

Note: For a better visualization, the minimum scale of the graphs was raised to the level close to the lowest value of the curves.

### Methodological Remarks

The purpose of this bulletin is to follow up a set of energy and non-energy variables that provide a reasonable estimate of the behavior both monthly as cumulative of the total energy demand in Brazil.

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

<sup>1</sup>Domestic Energy Supply (DES), or Brazilian energy demand, represents the energy necessary to move the economy of a country or region over a period of time, includes final energy consumption in the residential sector and in the other economic sectors, includes losses in transmission and distribution, losses on power transformation and the own consumption of the energy sector.

<sup>2</sup> The DES and DELS data from 2018 reflect the final results of the Brazilian Energy Balance (BEN), concluded in May by the Energy Research Office (EPE) in cooperation with the MME and its entities and agencies.

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# Monthly Energy Bulletin – Brazil

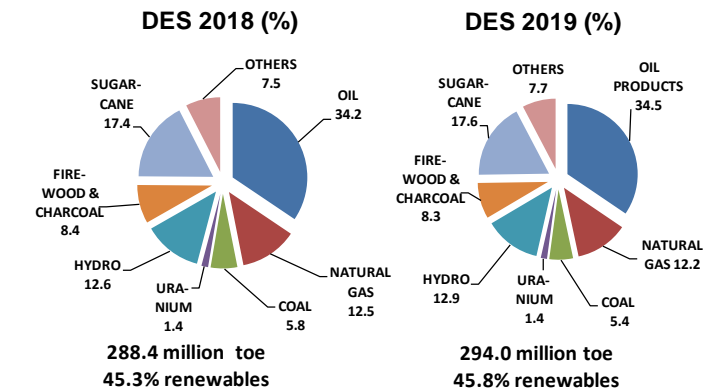
Reference Month: May 2019

## Domestic Energy Supply

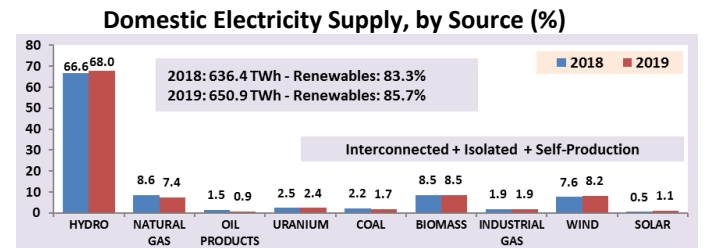
In May 2019, energy indicators show excellent recovery compared to May 2018, a month affected by the truckers strike. Even so, in the year, the accumulated consumptions of cement and light vehicles energy signaled a better performance compared to the same period of 2018.

Concerning Domestic Energy Supply (DES)<sup>1</sup> of 2019, the current constraints lead to an estimated growth of up to 2%, slightly above previous forecasts. Even with some growth, the OIE will be 3 to 4% lower than the 2014 value.

**Total energy demand for 2019 is expected to increase about 2%**



The Domestic Electricity Supply (DELS)<sup>2</sup> of 2019 was estimated at 650.9 TWh, showing an increase of 2.3% over 2018 (2.1% in the previous bulletin). The share of renewables should exceed 85%, with wind and solar energy continuing to increase their participations.



## Highlights in May 2019

### Oil production on high

Oil production grew 4.3% in May 2019, over the same month of 2018, accumulating a high of 0.3% in the year. Natural gas production was up 5.4% in the month, and accumulated high of 2.9% in the year.

### Steel production in fall

Although steel production grew 10.6% in May, due to the truckers strike of 2018, it still accumulates fall of 0.2% in the year. Iron ore exports fell by 5.9% in the year, and pellet exports fell by 20.2% (-6.3% until April).

### Hydraulic on the up

Hydraulic generation accumulated a high of 4.3% in the year (3.1% to March). Itaipu's generation accumulated a 24.3% drop.

### Oil derivatives in a strong high

Apparent consumption of oil derivatives increased by 13.2% in May, excluding ethanol and biodiesel (-2.2% in April). In the year, of derivatives consumption grew by 1.8%. Diesel consumption (included biodiesel) grew 34% in May, and accumulates high of 12.9% in the year. Truckers strike greatly affected May 2018 consumption. C gasoline consumption rose 2.4%, but accumulates a decrease of 6.4% in the year. Hydrous ethanol, with a 37% accumulated increase, has kept high the light vehicles consumption (gasoline, Ehanol and natural gas). Total demand for natural gas accumulates a 5.2% decrease in the year (-4.7% until April), with electricity generation accumulating a decrease of 13.4% (-8.1% until April).

Energy consumption in light vehicles of the Otto cycle (gasoline, ethanol and natural gas) accumulates a high of 4.6% (2.7% up to April, -1.2% in 2018, + 1.7% in 2017, -1.1 % in 2016, + 0.8% in 2015 and + 6.2% in 2014). It is an indicator that directly reflects the economy effects on the population purchasing power.

### Electricity consumption growing again

Electricity consumption, without self-producers, rose 3.1% in May (-2.9% in April), and accumulated high of 2.1% in the year. Rates were positive in all sectors: residential (6%), commercial (4.1%) and industrial (0.4%).

### Biodiesel production decelerates

Biodiesel production accumulates a high of 17% (25% in 2018, 12.9% in 2017, -3.6% in 2016 and 15% in 2015).

Pulp production accumulated a decrease of 1% in the year (-4% until April, and positive of 7.1% in 2018, 3.8% in 2017, 7.8% in 2016, 8.5% in 2015 and 9.2% in 2014). Paper production accumulated high of 0.9% in the year (0.8% in 2018, 1.7% in 2017).

## Electricity tariffs in high

The average domestic tariff for residential electricity accumulates 14.7% in the year (12.6% in 2018, stable in 2017, 5.8% in 2016 and 42.5% in 2015). The commercial tariff increased 13.3% (12.4% in 2018, 0.7% in 2017, 5.7% in 2016 and 43.8% in 2015) and the industrial increased 12.2% (13.4% in 2018, 1.2% in 2017, 3.6% in 2016 and 51.7% in 2015).

### Basic Data

SPECIFICATION	MAY							
	IN THE MONTH			ACCUMULATED IN THE YEAR				
	2019	2018	% 19/18	2019	2018	% 19/18	98	
<b>OIL</b>								
PRODUCTION - with Shale Oil and NGL(10 <sup>3</sup> b/d)	2,834	2,718	4.3	2,721	2,713	0.3	-	
IMPORTS AVERAGE PRICE (US\$/bbl FOB)	71	70	0.7	68	67	1.6	-	
<b>OIL PRODUCTS</b>								
TOTAL CONSUMPTION (10 <sup>3</sup> b/day)	2,374	2,098	13.2	2,428	2,386	1.8	100.0	
hereof: DIESEL with biodiesel - (10 <sup>3</sup> b/day)	1,026	765	34.0	1,009	894	12.9	39.5	
hereof: GASOLINE C (10 <sup>3</sup> b/day)	637	622	2.4	647	691	-6.4	21.3	
CONSUMER PRICE - DIESEL (R\$/l)	3.65	3.63	0.6	3.54	3.44	2.7	-	
CONSUMER PRICE - GASOLINE C (R\$/l)	4.55	4.31	5.5	4.36	4.21	3.6	-	
CONSUMER PRICE - LPG (R\$/13 kg)	69.3	67.0	3.5	69.2	67.0	3.4	-	
<b>NATURAL GAS</b>								
PRODUCTION (10 <sup>6</sup> m <sup>3</sup> /day)	117.9	111.9	5.4	113.2	110.0	2.9	-	
IMPORTS (10 <sup>6</sup> m <sup>3</sup> /day)	18.7	26.0	-27.9	23.4	25.9	-9.5	-	
NON-UTILIZED AND REINJECTION (10 <sup>6</sup> m <sup>3</sup> /day)	46.4	40.3	15.0	42.7	36.7	16.2	-	
AVAILABILITY FOR CONSUMPTION (10 <sup>6</sup> m <sup>3</sup> /day)	90.3	97.6	-7.4	93.9	99.1	-5.2	100.0	
INDUSTRIAL CONSUMPTION (10 <sup>6</sup> m <sup>3</sup> /day)	38.7	39.1	-1.0	37.5	39.4	-4.7	40.0	
POWER GENERATION CONS. (10 <sup>6</sup> m <sup>3</sup> /day)	17.1	25.4	-32.8	21.2	24.5	-13.4	22.6	
INDUSTRIAL PRICE SP(*) (US\$/MMBtu) -	14.8	11.2	31.9	15.0	12.0	25.2	-	
MOTOR PRICE SP (US\$/MMBtu)	19.1	16.2	17.9	19.3	17.5	10.1	-	
RESIDENTIAL PRICE SP (US\$/MMBtu)	35.4	34.2	3.6	35.7	36.9	-3.2	-	
<b>ELECTRICITY</b>								
NATIONAL INTERCONNECTED SYSTEM	65,994	63,100	4.6	69,026	66,792	3.3	100.0	
SOUTHEAST/MIDWEST POWER LOAD (MWavg)	38,286	36,619	4.6	40,290	38,982	3.4	58.4	
SOUTH POWER LOAD (MWavg)	10,650	10,917	-2.4	11,680	11,764	-0.7	16.9	
NORTHEAST POWER LOAD (MWavg)	11,002	10,586	3.9	11,180	10,673	4.7	16.2	
NORTH POWER LOAD (MWavg)	5,608	5,245	6.9	5,506	5,457	0.9	8.0	
TOTAL CONSUMPTION (TWh) (**)	40.4	39.2	3.1	203.2	199.0	2.1	100.0	
RESIDENTIAL	11.9	11.2	6.0	61.2	58.2	5.2	30.1	
INDUSTRIAL	14.1	14.1	0.4	68.8	70.1	-1.9	33.9	
COMMERCIAL	7.8	7.5	4.1	39.9	38.5	3.8	19.7	
OTHER SECTORS	6.6	6.5	2.4	33.3	32.2	3.4	16.4	
PLANTS ENTRY INTO OPERATING (MW)	825	260	217.0	2,314	2,107	9.8	-	
RESIDENTIAL PRICE (R\$/MWh)	768	685	12.1	757	660	14.7	-	
COMMERCIAL PRICE (R\$/MWh)	680	611	11.3	668	589	13.3	-	
INDUSTRIAL PRICE (R\$/MWh)	638	582	9.7	633	565	12.2	-	
<b>ETHANOL AND BIODIESEL</b>								
BIODIESEL PRODUCTION (10 <sup>3</sup> b/d)	91	78	17.0	93	82	14.3	-	
MOTOR ETHANOL CONSUMPTION (10 <sup>3</sup> b/d)	551	435	26.7	551	461	19.4	-	
ETHANOL EXPORTS (10 <sup>3</sup> b/d)	21	19	15.6	27	17	53.2	-	
HYDRATED ETHANOL PRICE (R\$/l)	2.99	2.81	6.4	2.89	2.96	-2.6	-	
<b>COAL</b>								
ELECTRICITY GENERATION (MWavg)	1,115	1,300	-14.2	1,128	1,431	-21.1	-	
IMPORT PRICE (US\$ FOB/t)	153.6	153.1	0.3	154.6	143.6	7.6	-	
<b>NUCLEAR ENERGY</b>								
ELECTRICITY GENERATION - (GWh)	772	1,495	-48.4	5,882	5,999	-2.0	-	
<b>INDUSTRIAL SECTORS</b>								
STEEL PRODUCTION (10 <sup>3</sup> t/day)	96	86	10.6	94	95	-0.2	-	
ALUMINIUM PRODUCTION (10 <sup>3</sup> t/day)	1.6	1.7	-3.1	1.6	2.0	-20.1	-	
IRON ORE EXPORTS (10 <sup>3</sup> t/day)	930	1,017	-8.6	808	859	-5.9	-	
PELLETS EXPORTS (10 <sup>3</sup> t/day)	32	99	-67.7	72	90	-20.2	-	
PAPER PRODUCTION (10 <sup>3</sup> t/day)	27.6	25.1	9.9	28.5	28.2	0.9	-	
PULP PRODUCTION (10 <sup>3</sup> t/day)	57.1	50.8	12.3	55.7	56.2	-1.0	-	
SUGAR PRODUCTION (10 <sup>3</sup> t/day)	121	102	18.9	39	41	-5.0	-	
SUGAR EXPORTS (10 <sup>3</sup> t/day)	52	68	-24.2	41	56	-26.8	-	

(\*) SP is the acronym of the state of São Paulo.

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

