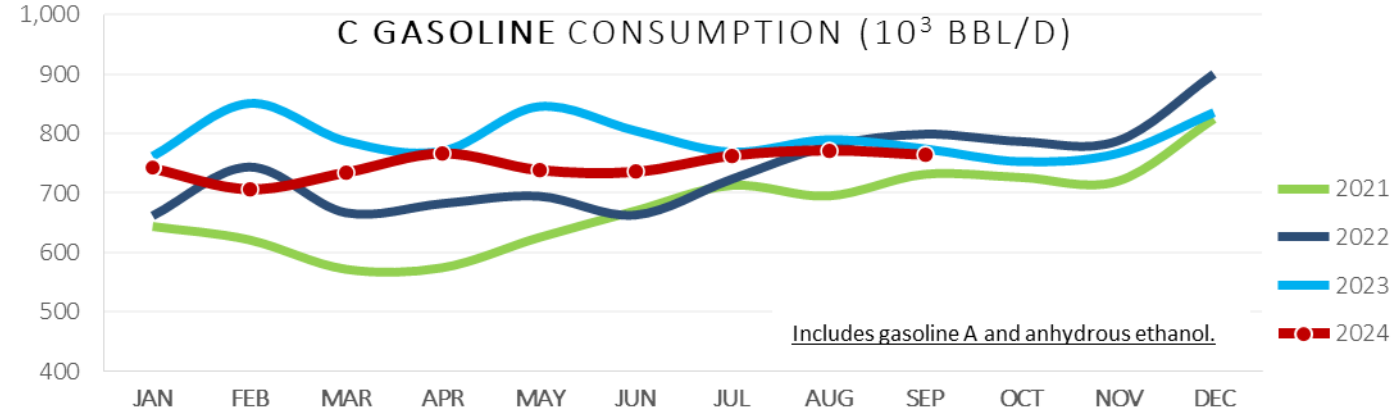
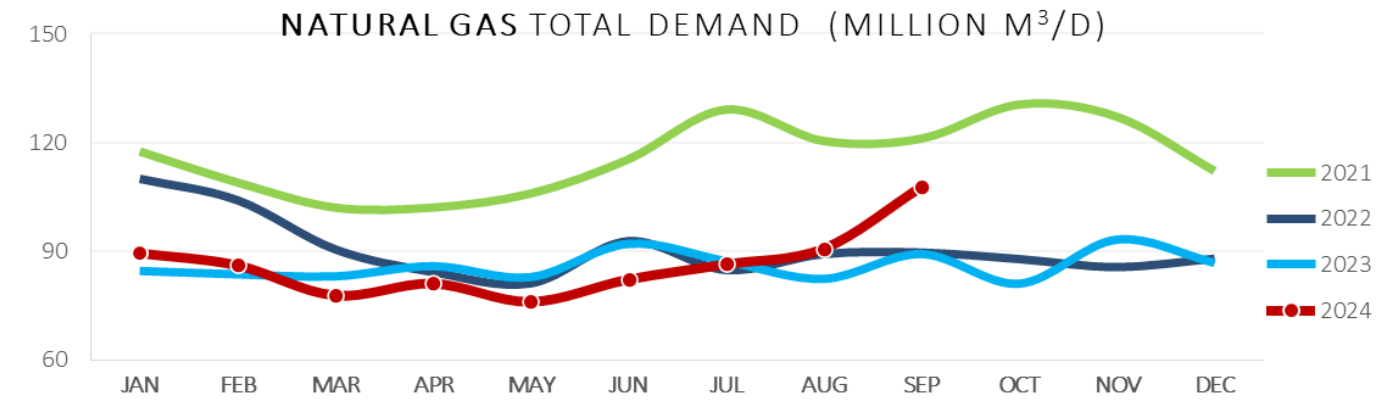


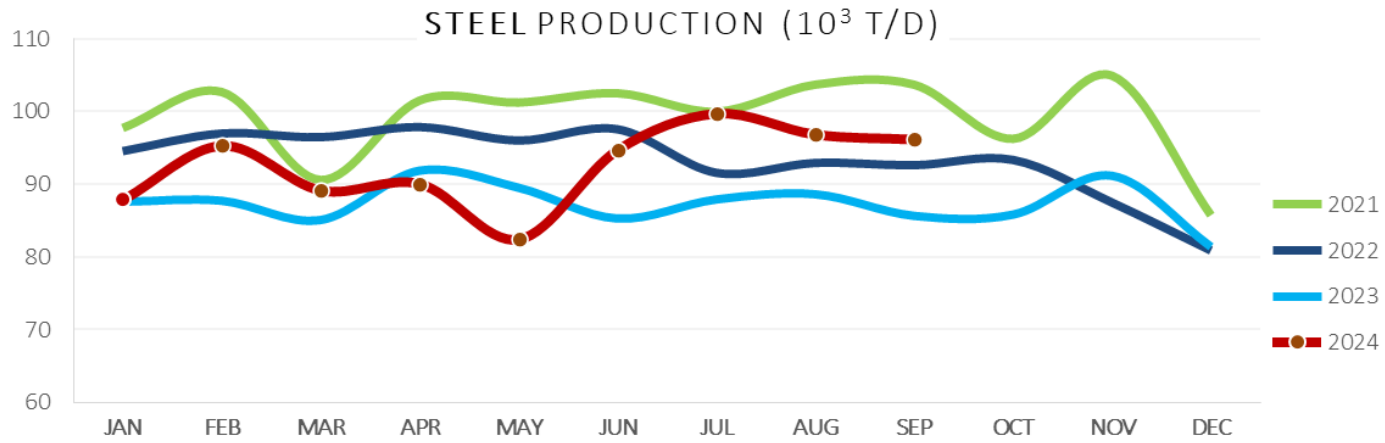
Source: National Petroleum Agency



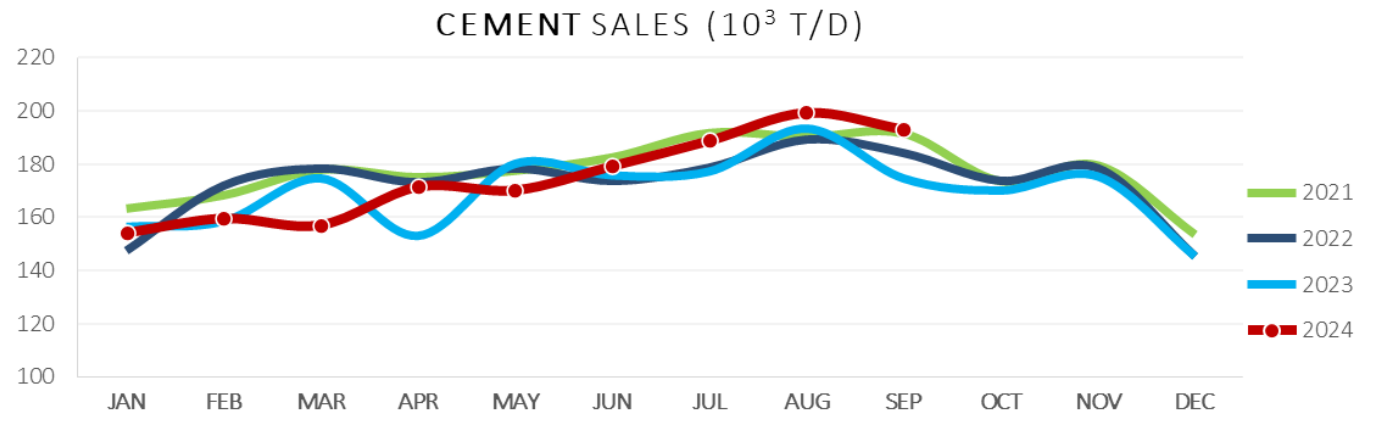
Source: National Petroleum Agency



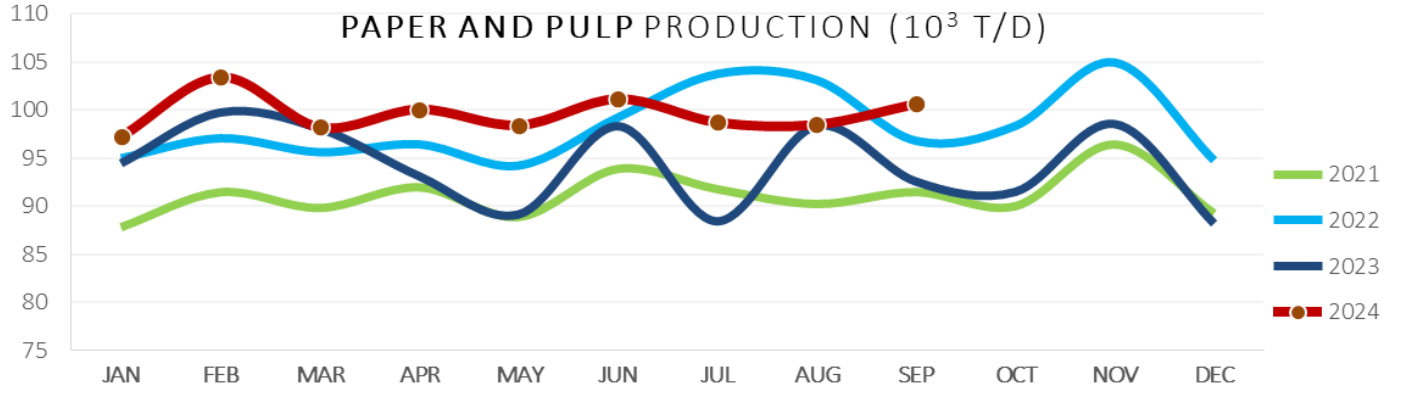
Sources: National Petroleum Agency (ANP) and National Electric System Operator (ONS)



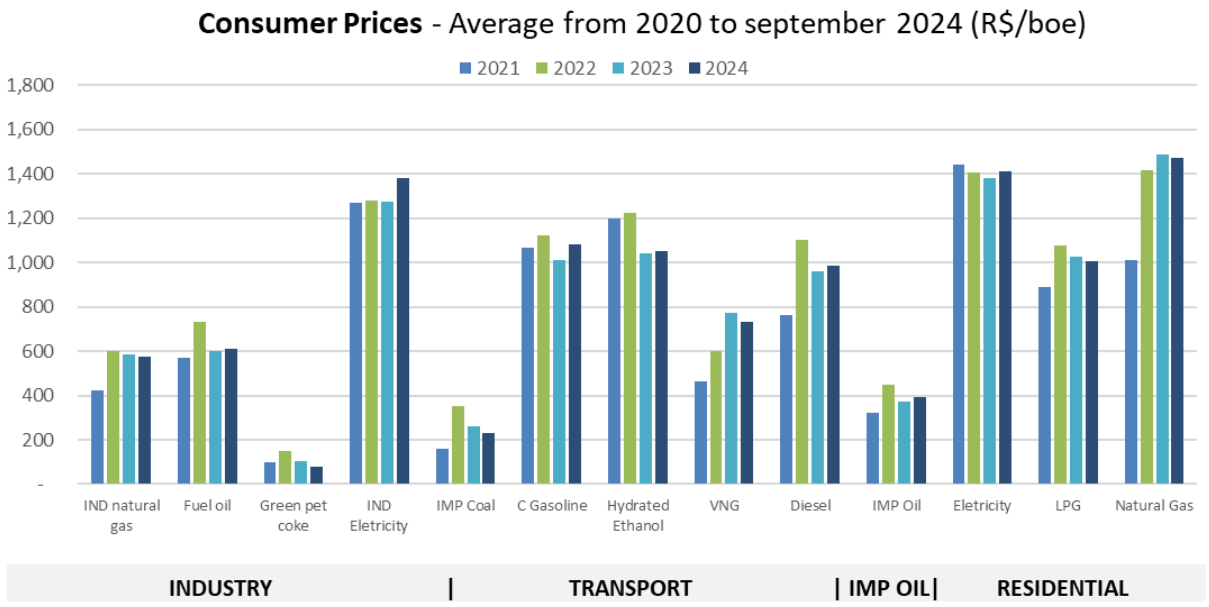
Source: Brazil Steel Institute



Source: National Cement Industry Union



Source: Brazilian Tree Industry (IBA)



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), represents all the energy made available to meet the national demand for energy. For the year 2023 the value is from the National Energy Balance - BEN.

[2] The Domestic Electricity Supply (DELS) accounts for the portions of generation from Centralized Generation, Distributed Generation (DG), Autoproduction of Energy (APE), Isolated Systems and Electric Energy Exchange. For the year 2023 the value is from BEN.

The Monthly Energy Bulletin uses information and data obtained in the Brazilian energy sector to calculate and estimate the behavior of relevant energy indicators.

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