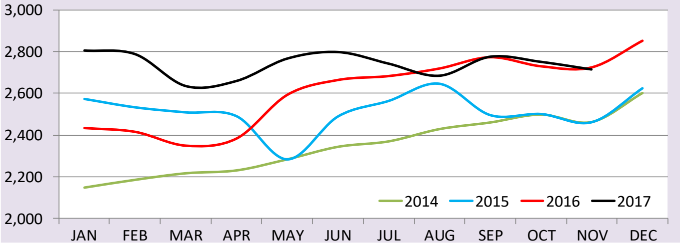
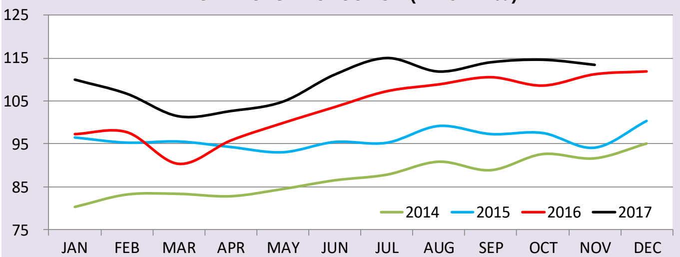
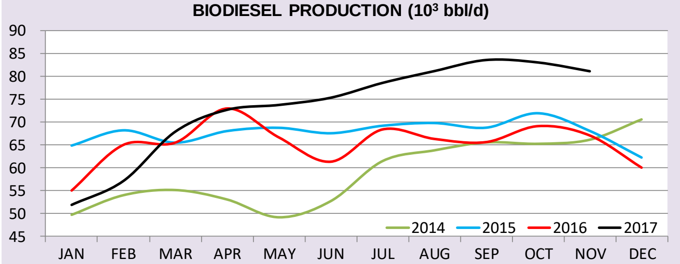
OIL PRODUCTION (10^3 bbl/d)



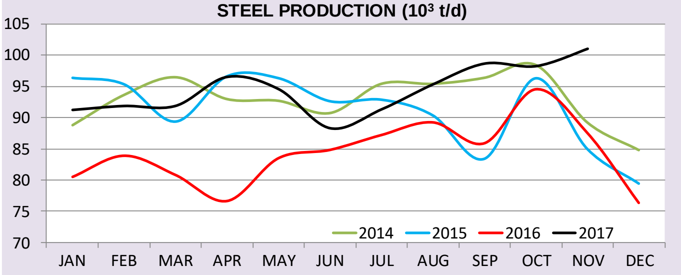
NATURAL GAS PRODUCTION (million m³/d)



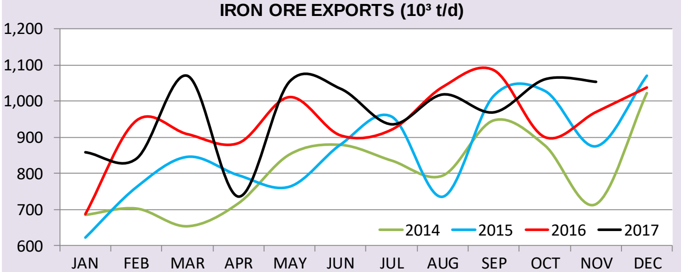
BIODIESEL PRODUCTION (10^3 bbl/d)



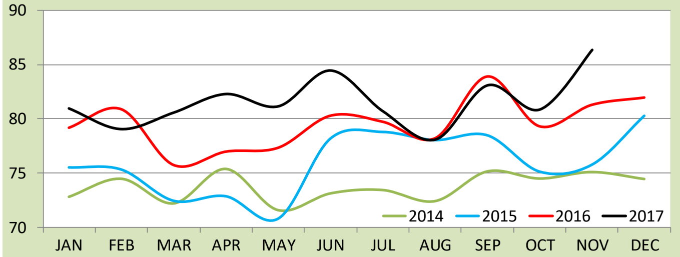
STEEL PRODUCTION (10^3 t/d)



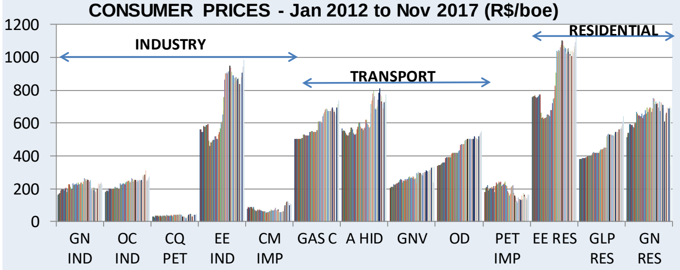
IRON ORE EXPORTS (10^3 t/d)



PAPER AND PULP PRODUCTION (10^3 t/d)



CONSUMER PRICES - Jan 2012 to Nov 2017 (R$/boe)



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 is equal to domestic production (+) import (-) unused (-) reinjection.

Apparent consumption of oil derivatives is equal distributors' sales (+) Petrobras' own consumption (including refinery gas) (+) Petrobras' direct sales. The monthly data published in the press and on the ANP website do not consider the own consumption and direct sales of Petrobras, whose volume is about 20% of the total oil products consumption.

(*) **Domestic Energy Supply (DES), or Total Energy Demand**, includes final energy consumption in the residential sector and in the other economic sectors, includes losses in transmission and distribution, and losses on power transformation.

(**) The DES and DELS data for 2016 reflect the final results of the Cicle 2017 of Brazilian Energy Balance – BEB, that is elaborated by the Energy Research Company (EPE) in colaboration with MME and with the others sectorial players.

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Monthly Energy Bulletin - Brazil

Reference Month: November 2017

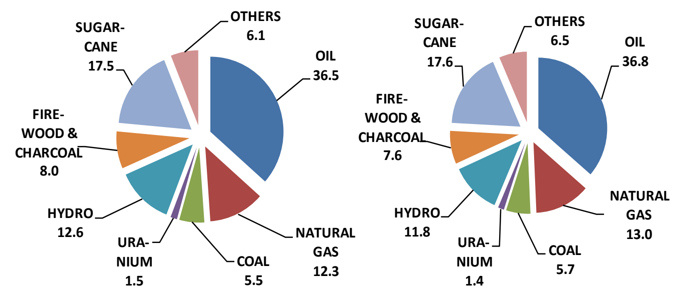
Domestic Energy Supply

Brazil will have no energy deficit in 2017, a fact that will occur for the first time since 1940, the initial year of global energy statistics. Growth rates in oil and natural gas production, above 5% in the year, coupled with a low global energy demand, will provide a small surplus.

Economic and energy indicators, up to November, indicate that the Domestic Energy Supply - DES* increased by 1.7% over the same period of 2016. For the twelve months of the year, a growth of 1.9% is forecast for the DES. From this indicator, 0.7 percentage point will be due to the increase of losses in the expansion of thermoelectric generation. Thus, the consumption sector is expected to grow 1.2%.

Total energy demand in 2017 may grow about 2%

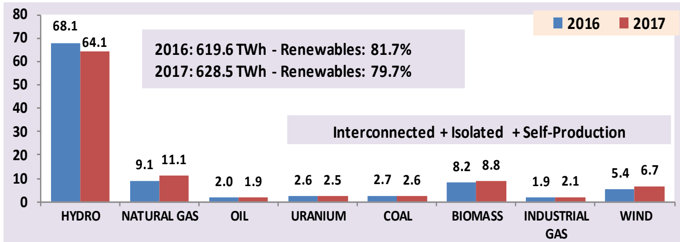
DES 2016 (%) **DES 2017 (%)**



288.4million toe **293.8 million toe**
43.5% renewables **42.8% renewables**

The Domestic Electricity Supply - DELS** of 2017 was estimated at 628.5 TWh, an increase of 1.4% over 2016. The proportion of renewable sources is expected to remain close to 80% in 2017. The wind power goes to 6.7% share, increasing by more than 1 percentage point in the DELS matrix.

Domestic Electricity Supply, by Source (%)



MINISTRY OF MINES AND ENERGY - MME
SECRETARIAT OF ENERGY PLANNING AND DEVELOPMENT
Department of Information and Studies on Energy

Highlights to November 2017

Oil production still high

Oil production will close 2017 with an increase of about 5%. The natural gas production will grow a little more, above 6%.

Steel production still high

Steel production accumulated an increase of 11.1% in the year. In November, the rate was 15.3% higher than in the same month of 2016. Iron ore exports grew by 8.6% in the month, accumulating a 3.8% increase in the year. Pellet exports rose 8.5% in the month and 4.3% in the year.

Hydraulic supply in decline

Hydraulic generation started 2017 with an increase of 14% and to November accumulated a drop of 4.7%. The import of Itaipu accumulated a drop of 11.0% in the year. Both grew over the previous month.

Oil derivatives in high

Apparent consumption of oil products grew by 2.1% in November, accumulating an increase of 1.2% in the year (2016 data was reviewed in this bulletin). Diesel consumption grew by 4.9% in the month (-0.8% in the year) and gasoline C decreased by 7.3% in the month (+ 4.3% in the year). Total demand for natural gas rose 10.4% in the month (6.3% in the year). The gas use in electricity generation grew 16.4% in the month (14.1% in the year).

The consumption of Otto's cycle transport (gasoline, ethanol and natural gas) grew by 1.5% in the year (2.2% up to October and 2.5% to September). This rate was -1.1% in 2016, +0.8% in 2015 and +6.2% in 2014.

Electricity consumption under recover

Electricity consumption (excluding self-producers that do not use the public grid) increased by 2.3% in the month and 1.0% in the year. In 2016, the rate was negative by 1.6%. Until November, industrial consumption remained at 1.0%, the residential stayed at 1.3%, and commercial, at -0.1%.

Biodiesel production in high

Biodiesel production grew 20.8% in the month, and 11.5% in the year (-0.5% through May and -3.5% through April). In 2016, the rate was -3.6% and in 2015, by + 15%.

Pulp production rose 7.0% in the month. In the year the rate is 3.5% (7.8% in the 12 months of 2016, 8.5% in 2015 and 9.2% in 2014).

Electricity rates recoil

The national average residential electricity tariff recoiled 1.2% up to November (+5.8% in the whole 2016 and +42.5% in 2015), the commercial tariff decreased 0.7% (+5.7% in 2016 and +43.8% in 2015) and the industrial fell by 0.2% (+3.6% in 2016 and +51.7% in 2015).

Basic data

SPECIFICATION	NOVEMBER						
	IN THE MONTH			ACCUMULATED IN THE YEAR			
	2017	2016	%17/16	2017	2016	%17/16	%2017
OIL							
PRODUCTION - with Shale Oil and NGL(10^3 b/d)	2,716	2,725	-0.3	2,739	2,589	5.8	-
IMPORTS AVERAGE PRICE (US$/bbl FOB)	58	44	30.1	54	45	20.7	-
OIL PRODUCTS							
TOTAL CONSUMPTION (10^3 b/day)	2,461	2,410	2.1	2,524	2,494	1.2	**100.0**
hereof: DIESEL with biodiesel - (10^3 b/day)	1,021	973	4.9	982	989	-0.8	36.9
hereof: GASOLINE C (10^3 b/day)	720	777	-7.3	759	728	4.3	24.1
CONSUMER PRICE - DIESEL (R$/l)	3.29	3.02	9.1	3.09	3.01	2.5	-
CONSUMER PRICE - GASOLINE C (R$/l)	4.00	3.73	7.4	3.39	3.35	1.3	-
CONSUMER PRICE - LPG (R$/13 kg)	65.2	55.6	17.2	58.2	53.9	8.0	-
NATURAL GAS							
PRODUCTION (10^6 m^3/day)	113.4	111.1	2.1	109.6	102.8	6.6	-
IMPORTS (10^6 m^3/day)	35.2	29.3	20.1	29.6	33.3	-11.1	-
NON-UTILIZED AND REINJECTION (10^6 m^3/day)	27.3	30.6	-10.7	30.6	33.9	-9.7	-
AVAILABILITY FOR CONSUMPTION (10^6 m^3/day)	121.3	109.8	10.4	108.6	102.2	6.3	**100.0**
INDUSTRIAL CONSUMPTION (10^6 m^3/day)	40.8	41.0	-0.5	41.0	40.9	0.2	37.8
POWER GENERATION CONS. (10^6 m^3/day)	42.5	36.5	16.4	33.9	29.7	14.1	31.2
INDUSTRIAL PRICE SP(*) (US$/MMBtu) - consumption range of 20,000 m^3/day	12.3	9.9	24.7	11.9	11.4	4.7	-
MOTOR PRICE SP (US$/MMBtu)	18.0	16.2	11.4	17.8	15.2	17.2	-
RESIDENTIAL PRICE SP (US$/MMBtu)	37.7	37.1	1.7	37.4	36.4	2.6	-
ELECTRICITY							
NATIONAL INTERCONNECTED SYSTEM	64,565	63,666	1.4	65,015	64,069	1.5	**100.0**
SOUTHEAST/MIDWEST POWER LOAD (MWavg)	37,749	36,406	3.7	37,688	37,166	1.4	58.0
SOUTH POWER LOAD (MWavg)	11,681	10,968	6.5	11,361	11,070	2.6	17.5
NORTHEAST POWER LOAD (MWavg)	9,695	10,720	-9.6	10,432	10,457	-0.2	16.0
NORTH POWER LOAD (MWavg)	5,440	5,572	-2.4	5,534	5,377	2.9	8.5
TOTAL CONSUMPTION (TWh) (**)	39.5	38.6	2.3	425.3	421.0	1.0	**100.0**
RESIDENTIAL	11.4	11.1	2.5	123.1	121.5	1.3	28.9
INDUSTRIAL	14.2	13.8	2.9	152.0	150.5	1.0	35.7
COMMERCIAL	7.5	7.4	1.5	80.5	80.6	-0.1	18.9
OTHER SECTORS	6.4	6.3	1.7	69.7	68.4	1.8	16.4
PLANTS ENTRY INTO OPERATING (MW)	295	1,385	-78.7	6,182	9,125	-32.3	-
RESIDENTIAL PRICE (R$/MWh)	693	627	10.5	635	642	-1.2	-
COMMERCIAL PRICE (R$/MWh)	624	559	11.6	570	574	-0.7	-
INDUSTRIAL PRICE (R$/MWh)	597	522	14.5	540	541	-0.2	-
ETHANOL AND BIODIESEL							
BIODIESEL PRODUCTION (10^3 b/d)	81	67	20.8	73	66	11.5	-
MOTOR ETHANOL CONSUMPTION (10^3 b/d)	516	493	4.7	448	459	-2.5	-
ETHANOL EXPORTS (10^3 b/d)	28	7	292.3	26	32	-20.6	-
HYDRATED ETHANOL PRICE (R$/l)	2.79	2.83	-1.3	2.66	2.64	0.9	-
COAL							
ELECTRICITY GENERATION (MWavg)	2,145	1,834	17.0	1,683	1,813	-7.2	-
IMPORT PRICE (US$ FOB/t)	134.2	96.3	39.3	145.8	75.4	93.4	-
NUCLEAR ENERGY							
ELECTRICITY GENERATION - (GWh)	1,443	865	66.9	14,391	14,975	-3.9	-
INDUSTRIAL SECTORS							
STEEL PRODUCTION (10^3 t/day)	101	88	15.3	94	85	11.1	-
ALUMINIUM PRODUCTION (10^3 t/day)	2.2	2.2	1.1	2.2	2.2	1.6	-
IRON ORE EXPORTS (10^3 t/day)	1,054	970	8.6	968	932	3.8	-
PELLETS EXPORTS (10^3 t/day)	85	78	8.5	82	79	4.3	-
PAPER PRODUCTION (10^3 t/day)	29.2	28.4	2.8	28.6	28.3	1.3	-
PULP PRODUCTION (10^3 t/day)	56.2	52.9	6.3	52.9	51.0	3.6	-
SUGAR PRODUCTION (10^3 t/daY)	83	124	-33.2	120	113	6.0	-
SUGAR EXPORTS (10^3 t/day)	73	86	-14.7	80	79	2.1	-

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

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