

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.

¹Domestic 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.

² 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: November 2019

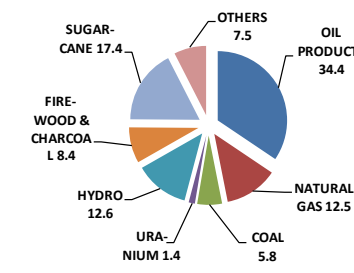
Domestic Energy Supply

In 2019, it was observed an excellent recovery in indicators correlated to household consumption. Until November 2019, residential electricity grew 4.1%, commercial electricity rose 3.6%, light vehicle energy rose 4.6%, and cement consumption increased 2.7%. In the same period of 2018, these indicators stood at 1.3%, 0.6%, -1.5% and -0.9%, respectively.

Concerning Domestic Energy Supply (DES)¹ throughout 2019, the current constraints lead to an estimated growth of 1.7%, the same foreseen rate of the previous bulletin (-1.7% in 2018). Even so, the 2019 per capita DES will be 7% lower than 2014 and the same of 2011.

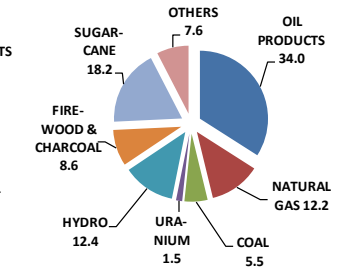
Total energy demand for 2019 is expected to increase about 1.7%

DES 2018 (%)



288.4 million toe
45.3% renewables

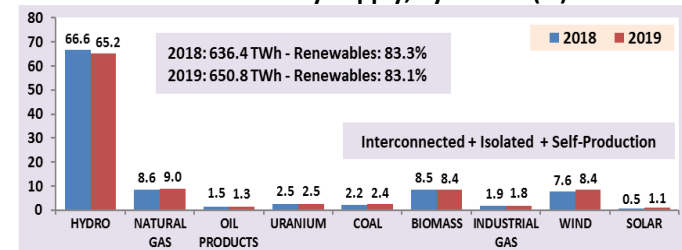
DES 2019 (%)



293.3 million toe
46.3% renewables

The Domestic Electricity Supply (DELS)² of 2019 was estimated at 650.8 TWh, showing an increase of 2.2% over 2018. The share of renewables should stay at 83%, with wind and solar energy continuing steady in their increasingly participations.

Domestic Electricity Supply, by Source (%)



Highlights in November 2019

Oil production still growing

Oil production grew 19.9% in November 2019, compared to the same month of 2018, accumulating an increase of 6.8% in the year (-2% in the same period of 2018). Natural gas production increased by 21.6% in the month, accumulating an increase of 8.4%. These increases will provide Brazil's energy surplus above 6% in 2019 (1.6% in 2018).

Steel production in fall

Steel production accumulated a fall of 8% in the year. Iron ore exports accumulate a reduction of 8.5% in the year, and pellet exports, down 28.5% (-6.3% until April).

Hydraulic supply slows down

Hydraulic generation accumulates a high of 1.5% in the year (3.9% to September) and ended 2019 with an increase of only 0.08%.

Oil derivatives stable

Apparent consumption of oil products grew 0.4% in November, and accumulates an increase of 0.5% in the year (excluding ethanol and biodiesel). Diesel consumption (including biodiesel) accumulated a 9.2% increase in the year. The consumption of gasoline C accumulated a decrease of 0.9% in the year (-2.7% up to Sept.). Hydrated ethanol, with an accumulated increase of 18%, has kept total consumption in light vehicles up. The total demand for natural gas accumulated a decrease of 3% in the year, with an accumulated decrease of 1.3% in electricity generation (-21% up to July, a record).

Energy consumption in light vehicles of the Otto cycle (gasoline, ethanol and natural gas) accumulates a high of 4.6% (4.5% up to September, -1.2% in 2018, + 1.7% in 2017, -1.1% in 2016 and + 6.2% in 2014). This indicator directly reflects the purchasing power of the population, as well as the expectation of economic improvement.

Electricity consumption in high

Electricity consumption, without energy self-producers, grew 3.4% in November, and accumulated high of 1.8% in the year (1.4% until September). Residential consumption accumulates high of 4.1% and commercial consumption, of 3.6%. On the other hand, industrial consumption accumulates low of 1.7%.

Biodiesel production is still in high

Biodiesel production accumulates high of 10.6% in the year (9.6% up to September). In the 12 months of previous years, the rates were: 25% in 2018, 12.9% in 2017, -3.6% in 2016 and 15% in 2015.

Pulp production accumulated a 4.8% decrease in the year (positive 7.1% in 2018, 3.8% in 2017, 7.8% in 2016, 8.5% in 2015 and 9.2% in 2014). Cement consumption continues to recover, increasing 2.7% in the year (-1.3% in 2018).

Accumulated electricity tariffs recoil

The average domestic tariff for residential electricity accumulates 8.4% in the year (12.6% in 2018, stable in 2017, 5.8% in 2016 and 42.5% in 2015). The commercial tariff increased by 7.8% (12.4% in 2018, 0.7% in 2017, 5.7% in 2016 and 43.8% in 2015) and the industrial increased 5.6% (13.4% in 2018, 1.2% in 2017, 3.6% in 2016 and 51.7% in 2015).

Basic Data

SPECIFICATION	NOVEMBER				ACCUMULATED IN THE YEAR			
	IN THE MONTH			ACCUMULATED IN THE YEAR			98	
	2019	2018	% 19/18	2019	2018	% 19/18	98	
OIL								
PRODUCTION - with Shale Oil and NGL (10 ³ b/d)	3,203	2,671	19.9	2,869	2,686	6.8	-	
IMPORTS AVERAGE PRICE (US\$/bbl FOB)	61	88	-30.2	67	74	-8.9	-	
OIL PRODUCTS								
TOTAL CONSUMPTION (10 ³ b/day)	2,381	2,372	0.4	2,445	2,432	0.5	100.0	
hereof: DIESEL with biodiesel - (10 ³ b/day)	1,059	993	6.6	1,053	965	9.2	40.9	
hereof: GASOLINE C (10 ³ b/day)	675	633	6.7	651	657	-0.9	21.3	
CONSUMER PRICE - DIESEL (R\$/l)	3.71	3.66	1.4	3.58	3.47	3.0	-	
CONSUMER PRICE - GASOLINE C (R\$/l)	4.41	4.59	-3.9	4.36	4.37	-0.2	-	
CONSUMER PRICE - LPG (R\$/13 kg)	69.1	69.0	0.2	69.1	67.9	1.7	-	
NATURAL GAS								
PRODUCTION (10 ⁶ m ³ /dav)	136.6	112.4	21.6	121.1	111.8	8.4	-	
IMPORTS (10 ⁶ m ³ /dav)	32.3	18.1	78.3	26.6	31.0	-14.1	-	
NON-UTILIZED AND REINJECTION (10 ⁶ m ³ /dav)	55.8	39.4	41.6	46.6	38.5	21.0	-	
AVAILABILITY FOR CONSUMPTION (10 ⁶ m ³ /dav)	113.1	91.1	24.2	101.1	104.3	-3.0	100.0	
INDUSTRIAL CONSUMPTION (10 ⁶ m ³ /dav)	36.8	39.9	-7.7	37.2	40.2	-7.3	36.8	
POWER GENERATION CONS. (10 ⁶ m ³ /dav)	43.2	16.5	162.8	28.6	29.0	-1.3	28.3	
INDUSTRIAL PRICE SP (*) (US\$/MMBtu) -	15.3	12.6	21.7	15.5	12.2	27.3	-	
MOTOR PRICE SP (US\$/MMBtu)	19.3	16.6	16.6	19.6	16.4	19.3	-	
RESIDENTIAL PRICE SP (US\$/MMBtu)	42.8	32.5	31.9	40.5	34.1	18.6	-	
ELECTRICITY								
NATIONAL INTERCONNECTED SYSTEM	68,254	66,600	2.5	66,896	65,456	2.2	100.0	
SOUTHEAST/MIDWEST POWER LOAD (MWavg)	38,937	38,276	1.7	38,896	38,043	2.2	58.1	
SOUTH POWER LOAD (MWavg)	11,937	11,613	2.8	11,324	11,361	-0.3	16.9	
NORTHEAST POWER LOAD (MWavg)	11,631	11,316	2.8	10,900	10,689	2.0	16.3	
NORTH POWER LOAD (MWavg)	5,749	5,395	6.6	5,568	5,400	3.1	8.3	
TOTAL CONSUMPTION (TWh) (**)	41.7	40.3	3.4	440.1	432.5	1.8	100.0	
RESIDENTIAL	12.4	11.6	6.3	129.6	124.5	4.1	29.5	
INDUSTRIAL	14.1	14.5	-3.0	152.9	155.5	-1.7	34.7	
COMMERCIAL	8.1	7.6	6.8	84.1	81.1	3.6	19.1	
OTHER SECTORS	7.1	6.6	8.5	73.6	71.3	3.2	16.7	
PLANTS ENTRY INTO OPERATING (MW)	914	1,262	-27.6	6,144	5,457	12.6	-	
RESIDENTIAL PRICE (R\$/MWh)	793	770	3.0	773	713	8.4	-	
COMMERCIAL PRICE (R\$/MWh)	700	687	1.9	691	641	7.8	-	
INDUSTRIAL PRICE (R\$/MWh)	655	661	-1.0	648	614	5.6	-	
ETHANOL AND BIODIESEL								
BIODIESEL PRODUCTION (10 ³ b/d)	113	100	12.5	101	92	10.6	-	
MOTOR ETHANOL CONSUMPTION (10 ³ b/d)	598	579	3.3	560	504	11.2	-	
ETHANOL EXPORTS (10 ³ b/d)	38	52	-27.4	34	32	5.2	-	
HYDRATED ETHANOL PRICE (R\$/l)	2.97	2.92	1.7	2.88	2.89	-0.4	-	
COAL								
ELECTRICITY GENERATION (MWavg)	2,255	579	289.3	1,523	1,461	4.2	-	
IMPORT PRICE (US\$/t FOB/t)	109.7	143.3	-23.4	138.7	141.9	-2.3	-	
NUCLEAR ENERGY								
ELECTRICITY GENERATION - (GWh)	1,445	984	46.8	14,649	14,282	2.6	-	
INDUSTRIAL SECTORS								
STEEL PRODUCTION (10 ³ t/day)	87	95	-8.4	88	96	-8.0	-	
ALUMINIUM PRODUCTION (10 ³ t/day)	1.9	1.6	16.8	1.7	1.8	-4.0	-	
IRON ORE EXPORTS (10 ³ t/day)	864	1,026	-15.8	878	960	-8.5	-	
PELLETS EXPORTS (10 ³ t/day)	45	107	-58.1	68	95	-28.5	-	
PAPER PRODUCTION (10 ³ t/day)	29.7	29.6	0.3	28.8	28.9	-0.3	-	
PULP PRODUCTION (10 ³ t/day)	54.0	59.0	-8.5	54.6	57.4	-4.8	-	
SUGAR PRODUCTION (10 ³ t/day)	56	62	-10.7	88	82	6.7	-	
SUGAR EXPORTS (10 ³ t/day)	64	62	3.6	50	61	-19.0	-	

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

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

