

**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 results in 0.31 toe / t, a factor that converts tons of firewood to toe. The same goes for the other combutives.

# Monthly Energy Bulletin - Brazil

Reference Month: April 2014

## Domestic Energy Supply

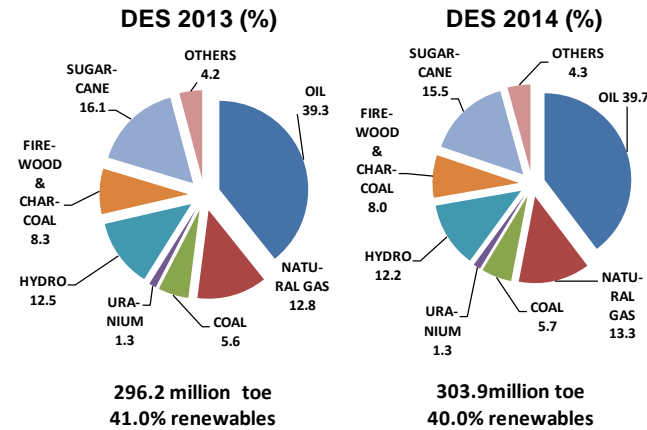
Remains the weak performance of some export products, such as steel, aluminum, pellets and sugar. In April, in the issue of population welfare, the good performance in energy consumption persists, mainly on individual transport sector and on residential and commercial electricity sector. In terms of energy supply, the poor performance of hydraulic generation April is offset by increased thermal generation, which increases the thermal energy losses. For the sugar cane products, there is a forecast of a lower performance in 2014. Under these conditions, the available data shows a growth rate of 3.5% on the Domestic Energy Supply (DES) (\*), over the same period of 2013.

**Total energy demand in 2014 can 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% (same as the previous month). Reasons: a) reduction of hydraulic generation, which causes an increase in thermal generation and their losses; b) poor performance of sugar-alcohol sector and of commodities; c) good performances of the Otto cycle transportation and electricity consumption.

Based on the available information at the date of this report, the DES's growth rate for 2014 was estimated at 2.6% (2.7% in the previous bulletin). Given the uncertainties in the early months of each year, in each new bulletin energy forecasts are reviewed and based on the information of that time.

Renewable sources should maintain its participation near to 40% in the 2014 DES Matrix, but below the indicator of 2013. Only the wind generation and the biodiesel production should present an above the average energy demand.



## Highlights until April 2014

### Steel production recoils

Until April, steel production retreated 0.3% (increase of 0.9% until March), the production of aluminum retreated 13.5% (retreated 11.9% until March), iron ore exports grew up by 8.6% (3.6% for the whole year of 2013), and pellets exports declined 8.7% (decrease of 8.8% throughout 2013).

### Hydro supply declining

The hydraulic energy supply is -3.2% over the same month in 2013, and -3.0% over the previous month. Year to date, the rate is still positive, at 3.8% (6% until March).

### Consumption of oil products remains high

The apparent consumption of petroleum products increased by 2.9% in April and 4.3% in the year date (4.8% until March), while diesel rose 1.5% in April (2.6% in March and 15% in February - due to the use in thermoelectric plants). Gasoline C, with a growth of 11.2% in April, in the year accumulated positive rate of 10.1% (2.7% in 2013). The total natural gas demand grew 4.4% in the year date - the first months of 2013 already presented high consumption in thermal power generation, preventing higher rates.

Remains high energy use in the transport of Otto Cycle, with cumulative growth of 8.4% in the year (gasoline, ethanol and natural gas). In 2013, the average increase was 6.1%, and 8.7% in 2012.

### Electricity consumption is cooling down

Electricity consumption (excluding captive self-producer) grew 2.2% in April (4.6% in March). In the year, the rate was 5.1% (6.1% until March), well above the increase for whole year of 2013, of 3.5%. In April, residential consumption grew 4.7% and commercial consumption increased 7.8%, already with less influence on the use of air conditioning. Industrial consumption remains low, with a negative rate of 2.7% in April, and a negative rate of 0.1% in the year. The decreasing production of aluminum explains part of the low industrial performance.

### Biodiesel production grows above 11%

Biodiesel production increased 8.4% in April and 11.1% in the year. In 2013 the rate was 7.4%.

### Electricity tariffs for high

The national average residential electricity tariff recoiled in the year by 3.7%, the commercial tariff moves to 7.2% this year, and the industry tariff still maintains a decrease of 0.4%.

Cement production in April, with a negative rate of 4.7%, repeats the weak dynamics of the previous month, but in the year the rate is still positive, at 7.1% (3.6% for the whole year of 2013). Pulp production continues to maintain good performance of 4.2% over the year (7.1% in the whole year of 2013).

## Basic Data

SPECIFICATION	APRIL					
	IN THE MONTH			ACCUMULATED IN THE YEAR		
	2014	2013	%14/13	2014	2013	%14/13
<b>OIL</b>						
PRODUCTION - with Shale Oil and NGL(10 <sup>3</sup> b/d)	2,231	2,023	10.3	2,178	2,041	6.7
IMPORTS AVERAGE PRICE (US\$/bbl FOB)	112	122	-8.6	114	118	-3.3
<b>OIL PRODUCTS</b>						
TOTAL CONSUMPTION (10 <sup>3</sup> b/day)	2,805	2,726	2.9	2,715	2,603	4.3
hereof: DIESEL with biodiesel - (10 <sup>3</sup> b/day)	1,075	1,059	1.5	1,041	989	5.3
hereof: GASOLINE C (10 <sup>3</sup> b/day)	789	710	11.2	753	684	10.1
CONSUMER PRICE - DIESEL (R\$/l)	2.50	2.33	7.3	2.49	2.28	9.4
CONSUMER PRICE - GASOLINE C (R\$/l)	2.99	2.88	3.9	2.97	2.85	4.2
CONSUMER PRICE - LPG (R\$/13 kg)	42.7	40.7	4.7	42.6	40.5	5.2
<b>NATURAL GAS</b>						
PRODUCTION (10 <sup>6</sup> m <sup>3</sup> /day)	82.9	74.7	10.9	82.5	76.1	8.4
IMPORTS (10 <sup>6</sup> m <sup>3</sup> /day)	56.1	45.0	24.7	52.7	48.1	9.5
NON-UTILIZED AND REINJECTION (10 <sup>6</sup> m <sup>3</sup> /day)	19.9	13.0	53.0	19.2	13.1	46.0
AVAILABILITY FOR CONSUMPTION (10 <sup>6</sup> m <sup>3</sup> /day)	119.1	106.7	11.6	116.0	111.1	4.4
INDUSTRIAL CONSUMPTION (10 <sup>6</sup> m <sup>3</sup> /day)	43.9	41.6	5.5	42.9	39.5	8.5
POWER GENERATION CONS. (10 <sup>6</sup> m <sup>3</sup> /day)	47.8	39.2	21.9	44.8	41.5	8.1
INDUSTRIAL PRICE SP(*) (US\$/MMBtu) - consumption range of 20,000 m <sup>3</sup> /day	17.6	17.9	-1.9	17.3	18.3	-5.3
MOTOR PRICE SP (US\$/MMBtu)	19.7	21.4	-7.6	19.4	21.4	-9.0
RESIDENTIAL PRICE SP (US\$/MMBtu)	49.5	53.1	-6.7	48.7	53.2	-8.5
<b>ELECTRICITY</b>						
NATIONAL INTERCONNECTED SYSTEM	64,264	61,977	3.7	66,954	63,060	6.2
SOUTHEAST/MIDWEST POWER LOAD (MWavg)	38,272	37,073	3.2	40,346	38,231	5.5
SOUTH POWER LOAD (MWavg)	10,734	10,560	1.6	11,634	10,724	8.5
NORTHEAST POWER LOAD (MWavg)	9,962	10,027	-0.6	10,107	9,909	2.0
NORTH POWER LOAD (MWavg)	5,296	4,317	22.7	4,807	4,197	14.6
TOTAL CONSUMPTION (TWh) (**)	39.5	38.6	2.2	161.4	153.6	5.1
RESIDENTIAL	10.8	10.3	4.7	45.7	42.0	8.7
INDUSTRIAL	15.2	15.6	-2.7	59.8	59.8	-0.1
COMMERCIAL	7.6	7.0	7.8	31.2	28.4	10.0
OTHER SECTORS	6.0	5.7	4.0	24.7	23.3	6.0
PLANTS ENTRY INTO OPERATING (MW)	821	551	49.1	2,943	2,626	12.1
RESIDENTIAL PRICE (R\$/MWh)	395	378	4.4	393	408	-3.7
COMMERCIAL PRICE (R\$/MWh)	370	322	15.1	370	345	7.2
INDUSTRIAL PRICE (R\$/MWh)	307	285	7.9	308	309	-0.4
<b>ETHANOL AND BIODIESEL</b>						
BIODIESEL PRODUCTION (10 <sup>3</sup> b/d)	58	53	8.4	53	48	11.1
MOTOR ETHANOL CONSUMPTION (10 <sup>3</sup> b/d)	370	356	3.9	408	359	13.7
ETHANOL EXPORTS (10 <sup>3</sup> b/d)	29	22	33.9	25	38	-35.5
HYDRATED ETHANOL PRICE (R\$/l)	2.18	2.06	5.5	2.12	2.02	4.8
<b>COAL</b>						
ELECTRICITY GENERATION (MWavg)	2,063	1,327	55.4	2,073	1,382	50.0
IMPORT PRICE (US\$/t)	117.4	146.1	-19.6	115.4	140.8	-18.1
<b>NUCLEAR ENERGY</b>						
ELECTRICITY GENERATION - (GWh)	962	1,176	-18.2	5,171	4,407	17.3
<b>INDUSTRIAL SECTORS</b>						
STEEL PRODUCTION (10 <sup>3</sup> t/day)	92	97	-5.2	93	93	-0.3
ALUMINIUM PRODUCTION (10 <sup>3</sup> t/day)	3.0	3.7	-18.4	3.3	3.8	-13.5
IRON ORE EXPORTS (10 <sup>3</sup> t/day)	717	645	11.1	688	633	8.6
PELLETS EXPORTS (10 <sup>3</sup> t/day)	107	133	-19.7	116	127	-8.7
CEMENT PRODUCTION (10 <sup>3</sup> t/day)	183	192	-4.7	200	187	7.1
PAPER PRODUCTION (10 <sup>3</sup> t/day)	29.7	28.8	3.2	29.3	28.7	2.4
PULP PRODUCTION (10 <sup>3</sup> t/day)	42.0	41.5	1.1	42.3	40.6	4.2
SUGAR PRODUCTION (10 <sup>3</sup> t/day)	22	22	0.0	19	17	11.9
SUGAR EXPORTS (10 <sup>3</sup> t/day)	43	43	0.0	57	61	-7.1

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

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

