

“Statistical Data on Electricity in Italy - 2015”

Summary note

DEMAND FOR ELECTRICITY UP IN 2015: +2.0%

The final data of the 2015 Electricity Report registered a **2.0%** increase in consumption over 2014. The total energy demand in Italy amounted to **316.9** billion kWh.

- ✓ There was an overall increase in **consumption** of 2.1%: agriculture grew by 5.9%, tertiary industry by 4.0%, domestic consumption by 3.0%, while the only sector in which a slight drop was recorded was industry which fell by 0.1%.
- ✓ **Generation**: the share of renewable energies fell to 34.4% (38.9% in 2014). Gross production of electricity from renewable sources decreased by 9.8% down to 108.9 billion kWh. Gross photovoltaic energy production continued to grow (+2.9%) as did bioenergies (+3.5%). Geothermal production also increased (+4.5%), while a sharp drop was recorded in renewable hydroelectric generation (-22.2%) and a slight drop in wind power (-2.2%). Among fuels, natural gas was again the most used, at 59.1% of total thermoelectric production.
- ✓ Power stations: the total **power** fell compared to the previous year (-3.9% compared to 2014); this decrease was due to thermoelectric plants for which 5,666 MW in less than in 2014 was recorded (-7.9%). The increase in photovoltaic power is instead continuing, with around 1.6% more than in 2014.
A new record was set for the maximum peak which on 22 July 2015 at 15:00 reached 60,491 MW.
- ✓ **Regions**: 13 out of 20 recorded a production deficit compared with consumption.
- ✓ **Electricity grid**: at the end of 2015 Rete Ferroviaria Italiana (RFI), the Italian Railway Grid, was integrated into Terna.

• Consumption

Overall increase in consumption (demand net of grid losses) of 2.1%.

The distribution of electricity consumption by economic sector recorded a **substantially stable trend in the consumption of industry** (see **Annex 1**), -0.1% from 2014. A significantly smaller decline was in fact recorded compared to the previous two years (the decline was 1.9% between 2013 and 2014). With a consumption of 122.4 billion kWh, the industrial sector accounted for 41.2% of total Italian electricity consumption in 2015 (42.1% in 2014). **There was a positive change compared to 2014 for the other three sectors** which recorded a turnaround with respect to the two previous years: **Domestic consumption up by 3.0%** (between 2013 and 2014 it fell by 4.1%), **Agriculture up 5.9%** (between 2013 and 2014 it fell by 5.4%) **and Tertiary Sector up 4.0%** with 102.9 billion kWh (between 2013 and 2014 the drop was 0.8%).

- **Production**

Renewable energies declined (-9.8%), while natural gas ranked once again at the top in thermoelectric production (59.1%). There was a significant drop in gross hydroelectric generation, down to 47.0 billion kWh (-22.1%).

In 2015, **85.4% of electricity demand was met by national production**, equivalent to 270.5 billion kWh an increase of 1.4% over 2014. The remaining part of this demand was covered by **net imports from other countries**, amounting to 46.4 billion kWh, 6.1% more than the previous year (see **Annex 1**).

With specific regard to national production, **2015 recorded a decrease in renewable energy sources** out of gross domestic electricity consumption of **9.8%**. Responsible for this drop was renewable hydroelectric production which fell to 45.5 billion kWh (-22.2%) and gross wind production which fell to 14.8 billion kWh (-2.2%); bucking the trend was gross photovoltaic production, which reached 22.9 billion kWh (+2.9%), production from bioenergies that reached 19.4 billion kWh (+3.5%) and geothermoelectric production with 6.2 billion kWh (+4.5%).

There was a turnaround compared to the previous two years for hydro and thermal production, which respectively account for 17.1% and 67.1% of net national production; hydroelectric production fell in fact by 22.0% (it increased by 10.2% in the two years 2013-2014), while thermoelectric production increased by 9.4% (it dropped by 8.9% in the two years 2013-2014).

Of the fuels employed for thermoelectric production, **natural gas was again the most used**: the electricity generated using natural gas amounted to 108.1 billion kWh, equivalent to **59.1% of total thermoelectric production** (up by 18.7% over 2014). It was followed by coal with a 21.5% share (39.3 billion kWh, down by 0.3% from 2014) (see **Annex 2**).

- **Power**

Power decreased over 2014, falling by 4,792 MW (-3.9%).

In 2015, in terms of installed power, net efficient power generation amounted to 116,955 MW, with a **reduction of 4,792 MW** (-3.9% compared to 2014). The drop was due to the decommissioning that occurred in the thermoelectric sector of 5,666 MW (-7.9% compared to 2014); there was instead an increase in the photovoltaic sector, which generated 298 MW more (+1.6%), in the wind sector with 454 MW more (+5.2%) and in hydroelectric sector with 122 MW more (+0.6%).

New record: the peak demand in 2015 was 60,491 MW

Peak demand in 2015 was registered at 15:00 on July 22, when the load reached **60,491 MW**, a new record for the Italian electricity system, up by 17.3% compared to the 2014 peak (51,550 MW) and higher than the previous record of 56,822 MW reached on 12 December 2007.

- **Regions**

13 out of 20 recorded a production deficit

In 2015 **13 out of 20 Italian regions (12 in the previous four years)** recorded a production **deficit** compared with demand. In percentage terms, the **Marche** region had the largest deficit (**68.5%**), followed by **Umbria (56.2%)** and **Campania (47.2%)** (see **Annex 3**).

Among the **7 regions with a surplus**, **Valle d'Aosta** recorded **232.5%**, **Calabria 124.9%** and **Puglia 95.5%**.

Of the overall demand of 316.9 billion kWh, the **North accounted for 55.7%**, the **Centre for 18.1%** and the **South for 26.2%**. In absolute terms, **Lombardy** was the region with the highest electricity demand in 2015: 67.3 billion kWh (**21.2% of the total**); it was followed by the **Veneto** (30.6 billion kWh, equivalent to 9.7% of the total) and **Emilia Romagna** (28.9 billion kWh, equivalent to 9.1% of the total). **Per-capita electricity consumption** amounted to 4,896 kWh in 2015 (v. 4,790 kWh in 2014), of which 1,090 kWh for domestic use. Per-capita consumption was highest in northern Italy (6,096 kWh/inh.) compared to central Italy (4,425 kWh/inh.) and southern Italy (3,572 kWh/inh.).

- **The electricity grid**

Integration at the end of 2015 of Rete Ferroviaria Italiana (RFI), the Italian Railway Grid

As regards the Italian electricity grid, at the end of 2015 Rete Ferroviaria Italiana (RFI), the Italian Railway Grid, was integrated into Terna. At 31 December 2015 **the total number of 857 plants included the 350 former RFI substations**. The **transformation power** installed at 31 December 2015 was **137,578 MVA, of which 825 MVA ex RFI**. As regards **power lines** at voltage 380 and 220 kV at the end of 2015 the total extension was 22,080 km of three-phase power line. At lower voltage levels (150-120 kV and less than 120 kV) belonging to the NTG, 48,895 km of three-phase power lines are present and of these 8,682 km are ex RFI.

For more details and information, please refer to the full version of the annual report "Statistical data on electricity in Italy - 2015", available at www.terna.it and www.ternareteitalia.it, under "ELECTRIC SYSTEM – STATISTICAL DATA AND FORECASTS – Statistical Data".

Annex 1

Annual Report on Electricity in Italy - 2015

GWh*	2014	2015	2015/2014
Net production	269,147.87	272,428.18	1.2%
- Hydropower	59,574.94	46,450.42	-22.0%
- Thermoelectric	167,080.22	182,860.62	9.4%
- Geothermal	5,566.62	5,823.86	4.6%
- Wind power	15,088.63	14,705.77	-2.5%
- Photovoltaic	21,837.47	22,587.51	3.4%
For pumping	2,329.05	1,909.14	-18.0%
Production for consumption	266,818.82	270,519.04	1.4%
Electricity imported	46,747.52	50,848.55	8.8%
Electricity exported	3,031.14	4,470.77	47.5%
DEMAND	310,535.20	316,896.82	2.0%
Grid losses	19,451.74	19,716.89	1.4%
CONSUMPTION	291,083.46	297,179.93	2.1%
Agriculture	5,372.07	5,689.89	5.9%
Industry	122,505.00	122,362.32	-0.1%
Tertiary	98,951.41	102,940.46	4.0%
Domestic	64,254.98	66,187.25	3.0%

*1 GWh = 1 million kWh

Annex 2

Main energy sources by net thermoelectric production (GWh *)

	2014	2015	2015/2014
Solids (coal, lignite)	39,428.6	39,315.5	-0.29%
Natural gas (mainly methane)	91,066.8	108,135.4	18.74%
Petroleum (heating oil, etc...)	4,271.8	5,093.5	19.24%
Derived gas (blast furnace gas, etc.)	2,897.6	2,094.7	-27.71%
Other fuels (Syngas, USW, biomass, etc.)	21,119.5	20,031.3	-5.15%
Other fuels (biogas, etc.)	7,660.3	7,652.1	-0.11%
Other energy sources	635.7	538.1	-15.35%

* 1 GWh = 1 million kWh

Annex 3

Electricity by Region - 2015

	Consumption (GWh*)	Production (GWh*)	Surplus (prod./cons.)	Deficit (prod./cons.)
Valle d'Aosta	1,042.1	3,465.0	232.5%	
Calabria	6,415.5	14,429.6	124.9%	
Puglia	18,647.6	36,447.3	95.5%	
Molise	1,383.5	2,279.5	64.8%	
Trentino Alto Adige	6,712.2	10,778.6	60.6%	
Sardinia	8,869.5	11,618.9	31.0%	
Sicily	19,535.1	21,708.6	11.1%	
Marche	7,447.6	2,344.8		-68.5%
Umbria	5,511.1	2,412.1		-56.2%
Campania	18,552.5	9,789.5		-47.2%
Veneto	30,636.6	17,937.1		-41.5%
Emilia Romagna	28,918.7	17,439.7		-39.7%
Lombardy	67,281.3	40,641.2		-39.6%
Tuscany	20,847.8	15,299.3		-26.6%
Basilicata	3,137.2	2,349.2		-25.1%
Abruzzi	6,478.8	4,863.8		-24.9%
Lazio	23,632.1	18,409.4		-22.1%
Friuli Venezia Giulia	10,001.5	8,044.5		-19.6%
Liguria	6,210.7	5,462.9		-12.0%
Piedmont	25,635.5	24,797.8		-3.3%
ITALY	316,896.8	270,519.0		-14.6%

* GWh = 1 million kWh