Terna
Driving Energy

Monthly Report on the Electricity System
July 2024

1 Energy Balance Sheets

page 5

In July, electricity demand was 31,297 GWh, an increase compared to the same month of the previous year (+4.5%) and compared to July 2022 (+0.9%). There was also a drop in foreign exchange (-1.5%) compared to the same month of 2023.
In 2024, electricity demand (182,901 GWh) was higher compared to the same period in 2023 (+1.7%) but was lower compared to the cumulative figure for 2022 (-3.8%).
The value of electricity demand was achieved with two more working days (23 vs 21) and with an average temperature similar to that of July last year. The adjusted value takes the drop to +2.6%. The annual trend of July 2024 (compared to July 2023) for the industrial electricity consumption index was positive (+3.5%) with raw data.

2 Electricity System

page 14

In July 2024, 42.2% of the electricity demand was met via production from Non-Renewable Energy Sources, 44.2% via Renewable Energy Sources and the remainder via foreign exchange. In July, production from Renewable Energy Sources increased (+21.4%) compared to the same month of the previous year. In 2024 the operating capacity of renewables increased by 4,282 MW. This value is 1,208 MW higher (+39%) compared to the same period of the previous year. In the first seven months of 2024, PV operating capacity increased by 3,853 MW. During the same period of 2024 the increase was 2,728 MW, recording an increase of 1,125 MW (+41%). In the first seven months of 2024, operating wind capacity increased by 443 MW. During the same period of 2023, the increase was 335 MW, which is an increase of 108 MW (+32%).

3 Electricity Market

page 19

The July total for withdrawal programmes on the DAM was approximately € 3.1 Bn, (+33% compared to the previous month and +3% compared to July 2023).
In July 2024, the spread between average bid-up and bid-down prices on the MSD was €106/MWh, (+5% compared to the previous month and -10% compared to July 2023). Total volumes increased compared to the previous month (+22%).
In July 2024, the spread between bid-up and bid-down prices on the Balancing Market was 138 €/MWh (-11% compared to the previous month and +7% compared to July 2023). Total volumes increased compared to the previous month (+41%).

Monthly Summary and Short-Term Analysis

In July, electricity demand was 31,297 GWh, an increase compared to the same month of the previous year (+4.5%) and compared to July 2022 (+0.9%). There was also a decrease in foreign exchange (-1.5%) with the same period of 2023.
In 2024, electricity demand (182,901 GWh) was higher compared to the same period in 2023 (+1.7%) but was lower compared to the cumulative figure for 2022 (-3.8%).

Demand breakdown – coverage by sources

[GWh]	Jul 2024	Jul 2023	% 24/23	Jan-Jul 24	Jan-Jul 23	% 24/23
Renewable Hydro	6,104	4,402	38.7%	32,031	20,136	59.1%
Pumping Production(2)	99	104	-4.7%	941	909	3.5%
Thermal	14,598	15,608	-6.5%	80,653	95,001	-15.1%
of which Biomass	*1,367*	*1,342*	*1.8%*	*9,068*	*8,825*	*2.8%*
of which Hard Coal	*263*	*1,041*	*-74.8%*	*2,085*	*9,073*	*-77.0%*
Geothermal	448	445	0.7%	3,102	3,099	0.1%
Wind	1,191	1,347	-11.6%	13,807	12,722	8.5%
Photovoltaic	4,735	3,868	22.4%	22,338	18,857	18.5%
Net Total Production	**27,175**	**25,774**	**5.4%**	**152,872**	**150,724**	**1.4%**
Pumping	**141**	**148**	**-4.7%**	**1,345**	**1,299**	**3.5%**
Net Total Production for Consumption	**27,034**	**25,626**	**5.5%**	**151,527**	**149,425**	**1.4%**
of which RES (3)	*13,845*	*11,404*	*21.4%*	*80,346*	*63,639*	*26.3%*
of which not RES	*13,189*	*14,222*	*-7.3%*	*71,181*	*85,786*	*-17.0%*
Import	4,862	4,651	4.5%	33,970	32,286	5.2%
Export	599	323	85.4%	2,596	1,855	39.9%
Net Foreign Exchange	**4,263**	**4,328**	**-1.5%**	**31,374**	**30,431**	**3.1%**
Electricity demand(1)	**31,297**	**29,954**	**4.5%**	**182,901**	**179,856**	**1.7%**

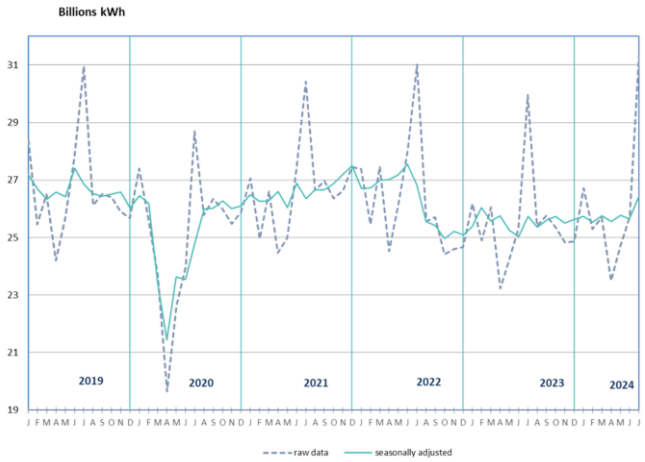
(1) Electricity Demand = Net Total Production for Consumption + Foreign Balance
(2) Pumping production is calculated assuming theoretical efficiency during the pumping phase
(3) RES Production = Renewable Hydro + Biomass + Geothermal + Wind + Photovoltaic -

Source: Terna

In July 2024, renewable hydroelectric production (+38.7%) and photovoltaic production (+22.4.%) were up, while wind production (-11.6%) and thermoelectric production were down (-6.5%) compared to the same month the previous year.
In 2024, there was a change in exports, which increased (+39.9%) compared to 2023. The trend in total net production for consumption in July was up (+5.5%) compared to the same month in 2023

The value of electricity demand was achieved with two more working days (23 vs 21) and with an average temperature similar to that of July last year. The adjusted value takes the drop to +2.6%.
In the first seven months of the year national demand increased by 1.7% compared to the corresponding period of 2023 (+0.9% adjusted value).
The short-term data, adjusted for seasonal, calendar and temperature effects, recorded an increase in July 2024 compared to June (+3.0%).

Demand – seasonality adjusted



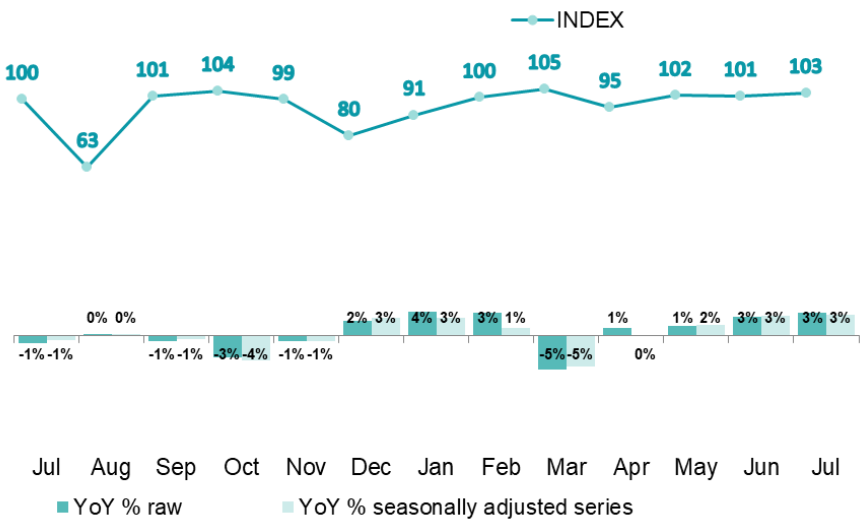
Source: Terna

The value, adjusted for seasonal, calendar and temperature effects, shows positive cyclical change (+3.0%)

IMCEI

The annual trend for July 2024 (compared to July 2023) was up (+3.5%) based on raw data. Using data adjusted for calendar differences, the change is +3.1%. In the first seven months of the year, the index rose (+1.3%).

IMCEI short-term analysis (2015 base = 100)

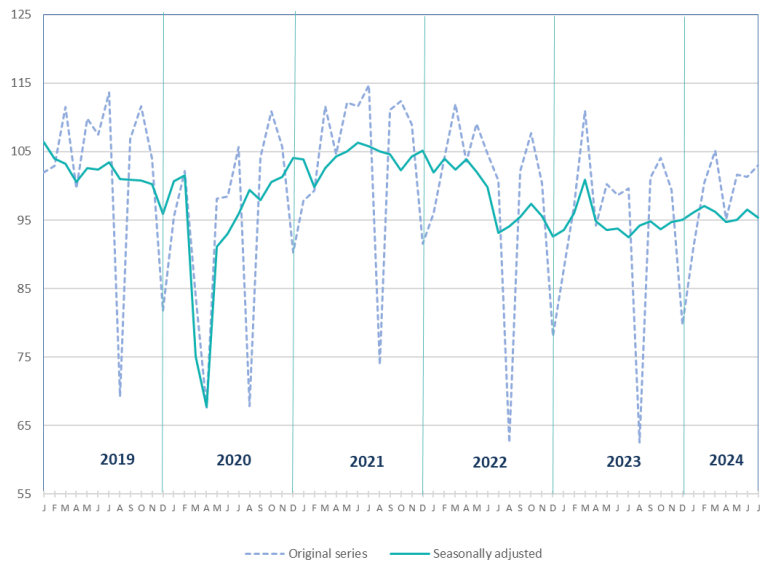


In July, the variation in the monthly index of Italian electricity consumption was positive, compared to July 2023

Source: Terna

The short-term data, adjusted for seasonal and calendar effects, showed a decrease in the industrial electricity consumption index in July 2024 (-1.3%) compared to June.

Monthly Industrial Electrical Consumption Index - IMCEI (2015 base = 100)



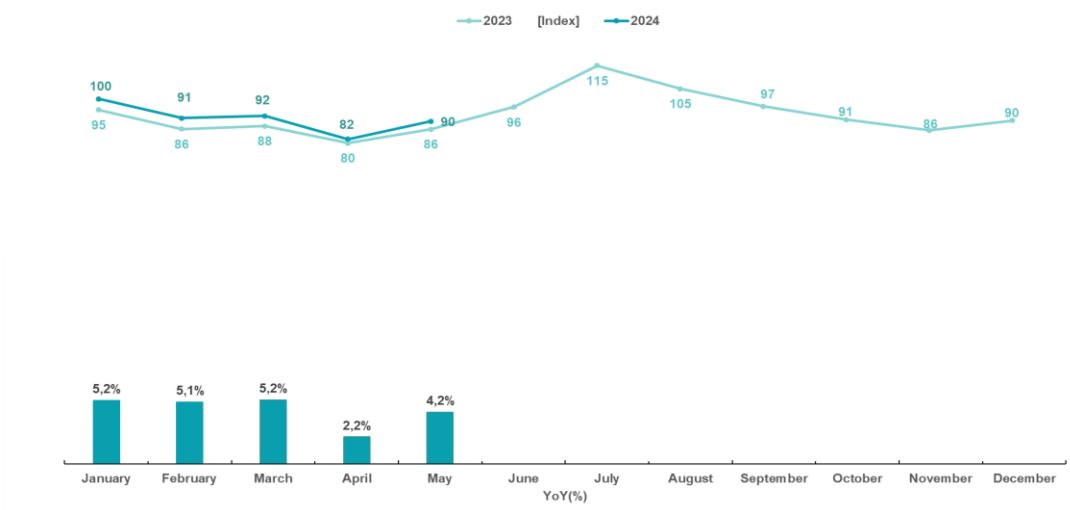
When adjusted for seasonal and calendar effects, the monthly figure for July was negative compared to the previous month

Source: Terna

IMSER

The annual trend of May 2024 (compared to May 2023) increased by +4.2% with raw data. In the period January-May 2024, electricity consumption in the services sector had increased overall by +4.4% compared to 2023.

Monthly Service Sector Consumption Index (basis 2019 = 100)

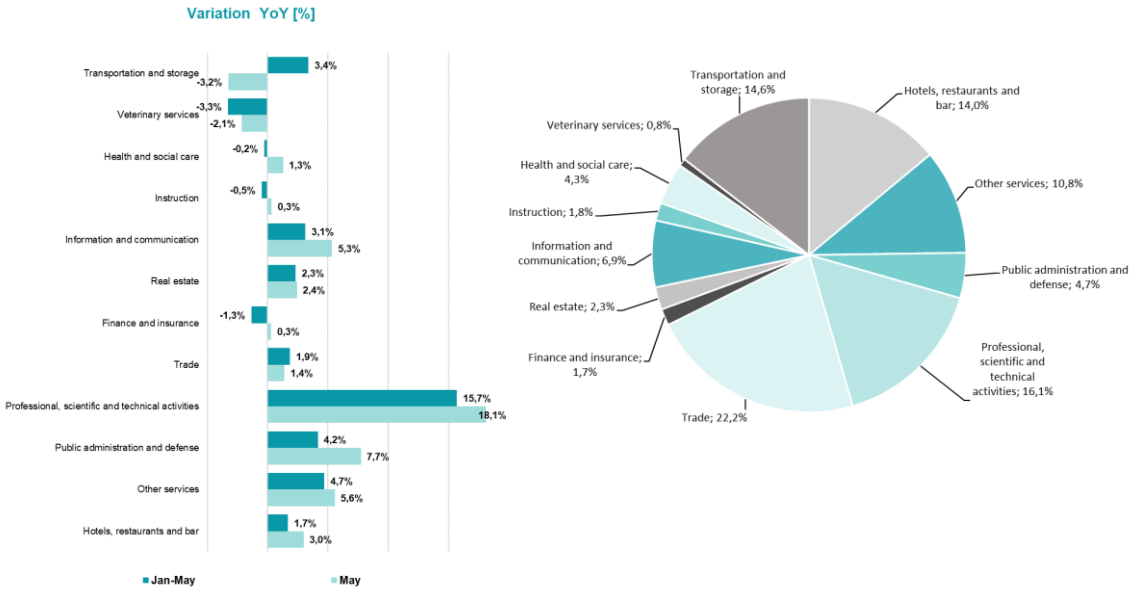


In May, the change in the monthly index of Italian electricity consumption for the services sector was positive (+4.2%) compared to May 2023

Source: Terna elaboration of data based on a sample of distributors

In detail, there was an increase in the following categories in May 2024: Other services, Public administration and defence, Professional, scientific and technical services, Trade, Real estate, Information and communication, Education, Hotels, restaurants and bars, Finance and insurance, Health and social care. Transportation and storage and healthcare services decreased.
In the first five months of the year 2024, the categories of Finance and insurance, Education, Health and social care, and Veterinary services decreased compared to 2023. There was an increase in all the other sectors.

IMSER sector analysis (basis 2019 = 100) - YOY change and annual cumulative contribution of the sectors



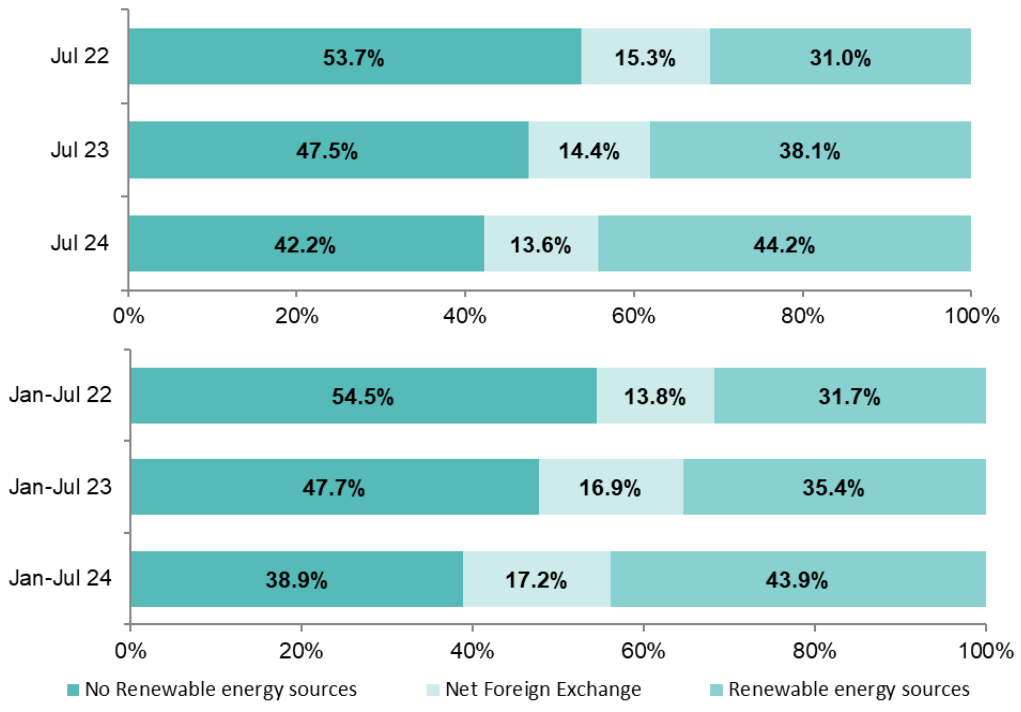
The cumulative figure for January-May 2024 was up by +4.4% compared to the same period in 2023

Source: Terna elaboration of data based on a sample of distributors

Energy Demand Mix

In July 2024, 42.2% of the electricity demand was met by production from Non-Renewable Energy Sources, 44.2% from Renewable Energy Sources and the remainder via foreign exchange.
In 2024, electricity demand was 182,901 GWh, 38.9% of which was met via production from Non-Renewable Energy Sources, 43.9% from Renewable Energy Sources and the remainder from the foreign balance.

Demand breakdown – coverage by sources

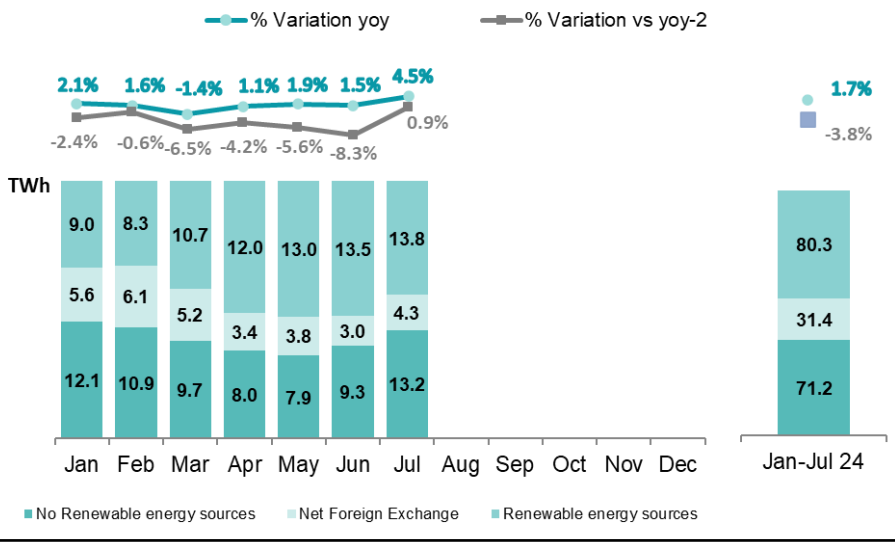


Coverage of demand from renewable sources grew from 38.1% in July 2023 to 44.2% in July 2024.

In 2024 coverage of demand from non-renewables fell from 47.7% in 2023 to 38.9% in 2024

Source: Terna

2024 trend in demand breakdown and difference from 2023 and 2022



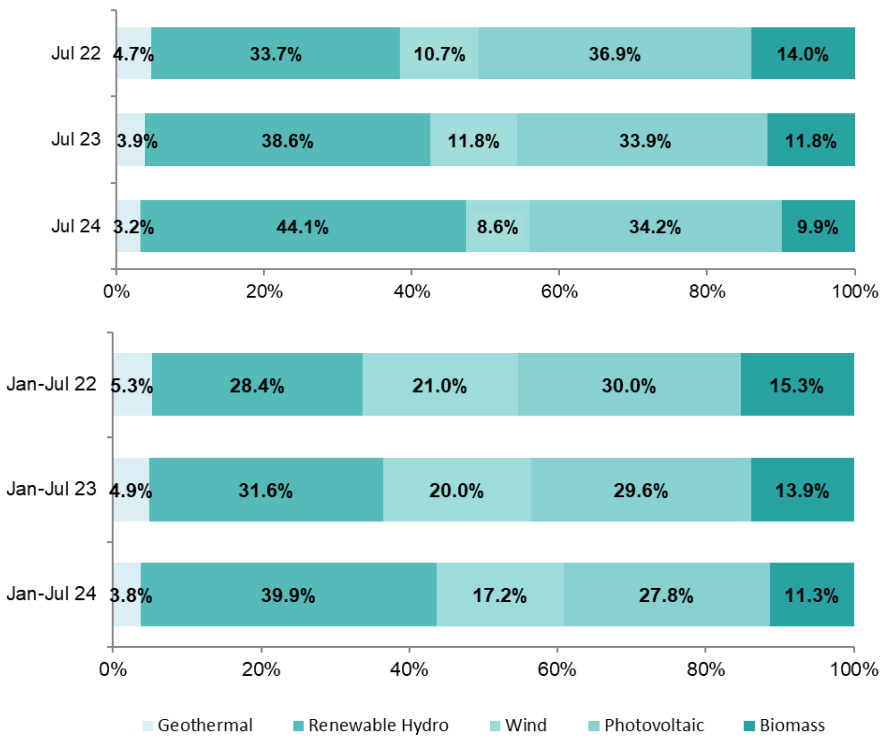
In 2024, electricity demand on the grid is higher than 2023 (+1.7%) and down compared to the cumulative figure for 2022 (-3.8%).
In 2024, energy production from renewable sources totalled 80.3 TWh, an increase compared to 2023 (+26.3%)

Source: Terna

Details of Renewable Energy Sources

In July, production from Renewable Energy Sources increased (+21.4%) compared to the same month of the previous year. Specifically, there was an increase in renewable hydroelectric production (+38.7%) and photovoltaic production (+22.4%) and a decrease in wind production (-11.6%).

RES Production - Breakdown

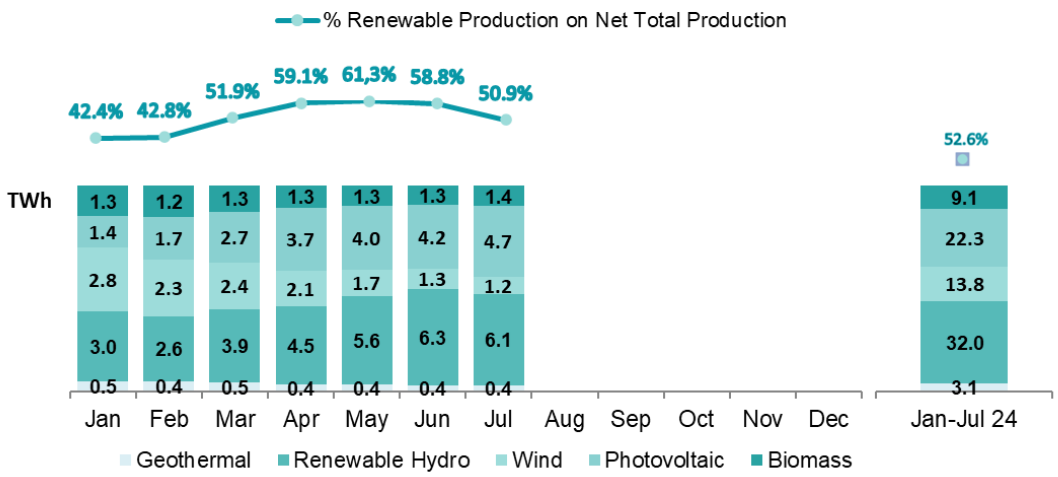


In July 2024, the greater contribution of renewable energy sources to the total is attributed to renewable hydroelectric production (44.1%) and photovoltaic production (34.2%)

In 2024 the ratio of renewable hydroelectric production increased while the contribution from the other sources decreased overall compared to 2023

Source: Terna

2024 trend in net production from RES and difference from 2023



In July 2024, production from RES represented 50.9% of total net national production, an increase compared to the same month in 2023 (44.2%). In 2024, production from RES represented 52.6% of total net national production, an increase compared to the cumulative figure for 2023 (44.2%)

Source: Terna

Historical Energy Balance Sheets

In 2024, total net production allocated for consumption (151,527 GWh) met 82.9% of national electricity demand (182,901 GWh).

2024 Historical Monthly Energy Balance Sheet

[GWh]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Renewable Hydro	3,033	2,606	3,855	4,534	5,586	6,314	6,104						32,031
Pumping Production [2]	64	106	158	214	172	130	99						941
Thermal	13,496	12,178	11,128	9,378	9,299	10,576	14,598						80,653
of which Biomass	*1,332*	*1,231*	*1,343*	*1,264*	*1,277*	*1,256*	*1,367*						*9,068*
of which Hard Coal	*345*	*467*	*243*	*268*	*245*	*254*	*263*						*2,085*
Geothermal	458	432	460	438	442	424	448						3,102
Wind	2,802	2,295	2,414	2,091	1,678	1,336	1,191						13,807
Photovoltaic	1,371	1,714	2,672	3,703	3,990	4,153	4,735						22,338
Net Total Production	**21,224**	**19,331**	**20,687**	**20,357**	**21,166**	**22,932**	**27,175**						**152,872**
Pumping	**92**	**151**	**226**	**305**	**245**	**185**	**141**						**1,345**
Net Total Production for Consumption	**21,132**	**19,180**	**20,461**	**20,052**	**20,921**	**22,747**	**27,034**						**151,527**
of which RES [3]	*8,995*	*8,278*	*10,743*	*12,029*	*12,973*	*13,483*	*13,845*						*80,346*
of which not RES	*12,137*	*10,902*	*9,718*	*8,023*	*7,948*	*9,264*	*13,189*						*71,181*
Import	5,868	6,258	5,424	3,805	4,183	3,570	4,862						33,970
Export	279	145	187	365	406	615	599						2,596
Net Foreign Exchange	**5,589**	**6,113**	**5,237**	**3,440**	**3,777**	**2,955**	**4,263**						**31,374**
Electricity demand [1]	**26,721**	**25,293**	**25,698**	**23,492**	**24,698**	**25,702**	**31,297**						**182,901**

Source: Terna

In 2024, net total production was up (+1.4%) compared to the same period in 2023, and peak electricity demand was reached in July, with 31,297 GWh.

The developments in the monthly balance sheet for 2023 are provided below.

2023 Historical Monthly Energy Balance Sheet

[GWh]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Renewable Hydro	2,053	1,530	1,604	1,524	4,145	4,878	4,402	3,884	3,546	3,269	4,125	3,284	38,244
Pumping Production [2]	135	99	172	168	136	95	104	160	100	137	129	95	1,530
Thermal	15,618	14,756	14,633	11,240	10,890	12,256	15,608	12,365	13,529	12,763	11,269	13,007	157,934
of which Biomass	*1,366*	*1,200*	*1,349*	*1,135*	*1,201*	*1,233*	*1,342*	*1,317*	*1,273*	*1,274*	*1,207*	*1,212*	*15,108*
of which Hard Coal	*2,294*	*1,868*	*1,881*	*202*	*560*	*1,226*	*1,041*	*662*	*914*	*461*	*579*	*419*	*12,108*
Geothermal	458	414	442	442	462	436	445	439	445	462	444	458	5,347
Wind	2,281	1,816	2,561	2,164	1,519	1,034	1,347	1,735	1,645	1,863	2,968	2,441	23,374
Photovoltaic	1,092	1,721	2,635	3,098	2,928	3,515	3,868	3,738	2,991	2,277	1,534	1,198	30,595
Net Total Production	**21,637**	**20,336**	**22,047**	**18,636**	**20,080**	**22,214**	**25,774**	**22,321**	**22,256**	**20,770**	**20,469**	**20,483**	**257,023**
Pumping	**193**	**142**	**246**	**240**	**194**	**136**	**148**	**228**	**143**	**195**	**184**	**136**	**2,185**
Net Total Production for Consumption	**21,444**	**20,194**	**21,801**	**18,396**	**19,886**	**22,078**	**25,626**	**22,093**	**22,113**	**20,575**	**20,285**	**20,347**	**254,838**
of which RES [3]	*7,250*	*6,680*	*8,591*	*8,363*	*10,255*	*11,096*	*11,405*	*11,113*	*9,900*	*9,145*	*10,278*	*8,593*	*112,668*
of which not RES	*14,194*	*13,514*	*13,210*	*10,033*	*9,631*	*10,982*	*14,221*	*10,980*	*12,213*	*11,430*	*10,007*	*11,754*	*142,170*
Import	5,080	4,943	4,445	5,006	4,615	3,546	4,651	3,657	3,908	4,987	4,810	4,924	54,572
Export	352	233	188	170	275	314	323	338	248	211	266	402	3,320
Net Foreign Exchange	**4,728**	**4,710**	**4,257**	**4,836**	**4,340**	**3,232**	**4,328**	**3,319**	**3,660**	**4,776**	**4,544**	**4,522**	**51,252**
Electricity demand [1]	**26,172**	**24,904**	**26,058**	**23,232**	**24,226**	**25,310**	**29,954**	**25,412**	**25,773**	**25,351**	**24,829**	**24,869**	**306,090**

Source: Terna

In 2023, the month with the highest demand for electricity was July, with 29,954 GWh

(1) Electricity Demand = Net Total Production for Consumption + Foreign Balance
(2) Pumping production is calculated assuming theoretical efficiency during the pumping phase
(3) RES Production = Renewable Hydro + Biomass + Geothermal + Wind + Photovoltaic

Demand by Operational Area

In July 2024, demand increased in the Northern zone (TO-MI-VE), in the Southern zone (NA), and in the Centre (RM-FI) and decreased on the Islands (PA-CA) compared to the same period of the previous year.

Demand by Operational Area

[GWh]	Turin	Milan	Venice	Florence	Rome	Naples	Palermo	Cagliari
July 2024	3,041	6,309	4,725	5,020	4,451	4,865	2,042	844
July 2023	2,853	5,914	4,307	4,699	4,404	4,798	2,127	852
% July 24/23	6.6%	6.7%	9.7%	6.8%	1.1%	1.4%	-4.0%	-0.9%
Cumulated 2024	18,336	37,241	28,551	29,800	25,931	26,761	11,295	4,986
Cumulated 2023	17,960	37,268	27,497	28,870	25,627	26,447	11,253	4,934
% Cumulated 24/23	2.1%	-0.1%	3.8%	3.2%	1.2%	1.2%	0.4%	1.1%

In 2024, the Y-o-Y percentage change in demand is 2.3% in the Centre, 1.7% in the North, 1.2% in the South and 0.6% for the Islands.

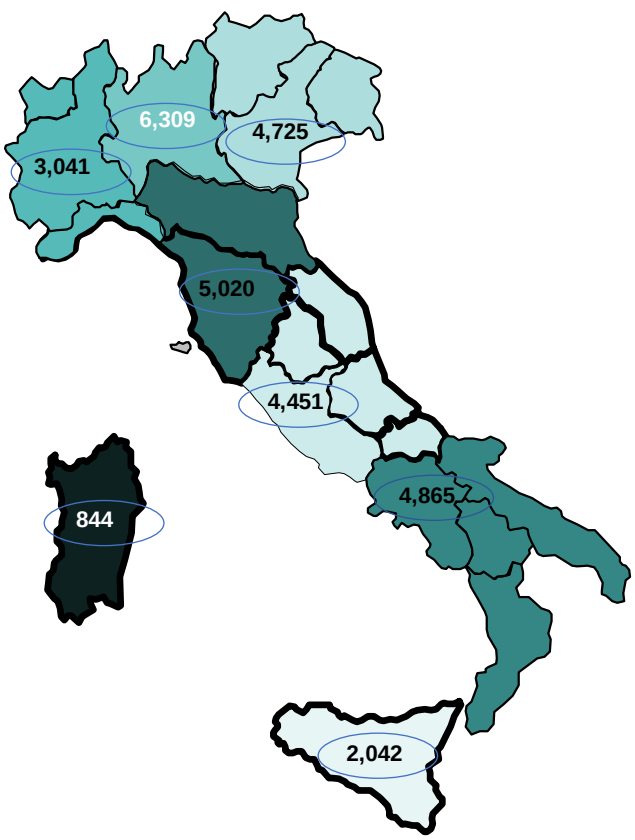
Source: Terna

Demand by Operational Area – Map Chart

[GWh]

The regions are combined in clusters on the basis of production and consumption:

- TURIN: Piedmont - Liguria - Valle d'Aosta
- MILAN: Lombardy (*)
- VENICE: Friuli Venezia Giulia - Greater Venice - Trentino Alto Adige
- FLORENCE: Emilia Romagna (*) - Tuscany
- ROME: Lazio - Umbria - Abruzzo - Molise - April
- NAPLES: Campania - Apulia - Basilicata - Calabria
- PALERMO: Sicily
- CAGLIARI: Sardinia



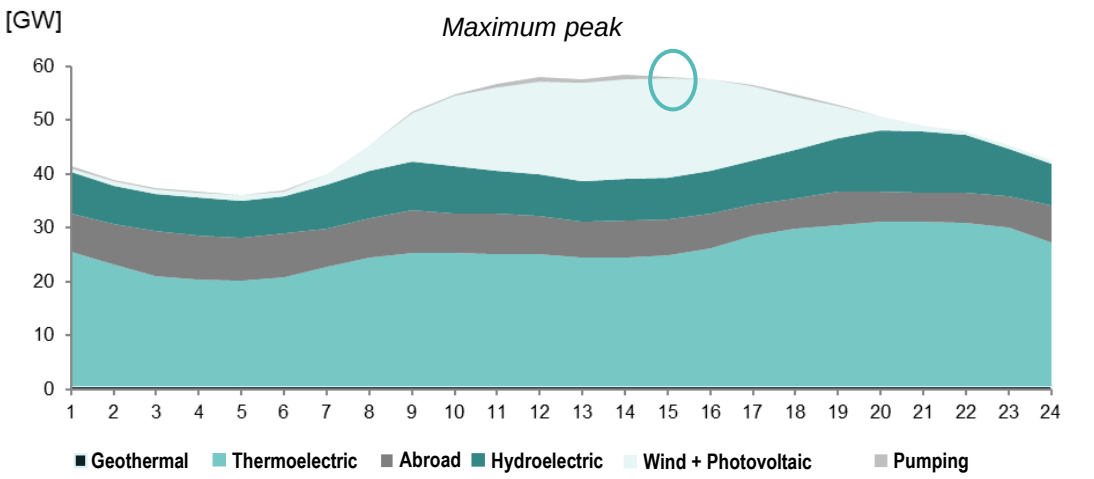
Source: Terna

(*) In these two regions, the geographical borders do not correspond to the electrical borders. Lombardy includes production plants that are part of the geographical administrative territory of Emilia Romagna.

Peak Demand

In July 2024, peak demand was recorded on **Friday 19 July, 14:00-15:00** and was 57,869 MW (-1.1% Y-o-Y). The hourly demand diagram of the peak day is presented below.

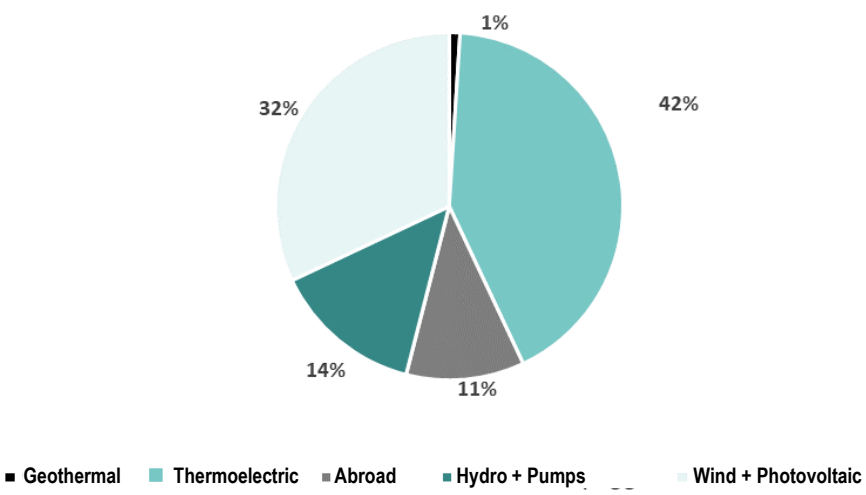
Peak Demand



Source: Terna

At peak, the contribution from thermal production was 24,319 MW, down -21.6% compared to the contribution from thermal production at the July 2023 peak (31,024 MW)

Coverage of demand – 19 July 2024 14:00-15:00



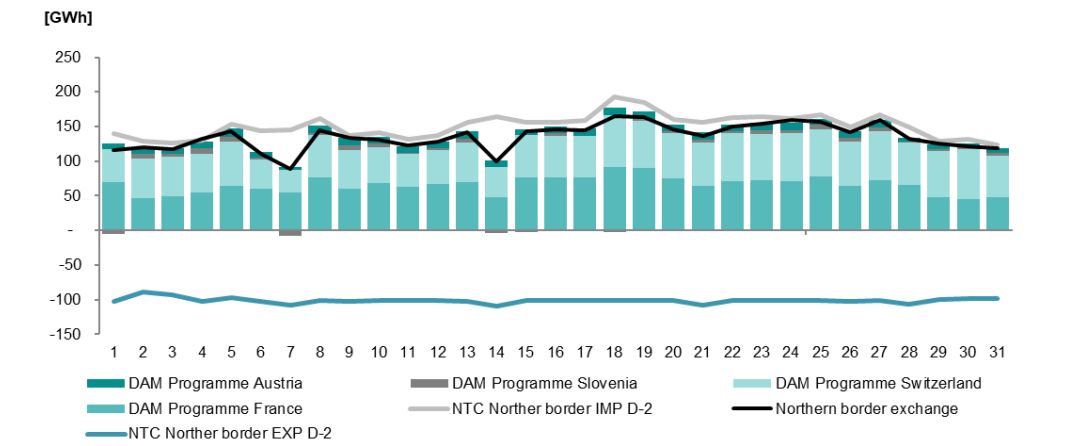
Source: Terna

At its peak, production from wind and photovoltaic sources contributed to covering 32% of demand, with thermal production covering 42% and foreign exchange covering 11%.

Net Foreign Exchange – July 2024

In July, there was good saturation of the planned figure for imported NTC compared to the exchange programmes on the Northern border.

Net Foreign Exchange on the Northern border



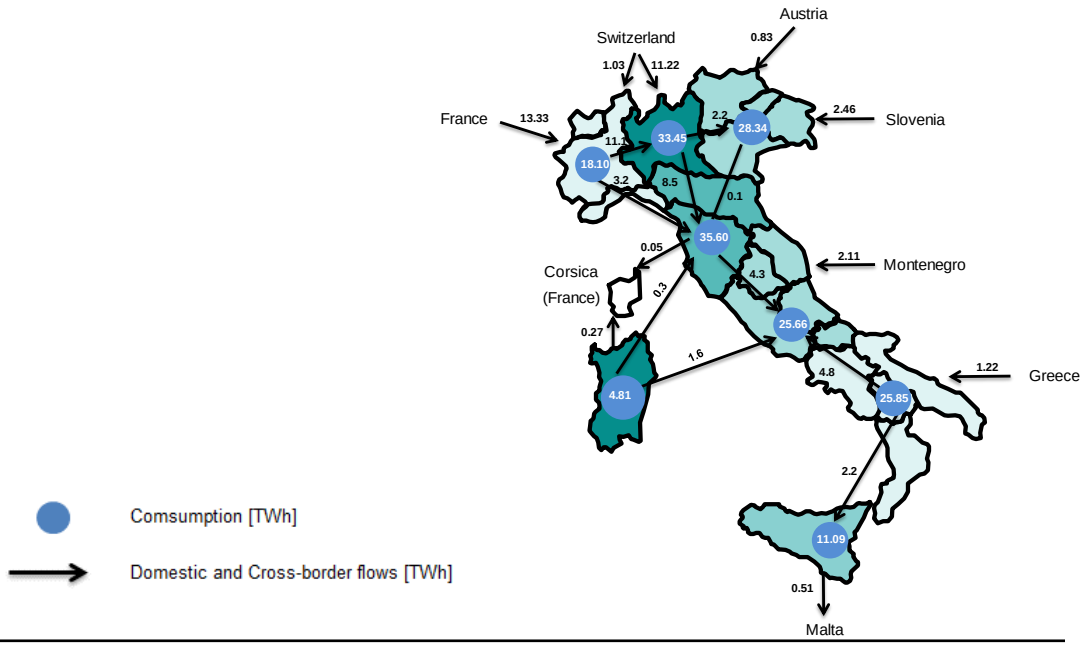
In July 2024, imports increased Y-o-Y (+4.5%) amounting to 4,862 GWh and exports increased Y-o-Y (+85.4%), amounting to 599 GWh

Source: Terna

Balance of Physical Exchanges – Annual Cumulative Figure

The balance of physical electricity exchanges mainly shows the energy flows among the various areas identified in the Italian electricity system.

Balance of physical electricity exchanges: map



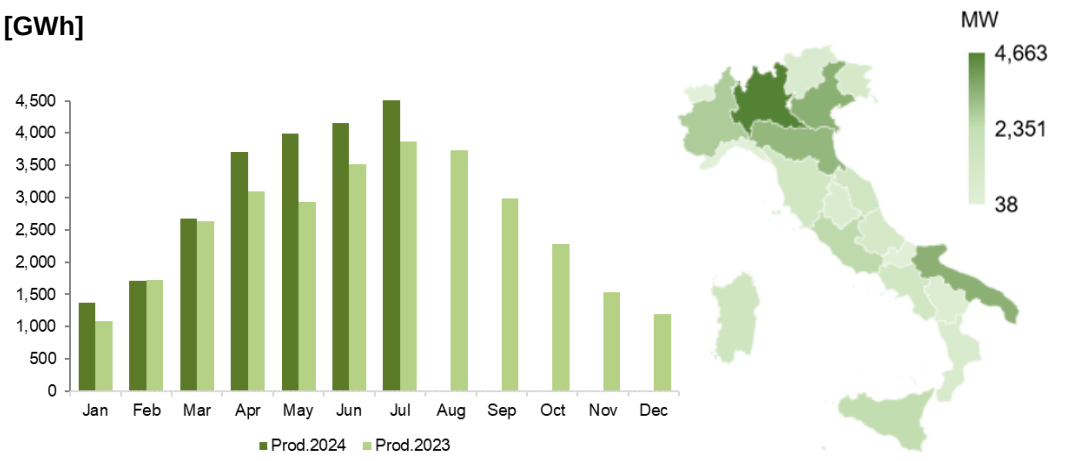
In 2024, a net exchange was recorded from the Northern zone to Emilia Romagna and Tuscany of 11.8 TWh. The mainland recorded a net exchange towards Sicily of 2.2 TWh.

Source: Terna

Production and Installed Capacity

Energy produced from photovoltaic sources in July 2024 reached 4,735 GWh, an increase compared to the same month of the previous year (+867 GWh).

Photovoltaic production (left) and distribution of operating capacity[1] (right)



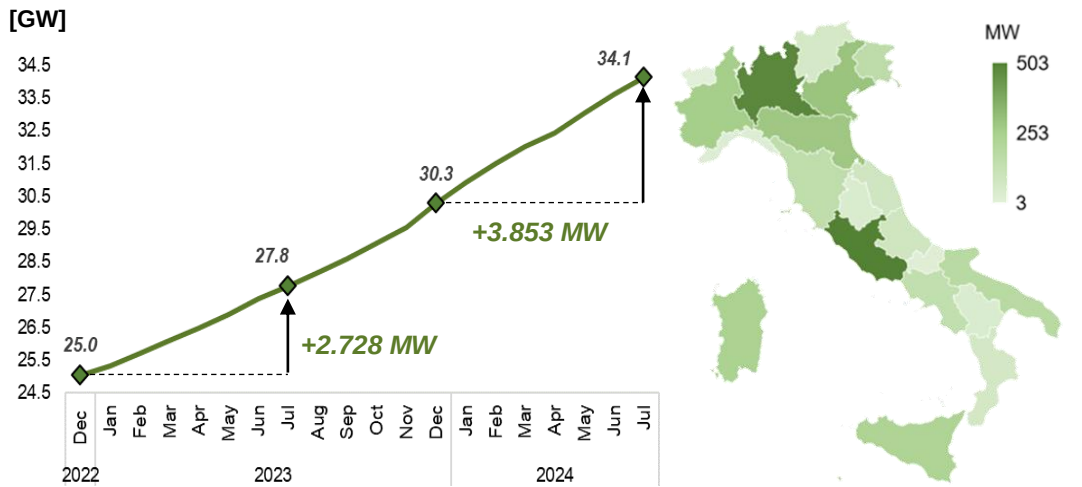
Production from photovoltaic sources increased compared to the same month of the previous year (+22.4%)

1. The operating capacity takes into account new activations, upgrades and decommissioning of plants

Source: Terna

In the first seven months of 2024, operating capacity increased by 3,853 MW. During the same period of 2024 the increase was 2,728 MW, recording an increase of 1,125 MW (+41%).

Cumulative operating capacity (left) and distribution of new activations 2024 (right)

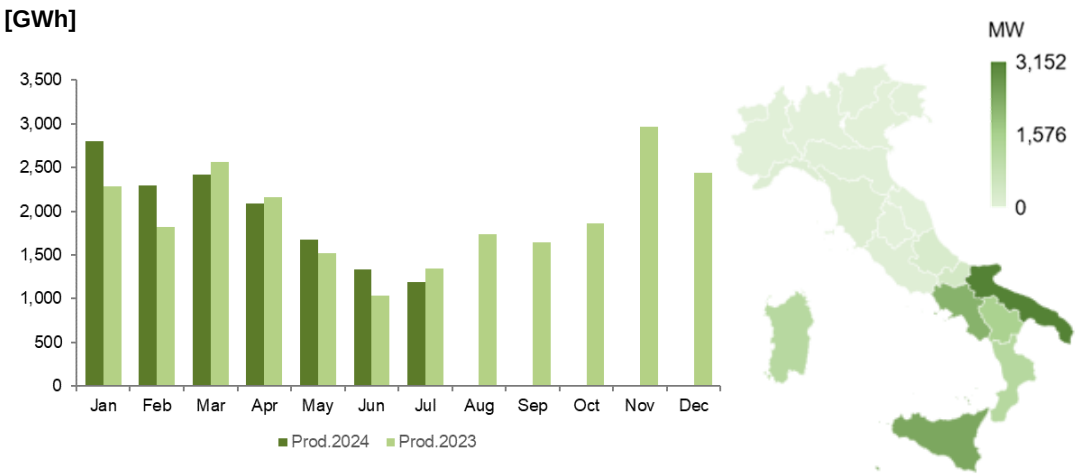


The region with the greatest increase is Lazio with +503 MW, followed by Lombardy (+483 MW) and Veneto (+294 MW)

Source: Terna

Energy produced from wind production sources in July 2024 reached 1,191 GWh, a decrease compared to the same month of the previous year (-156 GWh).

Wind production (left) and distribution of operating capacity[1] (right)



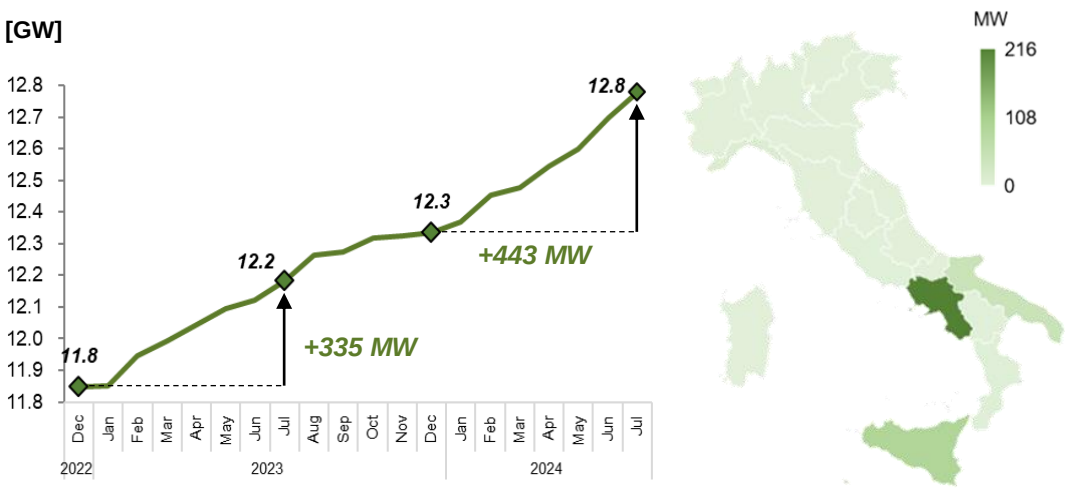
Production from wind sources decreased compared to the same month of the previous year (-11.6%)

1. The operating capacity takes into account new activations, upgrades and decommissioning of plants

Source: Terna

In the first seven months of 2024, operating capacity increased by 443 MW. During the same period of 2023, the increase was 335 MW, which is an increase of 108 MW (+32%).

Cumulative operating capacity (left) and distribution of new activations 2024 (right)

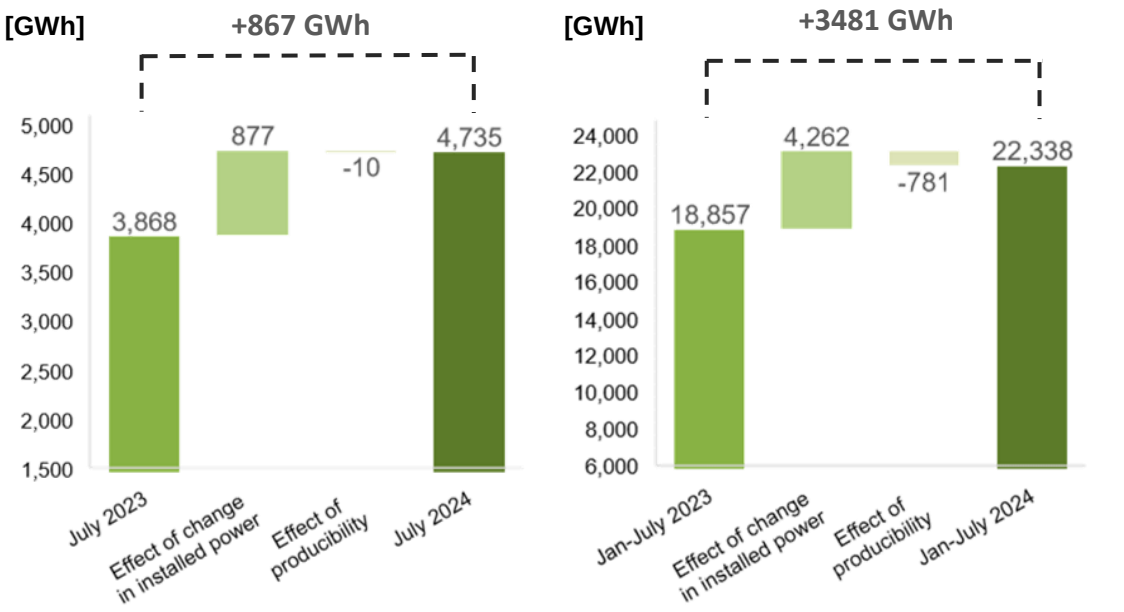


The region with the greatest increase is Campania with +216 MW, followed by Sicily (+92 MW) and Puglia (+46 MW)

Source: Terna

In the month of July, the increase in photovoltaic production (+867 GWh) was due to the positive outcome of an increased operating capacity (+877 GWh), which made up for the lower producibility linked to solar irradiation (-10 GWh).
In 2024, increased production (+3481 GWh) is the result of the positive contribution of greater installed power (+4262 GWh), which amply makes up for the lower producibility linked to solar irradiation (-781 GWh).

Breakdown of effects of photovoltaic production - monthly (left) and annual cumulative (right)



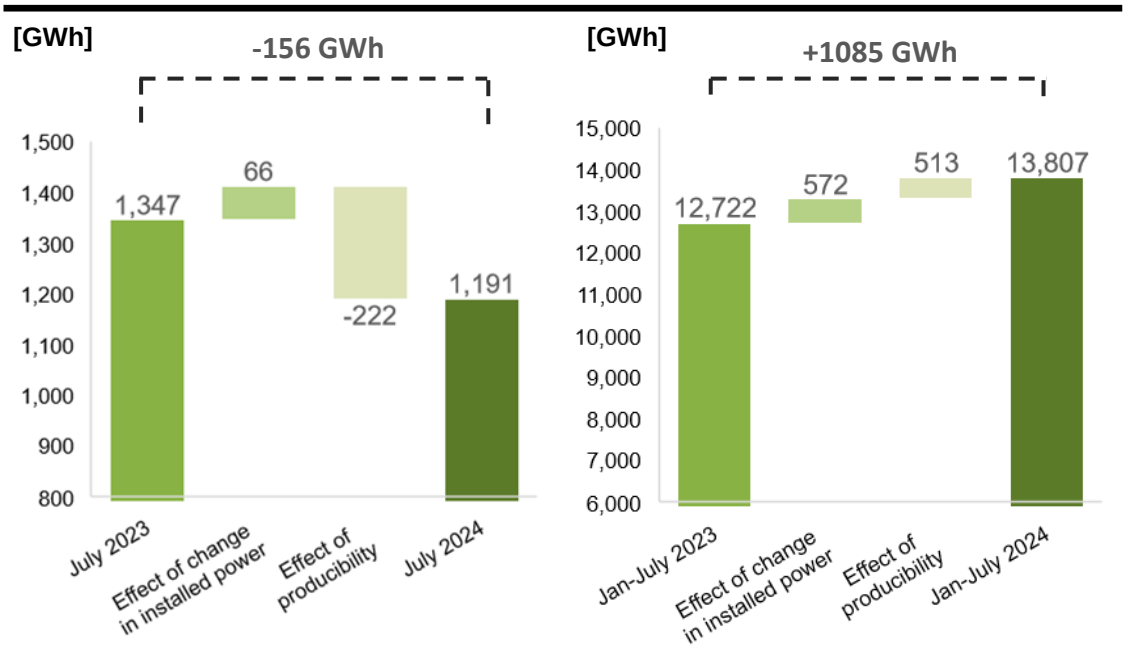
Source: Terna calculation

In July, photovoltaic production increased by +22.4% compared to July 2023.

In 2024, production increased +18.5% compared to the same period of 2023.

In July 2024, there was a decrease in wind production (-156 GWh) due to the combined effect of the increase in operating wind capacity (+66 GWh) compensated by a lower producibility (-222 GWh).
In 2024, increased production (+1085 GWh) is the combined result of both the positive contribution made by greater installed power (+572 GWh) and increased producibility (+513 GWh).

Breakdown of effects of wind production - monthly (left) and annual cumulative (right)



Source: Terna calculation

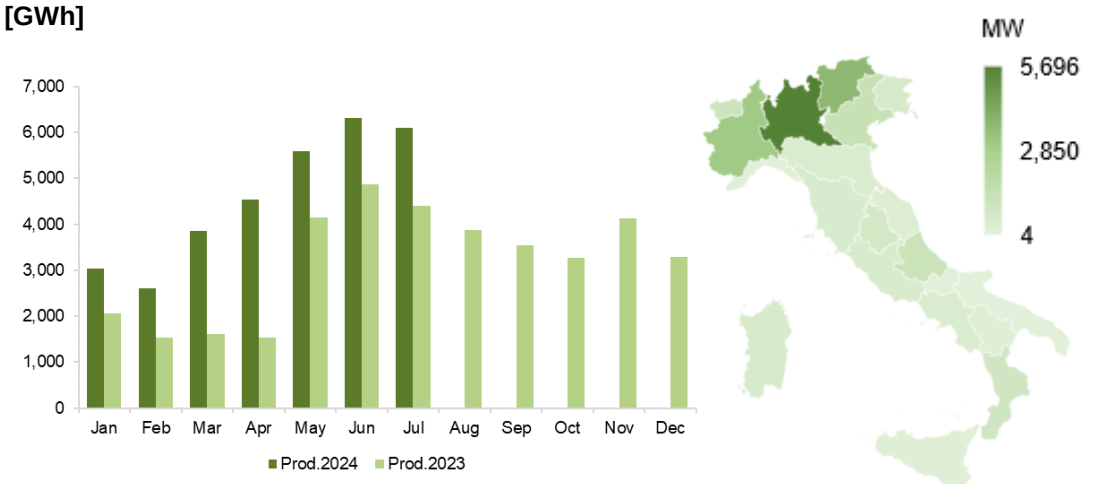
In July, wind production decreased by -11.6% compared to July 2023.

In 2024, production increased +8.5% compared to the same period of the previous year.

Note: for calculation of breakdown of the effect of power and producibility see legend

Energy produced from renewable hydroelectric production sources in July 2024 reached 6,104 GWh, an increase compared to the same month of the previous year (+1,702 GWh).

Renewable hydroelectric production (left) and distribution of operating capacity[1] (right)



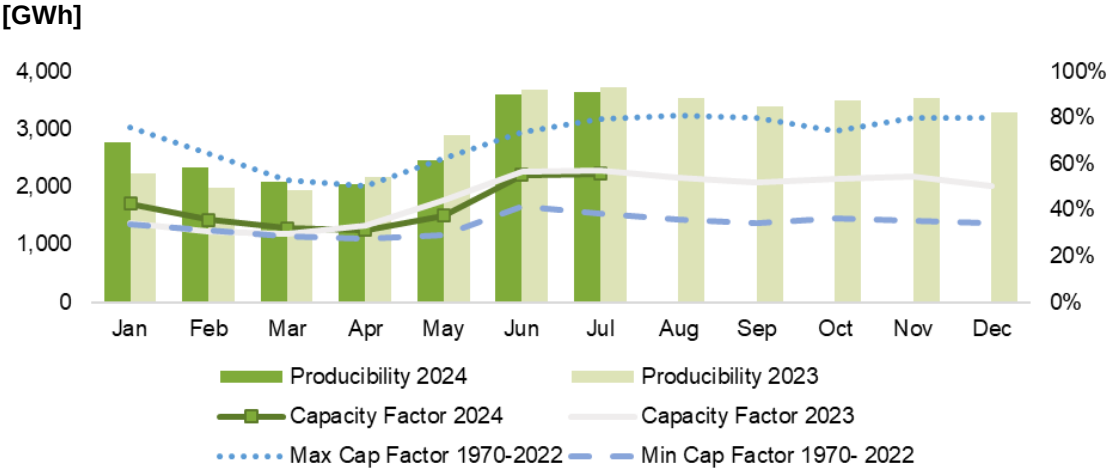
Production from renewable hydroelectric production sources increased compared to the same month of the previous year (+38.7%)

1. The operating capacity takes into account new activations, upgrades and decommissioning of plants.

Source: Terna

In July, hydroelectric producibility decreased (-2.4%) compared to the same month of the previous year.

Hydroelectric Producibility and Reservoir Percentage



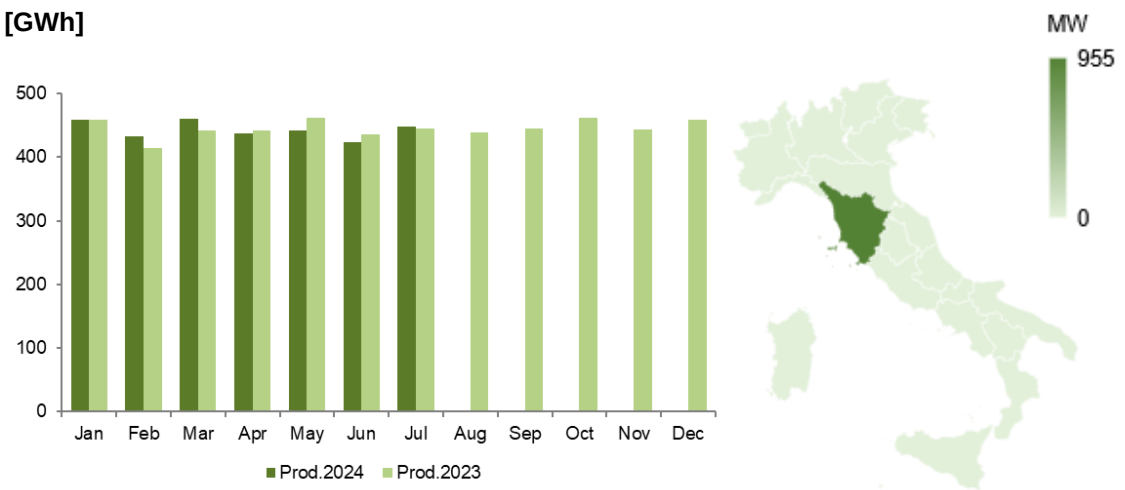
In July 2024, considering Italy as a whole, the ratio between the reservoir and the maximum reservoir capacity was 55.7%, a drop compared to the same month in 2023 (57.1%).

	Reservoir Capacity	NORTH	CENTRE SOUTH	ISLANDS	TOTAL
Jul 24	[GWh]	2.784	727	124	3.635
	% (capacity/max capacity)	64.3%	40.1%	32.5%	55.7%
Jul 23	[GWh]	2.329	1.192	205	3.726
	% (capacity/max capacity)	53.8%	65.7%	53.9%	57.1%

Source: Terna

Energy produced from geothermal production sources in July 2024 reached 448 GWh, an increase compared to the same month of the previous year (+3 GWh).

Geothermal production (left) and distribution of operating capacity[1] (right)



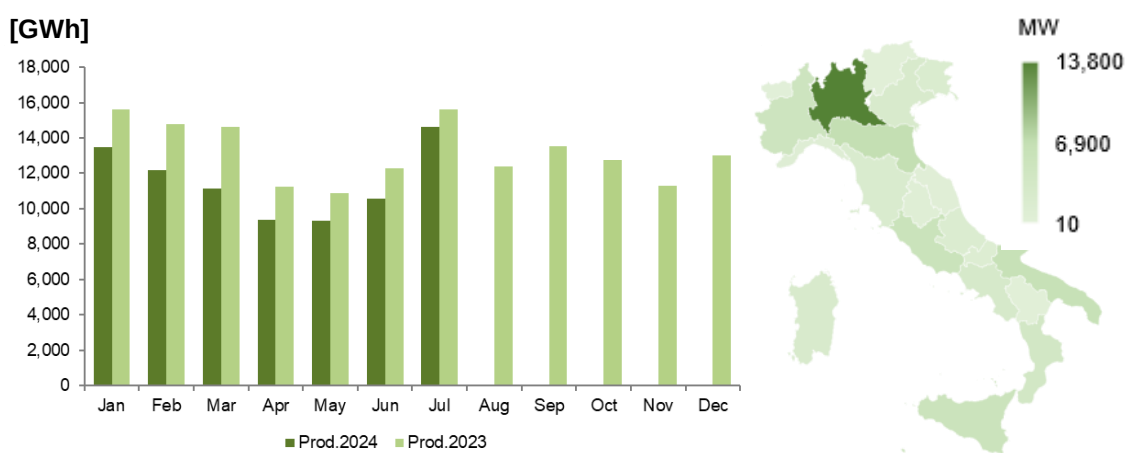
Production from geothermal sources increased (+0.7%) compared to the same month of the previous year

1. The operating capacity takes into account new activations, upgrades and decommissioning of plants

Source: Terna

Energy produced from thermal production sources in July 2024 reached 14,598 GWh, down compared to the same month of the previous year (-1,010 GWh).

Thermal production (left) and distribution of operating capacity[1] (right)



Production from thermal sources decreased (-6.5%) compared to the same month of the previous year.

Source: Terna

In 2024 the operating capacity of renewables increased by 4,282 MW. This value is 1,208 MW higher (+39%) compared to the same period of the previous year.

Variation in monthly operating capacity and number of plants per Source in Italy 2024[1]

[MW]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Photovoltaic	656	562	503	446	601	573	512						**3,853**
Wind	32	85	25	67	53	101	80						**443**
Hydroelectric	-1	-1	3	1	3	3	2						**10**
Geothermal & Biomass	0	-3	-17	-1	0	0	-2						**-23**
Total	**687**	**643**	**514**	**513**	**658**	**676**	**591**						**4,282**

Number of Plants	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Photovoltaic	31,380	32,737	29,257	25,241	27,857	22,531	22,538						**191.541**
Wind	12	8	5	4	6	7	6						**48**
Hydroelectric	6	2	6	0	6	4	6						**30**
Geothermal & Biomass	-1	5	3	4	2	2	3						**18**
Total	**31,397**	**32,752**	**29,271**	**25,249**	**27,871**	**22,544**	**22,553**						**191.637**

Source: Terna

The evolution of operational capacity by source in 2023 is shown below.

Variation in monthly operating capacity and number of plants per Source in Italy 2023[1]

[MW]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Photovoltaic	296	376	386	360	435	468	406	396	424	470	492	724	**5,234**
Wind	4	93	48	50	53	25	63	80	11	45	6	11	**487**
Hydroelectric	1	2	7	1	2	3	-6	-1	6	7	6	4	**33**
Geothermal & Biomass	-4	0	1	-2	9	1	-5	39	0	1	0	0	**42**
Total	**297**	**471**	**442**	**409**	**499**	**498**	**458**	**514**	**441**	**523**	**503**	**740**	**5,795**

Number of Plants	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Photovoltaic	29,651	35,807	37,586	30,690	35,485	33,722	29,478	25,845	27,249	30,145	26,723	31,548	**373,929**
Wind	0	17	7	3	3	3	5	9	5	18	6	6	**82**
Hydroelectric	6	3	9	3	12	6	3	2	8	6	4	8	**69**
Geothermal & Biomass	2	7	3	6	9	6	0	8	7	5	1	2	**56**
Total	**29,659**	**35,834**	**37,604**	**30,702**	**35,509**	**33,737**	**29,486**	**25,864**	**27,269**	**30,174**	**26,734**	**31,564**	**374,136**

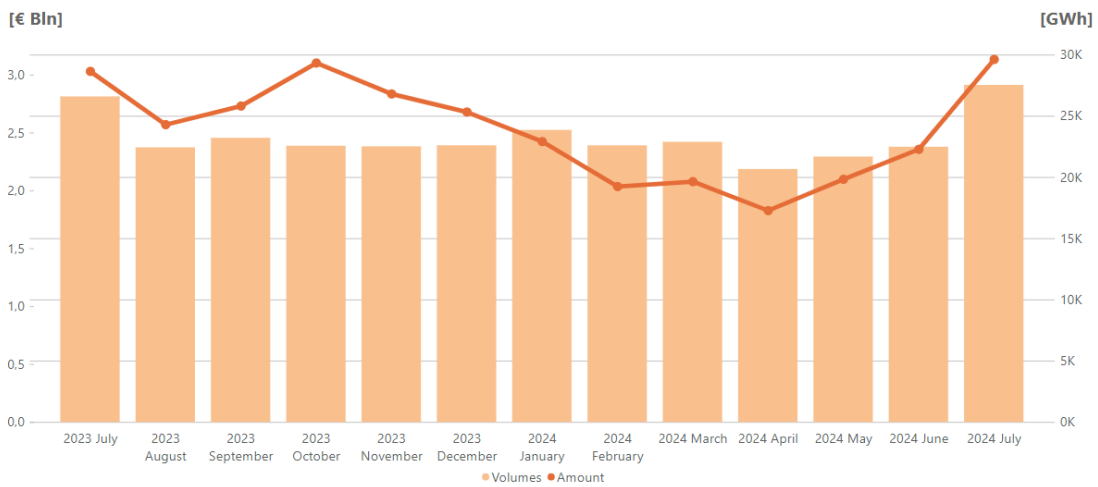
Source: Terna

1. *The operating capacity and the number of plants take into account new activations, upgrades and decommissioning of plants*

Day-Ahead Market

The July total for withdrawal programmes on the DAM was approximately € 3.1 Bn, (+33% compared to the previous month and +3% compared to July 2023).
The average PUN in July 2024 was approximately €112.3/MWh (+9% compared to the previous month and essentially stable compared to July 2023). There was also a change of +22% in demand compared to the previous month and of +4% compared to July 2023.

Day Ahead Market – amounts and volumes

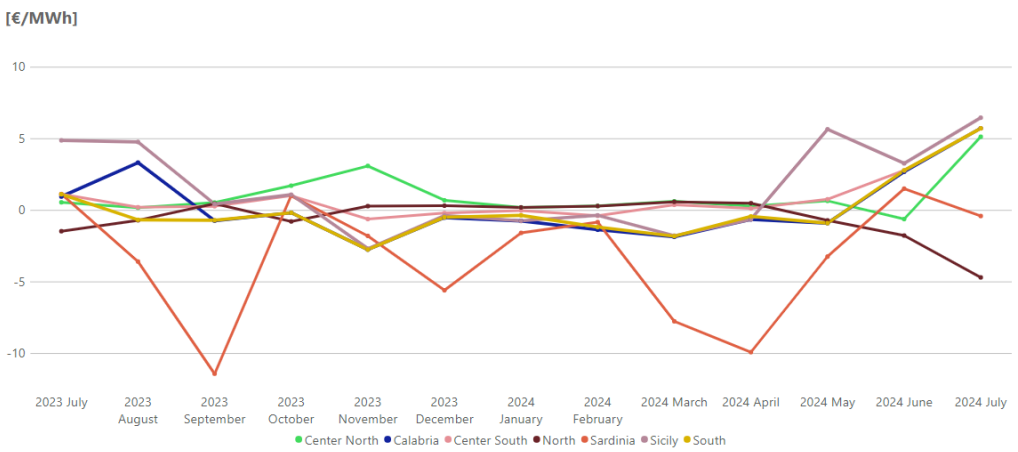


Total for July 2024: +3% compared to July 2023

Source: Terna calculation on GME data

In July, Sicily, Calabria, and the South, Centre-South and Centre-North areas saw an average spread against the PUN of around €+5.7/MWh, while Northern areas had a spread against the PUN of around €-4.7/MWh. The price in Sardinia is essentially aligned.

Spread compared to the PUN



Northern area spread in July 2024: -4.7 €/MWh

Source: Terna calculation on GME data

In July 2024, the spread between the peak and off-peak prices was about -12 €/MWh on average; the highest spread was registered in Sardinia, and it was equal to -24 €/MWh.

Day Ahead Market – PUN and zonal prices [€/MWh]

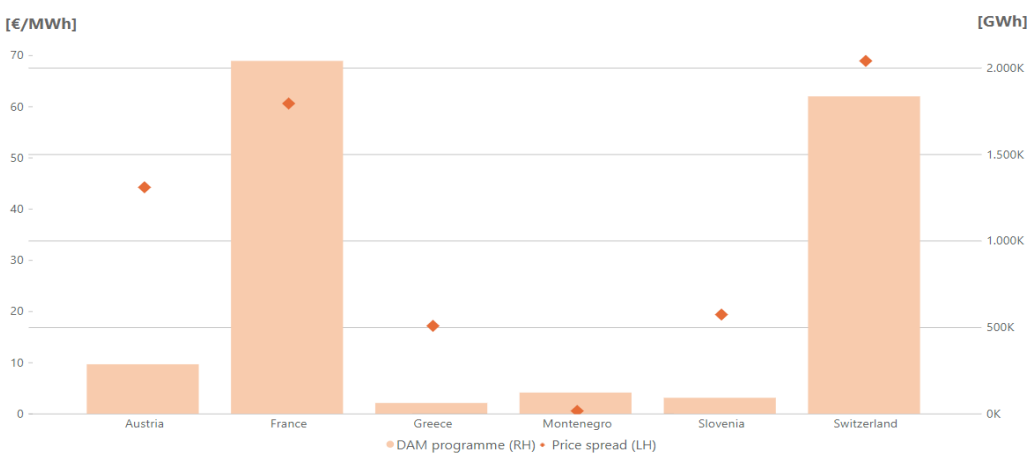
	PUN	Calabria	Centre-North	CSouth	North	Sardinia	Sicily	South
Average	112.3	118.0	117.4	118.0	107.6	111.9	118.8	118.0
Average Month Y-1	112.1	113.0	112.6	113.2	110.6	113.2	117.0	113.2
Δ vs PUN	-	5.7	5.1	5.7	-4.7	-0.4	6.5	5.7
Δ vs PUN Y-1	-	0.9	0.5	1.1	-1.5	1.1	4.9	1.1
Maximum	185.9	224.9	224.9	224.9	173.0	224.9	224.9	224.9
Minimum	65.2	80.0	80.0	80.0	50.0	0.0	80.0	80.0
Peak	109.3	112.0	111.9	112.0	107.3	99.8	113.0	112.0
Off Peak	115.4	124.0	122.9	124.0	107.9	124.0	124.5	124.0
Δ Peak vs Off Peak	-6.1	-12.0	-11.0	-12.0	-0.5	-24.3	-11.5	-12.0

Source: Terna calculation on GME data

Peak-off peak spread slightly down compared to the previous month

The price spreads with France and Switzerland were €60.6/MWh and €68.9/MWh respectively (-5% and +30% compared to the previous month).
Imports totalled 4.8 TWh, +36.8% compared to the previous month, with France and Switzerland accounting for 39% and 42% of the total respectively. Total exports were 0.4 TWh, with Slovenia accounting for 25% and Greece 31%.

Price spread with foreign exchanges and day ahead programmes



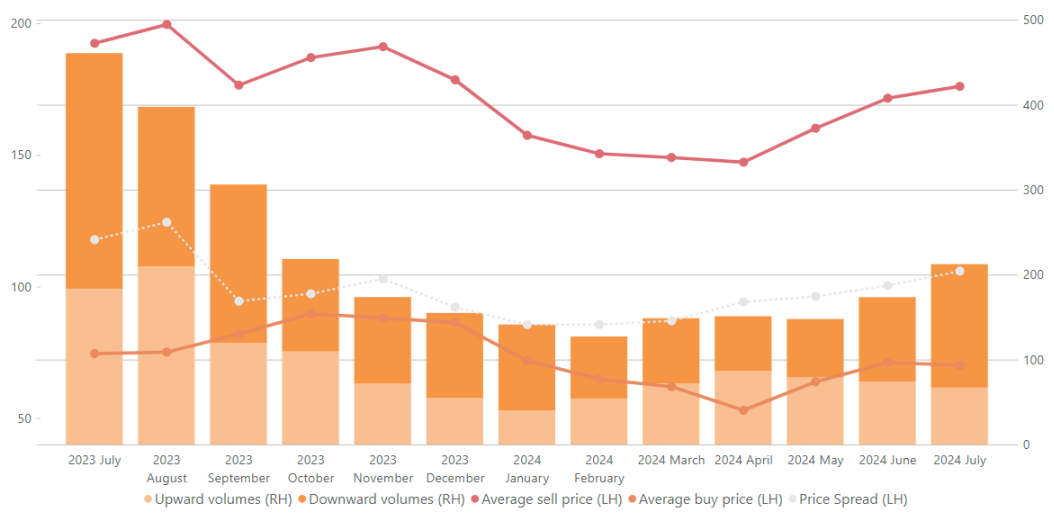
Source: Terna calculation

Net imports on the northern border of 4.3 TWh

Ex-ante Ancillary Services Market

In July 2024, the spread between average bid-up and bid-down prices was 106 €/MWh, (+5% compared to the previous month and -10% compared to July 2023).
Total volumes increased compared to the previous month (+22%). Specifically, upward volumes decreased by 10% while downward volumes increased by 46%.
Upward volumes fell by 63%, while downward volumes fell by 48% compared to the same month of the previous year.

Ex-ante Ancillary Services - prices and volumes



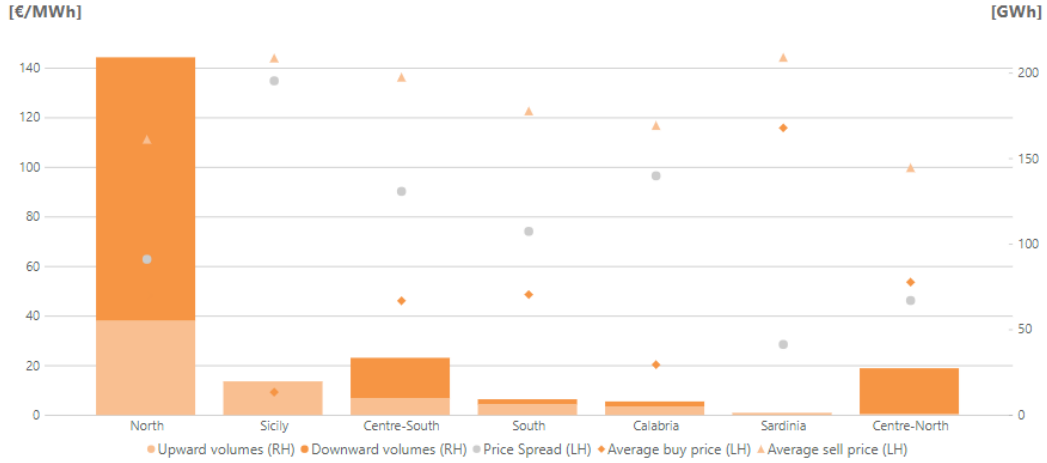
Average bid-up price in July 2024 of 176 €/MWh.

Average bid-down price in July 2024 of 70 €/MWh.

Source: Terna

The market zone characterised by the highest spread (195 €/MWh) is Sicily. This spread recorded a difference of -13% compared to the previous month.
The average bid-up price went from 172 €/MWh in June to 176€/MWh in July; the average bid-down price went from 71 €/MWh in June to 70 €/MWh in July.

Ex-ante Ancillary Services - prices and volumes by market zone



Sicily: zone with the highest price spread

North: zone with the largest volumes moved

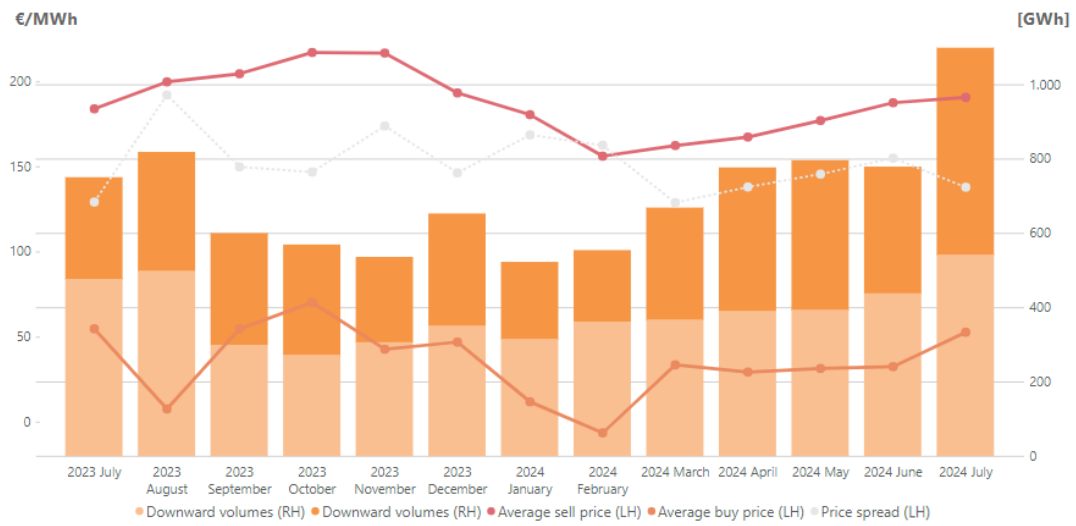
Source: Terna

The ex ante MSD prices include the transactions on the TERRE platform

Balancing Market

In July 2024, the spread between bid-up and bid-down prices was 138 €/MWh (-11% compared to the previous month and +7% compared to July 2023).
Total volumes increased compared to the previous month (+41%). Specifically, upward volumes increased by 24% while downward volumes increased by 63%.
Upward volumes increased by 14%, while downward volumes increased by 103% compared to the same month of the previous year.

Balancing market – prices and volumes



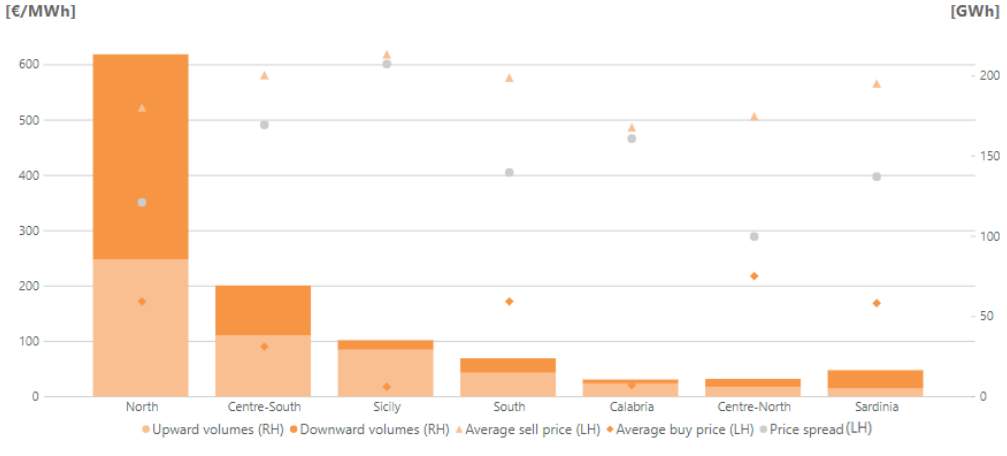
Source: Terna

Average bid-up price in July 2024 of 191 €/MWh.

Average bid-down price in July 2024 of 53 €/MWh.

The market zone characterised by the highest spread (207 €/MWh) is Sicily. This spread recorded a difference of -1% compared to the previous month. The average bid-up price went from 188 €/MWh in June to 191€/MWh in July; the average bid-down price went from 33 €/MWh in June to 53 €/MWh in July.

Balancing market – prices and volumes by market zone



Source: Terna

Sicily: zone with the highest price spread

North: zone with the largest volumes moved

Since 19 July 2023 (project launch date) to 15 March 2024 (suspension of participation in project), the MB volumes also include the transactions on the PICASSO platform

Commodities – Spot Market

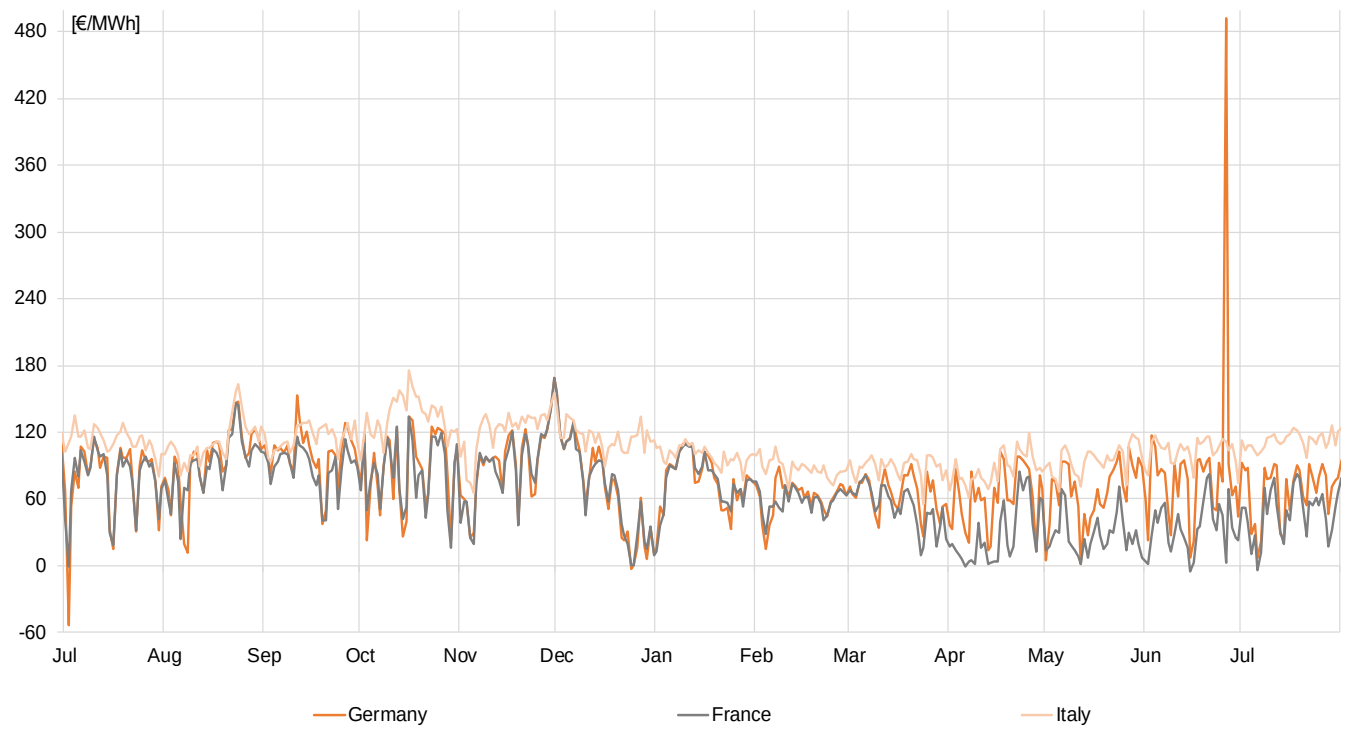
In July, Brent prices recorded an average value of $85.6/bbl, up compared to June (+3.9%).

The average coal prices (API2) were down compared to June, settling at around $105.7/t (-3.4%).

European gas prices (TTF) in July decreased compared to June, with a monthly average of €32.2/MWh (-6.5% compared to the previous month). The PSV also recorded a decrease, settling at €35.5/MWh (-3.6%).

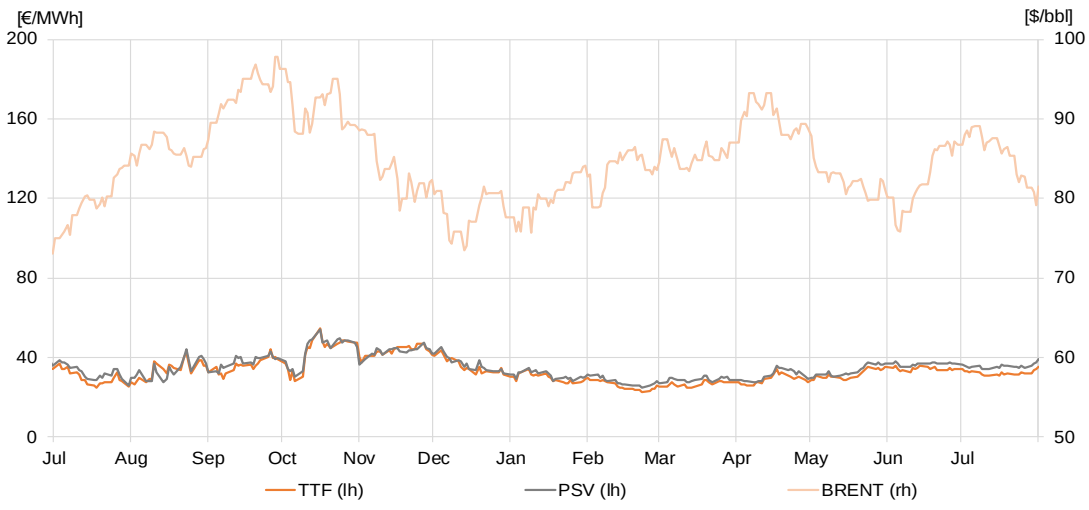
Electricity prices in Italy rose in July compared to the previous month, with a monthly average of €112.3/MWh (+8.9%). The French power exchange was up, with the price of electricity at €47.0/MWh (+37.7%), whilst the German power exchange decreased, with a price of €67.7/MWh (-21.2%).

Spot electricity prices



Source: Terna calculation on GME and EPEX data

Gas & Oil spot prices



Monthly average change PSV-TTF = +€3.3/MWh

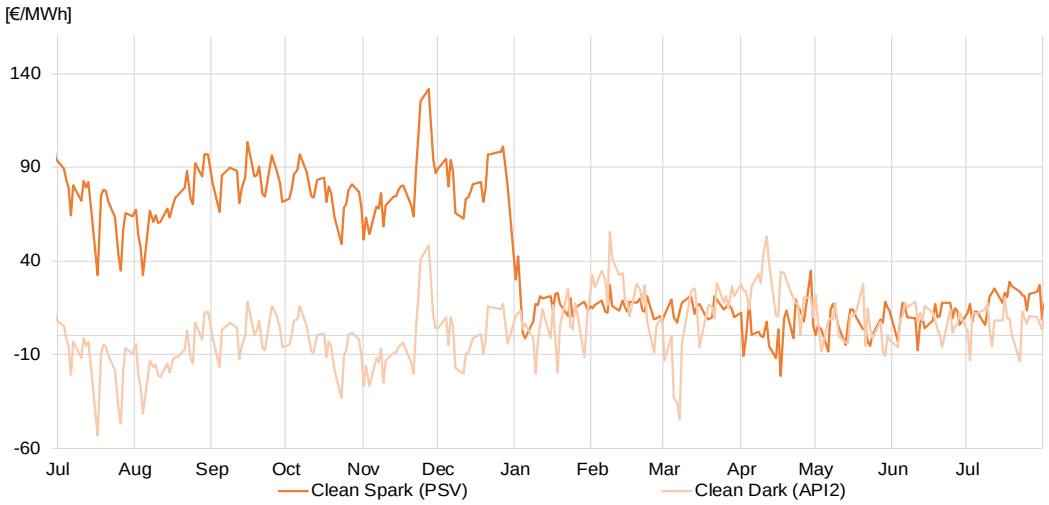
Source: Terna calculation on Bloomberg data

Coal & Carbon spot prices

Monthly average change API2-API4 = -$0.4/t

Source: Terna calculation on Bloomberg data

Clean Dark & Spark spreads Italy



Clean spark spread PSV monthly average = +€18.7/MWh

Clean dark spread API2 monthly average = +€17.7/MWh

Source: Terna calculation on Bloomberg data

Commodities – Forward Market

In July, Brent forward prices recorded an average value of $77.1/bbl, up compared to June (+0.9%).

The average forward prices of coal (API2) were down compared to June, settling at around $117.3/t (-4.6%).

Forward prices of gas in Europe (TTF) are in line with the previous month (+0.0%), settling at around €37.2/MWh. Forward prices in Italy (PSV) were also in line, showing an average value of €38.7/MWh (-0.2%).

The forward prices of electricity in Italy stood at around €110.3/MWh, down compared to the previous month (-0.5%). The French power exchange was up, with the price standing at around €75.0/MWh (+1.7%), whilst the German power exchange decreased, with a price of €90.3/MWh (-3.1%).

Forward Electricity Prices – Year+1

Source: Terna calculation on Bloomberg data

Year+1 Forward Gas & Oil Prices

Monthly average change PSV-TTF = +€1.4/MWh

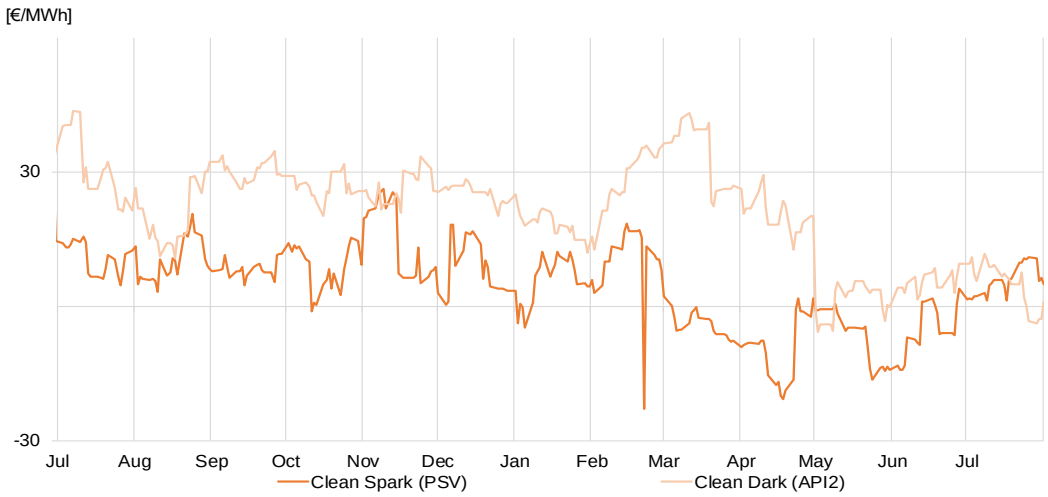
Source: Terna calculation on Bloomberg data

Year+1 Forward Coal & Carbon Prices

Monthly average change API2-API4 = +$3.4/t

Source: Terna calculation on Bloomberg data

Clean Year+1 Forward Dark & Spark spreads Italy



Clean spark spread PSV monthly average = +€5.5/MWh

Clean dark spread API2 monthly average = €12.7/MWh

Source: Terna calculation on Bloomberg data

Key

API2 – CIF ARA: the reference index for the coal price (with PCI of 6,000 kcal/kg) imported from north-west Europe. It is determined on the basis of an assessment on the CIF (Cost, Insurance and Freight) prices of coal contracts, with delivery to the ports of Amsterdam – Rotterdam – Antwerp (ARA).

API4 – FOB Richard Bay: the reference index for the coal price (with PCI of 6,000 kcal/kg) exported from Richards Bay in South Africa. It is calculated on the basis of an assessment on the FOB (Free On Board) prices of contracts excluding transport starting from the port of Richards Bay.

Territorial Areas: these consist of one or more adjacent regions and are aggregated as indicated:

TURIN: Piedmont - Liguria - Valle d'Aosta;
MILAN: Lombardy (*);
VENICE: Friuli Venezia Giulia - Veneto - Trentino Alto Adige;
FLORENCE: Emilia Romagna (*) - Tuscany;
ROME: Lazio - Umbria - Abruzzo - Molise - Marche;
NAPLES: Campania - Apulia - Basilicata - Calabria;
PALERMO: Sicily;
CAGLIARI: Sardinia;

(*) In these two regions, the geographical borders do not correspond to the electrical borders. Lombardy includes production plants that are part of the geographical administrative territory of Emilia Romagna.

The data related to the reservoirs table of tanks are **aggregated by ZONE** as indicated:

NORTH - includes the Territorial Areas TURIN, MILAN and VENICE;
CENTRE and SOUTH – includes the Territorial Areas FLORENCE, ROME and NAPLES;
ISLANDS – includes the Territorial Areas PALERMO and CAGLIARI;

Brent: the oil price as global reference for the crude oil market. Brent Crude is the result of a mixture deriving from the union of different types of oil extracted from the North Sea.

Clean Dark Spread: the difference between the price of electricity and the cost of the fuel of a coal power station and the cost of the CO_2 emission quotas.

Clean Spark Spread: the difference between the price of electricity and the cost of the fuel of a gas power station and the cost of the CO_2 emission quotas.

Dirty Dark Spread: the difference between the price of electricity and the cost of the fuel of a coal power station.

Dirty Spark Spread: the difference between the price of electricity and the cost of the fuel of a gas power station.

Day-Ahead Market (DAM): the trading venue of offers to buy and sell electricity for each relevant period of the day after that of trading.

Balancing Market (MB): the set of activities performed by the Operator for selecting the offers presented on the Dispatching Services Market to resolve the congestions and establish secondary and tertiary reserve power margins, carried out on the same day as that to which the offers refer.

Dispatching Services Market (MSD): the trading venue of the resources for the dispatching service.

Dispatching Services Market - planning stage (Ex-ante Ancillary Services Market): the set of activities performed by the Operator for selecting the offers presented on the Dispatching Services Market to resolve the congestions and establish secondary and tertiary reserve power margins, carried out in advance with respect to real time.

M-o-M - Month on Month: percentage change of the difference between the reference month and the previous month.

NET TRANSFER CAPACITY - NTC: the maximum transfer capacity of the grid for interconnection with other countries. NTC D-2 indicates the same capacity defined in day D-2.

Peak hours: these, according to the agreement with the electricity market operator (Gestore del Mercato Elettrico - GME), are the hours between 8:00 and 20:00 of working days only. **Off-peak hours** are all hours that are outside of peak hours.

CO_2 Price: determined by the European Union Emissions Trading Scheme (EU ETS), a system for the trading of greenhouse gas emission quotas in Europe aimed at reducing emissions.

Single National Price - PUN: the Single National Price calculated as a result of the Day-Ahead Market (DAM).

DAM Zonal Price: the balanced price of each zone calculated as a result of the Day-Ahead Market (DAM).

PSV - Punto Scambio Virtuale: the price at the virtual exchange point for the buying and selling of natural gas in Italy.

TTF - Title Transfer Facility: the price at the virtual exchange point for the buying and selling of natural gas in the Netherlands.

Y-o-Y – Year on Year: percentage change of the difference between the period of the current year and the same period of the previous year

IMCEI - Monthly Industrial Electrical Consumption Index: the monthly IMCEI was constructed based on the size of the monthly withdrawals of the approximately 1,000 customers directly connected to the high voltage grid and for which Terna is responsible. These customers have been reclassified pursuant to the Ateco2007 Codes and aggregated by electrically relevant product class. The adimensional index has been created taking 2015 as a basis 100.

IMSER - Monthly index of electricity consumption for the services sector. The IMSER index (Monthly Services Index) is produced according to the supply of electricity consumption in the Services sector for five Distributors - E-Distribuzione, UNARETI, A-Reti, Edyna and Deval. These consumption data are given according to the Ateco2007 codes and are aggregated by commodity class. The index has a fixed basis (2019=100) and represents around 80% of the electricity consumption in the Services sector with a time lag of two months.

Effect of change in installed power and effect of producibility on solar and wind production: The change in photovoltaic or wind production in a given period can be attributed to two factors: a change in capacity ("Effect of change in installed power") and a change in producibility hours ("Effect of producibility") linked to solar irradiation or amount of wind. To determine these two components of production in a given period of the year Y compared to the same period of the year Y-1, equivalent hours of use are considered (HU). The HU figure is calculated as the ratio between energy produced and installed capacity operational as resulting in the period Y-1. To calculate the effect of the change in installed power (in energy) the HU figure for the period Y-1 is multiplied by the change in capacity between the same periods of year Y and year Y-1. The producibility effect is calculated as the difference between the change in total energy and the effect of the change in installed power.

Disclaimer

1. The 2023 and 2024 monthly electricity balances are provisional.
2. More specifically, the monthly electricity reports for 2024 – prepared at the end of each month – are subject to further, more accurate verification or recalculation in the following months based on additional information. This operation to refine the monthly figures translates into a higher degree of precision compared to the sum of the data processed in the single Monthly Reports published on the website www.terna.it.