

**Note:** For a better visualization, the graphs minimum scale 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. 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, is the energy required to move the economy of a country or region, and 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.

"Tonne of oil equivalent" (toe) = 10 Gigacalorias (Gcal), is the standard unit used to consolidate power data. Firewood releases 3,100 cal / g, or 3.1 Gcal / t, when the combustion. The ratio of firewood indicator and oil indicator results in 0.31 toe / t, a factor that converts tons of firewood to toe. The same goes for the other combustíveis.

# Monthly Energy Bulletin - Brazil

Reference Month: September 2014

## Domestic Energy Supply

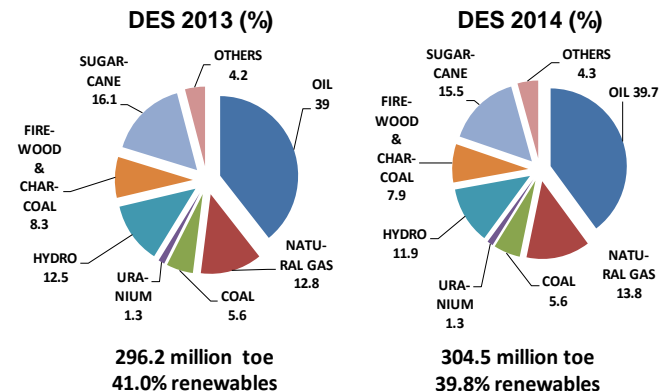
September indicators show slight recovery in domestic consumption of goods and services, but still with a poor performance of some export products such as steel, aluminum, sugar and ethanol. In the aspect of population welfare, persists the good energy performance on individual transport, residential and commercial electricity. In terms of energy supply, continues the decline of hydroelectric generation, which increases the thermal generation and their losses. So, up to September, the available data shows a growth rate of 3.0% on the Domestic Energy Supply (DES) (\*) over the same period of 2013.

**Total energy demand in 2014 may grow between 2.5% and 3.5%**

For the full year 2014, the estimates for the DES growth are in the range of 2.5% to 3.5% (the same as the previous month). The reasons are: a) reduction of hydraulic generation and increase in thermal generation and their losses; b) poor performance of sugar-alcohol sector and commodities and; c) good performances of the Otto cycle transportation, electricity and cellulose.

Based on the information available at the time of preparation of this report, the DES's growth rate for 2014 was estimated at 2.8% (2.6% in the previous bulletin). The increase in energy losses due to the thermal generation expansion accounted for almost 1% of the DES rate.

Renewable energy sources should maintain its participation near to 40% in the 2014 DES Matrix, but below of 2013 indicator. The good performance of wind generation, biodiesel production and biomass use in cellulose production do not outweigh the negative effects of weak hydro generation, sugar-alcohol production and residential firewood use.



## Highlights until September 2014

### Oil and Gas Production is upwards

Oil production increased 19.1% in September (over the same month in 2013) and 9.9% in the year (including shale oil). The natural gas production increased 13.9% in September and 11% in the year. As a result, external energy dependence over DES is expected to drop 14% in 2013 to just under 13% in 2014.

### Steel production still downwards

Until September, steel production retreated 1.2% (recoil of 1.1% in 2013), the aluminum production retreated 24.4% (in continuous decline in the year), iron ore exports grew 7.0% (3.6% in the whole 2013), and pellets exports increased 2.6% in the year (reduction of 8.8% in 2013).

### Hydro supply is declining

The hydraulic energy supply fell 10% over the same month of 2013, and increased 5.9% over the previous month. In the year to date, the rate is -2.8%, the third negative rate in the year (1.1% positive until June).

### Oil Products consumption remains high

The apparent consumption of petroleum products increased by 10% in September over the same month of 2013, and increased 5.1% in the year date (4.5% until August and 5.5% until June). Diesel oil increased 6.5% in September and in the year date, the rate is 1.8%. Gasoline C grew by 12.3% in September and accumulates 11.3% in the year (2.7% in 2013). The total natural gas demand grew 6.8% in September and 7.9% in the year (8% until August).

The energy use in the Otto Cycle transport (gasoline, ethanol and natural gas) remains high, with a cumulative growth of 6.6% in the year. In 2013, the average increase was 6.1%, and 8.7% in 2012.

### Electricity consumption remains weak

Electricity consumption (excluding captive self-producer) grew by 0.3% in September, after showing decrease of 0.2% in August. In the year, the rate was 2.5% (2.7% until August, 3.2% until July and 3.7% until June), just below the 3.5% rate, verified in the entire 2013. In September, residential consumption grew 2.4%, and commercial sector, 5.9%. Industrial consumption reduced at an expressive rate of 4.5% in September and accumulates -3% in the year. The reduction of 24.4% in the annual aluminum production explains part of the low industrial performance.

### Biodiesel production in high

Biodiesel production grew up 20.9% in September and 11.7% in the year date. In 2013 the rate was 7.4%.

## Electricity tariffs for high

The national average residential electricity tariff accumulates a rise of 3.7% in the year to date. The commercial tariff accumulates 5.5% high, and the industrial, 7.6% high.

### Basic Data

SPECIFICATION	SEPTEMBER						
	IN THE MONTH			ACCUMULATED IN THE YEAR			
	2014	2013	% 14/13	2014	2013	% 14/13	%2014
<b>OIL</b>							
PRODUCTION - with Shale Oil and NGL(10 <sup>3</sup> b/d)	2,461	2,065	19.1	2,289	2,082	9.9	-
IMPORTS AVERAGE PRICE (US\$/bbl FOB)	114	116	-2.2	114	113	0.8	-
<b>OIL PRODUCTS</b>							
TOTAL CONSUMPTION (10 <sup>3</sup> b/day)	2,919	2,653	10.0	2,778	2,643	5.1	100.0
hereof: DIESEL with biodiesel - (10 <sup>3</sup> b/day)	1,174	1,102	6.5	1,048	1,029	1.8	35.9
hereof: GASOLINE C (10 <sup>3</sup> b/day)	792	705	12.3	752	676	11.3	21.7
CONSUMER PRICE - DIESEL (R\$/l)	2.50	2.33	7.3	2.50	2.31	8.2	-
CONSUMER PRICE - GASOLINE C (R\$/l)	2.96	2.83	4.6	2.97	2.85	4.2	-
CONSUMER PRICE - LPG (R\$/13 kg)	43.7	41.5	5.2	42.7	40.8	4.8	-
<b>NATURAL GAS</b>							
PRODUCTION (10 <sup>6</sup> m <sup>3</sup> /day)	88.9	78.1	13.8	85.4	77.0	11.0	-
IMPORTS (10 <sup>6</sup> m <sup>3</sup> /day)	49.4	46.9	5.4	53.0	46.7	13.6	-
NON-UTILIZED AND REINJECTION (10 <sup>6</sup> m <sup>3</sup> /day)	19.8	14.0	41.5	19.5	13.4	45.6	-
AVAILABILITY FOR CONSUMPTION (10 <sup>6</sup> m <sup>3</sup> /day)	118.5	111.0	6.8	118.9	110.3	7.9	100.0
INDUSTRIAL CONSUMPTION (10 <sup>6</sup> m <sup>3</sup> /day)	42.5	41.7	2.0	43.1	41.0	5.1	36.2
POWER GENERATION CONS. (10 <sup>6</sup> m <sup>3</sup> /day)	45.4	34.7	30.7	46.7	40.2	16.1	39.3
INDUSTRIAL PRICE SP(*) (US\$/MMBtu) - consumption range of 20,000 m <sup>3</sup> /day	17.2	15.8	8.9	17.8	17.2	3.8	-
MOTOR PRICE SP (US\$/MMBtu)	20.0	19.1	4.8	20.2	20.6	-2.2	-
RESIDENTIAL PRICE SP (US\$/MMBtu)	50.5	49.8	1.4	50.7	52.1	-2.7	-
<b>ELECTRICITY</b>							
NATIONAL INTERCONNECTED SYSTEM	65,626	63,573	3.2	64,532	62,253	3.7	100.0
SOUTHEAST/MIDWEST POWER LOAD (MWavg)	38,932	38,244	1.8	38,587	37,637	2.5	59.8
SOUTH POWER LOAD (MWavg)	10,846	10,415	4.1	11,062	10,524	5.1	17.1
NORTHEAST POWER LOAD (MWavg)	10,164	9,675	5.1	9,817	9,616	2.1	15.2
NORTH POWER LOAD (MWavg)	5,320	5,239	1.5	4,999	4,477	11.7	7.7
TOTAL CONSUMPTION (TWh) (**)	38.8	38.7	0.3	353.2	344.7	2.5	100.0
RESIDENTIAL	10.5	10.3	2.4	98.5	93.0	5.9	27.9
INDUSTRIAL	14.9	15.6	-4.5	133.6	137.7	-3.0	37.8
COMMERCIAL	7.2	6.8	5.8	66.4	61.7	7.8	18.8
OTHER SECTORS	6.2	6.0	3.0	54.6	52.4	4.3	15.5
PLANTS ENTRY INTO OPERATING (MW)	468	391	19.7	5,130	4,542	12.9	-
RESIDENTIAL PRICE (R\$/MWh)	438	381	15.0	407	393	3.7	-
COMMERCIAL PRICE (R\$/MWh)	389	337	15.5	358	339	5.5	-
INDUSTRIAL PRICE (R\$/MWh)	355	301	18.2	322	300	7.6	-
<b>ETHANOL AND BIODIESEL</b>							
BIODIESEL PRODUCTION (10 <sup>3</sup> b/d)	64	53	20.9	56	50	11.7	-
MOTOR ETHANOL CONSUMPTION (10 <sup>3</sup> b/d)	441	434	1.6	417	399	4.7	-
ETHANOL EXPORTS (10 <sup>3</sup> b/d)	25	62	-59.8	25	53	-53.4	-
HYDRATED ETHANOL PRICE (R\$/l)	2.01	1.90	5.8	2.08	1.97	5.6	-
<b>COAL</b>							
ELECTRICITY GENERATION (MWavg)	1,739	1,724	0.9	1,972	1,546	27.6	-
IMPORT PRICE (US\$/FOB/t)	96.0	132.1	-27.4	108.6	136.7	-20.5	-
<b>NUCLEAR ENERGY</b>							
ELECTRICITY GENERATION - (GWh)	1,453	1,363	6.6	10,971	11,140	-1.5	-
<b>INDUSTRIAL SECTORS</b>							
STEEL PRODUCTION (10 <sup>3</sup> t/day)	95	95	0.0	93	94	-1.2	-
ALUMINIUM PRODUCTION (10 <sup>3</sup> t/day)	2.3	3.5	-34.9	2.8	3.6	-24.4	-
IRON ORE EXPORTS (10 <sup>3</sup> t/day)	946	839	12.8	784	733	7.0	-
PELLETS EXPORTS (10 <sup>3</sup> t/day)	156	129	21.5	128	125	2.6	-
CEMENT PRODUCTION (10 <sup>3</sup> t/day)	193	210	-8.0	193	192	0.7	-
PAPER PRODUCTION (10 <sup>3</sup> t/day)	29.8	29.1	2.4	28.7	28.5	0.7	-
PULP PRODUCTION (10 <sup>3</sup> t/day)	45.4	42.5	6.7	44.0	40.8	7.9	-
SUGAR PRODUCTION (10 <sup>3</sup> t/day)	137	179	-23.2	98	98	0.1	-
SUGAR EXPORTS (10 <sup>3</sup> t/day)	74	84	-12.5	63	72	-12.3	-

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

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

