

**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. 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.

(\*\*) The Cycle 2015 of the National Energy Balance, initiated by the Energy Research Company (EPE), will define the 2014 DES final data until April 2015.

# Monthly Energy Bulletin - Brazil

Reference Month: January 2015

## Domestic Energy Supply – DES

2015 initiates with high performances of oil, natural gas, biodiesel, steel and pulp production. The hydro generation maintains the low performance verified in the previous months, requiring a generation completion from other sources. Energy consumption in light vehicles remains high, though decelerating.

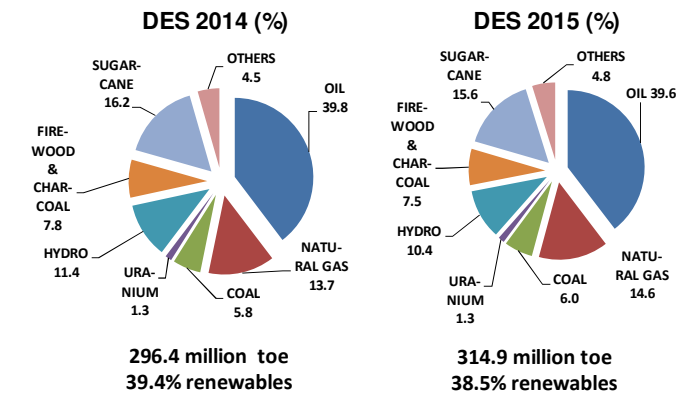
With these indicators, the growth rate of the Domestic Energy Supply (DES) (\*) (\*\*) – energy needed to move Brazil's economy – estimated for January 2015 was 4.5% over the January 2014, also influenced by increased losses in thermal power plants.

**2015 Total Energy Demand (DES) may grow between 2 and 3%**

For the full year 2015, the estimates for the DES growth are in the range of 2% to 3%. The assumptions are based on good commodity production levels, leveraged by depreciation of Real (R\$) and on the dynamic fall in domestic demand for goods and services.

Based on the information available to the date of this report, the DES growth rate for 2015 was estimated at 2.8%. As always occurs in the first months of each year, the uncertainties are many, and in each report, forecasts of energy demand are reviewed and substantiated based on the information of the time.

Renewable sources must reduce participation in the 2015 DES matrix, due to the low hydraulic generation and forecasts not very high for the sugarcane and wood products.



## Highlights of 2015

### Oil and Gas production is on the up

In January 2015, oil production grew expressive 19.8%, above the average for 2014, of 11.4%. The natural gas production kept pace, up 20.2%.

### Steel production is rising

Steel production grew 7.7% in January 2015, compared to the same month of 2014. Exports of iron ore fell 9.2% (+ 4.4% for the whole year 2014). Pellets exports start the year with a strong high, 15.7% (+ 5.1% in 2014).

### Hydro supply remains low

The hydro power supply fell 7.8% in January, taking Itaipu imports a reduction of 11% (Paraguayan part). Accordingly, the national hydroelectric generation decreased 7.5% in the month, compared to the same month of 2014.

### Oil products consumption decelerating

Apparent consumption of petroleum products increased by 3.3% in January (4.7% for the whole year 2014). The diesel rose 10.4% and the C gasoline increased by 7.5%, showing that the other derivatives were responsible for bringing the average down. The total demand for natural gas grew 18.7%, still influenced by 40% increase in thermal generation.

Remains the high performance of energy use in OTTO cycle transport (gas + ethanol + natural gas), an increase of 5.2% in January 2015, but decelerating. In 2014, the average increase was 6.2%.

### Electricity consumption in low

Electricity consumption (excluding captive self-producer) grew only 1% in January 2015, influenced by the recoil of 4.7% in industrial consumption. Remains the good performance in residential consumption, growing by 6.1%, followed by commercial consumption (4.1%). Aluminum production, falling 27.7% in January, explains part of the low industrial consumption.

### Biodiesel production in strong high

The production of biodiesel increased by 30.3% in January. In the year 2014 the rate was 16.1%.

The pulp production continues with high performance, showing an increase of 12.3% in January. In the full year 2014, production showed significant increase of 9.2%.

### Electricity tariffs in high

The national average residential electricity tariff increased 16.8% in January 2015, the commercial tariff grew 21.1%, and the industrial, 22.6%.

### Basic data of 2014 and 2015

SPECIFICATION	JANUARY			IN THE MONTH				ACCUMULATED IN THE YEAR			
	2015	2014	% 15/14	2015	2014	% 15/14	% 2015	2015	2014	% 15/14	% 2015
<b>OIL</b>											
PRODUCTION - with Shale Oil and NGL(10 <sup>3</sup> b/d)	2,573	2,149	19.8	2,573	2,149	19.8	-				
IMPORTS AVERAGE PRICE (US\$/bbl FOB)	55	111	-50.1	55	111	-50.1	-				
<b>OIL PRODUCTS</b>											
TOTAL CONSUMPTION (10 <sup>3</sup> b/day)	2,648	2,563	3.3	2,648	2,563	3.3	100.0				
hereof: DIESEL with biodiesel - (10 <sup>3</sup> b/day)	1,074	973	10.4	1,074	973	10.4	38.5				
hereof: GASOLINE C (10 <sup>3</sup> b/day)	783	728	7.5	783	728	7.5	23.7				
CONSUMER PRICE - DIESEL (R\$/l)	2.61	2.49	5.1	2.61	2.49	5.1	-				
CONSUMER PRICE - GASOLINE C (R\$/l)	3.03	2.96	2.6	3.03	2.96	2.6	-				
CONSUMER PRICE - LPG (R\$/13 kg)	44.7	42.5	5.2	44.7	42.5	5.2	-				
<b>NATURAL GAS</b>											
PRODUCTION (10 <sup>6</sup> m <sup>3</sup> /day)	96.6	80.4	20.2	96.6	80.4	20.2	-				
IMPORTS (10 <sup>6</sup> m <sup>3</sup> /day)	52.9	43.7	21.1	52.9	43.7	21.1	-				
NON-UTILIZED AND REINJECTION (10 <sup>6</sup> m <sup>3</sup> /day)	24.2	18.5	30.8	24.2	18.5	30.8	-				
AVAILABILITY FOR CONSUMPTION (10 <sup>6</sup> m <sup>3</sup> /day)	125.2	105.5	18.7	125.2	105.5	18.7	100.0				
INDUSTRIAL CONSUMPTION (10 <sup>6</sup> m <sup>3</sup> /day)	43.7	41.0	6.5	43.7	41.0	6.5	34.9				
POWER GENERATION CONS. (10 <sup>6</sup> m <sup>3</sup> /day)	49.5	35.3	40.3	49.5	35.3	40.3	39.5				
INDUSTRIAL PRICE SP(*) (US\$/MMBtu) - consumption range of 20,000 m <sup>3</sup> /day	15.4	16.9	-8.8	15.4	16.9	-8.8	-				
MOTOR PRICE SP (US\$/MMBtu)	17.4	19.1	-8.9	17.4	19.1	-8.9	-				
RESIDENTIAL PRICE SP (US\$/MMBtu)	45.2	48.0	-5.9	45.2	48.0	-5.9	-				
<b>ELECTRICITY</b>											
NATIONAL INTERCONNECTED SYSTEM	69,062	68,828	0.3	69,062	68,828	0.3	100.0				
SOUTHEAST/MIDWEST POWER LOAD (MWavg)	41,194	41,375	-0.4	41,194	41,375	-0.4	59.6				
SOUTH POWER LOAD (MWavg)	12,250	12,080	1.4	12,250	12,080	1.4	17.7				
NORTHEAST POWER LOAD (MWavg)	10,616	10,101	5.1	10,616	10,101	5.1	15.4				
NORTH POWER LOAD (MWavg)	5,002	5,272	-5.1	5,002	5,272	-5.1	7.2				
TOTAL CONSUMPTION (TWh) (**)	40.7	40.3	1.0	40.7	40.3	1.0	100.0				
RESIDENTIAL	12.5	11.8	6.1	12.5	11.8	6.1	30.7				
INDUSTRIAL	13.8	14.5	-4.7	13.8	14.5	-4.7	34.0				
COMMERCIAL	8.0	7.7	4.1	8.0	7.7	4.1	19.8				
OTHER SECTORS	6.3	6.2	0.7	6.3	6.2	0.7	15.5				
PLANTS ENTRY INTO OPERATING (MW)	429	123	248.2	429	123	248.2	-				
RESIDENTIAL PRICE (R\$/MWh)	462	395	16.8	462	395	16.8	-				
COMMERCIAL PRICE (R\$/MWh)	415	342	21.5	415	342	21.5	-				
INDUSTRIAL PRICE (R\$/MWh)	385	314	22.6	385	314	22.6	-				
<b>ETHANOL AND BIODIESEL</b>											
BIODIESEL PRODUCTION (10 <sup>3</sup> b/d)	65	50	30.3	65	50	30.3	-				
MOTOR ETHANOL CONSUMPTION (10 <sup>3</sup> b/d)	440	429	2.6	440	429	2.6	-				
ETHANOL EXPORTS (10 <sup>3</sup> b/d)	31	39	-20.0	31	39	-20.0	-				
HYDRATED ETHANOL PRICE (R\$/l)	2.06	2.05	0.7	2.06	2.05	0.7	-				
<b>COAL</b>											
ELECTRICITY GENERATION (M Wavg)	2,342	1,866	25.5	2,342	1,866	25.5	-				
IMPORT PRICE (US\$/t)	95.5	112.6	-15.1	95.5	112.6	-15.1	-				
<b>NUCLEAR ENERGY</b>											
ELECTRICITY GENERATION - (GWh)	1,450	1,464	-0.9	1,450	1,464	-0.9	-				
<b>INDUSTRIAL SECTORS</b>											
STEEL PRODUCTION (10 <sup>3</sup> t/day)	96	89	7.7	96	89	7.7	-				
ALUMINIUM PRODUCTION (10 <sup>3</sup> t/day)	2.3	3.4	-32.3	2.3	3.4	-32.3	-				
IRON ORE EXPORTS (10 <sup>3</sup> t/day)	621	684	-9.2	621	684	-9.2	-				
PELLETS EXPORTS (10 <sup>3</sup> t/day)	130	113	15.7	130	113	15.7	-				
PAPER PRODUCTION (10 <sup>3</sup> t/day)	28.2	28.4	-0.6	28.2	28.4	-0.6	-				
PULP PRODUCTION (10 <sup>3</sup> t/day)	48.0	42.8	12.3	48.0	42.8	12.3	-				
SUGAR PRODUCTION (10 <sup>3</sup> t/day)	21	19	9.5	21	19	9.5	-				
SUGAR EXPORTS (10 <sup>3</sup> t/day)	76	69	10.5	76	69	10.5	-				

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

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

