

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.

Apparent consumption of oil derivatives = distributors' sales (+) Petrobras' own consumption (including refinery gas) (+) Petrobras' direct sales (+) consumer imports. The monthly data published in the press and on the ANP³ website considers only the sales of distributors (+ or - 80% of total).

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 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 2017 reflect the final position of the 2018 cycle of the Brazilian Energy Balance (BEN), prepared by Energy Research Office (EPE) in cooperation with MME and entities of the energy sector.

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Monthly Energy Bulletin - Brazil

Reference Month: March 2019

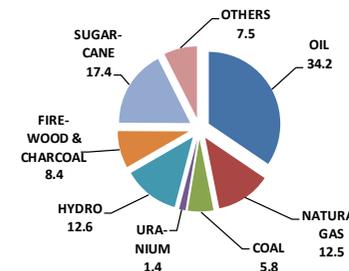
Domestic Energy Supply

In March 2019 there was a deceleration in the consumption of energy sources associated with households purchasing power. The energy consumption in light vehicles fell on the same month of 2018, unlike January and February. Residential and commercial electricity also slowed the growth pace. Industrial production continued to fall, a fact reflected in the retraction of 1.3% in the sector's electricity consumption.

Concerning Domestic Energy Supply (DES)¹ of 2019, the current conditions lead to an estimated growth of up to 2%, slightly below previous forecasts. Even with some growth, the OIE will be 4 to 5% lower than the value of 2014.

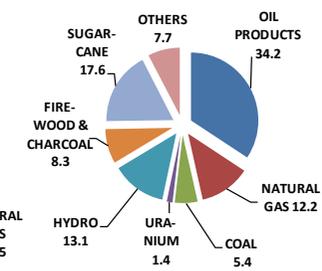
Total energy demand for 2019 is expected to increase about 2%

DES 2018 (%)



288.8 million toe
 45.2% renewables

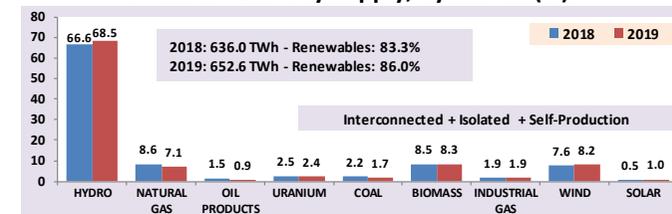
DES 2019 (%)



293.1 million toe
 46% renewables

The Domestic Electricity Supply (DELS)² of 2019 was estimated at 652.6 TWh, showing an increase of 2.6% over 2018 (3% in previous forecasts). The share of renewables should exceed 85%, with wind and solar energy continuing to increase their participations.

Domestic Electricity Supply, by Source (%)



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Highlights in March 2019

Oil production on up

Oil production increased by 2.7% in March 2019, over the same month of 2018, but still accumulated a drop of 0.8% in the year. Natural gas production rose sharply at 7.7% in the month and accumulated a year-on-year increase of 2.9%.

Steel production in fall

Steel production fell by 8.8% in March and has accumulated a drop of 2.9% in the year (up 1.1% in 2018). Iron ore exports accumulated a rise of 1.1% in the year, and pellets exports, high of 7.1%.

Hydraulic slows down

Hydraulic generation accumulated a high of 2.8% in the year (6.1% to February). Itaipu's generation declined 26.7%.

Oil derivatives decreasing

Apparent consumption of petroleum products fell by 3.7% in March (excluding ethanol and biodiesel). The consumption of diesel (biodiesel included) fell 5.6%, but is still positive at 1.9% in the year. Gasoline C consumption had a drop of 14.2%, offset by a 33.7% increase in hydrated ethanol. The total demand for natural gas accumulated a drop of 3.4% in the year, with an accumulated decrease of 2.8% in electric generation.

Energy consumption in light vehicles of the Otto cycle (gasoline, ethanol and natural gas) is decelerating - accumulates a high of 1.7%, against 4.5% up to February (-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 decelerates

Electricity consumption grew by 2.2% in March (excluding autoproducers that do not use the public grid) and 3.5%, in the accumulated of the year. Residential consumption grew by 4.6% and commercial consumption by 3.4%. In contrast, industrial consumption showed a negative rate of -1.3 (-2.1% in February). It should be noted the 26% decrease in aluminum production.

Biodiesel production decelerates

Biodiesel production accumulates a high of 17.3% (25% in 2018, 12.9% in 2017, -3.6% in 2016 and 15% in 2015).

Pulp production accumulated a 6.3% drop in the year, due to high inventories in China at the end of 2018 (+ 7.1% in 2018, 3.8% in 2017, 7.8% in 2016, 8.5% in 2015 and 9.2% in 2014). Paper production accumulated a drop of 1.4% in the year (0.8% in 2018, 1.7% in 2017).

Electricity tariffs in high

The average domestic tariff for residential electricity accumulates 15.8% in the year (12.6% in 2018, stable in 2017, 5.8% in 2016 and 42.5% in 2015). The commercial tariff increased 14.0% (12.4% in 2018, 0.7% in 2017, 5.7% in 2016 and 43.8% in 2015) and the industrial increased 12.9% (13.4% in 2018, 1.2% in 2017, 3.6% in 2016 and 51.7% in 2015).

Basic Data

SPECIFICATION	MARCH					
	IN THE MONTH			ACCUMULATED IN THE YEAR		
	2019	2018	%19/18	2019	2018	%19/18
OIL						
PRODUCTION - with Shale Oil and NGL(10 ³ b/d)	2,744	2,671	2.7	2,689	2,711	-0.8
IMPORTS AVERAGE PRICE (US\$/bbl FOB)	60	68	-11.3	66	65	1.5
OIL PRODUCTS						
TOTAL CONSUMPTION (10 ³ b/day)	2,397	2,489	-3.7	2,451	2,458	-0.3
hereof: DIESEL with biodiesel - (10 ³ b/day)	973	979	-0.6	997	914	9.1
hereof: GASOLINE C (10 ³ b/day)	631	736	-14.2	642	709	-9.4
CONSUMER PRICE - DIESEL (R\$/l)	3.53	3.38	4.3	3.47	3.38	2.7
CONSUMER PRICE - GASOLINE C (R\$/l)	4.31	4.20	2.6	4.26	4.20	1.4
CONSUMER PRICE - LPG (R\$/13 kg)	69.2	66.8	3.6	69.2	67.0	3.3
NATURAL GAS						
PRODUCTION (10 ⁶ m ³ /day)	115.2	107.0	7.7	112.9	109.7	2.9
IMPORTS (10 ⁶ m ³ /day)	23.9	27.5	-13.1	25.4	27.0	-5.9
NON-UTILIZED AND REINJECTION (10 ⁶ m ³ /day)	41.7	36.8	13.5	40.7	35.7	14.0
AVAILABILITY FOR CONSUMPTION (10 ⁶ m ³ /day)	97.4	97.7	-0.3	97.6	101.0	-3.4
INDUSTRIAL CONSUMPTION (10 ⁶ m ³ /day)	36.4	38.9	-6.5	37.6	39.4	-4.5
POWER GENERATION CONS. (10 ⁶ m ³ /day)	21.5	23.4	-7.9	23.8	25.2	-5.4
INDUSTRIAL PRICE SP(*) (US\$/MMBtu) - consumption range of 20,000 m ³ /day	15.4	12.2	26.5	15.0	12.3	21.7
MOTOR PRICE SP (US\$/MMBtu)	20.2	17.8	13.6	19.1	18.1	5.3
RESIDENTIAL PRICE SP (US\$/MMBtu)	36.9	37.5	-1.7	35.6	37.9	-6.0
ELECTRICITY						
NATIONAL INTERCONNECTED SYSTEM	68,214	69,423	-1.7	70,471	68,167	3.4
SOUTHEAST/MIDWEST POWER LOAD (MWavg)	39,763	41,063	-3.2	41,187	39,861	3.3
SOUTH POWER LOAD (MWavg)	11,941	12,078	-1.1	12,028	12,331	-2.5
NORTHEAST POWER LOAD (MWavg)	11,094	10,799	2.7	11,280	10,759	4.8
NORTH POWER LOAD (MWavg)	5,511	5,620	-1.9	5,487	5,520	-0.6
TOTAL CONSUMPTION (TWh) (**)	40.9	40.1	2.2	123.2	119.1	3.5
RESIDENTIAL	12.3	11.8	4.6	37.7	35.2	7.3
INDUSTRIAL	13.9	14.0	-1.3	41.0	41.5	-1.2
COMMERCIAL	8.1	7.8	3.4	24.4	23.1	5.5
OTHER SECTORS	6.7	6.4	3.7	20.1	19.3	4.5
PLANTS ENTRY INTO OPERATING (MW)	346	369	-6.3	1,169	1,366	-14.4
RESIDENTIAL PRICE (R\$/MWh)	751	646	16.3	754	651	15.8
COMMERCIAL PRICE (R\$/MWh)	665	577	15.3	664	582	14.0
INDUSTRIAL PRICE (R\$/MWh)	627	548	14.4	634	561	12.9
ETHANOL AND BIODIESEL						
BIODIESEL PRODUCTION (10 ³ b/d)	94	92	2.2	93	79	17.3
MOTOR ETHANOL CONSUMPTION (10 ³ b/d)	525	477	10.1	547	471	16.2
ETHANOL EXPORTS (10 ³ b/d)	21	13	54.9	19	17	10.4
HYDRATED ETHANOL PRICE (R\$/l)	3.01	3.03	-0.7	2.87	3.01	-4.7
COAL						
ELECTRICITY GENERATION (MWavg)	1,253	1,716	-27.0	1,068	1,540	-30.6
IMPORT PRICE (US\$/t)	152.6	144.2	5.9	158.7	134.4	18.1
NUCLEAR ENERGY						
ELECTRICITY GENERATION - (GWh)	1,284	856	50.0	4,040	3,080	31.2
INDUSTRIAL SECTORS						
STEEL PRODUCTION (10 ³ t/day)	90	99	-8.8	93	96	-2.9
ALUMINIUM PRODUCTION (10 ³ t/day)	1.6	2.2	-26.0	1.6	2.2	-24.7
IRON ORE EXPORTS (10 ³ t/day)	652	833	-21.7	843	834	1.1
PELLETS EXPORTS (10 ³ t/day)	63	91	-30.8	93	87	7.1
PAPER PRODUCTION (10 ³ t/day)	29.2	29.2	0.1	28.5	28.9	-1.5
PULP PRODUCTION (10 ³ t/day)	56.0	56.5	-1.0	54.5	58.1	-6.3
SUGAR PRODUCTION (10 ³ t/day)	6	12	-52.7	8	10	-20.7
SUGAR EXPORTS (10 ³ t/day)	36	64	-44.0	37	58	-35.3

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

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

