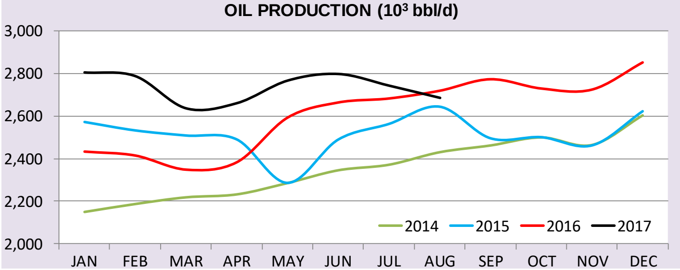
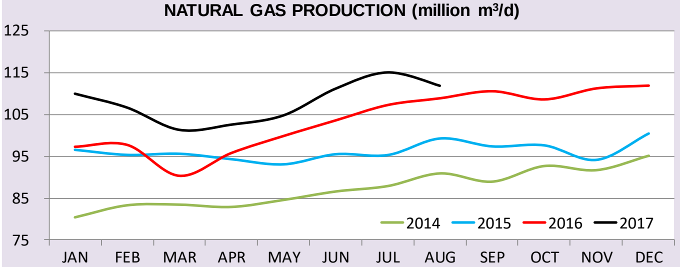
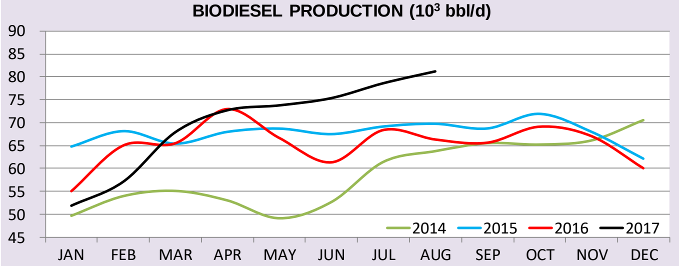
OIL PRODUCTION (10^3 bbl/d)



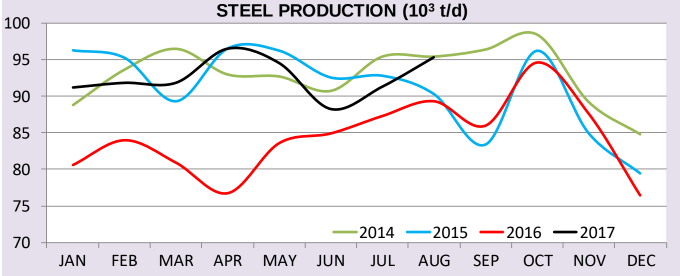
NATURAL GAS PRODUCTION (million m³/d)



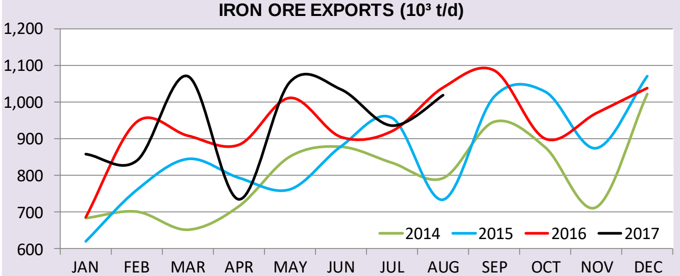
BIODIESEL PRODUCTION (10^3 bbl/d)



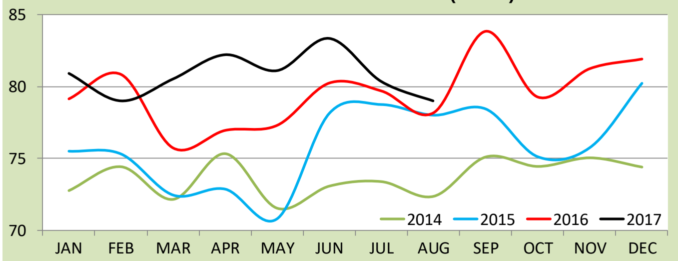
STEEL PRODUCTION (10^3 t/d)



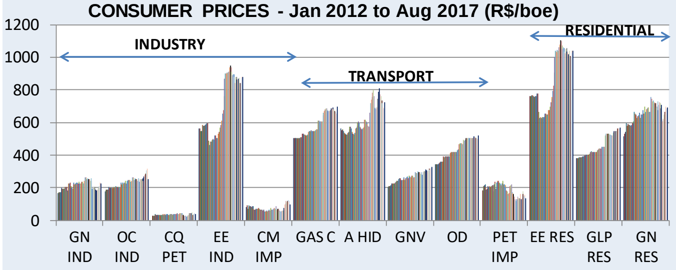
IRON ORE EXPORTS (10^3 t/d)



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



CONSUMER PRICES - Jan 2012 to Aug 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: **August 2017**

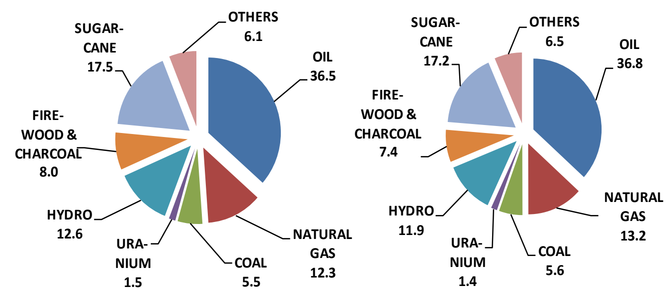
Domestic Energy Supply

Brazil is expected to have an energy surplus in 2017, a fact that will occur for the first time since 1940, first year of global energy statistics. High growth rates in oil and natural gas production coupled with low global energy demand will provide the surplus.

Economic and energy indicators, up to August, indicate that the Domestic Energy Supply - DES* increased by 1.6% over the same period of 2016. For the twelve months of the year, a growth of 1.8% is forecast for the DES. From this indicator, 0.5 percentage point will be due to the increase of losses in the expansion of thermoelectric generation. Thus, the consumption sector is expected to grow 1.3%.

Total energy demand in 2017 may grow between 1 and 2%

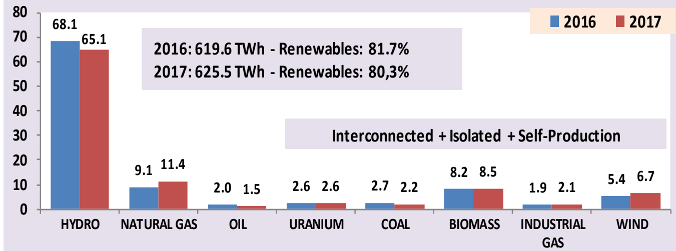
DES 2016 (%) **DES 2017 (%)**



288.4million toe **293.6 million toe**
43.5% renewables **42.3% renewables**

The Domestic Electricity Supply - DELS** of 2017 was estimated at 625.5 TWh, showing an increase of 1.0% over 2016. The proportion of renewable sources should remain above 80% in 2017. The wind energy share goes to 6,7%, increasing by more than 1 percentage point in the DELS matrix.

Domestic Electricity Supply, by Source (%)



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

Highlights to August 2017

Oil production still in high

Oil production accumulated an increase of 8.1% until August over the same period of 2016. In August, there was a decline of 1.3%, the first negative rate in the year. Natural gas production repeats the good accumulated oil rate, growing 7.9% in the year and 2.8% in August.

Steel production smooths pace of rising

Steel production accumulated an increase of 11.1% in the year. In August the rate was 6.8% over the same month of 2016. Iron ore exports fell 2.0% in August and accumulated a 3.5% increase in the year. Exports of pellets increased by 12.3% in August and increased by 2.8% in the year – second month with a cumulative positive rate.

Hydraulic supply in decline

Hydraulic generation started the year with a 14% increase, and in August accumulated a rise of only 0.3%. The import of Itaipu accumulated a 12.0% drop in the year.

Oil derivatives in high

Apparent consumption of oil products grew by 2.5% in August, accumulating a rise of 2.1% in the year. Diesel consumption grew by 2.3% in August (-2.7% in the year) and that of gasoline C, rose by 5.6% (7.6% in the year). Total demand for natural gas increased by 16.0% in August (4.7% in the year). The gas use in electricity generation has been increasing, with a 53.0% growth in August - the accumulated rate until this month turned positive, as expected.

The consumption in the Otto cycle transport (gasoline, ethanol and natural gas) grew by 2.5% in the year (2.4% up to July and 1.1% to April). This rate was -1.1% in 2016, +0.8% in 2015 and +6.2% in 2014.

Electricity consumption almost stable

Electricity consumption (excluding self-producers that do not use the public grid) increased by 0.3% in August and 0.6% in the year. In 2016, the rate was -1.6%. Until August, industrial consumption was at the rate of 0.5%; residential, 1.0% and commercial, -0.8%.

Biodiesel production in high

Biodiesel production grew by 22.3% in August, showing an increase of 7.2% in the year (-0.5% to May and -3.5% to April). In 2016, the rate was -3.6% and in 2015, +15%.

Pulp production fell 0.8% in August - the first monthly decline in the year. In the year, the rate is 4.1% positive (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 3.6% up to August (+5.8% in the whole 2016 and +42.5% in 2015), the commercial tariff decreased 3.5% (+5.7% in 2016 and +43.8% in 2015) and the industrial fell by 3.8% (+3.6% in 2016 and +51.7% in 2015).

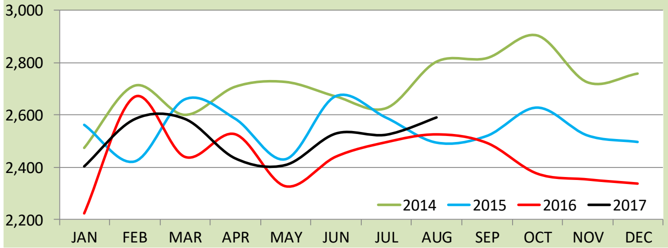
Basic data

SPECIFICATION	AUGUST						
	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)	2,686	2,720	-1.3	2,736	2,531	8.1	-
IMPORTS AVERAGE PRICE (US$/bbl FOB)	48	49	-2.1	53	44	21.5	-
OIL PRODUCTS							
TOTAL CONSUMPTION (10^3 b/day)	2,590	2,527	2.5	2,506	2,455	2.1	**100.0**
hereof: DIESEL with biodiesel - (10^3 b/day)	1,065	1,041	2.3	958	985	-2.7	36.3
hereof: GASOLINE C (10^3 b/day)	758	718	5.6	773	718	7.6	24.7
CONSUMER PRICE - DIESEL (R$/l)	3.10	3.01	3.1	3.04	3.01	0.7	-
CONSUMER PRICE - GASOLINE C (R$/l)	3.78	3.65	3.6	3.66	3.68	-0.5	-
CONSUMER PRICE - LPG (R$/13 kg)	57.6	52.8	9.2	56.7	53.4	6.1	-
NATURAL GAS							
PRODUCTION (10^6 m^3/day)	111.8	108.8	2.8	107.9	100.1	7.9	-
IMPORTS (10^6 m^3/day)	38.2	30.1	26.7	27.0	34.2	-21.0	-
NON-UTILIZED AND REINJECTION (10^6 m^3/day)	31.3	36.5	-14.3	30.4	34.4	-11.6	-
AVAILABILITY FOR CONSUMPTION (10^6 m^3/day)	118.8	102.4	16.0	104.5	99.8	4.7	**100.0**
INDUSTRIAL CONSUMPTION (10^6 m^3/day)	42.0	41.6	0.8	41.1	41.0	0.0	39.3
POWER GENERATION CONS. (10^6 m^3/day)	44.7	29.2	53.0	30.3	28.5	6.5	29.0
INDUSTRIAL PRICE SP(*) (US$/MMBtu) - consumption range of 20,000 m^3/day	12.7	11.3	12.8	11.6	11.6	0.3	-
MOTOR PRICE SP (US$/MMBtu)	18.4	16.5	11.4	17.6	14.7	19.3	-
RESIDENTIAL PRICE SP (US$/MMBtu)	39.0	39.7	-1.9	37.2	35.7	4.0	-
ELECTRICITY							
NATIONAL INTERCONNECTED SYSTEM	62,357	62,169	0.3	64,995	64,238	1.2	**100.0**
SOUTHEAST/MIDWEST POWER LOAD (MWavg)	35,850	35,968	-0.3	37,654	37,259	1.1	57.9
SOUTH POWER LOAD (MWavg)	10,857	10,453	3.9	11,374	11,233	1.3	17.5
NORTHEAST POWER LOAD (MWavg)	9,947	10,194	-2.4	10,459	10,406	0.5	16.1
NORTH POWER LOAD (MWavg)	5,703	5,554	2.7	5,509	5,340	3.2	8.5
TOTAL CONSUMPTION (TWh) (**)	37.6	37.5	0.3	307.9	306.0	0.6	**100.0**
RESIDENTIAL	10.4	10.4	-0.1	89.5	88.6	1.0	29.1
INDUSTRIAL	14.2	14.1	0.5	109.4	108.9	0.5	35.5
COMMERCIAL	6.7	6.8	-1.1	58.6	59.1	-0.8	19.0
OTHER SECTORS	6.3	6.1	2.1	50.4	49.5	1.8	16.4
PLANTS ENTRY INTO OPERATING (MW)	265	1,514	-82.5	3,959	6,936	-42.9	-
RESIDENTIAL PRICE (R$/MWh)	630	622	1.4	621	645	-3.6	-
COMMERCIAL PRICE (R$/MWh)	568	556	2.2	556	577	-3.5	-
INDUSTRIAL PRICE (R$/MWh)	532	510	4.3	524	545	-3.8	-
ETHANOL AND BIODIESEL							
BIODIESEL PRODUCTION (10^3 b/d)	81	66	22.3	70	65	7.2	-
MOTOR ETHANOL CONSUMPTION (10^3 b/d)	467	481	-3.0	404	454	-11.1	-
ETHANOL EXPORTS (10^3 b/d)	36	34	4.9	24	38	-36.7	-
HYDRATED ETHANOL PRICE (R$/l)	2.61	2.49	5.1	2.65	2.63	0.9	-
COAL							
ELECTRICITY GENERATION (MWavg)	1,853	1,720	7.7	1,364	1,884	-27.6	-
IMPORT PRICE (US$ FOB/t)	133.4	74.9	78.1	150.8	71.5	110.9	-
NUCLEAR ENERGY							
ELECTRICITY GENERATION - (GWh)	1,279	1,481	-13.6	10,782	11,161	-3.4	-
INDUSTRIAL SECTORS							
STEEL PRODUCTION (10^3 t/day)	95	89	6.8	93	83	11.1	-
ALUMINIUM PRODUCTION (10^3 t/day)	2.2	2.2	-1.2	2.2	2.2	2.2	-
IRON ORE EXPORTS (10^3 t/day)	1,019	1,040	-2.0	945	913	3.5	-
PELLETS EXPORTS (10^3 t/day)	82	73	12.3	81	79	2.8	-
PAPER PRODUCTION (10^3 t/day)	28.7	28.1	2.2	28.3	28.2	0.4	-
PULP PRODUCTION (10^3 t/day)	49.7	50.2	-0.8	52.4	50.3	4.1	-
SUGAR PRODUCTION (10^3 t/daY)	186	175	5.9	100	96	3.9	-
SUGAR EXPORTS (10^3 t/day)	89	96	-6.7	75	75	-0.5	-

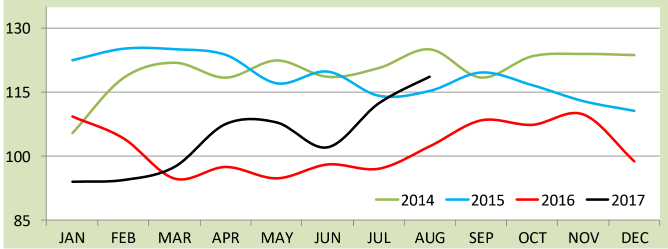
(*) SP is the acronym of the state of São Paulo.

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

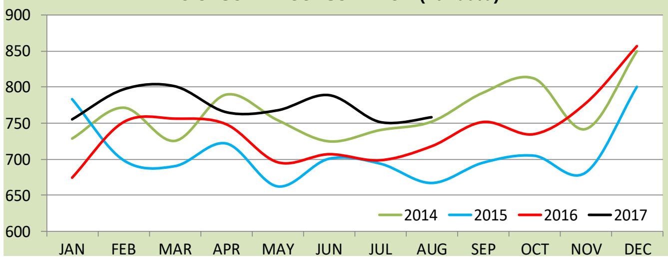
OIL PRODUCTS TOTAL CONSUMPTION (10^3 bbl/d)



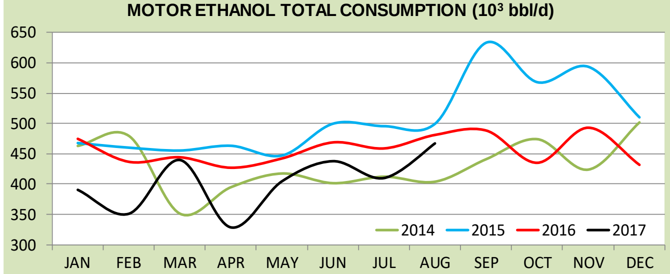
NATURAL GAS TOTAL DEMAND (million m^3/d)



C GASOLINE CONSUMPTION (10^3 bbl/d)



MOTOR ETHANOL TOTAL CONSUMPTION (10^3 bbl/d)



NATIONAL INTERCONNECTED SYSTEM POWER LOAD (GWavg)