

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. 2015 data reflect the 2016 cycle of the National Energy Balance, elaborated in June by the Energy Research Company (EPE), with the support of MME and its institutions.

Monthly Energy Bulletin - Brazil

Reference Month: September 2016

Domestic Energy Supply

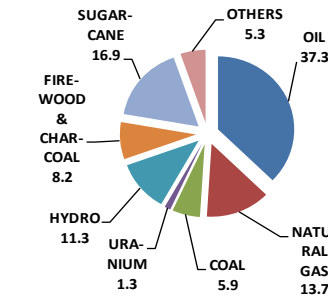
The industrial production and energy consumption indicators of September 2016 do not change the recessionary predictions of the previous bulletin. The low performances of household consumption, services and much of durable goods persist.

The Domestic Energy Supply (DES)* estimated until September shows a recoil of 2.5% over the same period of 2015. There are sharp decreases on oil, natural gas and transports demands, as well as on the production of metallurgy and transport products.

For the full year 2016, the estimated rate for the DES is in the range of -2.5 to -1.5%. At the date of this report, the estimated rate was -1.6% (-1.8% of the previous bulletin).

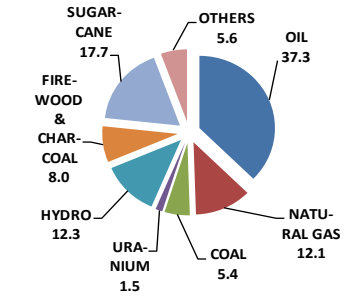
Total energy demand in 2016 may recede between 1.5 and 2.5%

DES 2015 (%)



299.2 million toe
 41.2% renewables

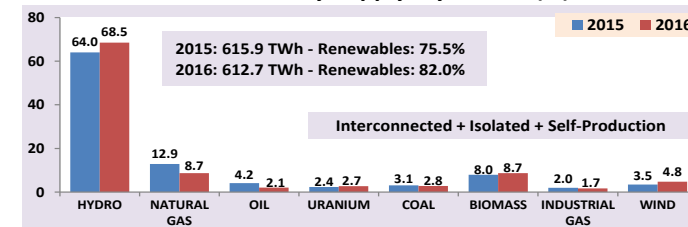
DES 2016 (%)



294.3 million toe
 43.1% renewables

The Domestic Electricity Supply (DELS) in 2016 was estimated at 612.7 TWh (618.5 TWh of the previous bulletin), showing a decrease of 0.5% over 2015. Renewable sources should increase participation, due to good performances of hydro, wind and biomass generations.

Domestic Electricity Supply, by Source (%)



Highlights to September 2016

Oil production rises

The oil production of September 2016 rose 11.2% over the same period of 2015 and accumulating an increase of 1.9% in the year (0.8% up to August). The natural gas production grew 13.4% in september and accumulates 5.6% in the year.

Steel production is falling

Steel production grew 3.1% in September over the same month of 2015, accumulating a drop of 9.7% in the year. Iron ore exports are positive in 13.8% in the year. In contrast, pellets exports accumulate fall of 46.3%.

Hydraulic supply is cumulatively rising up

The hydraulic energy supply rose 2.0% in September. The Itaipu imports (Paraguayan part) grew up 24.7%. In the year, the national hydro generation is 4.2% positive (9.7% to August).

Oil derivatives under recovery

The apparent consumption of petroleum products grew 0.3% in September, accumulating a fall of 1.9% in the year (-2.2% to August). The diesel recoiled 0.6% and the C gasoline grew by 8.1% in the month. In the year, the diesel indicator is negative 2.1% (-2.3% to August), and the C gasoline is 2.9% positive (2.3% to August). The total demand for natural gas decreased 16.2% in the year, exerting a strong influence on the thermoelectric consumption recoil (38.4%).

The consumption in the Otto cycle transport (gasoline, ethanol and natural gas) accumulates a recoil of 0.9% in the year (-0.8% to August, -2.2% to April, +0.8% in the whole year of 2015 and +6.2% in 2014).

Electricity consumption accumulates fall

Electricity consumption (excluding captive self-producer) grew 1.5% in September and accumulates a decrease in the year, of 1.1% (-1.4% to August). Commerce consumption reduced 0.9% in September (-1.6% in the year). Residential consumption grew by 1.5% in the year (1.1% to August) and industry consumption decreased 4.1% in the year (-4.5% to August).

Biodiesel production in low

Biodiesel production recoiled 4.5% in September and accumulates -3.8% in the year to date (-3.7 to August). In 2015, the rate was 15% positive.

Pulp production continues with high performance, showing an increase of 7.8% in September and accumulating 7.1% in this year. Throughout 2015, the expansion was 8.5% (9.2% in 2014).

Electricity rates in high

The national average residential electricity tariff accumulates a rise of 9.6% in the year, the commercial tariff, 9.4% and the industrial tariff, 8.0%.

Basic data of 2015 and 2016

SPECIFICATION	SEPTEMBER			ACCUMULATED IN THE YEAR		
	2016	2015	%16/15	2016	2015	%16/15
OIL						
PRODUCTION - with Shale Oil and NGL(10 ³ b/d)	2.774	2.496	11,2	2.558	2.509	1,9
IMPORTS AVERAGE PRICE (US\$/bbl FOB)	47	62	-24,4	44	67	-33,6
OIL PRODUCTS						
TOTAL CONSUMPTION (10 ³ b/day)	2.530	2.521	0,3	2.502	2.551	-1,9
hereof: DIESEL with biodiesel - (10 ³ b/day)	1.049	1.055	-0,6	992	1.013	-2,1
hereof: GASOLINE C (10 ³ b/day)	751	695	8,1	722	701	2,9
CONSUMER PRICE - DIESEL (R\$/l)	3,01	2,96	1,8	3,01	2,80	7,6
CONSUMER PRICE - GASOLINE C (R\$/l)	3,65	3,28	11,3	3,68	3,27	12,5
CONSUMER PRICE - LPG (R\$/13 kg)	54,7	52,9	3,3	53,6	46,4	15,6
NATURAL GAS						
PRODUCTION (10 ⁶ m ³ /day)	110,4	97,4	13,4	101,2	95,8	5,6
IMPORTS (10 ⁶ m ³ /day)	31,9	52,0	-38,8	33,9	51,3	-33,9
NON-UTILIZED AND REINJECTION (10 ⁶ m ³ /day)	33,8	29,7	13,8	34,4	26,9	27,7
AVAILABILITY FOR CONSUMPTION (10 ⁶ m ³ /day)	108,5	119,7	-9,4	100,8	120,3	-16,2
INDUSTRIAL CONSUMPTION (10 ⁶ m ³ /day)	40,0	44,0	-8,9	40,9	44,6	-8,2
POWER GENERATION CONS. (10 ⁶ m ³ /day)	31,4	47,1	-33,4	28,8	46,7	-38,4
INDUSTRIAL PRICE SP(*) (US\$/MMBtu) - consumption range of 20,000 m ³ /day	13,7	11,5	20,0	12,6	13,6	-7,4
MOTOR PRICE SP (US\$/MMBtu)	16,4	13,1	25,0	14,9	15,2	-1,7
RESIDENTIAL PRICE SP (US\$/MMBtu)	39,2	32,7	20,0	36,1	39,5	-8,6
ELECTRICITY						
NATIONAL INTERCONNECTED SYSTEM	61.559	63.466	-3,0	64.037	63.816	0,3
SOUTHEAST/MIDWEST POWER LOAD (MWavg)	35.562	38.244	-7,0	37.072	37.195	-0,3
SOUTH POWER LOAD (MWavg)	10.239	10.271	-0,3	11.196	10.950	2,2
NORTHEAST POWER LOAD (MWavg)	10.354	10.385	-0,3	10.423	10.289	1,3
NORTH POWER LOAD (MWavg)	5.403	5.615	-3,8	5.347	5.193	3,0
TOTAL CONSUMPTION (TWh) (**)	38,3	37,7	1,5	344,2	348,1	-1,1
RESIDENTIAL	10,9	10,4	4,8	99,5	98,0	1,5
INDUSTRIAL	13,9	14,0	-0,6	122,9	128,1	-4,1
COMMERCIAL	7,1	7,1	-0,9	66,1	67,2	-1,6
OTHER SECTORS	6,4	6,2	3,3	55,7	54,8	1,7
PLANTS ENTRY INTO OPERATING (MW)	165	266	-37,9	7.155	4.116	73,8
RESIDENTIAL PRICE (R\$/MWh)	637	631	1,0	644	588	9,6
COMMERCIAL PRICE (R\$/MWh)	569	567	0,2	576	526	9,4
INDUSTRIAL PRICE (R\$/MWh)	533	549	-3,1	544	503	8,0
ETHANOL AND BIODIESEL						
BIODIESEL PRODUCTION (10 ³ b/d)	66	69	-4,5	65	68	-3,8
MOTOR ETHANOL CONSUMPTION (10 ³ b/d)	488	633	-23,0	458	491	-6,8
ETHANOL EXPORTS (10 ³ b/d)	31	36	-16,2	37	26	43,2
HYDRATED ETHANOL PRICE (R\$/l)	2,51	2,07	21,0	2,61	2,13	22,8
COAL						
ELECTRICITY GENERATION (MWavg)	1.656	2.052	-19,3	1.859	2.062	-9,9
IMPORT PRICE (US\$/t)	79,9	77,5	3,0	72,4	91,4	-20,8
NUCLEAR ENERGY						
ELECTRICITY GENERATION - (GWh)	1.453	1.135	28,0	12.615	11.306	11,6
INDUSTRIAL SECTORS						
STEEL PRODUCTION (10 ³ t/day)	86	83	3,1	83	92	-9,7
ALUMINIUM PRODUCTION (10 ³ t/day)	2,2	2,0	8,0	2,2	2,1	0,9
IRON ORE EXPORTS (10 ³ t/day)	1.086	1.015	7,0	932	819	13,8
PELLETS EXPORTS (10 ³ t/day)	91	172	-46,9	80	150	-46,3
PAPER PRODUCTION (10 ³ t/day)	28,7	29,1	-1,5	28,2	28,5	-0,8
PULP PRODUCTION (10 ³ t/day)	53,2	49,4	7,8	50,5	47,1	7,1
SUGAR PRODUCTION (10 ³ t/day)	189	164	15,5	107	89	19,3
SUGAR EXPORTS (10 ³ t/day)	106	59	80,8	79	61	28,9

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

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

