

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 monthly and cumulative behavior 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. It 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), or 10 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 firewood tons to toe. The same goes for the other fuels.

Monthly Energy Bulletin - Brazil

Reference Month: November 2014

Domestic Energy Supply

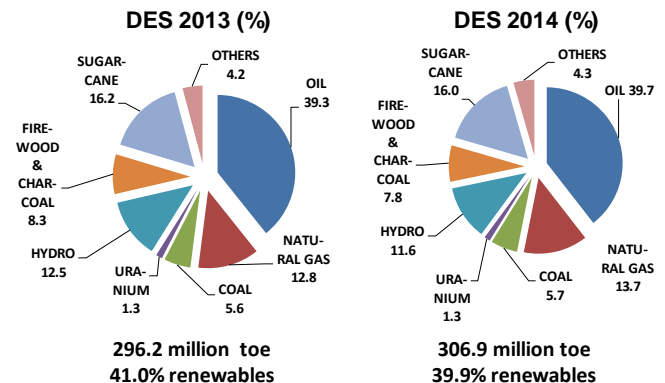
November indicators show slightly higher results for ethanol production and a little lower for oil products, in relation to the indicators up to October. Export products continue with a slight recovery. In the aspect of population welfare, persist the good energy use performance in particular transport and in residential and commercial electricity. In terms of energy supply, continues the decline of hydro generation, which increases the thermal generation and their losses. So, up to November, the available data shows a growth rate of 3.5% on Domestic Energy Supply (DES) (*) over the same period of 2013 (3.6% until October).

Total energy demand in 2014 may grow between 3.0% and 4.0%

For the full year 2014, the estimates for the DES growth remain the same: 3.0% to 4.0%. The reasons are: a) reduction of hydraulic generation and increase in thermal generation and their losses; b) slightly performances of commodities and sugar-alcohol sector; 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 3.6% (3.7% in the previous bulletin), much higher than the 0.2%, expected for GDP. The increase in thermal energy losses accounted for almost 0.8 percentage points of the DES indicator.

Renewable energy sources should maintain its participation near to 40% in the 2014 DES Matrix, but below of 2013 indicator. The higher performances 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 up to November 2014

Oil and Gas Production is upwards

Oil production increased 13.2% in November over the same month in 2013, and 10.7% in the year (including shale oil). The natural gas production increased 16% in November and 12.9% in the year. As a result, external energy dependence over DES is expected to drop from 14% in 2013 to slightly less than 13% in 2014 (ratio of net foreign trade and OIE).

Steel production is slightly up

Up to November, steel production retreated 0.5% (-0.8% until the last month), the aluminum production reduced 25.6% (in continuous decline in the year), iron ore exports grew 2.7% (3.6% in the whole 2013), and pellets exports increased 5.1% in the year (reduction of 8.8% in the entire 2013).

Hydro supply is declining

The hydraulic energy supply fell 10.4% over the same month of 2013, and decreased 0.8% over the previous month. In the year to date, the rate is -4.4%, (-3.8% until October).

Oil products dynamics attenuates

The apparent consumption of petroleum products reduced by 1.6% in November, but accumulates a positive rate of 4.5% in the year date. Diesel oil decreased 3.1% in November, but in the year date, the rate is positive: 1.6%. Gasoline C recoiled by 0.7% in November and accumulates 10% in the year (2.7% in 2013). The total natural gas demand grew 15.7% in November and 9.5% in the year.

The energy use in the Otto Cycle transport (gasoline, ethanol and natural gas) remains high, but declining, with a cumulative growth of 5.9% in the year. The average increase was 6.1% in 2013, and 8.7% in 2012.

Electricity consumption remains weak

Electricity consumption (excluding captive self-producer) grew by 2.3% in November (1.8% in October). In the year, the rate was 2.4% (3.7% until June), already well below the 3.5% recorded in the whole year of 2013. In November, residential consumption grew 6.6%, and commercial consumption, 7.7%. Industrial consumption reduced at an expressive rate of 4.2% in November and accumulates a negative rate of 3.2% in the year. The reduction of 25.6% in the annual aluminum production explains part of the low industrial performance.

Biodiesel production continues in high

Biodiesel production grew up 18.9% in November and 12.4% 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 6.7% in the year to date. The commercial tariff accumulates 8.6% high, and the industrial, 10.7% high.

Basic Data

SPECIFICATION	NOVEMBER						
	IN THE MONTH			ACCUMULATED IN THE YEAR			
	2014	2013	% 14/13	2014	2013	% 14/13	%2014
OIL							
PRODUCTION - with Shale Oil and NGL(10 ³ b/d)	2,463	2,176	13.2	2,324	2,099	10.7	-
IMPORTS AVERAGE PRICE (US\$/bbl FOB)	99	114	-13.3	112	112	-0.2	-
OIL PRODUCTS							
TOTAL CONSUMPTION (10 ³ b/day)	2,823	2,870	-1.6	2,803	2,684	4.5	100.0
hereof: DIESEL with biodiesel - (10 ³ b/day)	1,082	1,116	-3.1	1,067	1,049	1.6	36.1
hereof: GASOLINE C (10 ³ b/day)	741	747	-0.7	757	688	10.0	21.6
CONSUMER PRICE - DIESEL (R\$/l)	2.56	2.33	9.9	2.50	2.31	8.3	-
CONSUMER PRICE - GASOLINE C (R\$/l)	3.01	2.84	5.9	2.97	2.85	4.1	-
CONSUMER PRICE - LPG (R\$/13 kg)	44.6	43.3	2.9	43.1	41.2	4.6	-
NATURAL GAS							
PRODUCTION (10 ⁶ m ³ /day)	91.7	79.1	16.0	86.7	76.8	12.9	-
IMPORTS (10 ⁶ m ³ /day)	53.5	44.7	19.7	52.9	46.5	13.9	-
NON-UTILIZED AND REINJECTION (10 ⁶ m ³ /day)	21.2	16.5	28.0	19.8	13.9	42.6	-
AVAILABILITY FOR CONSUMPTION (10 ⁶ m ³ /day)	124.1	107.3	15.7	119.8	109.4	9.5	100.0
INDUSTRIAL CONSUMPTION (10 ⁶ m ³ /day)	44.2	43.4	1.9	43.2	41.3	4.6	36.0
POWER GENERATION CONS. (10 ⁶ m ³ /day)	48.9	36.6	33.6	47.1	39.3	19.6	39.3
INDUSTRIAL PRICE SP(*) (US\$/MMBtu) - consumption range of 20,000 m ³ /day	15.8	17.0	-7.2	17.3	16.6	4.0	-
MOTOR PRICE SP (US\$/MMBtu)	18.6	18.9	-1.5	19.9	20.4	-2.2	-
RESIDENTIAL PRICE SP (US\$/MMBtu)	46.2	49.3	-6.2	50.1	51.8	-3.4	-
ELECTRICITY							
NATIONAL INTERCONNECTED SYSTEM	66,472	64,764	2.6	64,883	62,685	3.5	100.0
SOUTHEAST/MIDWEST POWER LOAD (MWavg)	39,135	38,800	0.9	38,728	37,838	2.4	59.7
SOUTH POWER LOAD (MWavg)	11,661	10,918	6.8	11,155	10,574	5.5	17.2
NORTHEAST POWER LOAD (MWavg)	10,488	9,957	5.3	9,918	9,676	2.5	15.3
NORTH POWER LOAD (MWavg)	5,188	5,089	1.9	5,028	4,597	9.4	7.7
TOTAL CONSUMPTION (TWh) (**)	40.8	39.9	2.3	43.4	42.4	2.4	100.0
RESIDENTIAL	11.4	10.7	6.6	121.0	114.2	5.9	27.9
INDUSTRIAL	15.1	15.8	-4.2	163.7	169.2	-3.2	37.7
COMMERCIAL	8.0	7.4	7.7	82.0	76.1	7.7	18.9
OTHER SECTORS	6.4	6.1	4.9	67.5	64.5	4.5	15.5
PLANTS ENTRY INTO OPERATING (MW)	520	211	147.0	6,440	5,572	15.6	-
RESIDENTIAL PRICE (R\$/MWh)	474	387	22.7	418	391	6.7	-
COMMERCIAL PRICE (R\$/MWh)	424	340	24.8	368	339	8.6	-
INDUSTRIAL PRICE (R\$/MWh)	384	303	26.8	332	300	10.7	-
ETHANOL AND BIODIESEL							
BIODIESEL PRODUCTION (10 ³ b/d)	66	56	18.9	57	51	12.4	-
MOTOR ETHANOL CONSUMPTION (10 ³ b/d)	424	445	-4.8	423	408	3.8	-
ETHANOL EXPORTS (10 ³ b/d)	19	38	-49.9	24	53	-55.1	-
HYDRATED ETHANOL PRICE (R\$/l)	2.02	1.93	4.3	2.07	1.96	5.3	-
COAL							
ELECTRICITY GENERATION (MWavg)	2,057	1,959	5.0	1,968	1,598	23.1	-
IMPORT PRICE (US\$ FOB/t)	103.7	118.8	-12.7	107.4	134.0	-19.8	-
NUCLEAR ENERGY							
ELECTRICITY GENERATION - (GWh)	1,398	1,433	-2.5	13,866	14,040	-1.2	-
INDUSTRIAL SECTORS							
STEEL PRODUCTION (10 ³ t/day)	92	90	2.4	94	94	-0.5	-
ALUMINIUM PRODUCTION (10 ³ t/day)	2.3	3.4	-31.4	2.7	3.6	-25.6	-
IRON ORE EXPORTS (10 ³ t/day)	714	895	-20.3	787	766	2.7	-
PELLETS EXPORTS (10 ³ t/day)	151	135	12.1	132	126	5.1	-
CEMENT PRODUCTION (10 ³ t/day)	200	202	-1.0	196	194	0.8	-
PAPER PRODUCTION (10 ³ t/day)	28.7	30.0	-4.3	28.6	28.7	-0.4	-
PULP PRODUCTION (10 ³ t/day)	48.3	42.6	13.4	44.8	41.1	9.1	-
SUGAR PRODUCTION (10 ³ t/day)	84	138	-39.0	102	106	-3.7	-
SUGAR EXPORTS (10 ³ t/day)	68	76	-10.2	66	73	-10.4	-

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

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

