

Monthly Report on the Electricity System January 2024



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Energy Balance Sheets

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In January, electricity demand was 26,721 GWh, an increase compared to the same month of the previous year (+2.1%) and down compared to January 2022 (-2.4%). There was also an increase in foreign exchange (+18.2%) compared to the same month in 2023.

In 2024, electricity demand (26,721 GWh) was higher compared to the same period in 2023 (+2.1%) but was lower compared to the cumulative figure for 2022 (-2.4%).

The value of electricity demand was arrived at on the basis of one more working day (22 compared to 21), and with an average monthly temperature that was essentially the same as for December of last year (+0.1°C). The adjusted value takes the drop to +1.4%.

The annual variation for January 2024 compared to January 2023) for the industrial electricity consumption index was positive (+3.5%), based on the raw data.

In January 2024, 45.4% of the electricity demand was met via production from Non-Renewable Energy Sources, 33.7% via Renewable Energy Sources and the remainder via foreign exchange. In 2024, electricity demand was 26,721 GWh, 45.4% of which was met via production from Non-Renewable Energy Sources, 33.7% from Renewable Energy Sources and the remainder from the foreign balance.

In January, production from Renewable Energy Sources increased (+24.1%) compared to the same month of the previous year. Specifically, there was an increase in renewable hydroelectric production (+47.7%), in wind production (+22.8%), and in photovoltaic production (+25.5%).

In 2024 the operating capacity of renewables increased by 687 MW. This value is 389 MW higher (+131%) compared to the same period of the previous year.

The January 2024 total for withdrawal programmes on the DAM was approximately €2.5 Bn, down 10% compared to the previous month and down 43% compared to January 2023.

In January, the spread between bid-up and bid-down prices on the DSM was €87/MWh, down by 9% compared to the previous month and down by 41% compared to January 2023. Total volumes decreased compared to the previous month (-22%).

In January 2024, the spread between bid-up and bid-down prices on the Balancing Market was €167/MWh, up compared to the previous month (€147/MWh; +14%) and down compared to January 2023 (€212/MWh; -21%). Total volumes decreased compared to the previous month (-20%).



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Monthly Summary and Short-Term Analysis

In January, electricity demand was 26,721 GWh, an increase compared to the same month of the previous year (+2.1%) and down compared to January 2022 (-2.4%). There was also an increase in foreign exchange (+18.2%) compared to the same month in 2023.

In 2024, electricity demand (26,721 GWh) was higher compared to the same period in 2023 (+2.1%) but was lower compared to the cumulative figure for 2022 (-2.4%).

Demand breakdown – coverage by sources

[GWh]	Jan 2024	Jan 2023	%24/23	Jan-Jan 24	Jan-Jan 23	%24/23
Renewable Hydro	3,033	2,053	47.7%	3,033	2,053	47.7%
Pumping Production ⁽²⁾	64	135	-52.6%	64	135	-52.6%
Thermal	13,496	15,618	-13.6%	13,496	15,618	-13.6%
of which Biomass	1,332	1,366	-2.5%	1,332	1,366	-2.5%
of which Hard Coal	345	2,294	-85.0%	345	2,294	-85.0%
Geothermal	458	458	0.0%	458	458	0.0%
Wind	2,802	2,281	22.8%	2,802	2,281	22.8%
Photovoltaic	1,371	1,092	25.5%	1,371	1,092	25.5%
Net Total Production	21,224	21,637	-1.9%	21,224	21,637	-1.9%
Pumping	92	193	-52.3%	92	193	-52.3%
Net Total Production for Consumption	21,132	21,444	-1.5%	21,132	21,444	-1.5%
of which RES ⁽³⁾	8,996	7,250	24.1%	8,996	7,250	24.1%
of which not RES	12,136	14,194	-14.5%	12,136	14,194	-14.5%
Import	5,868	5,080	15.5%	5,868	5,080	15.5%
Export	279	352	-20.7%	279	352	-20.7%
Net Foreign Exchange	5,589	4,728	18.2%	5,589	4,728	18.2%
Electricity demand ⁽¹⁾	26,721	26,172	2.1%	26,721	26,172	2.1%

In January 2024, renewable hydroelectric production (+47.7%), wind production (+22.8%) and photovoltaic production (+25.5%) were noticeably up, and thermal production (-13.6%) was down compared to the same month the previous year. In 2024, there was a change in exports, which dropped (-20.7%) compared to 2023. The trend in total net production allocated for consumption in January was down slightly (-1.5%) compared to the same period in 2023

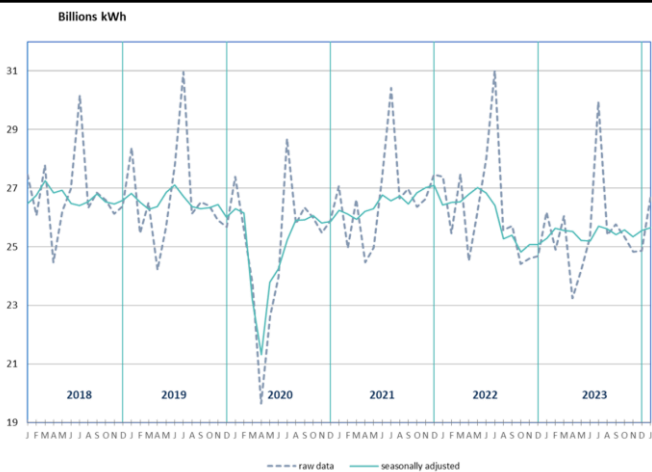
(1) Electricity Demand = Net Total Production for Consumption + Foreign Balance
(2) Pumping production is calculated assuming theoretical efficiency during the pumping phase
(3) RES Production = Renewable Hydro + Biomass + Geothermal + Wind + Photovoltaic -

Source: Terna

The value of electricity demand was arrived at on the basis of one more working day (22 compared to 21), and with an average monthly temperature that was essentially the same as for January of last year (+0.1°C). The adjusted value takes the drop to +1.4%.

The data for January 2024, adjusted for calendar and temperature effects, recorded a slight increase in electricity demand compared to December 2023 (+0.3%).

Demand – seasonality adjusted



The value, adjusted for seasonal, calendar and temperature effects, shows positive cyclical change (+0.3%)

Source: Terna

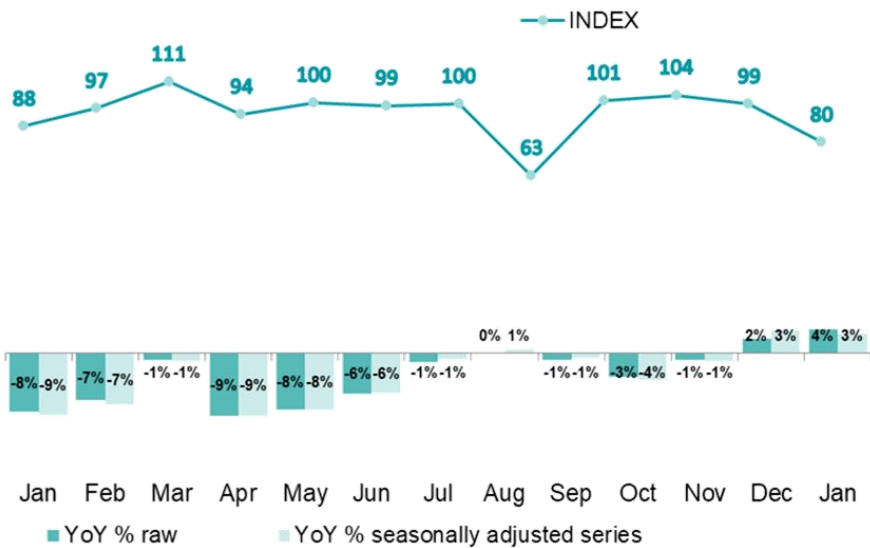
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IMCEI

The variation for January 2024 (compared to January 2023) was positive (+3.5%) based on the raw data; using the data adjusted for calendar differences, the change is +2.9%.

IMCEI short-term analysis (2015 base = 100)

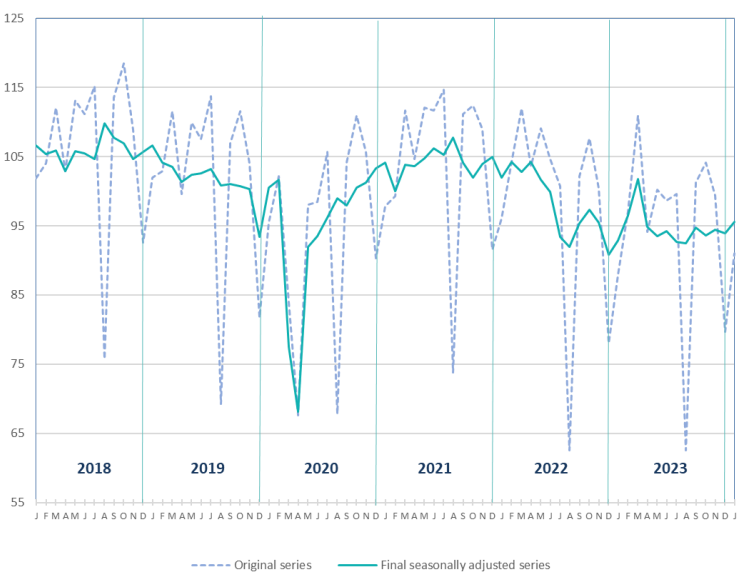


In January, the variation in the monthly index of Italian electricity consumption was positive, compared to January 2023.

Source: Terna

The January 2024 data, adjusted for seasonal, calendar and temperature effects, for the industrial electricity consumption index, increased (+1.8%) compared to December.

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



When adjusted for seasonal and calendar effects, the monthly figure for January 2024 decreased compared to the previous month.

Source: Terna

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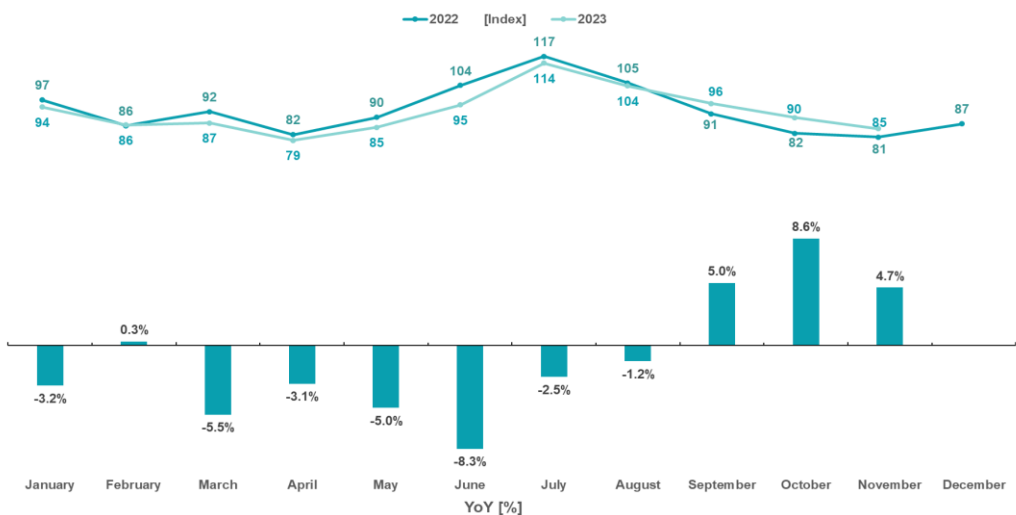
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IMSER

The annual trend of November 2023 (compared to November 2022) increased by +4.7% with raw data. In the period January-November 2023, electricity consumption in the services sector had dropped overall by -1.2% compared to 2022.

Monthly Service Sector Consumption Index (basis 2019 = 100)

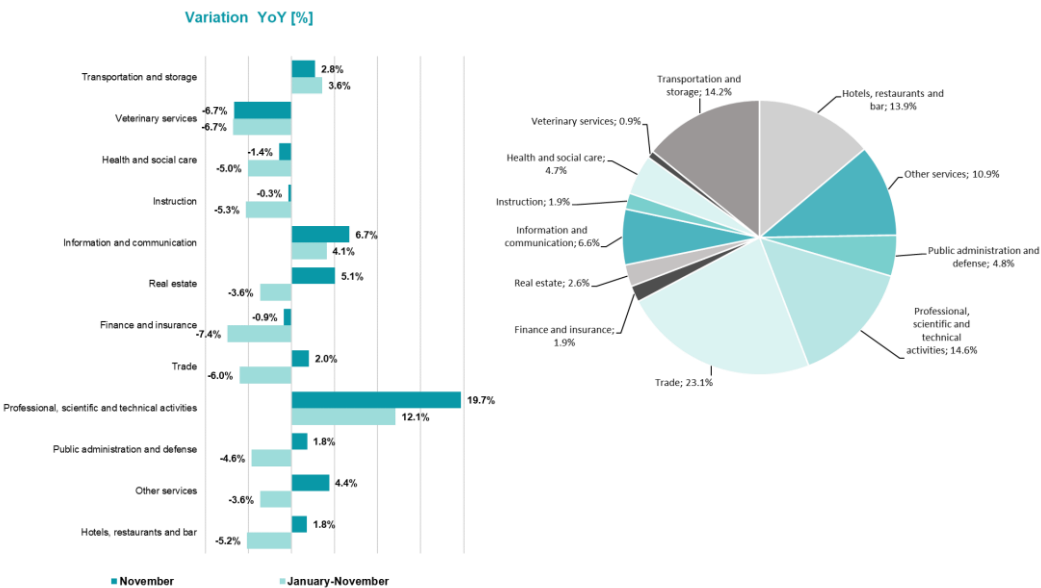


In November, the change in the monthly index of Italian electricity consumption for the services sector increased by +4.7% compared to November 2022.

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

In detail, there was an increase in almost all the monitored categories as of November 2023: Professional services, scientific and technical services, Transportation and storage, Information and Communications, Real Estate, Trade, Public Administration and Defence, Hotels, restaurants and bars. There was a reduction in veterinary services, Health and social care, Finance and insurance, and Education. During the first eleven months of 2023, there was an increase only in the Transportation and storage, Information and Communications and Professional, scientific and technical services. There was a decrease 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-November 2023 was down by -1.2% compared to the same period in 2022

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

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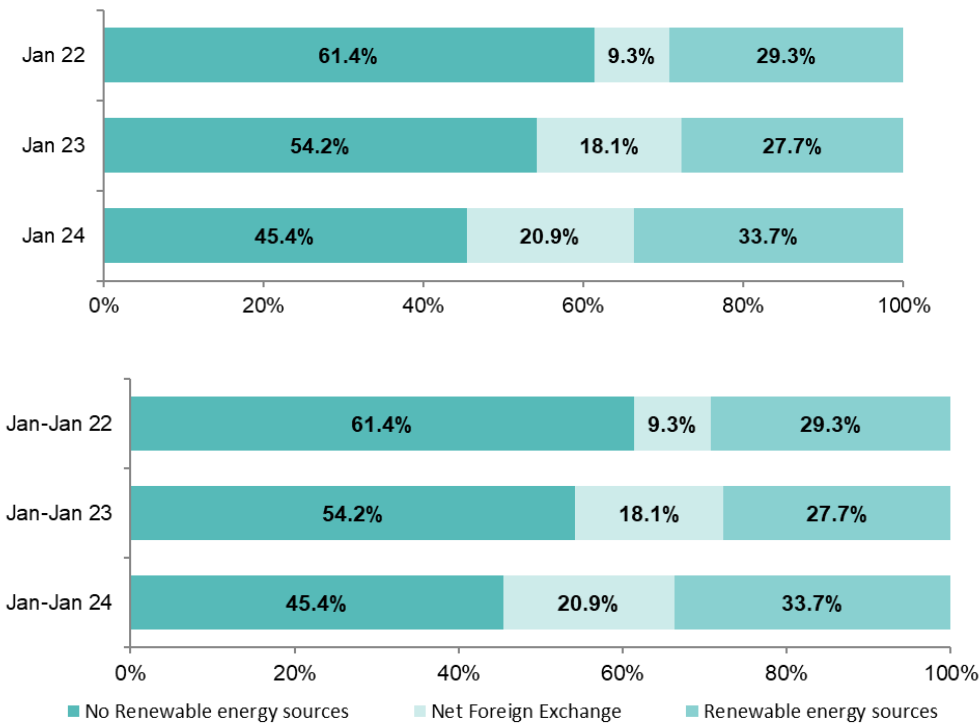
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Energy Demand Mix

In January 2024, 45.4% of the electricity demand was met via production from Non-Renewable Energy Sources, 33.7% via Renewable Energy Sources and the remainder via foreign exchange.

In 2024, electricity demand was 26,721 GWh, 45.4% of which was met via production from Non-Renewable Energy Sources, 33.7% from Renewable Energy Sources and the remainder from the foreign balance.

Demand breakdown – coverage by sources

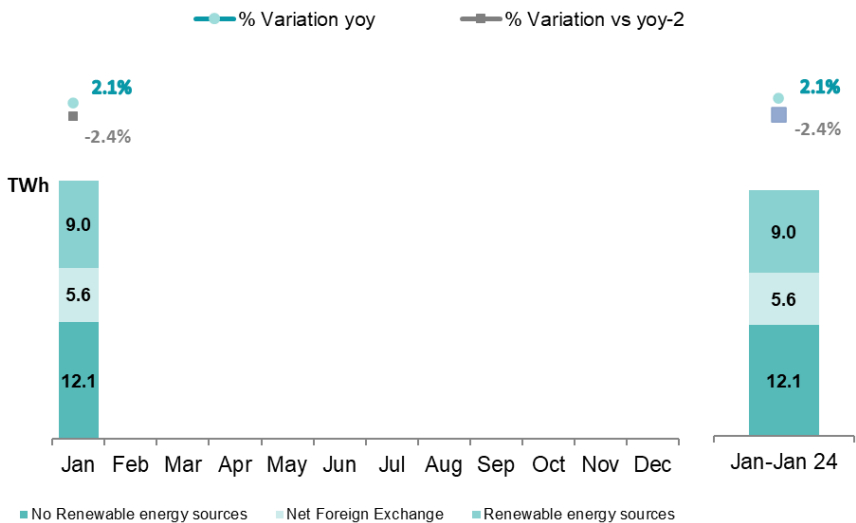


Coverage of demand from renewable sources rose from 27.7% in January 2023 to 33.7% in January 2024

In 2024 coverage of demand from non-renewables fell from 54.2% in 2023 to 45.4% 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 (+2.1%) and down compared to the cumulative figure for 2022 (-2.4%). In 2024, energy production from renewable sources totalled 9.0 TWh, up compared to 2023 (+24.1%)

Source: Terna

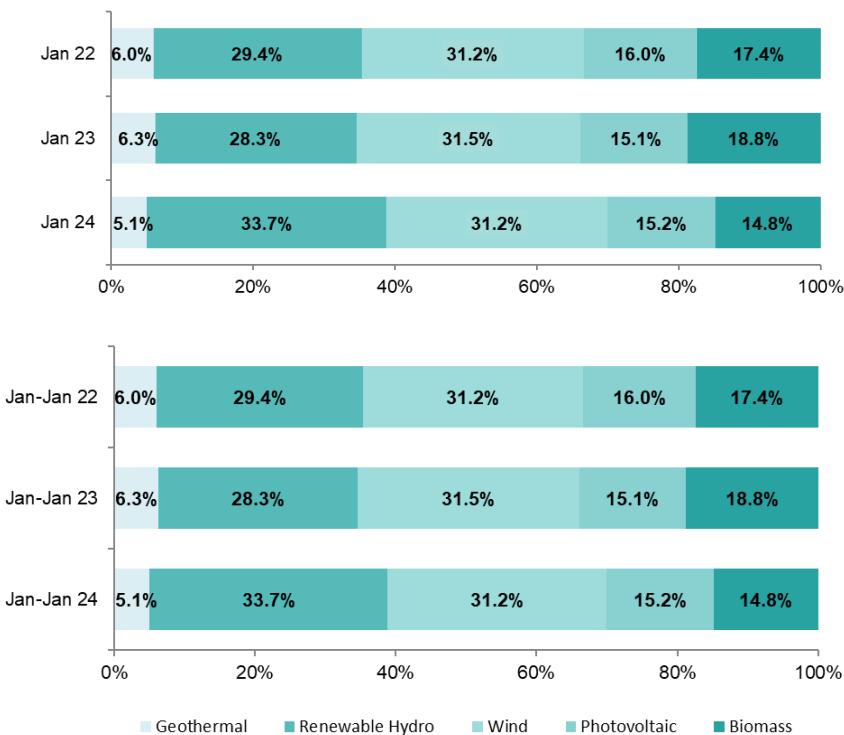
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Details of Renewable Energy Sources

In January, production from Renewable Energy Sources increased (+24.1%) compared to the same month of the previous year. Specifically, there was an increase in renewable hydroelectric production (+47.7%), in wind production (+22.8%), and in photovoltaic production (+25.5%).

RES Production - Breakdown

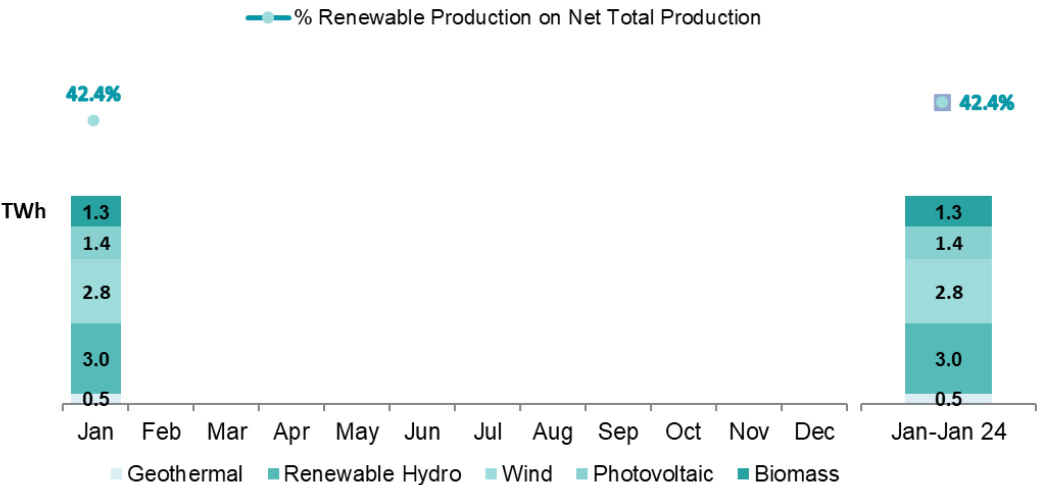


In January 2024, the greater contribution of renewable energy sources to the total is attributed to renewable hydroelectric production (33.7%) and wind production (31.2%).

In 2024 the ratio of renewable hydroelectric and photovoltaic 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 January 2024, renewable production represented 42.4% of total net national production, an increase compared to the same month in 2023 (33.5%). In 2024, production from RES represented 42.4% of total net national production, an increase compared to the cumulative figure for 2023 (33.5%)

Source: Terna

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Historical Energy Balance Sheets

In 2024, total net production allocated for consumption (21,132 GWh) met 79.1% of national electricity demand (26,721 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												3,033
Pumping Production ⁽²⁾	64												64
Thermal	13,496												13,496
of which Biomass	1,332												1,332
of which Hard Coal	345												345
Geothermal	458												458
Wind	2,802												2,802
Photovoltaic	1,371												1,371
Net Total Production	21,224												21,224
Pumping	92												92
Net Total Production for Consumption	21,132												21,132
of which RES ⁽³⁾	8,996												8,996
of which not RES	12,136												12,136
Import	5,868												5,868
Export	279												279
Net Foreign Exchange	5,589												5,589
Electricity demand ⁽¹⁾	26,721												26,721

In 2024, net total production was down (-1.9%) compared to the same period in 2023, and peak electricity demand was reached in January, with 26,721 GWh.

Source: Terna

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	3,096	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

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

Source: Terna

(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

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Demand by Operational Area

In January 2024, demand increased in the Northern zone (TO-MI-VE), and in the Southern zone (NA), the Centre (RM-FI) and 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
January 2024	2,778	5,543	4,179	4,329	3,750	3,835	1,583	724
January 2023	2,763	5,399	4,012	4,182	3,679	3,791	1,591	755
% January 24/23	0.5%	2.7%	4.2%	3.5%	1.9%	1.2%	-0.5%	-4.1%
Cumulated 2024	2,778	5,543	4,179	4,329	3,750	3,835	1,583	724
Cumulated 2023	2,763	5,399	4,012	4,182	3,679	3,791	1,591	755
% Cumulated 24/23	0.5%	2.7%	4.2%	3.5%	1.9%	1.2%	-0.5%	-4.1%

In 2024, the Y-o-Y percentage change in demand was 2.7% in the North, 2.8% in the Centre, 1.2% in the South and -1.7% on the Islands

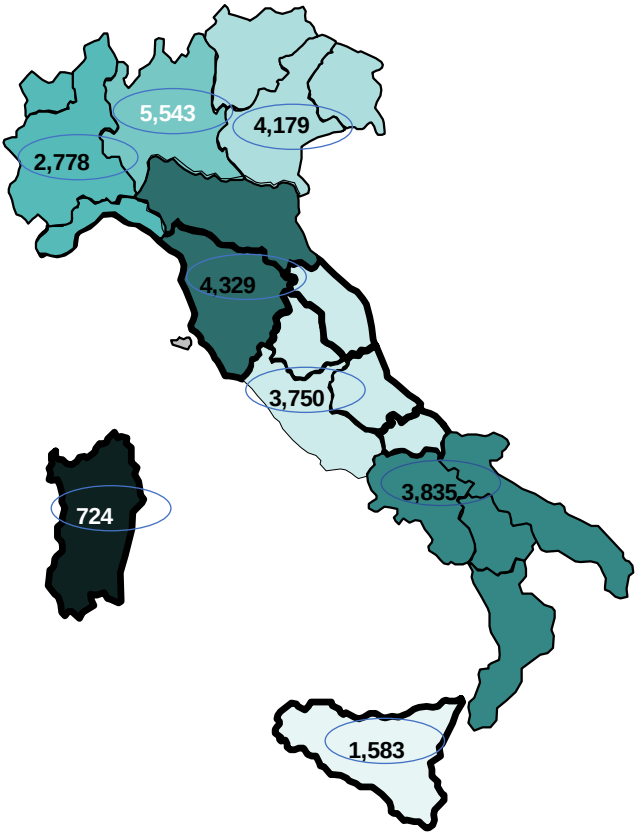
Source: Terna

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.

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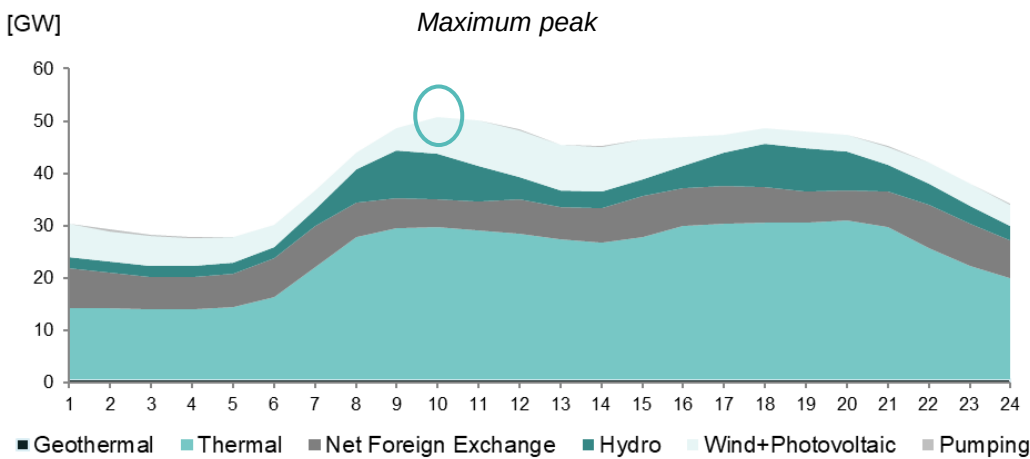
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Peak Demand

In January 2024, Peak Demand was recorded on **Tuesday 16 January between 09:00 and 10:00** and was 50,708 MW (-1.4% Y-o-Y). The hourly demand diagram of the peak day is presented below.

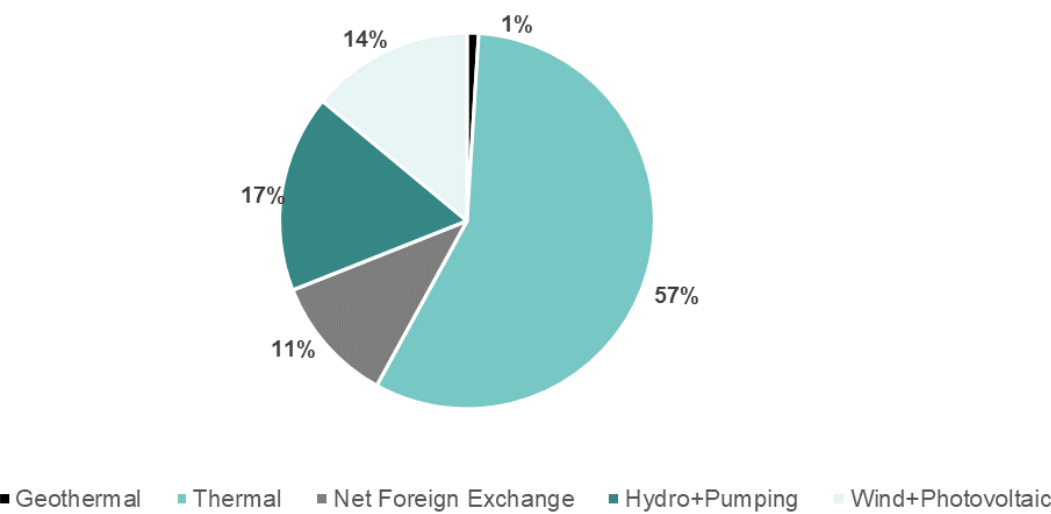
Peak Demand



At peak, the contribution from thermal production was 29,144 MW, down (-0.8%) compared to the contribution from thermal production at the January 2023 peak (29,393 MW).

Source: Terna

Coverage of demand - 16 January 2024 09:00-10:00



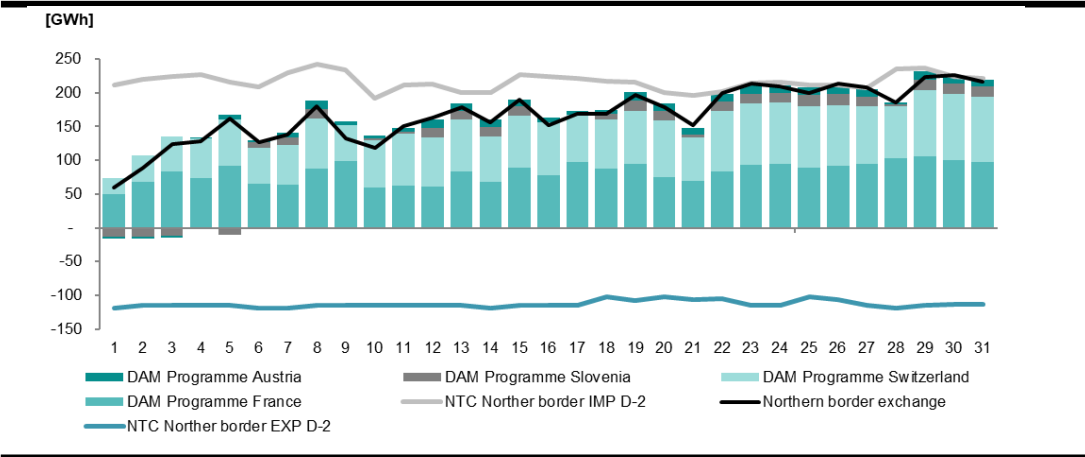
At its peak, production from wind and photovoltaic sources contributed to covering 14% of demand, with thermal production covering 57% and foreign balance covering 11%

Source: Terna

Net Foreign Exchange – January 2024

In January, 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



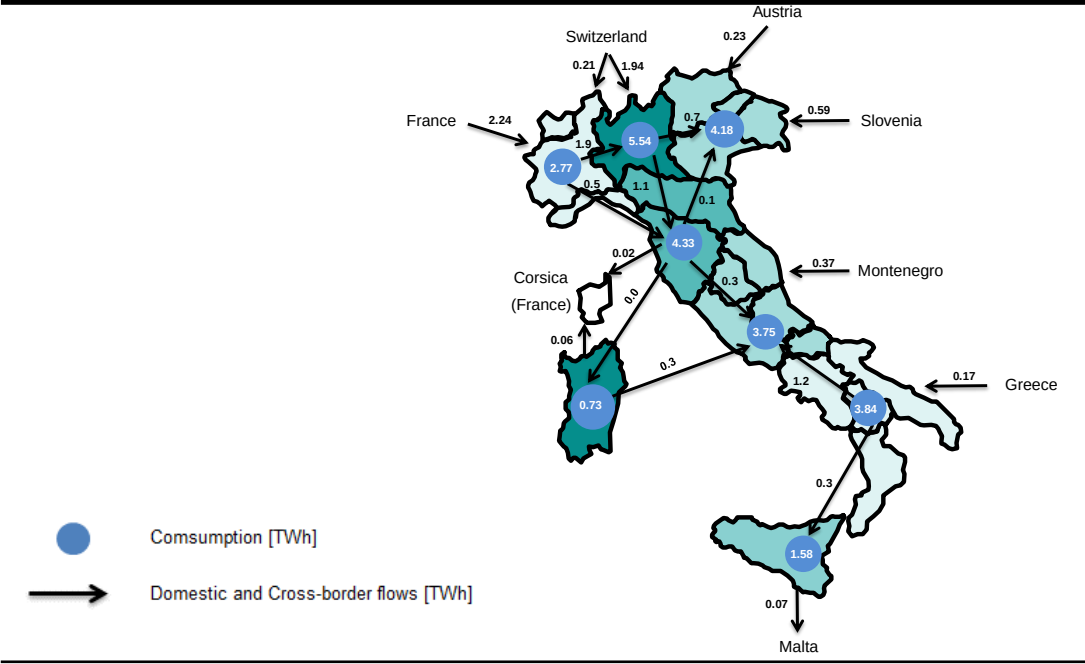
In January 2024, imports rose sharply Y-o-Y (+15.5%), amounting to 5,868 GWh and exports declined Y-o-Y (-20.7%) amounting to 279 GWh

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



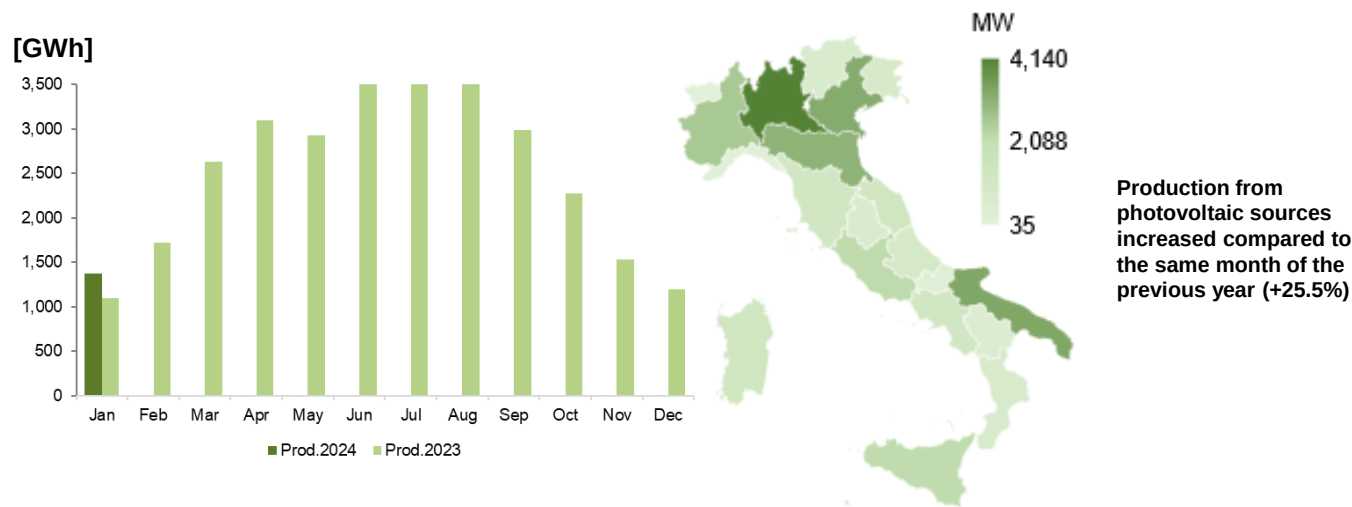
In 2024, a net exchange was recorded from the Northern zone to Emilia Romagna and Tuscany of 13.2 TWh. The mainland recorded a net exchange towards Sicily of 2.1 TWh.

Source: Terna

Production and Installed Capacity

Energy produced from photovoltaic sources in January 2024 reached 1,371 GWh, an increase compared to the same month of the previous year (+279 GWh).

Photovoltaic production (left) and distribution of operating capacity¹ (right)

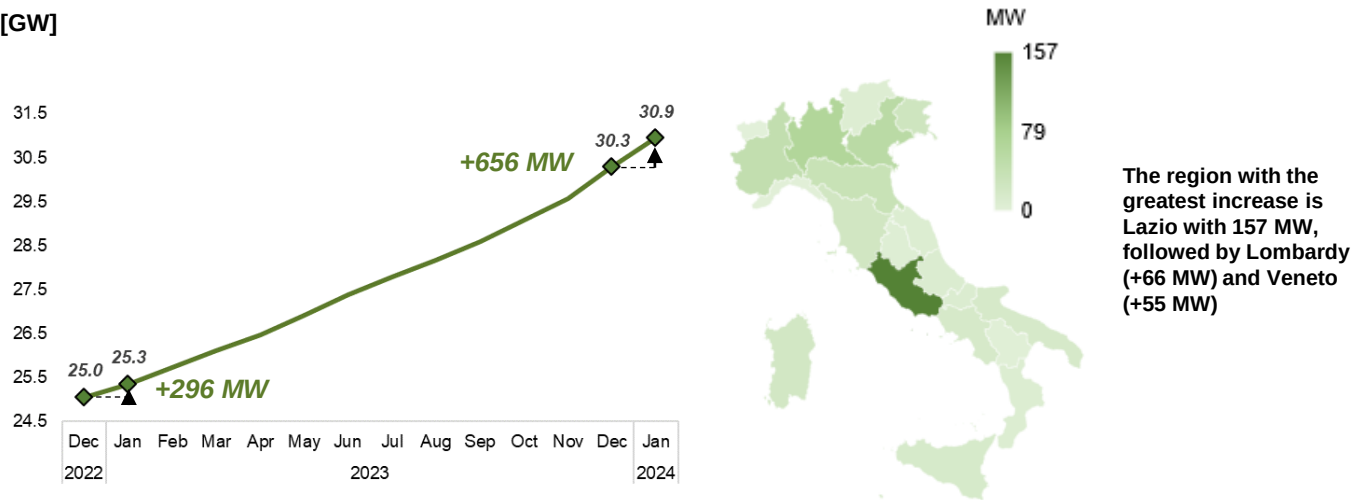


1. The operating capacity takes into account new activations, upgrades and decommissioning of plants

Source: Terna

In January 2024, the operating capacity increased by 656 MW. During the same month of 2023, the increase was 296 MW, recording an increase of 360 MW (+122%).

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



Source: Terna

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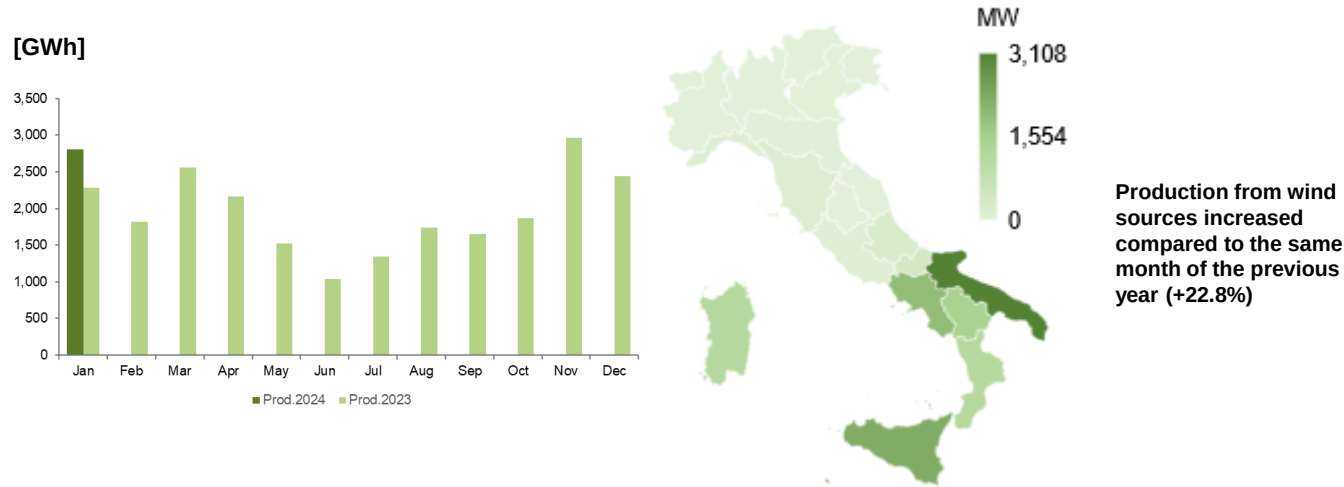
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Energy produced from wind production sources in January 2024 reached 2,802 GWh, an increase compared to the same month of the previous year (+521 GWh).

Wind production (left) and distribution of operating capacity¹ (right)

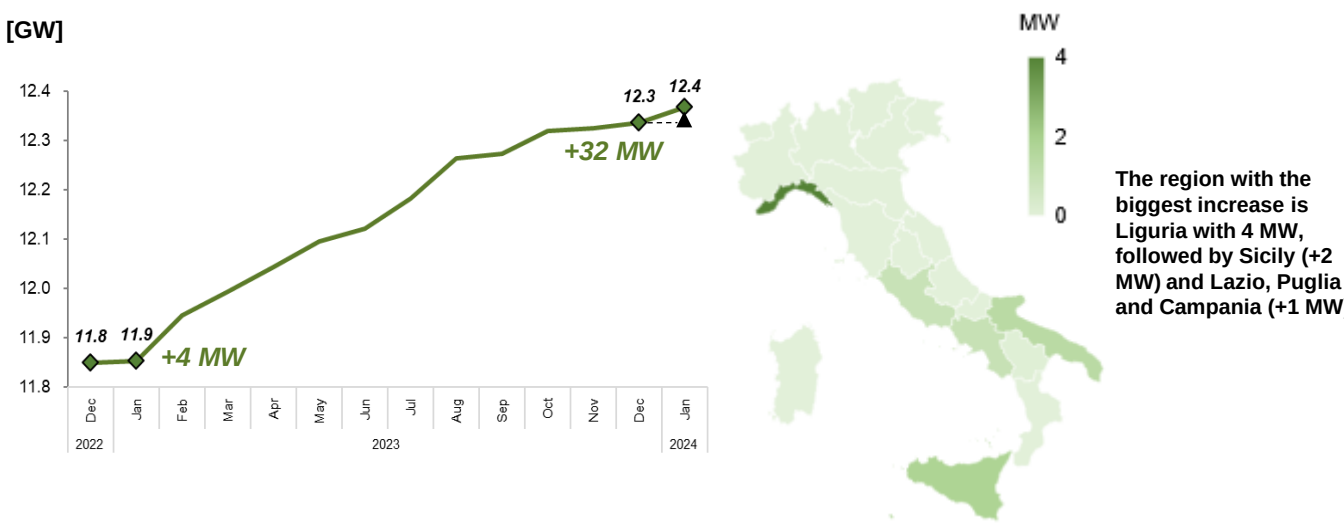


1. The operating capacity takes into account new activations, upgrades and decommissioning of plants

Source: Terna

In January 2024, the operating capacity increased by 32 MW. During the same month of 2023, the increase was 4 MW, which is an increase of 28 MW (+700%).

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



Source: Terna

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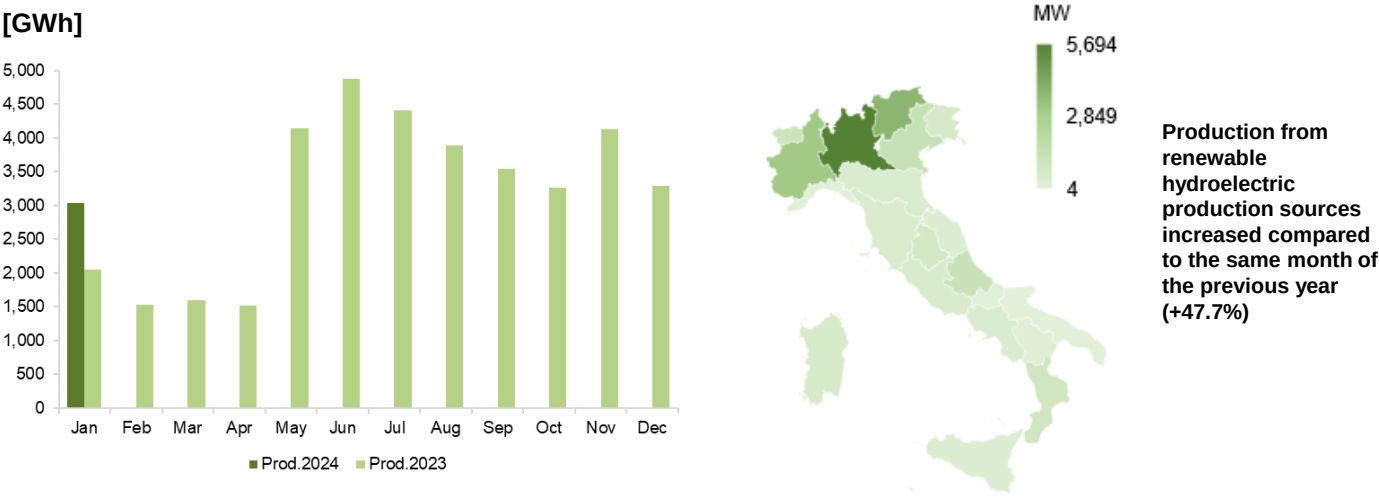
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Energy produced from photovoltaic sources in January 2024 reached 3,033 GWh, an increase compared to the same month of the previous year (980 GWh).

Renewable hydroelectric production (left) and distribution of operating capacity¹ (right)

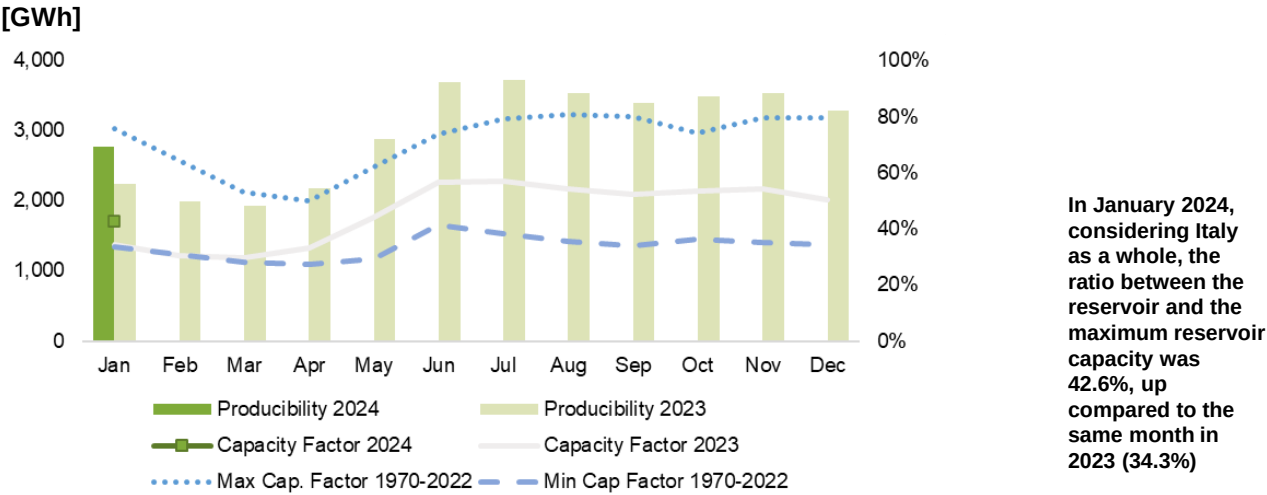


1. The operating capacity takes into account new activations, upgrades and decommissioning of plants.

Source: Terna

In January, hydroelectric producibility rose (+24%) compared to the same month of the previous year.

Hydroelectric Producibility and Reservoir Percentage



Reservoir Capacity		NORTH	CENTRE	SOUTH	ISLANDS	TOTAL
Jan 23 - Jan 24	[GWh]	1,846	817	116		2,778
	% (capacity/max capacity)	42.6%	45.0%	30.5%		42.6%
	[GWh]	1,105	983	152		2,240
	% (capacity/max capacity)	25.5%	54.2%	39.9%		34.3%

Source: Terna

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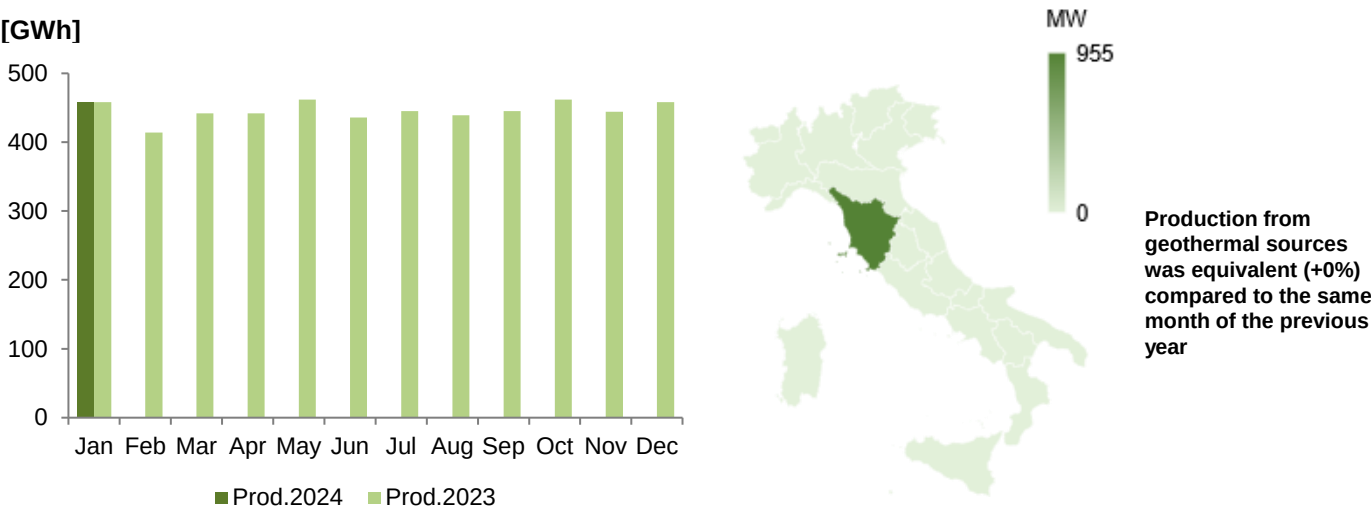
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Energy from geothermal production sources in January 2024 reached 458 GWh, which is equivalent to the same month in the previous year (+0 GWh).

Geothermal production (left) and distribution of operating capacity¹ (right)

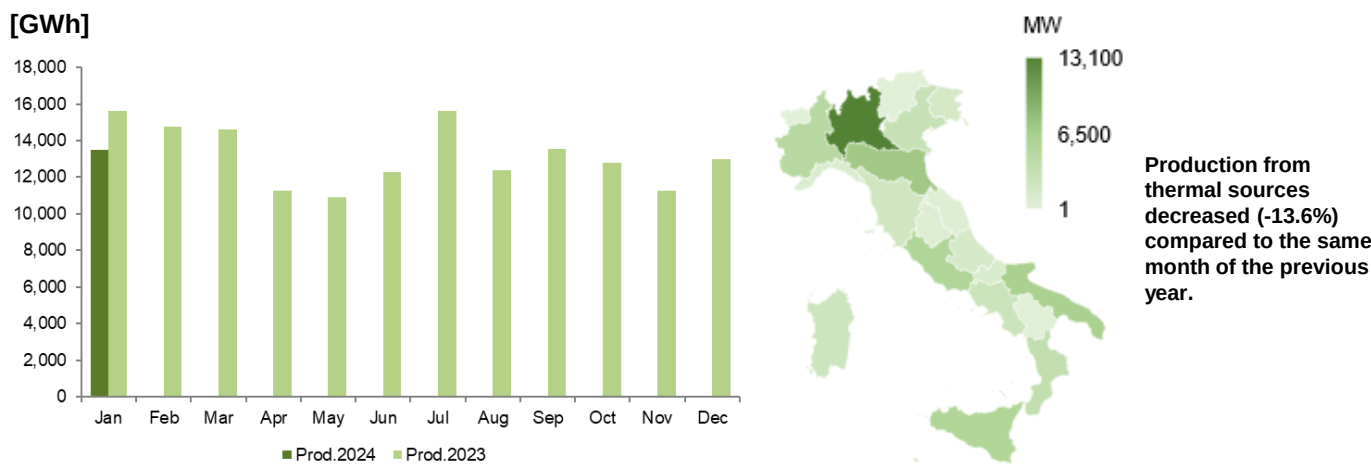


1. The operating capacity takes into account new activations, upgrades and decommissioning of plants

Source: Terna

Energy produced from thermal production sources in January 2024 reached 13,496 GWh, a decrease compared to the same month of the previous year (-2,122 GWh).

Thermal production (left) and distribution of operating capacity¹ (right)



Source: Terna

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In 2024 the operating capacity of renewables increased by 687 MW. This value is 389 MW higher (+131%) compared to the same period of the previous year.

Variation in monthly operating capacity and number of plants per Source in Italy 2024¹

[MW]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Photovoltaic	656												656
Wind	32												32
Hydroelectric	-1												-1
Geothermal & Biomass	0												0
Total	687												687

Number of Plants	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Photovoltaic	31,380												31,380
Wind	12												12
Hydroelectric	6												6
Geothermal & Biomass	-1												-1
Total	31,397												31,397

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 2023¹

[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

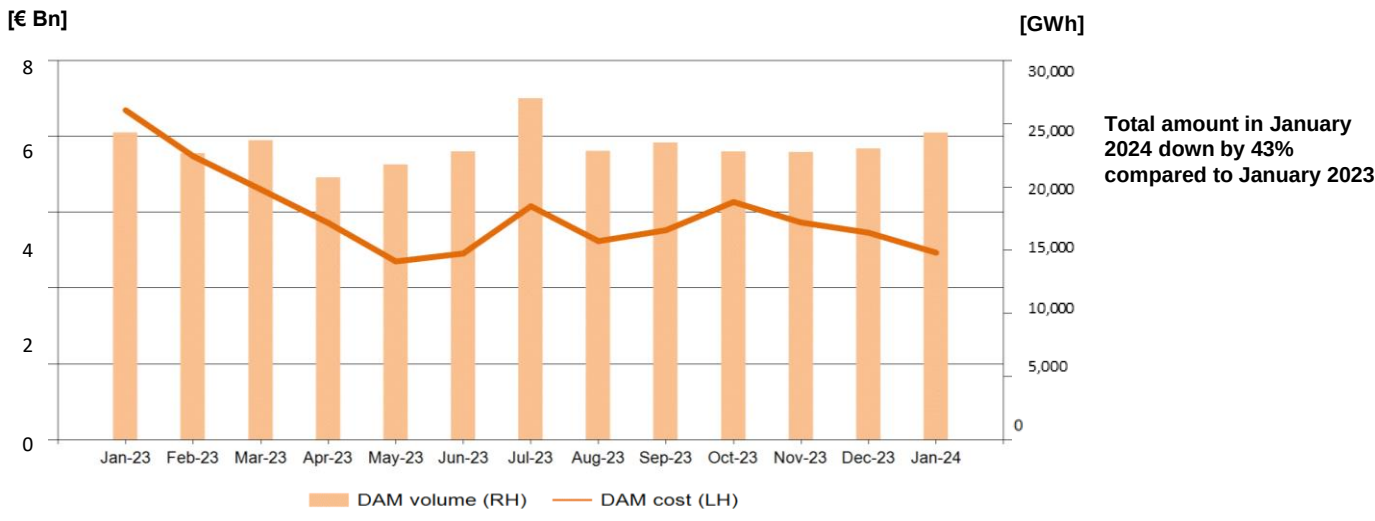
1. The operating capacity and the number of plants take into account new activations, upgrades and decommissioning of plants

Day-Ahead Market

The January 2024 total for withdrawal programmes on the DAM was approximately €2.5 Bn, down 10% compared to the previous month and down 43% compared to January 2023.

The decrease compared to December 2023 is due to a drop in average PUN, just as the decrease compared to the previous year is due to a drop in average PUN from €174.5/MWh (January 2023) to €99.2/MWh (January 2024).

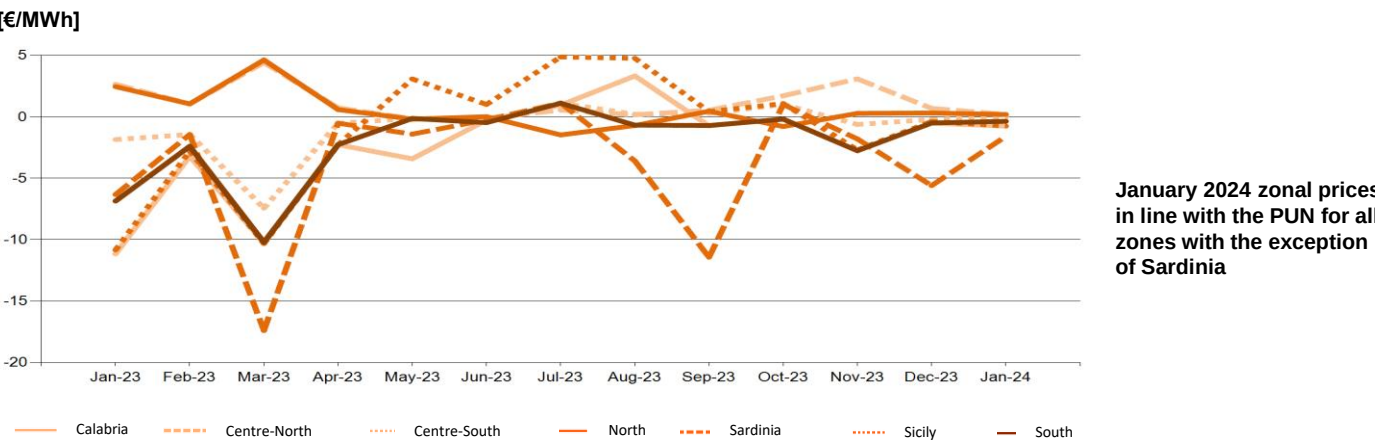
Day Ahead Market – amounts and volumes



Source: Terna calculation on GME data

In January, the zonal prices were basically in line with the PUN, with the exception of the Sardinia zone, which recorded a spread of -€1.6/MWh.

Spread compared to the PUN



Source: Terna calculation on GME data

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The spread between the peak and off-peak prices in January was, on average, € 16.1/MWh. The highest spread was recorded in the North and Centre-North zones, where it was € 17.8/MWh.

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

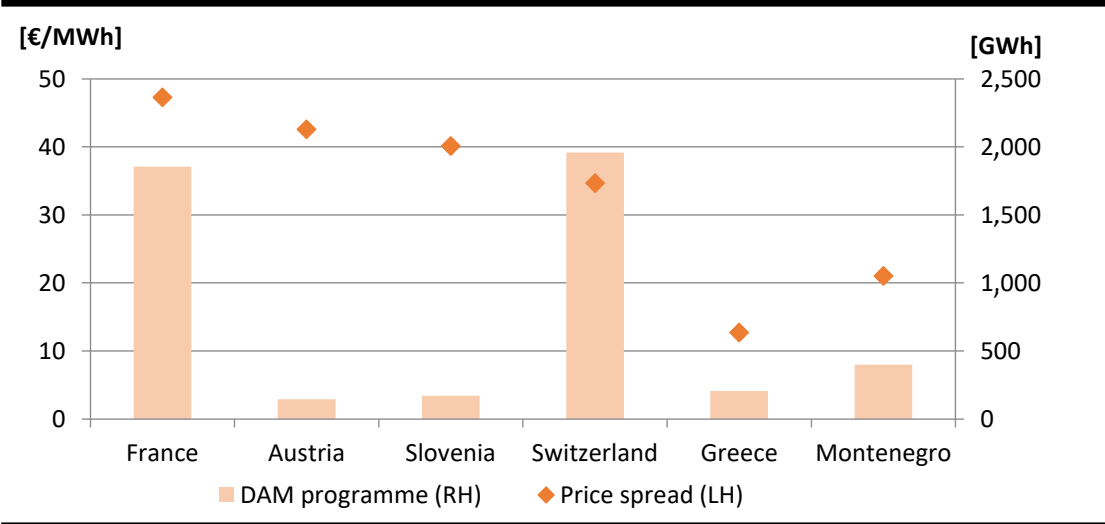
€/MWh	PUN	North	Centre-North	Centre-South	South	Sicily	Sardinia	Calabria
Average	99.2	99.3	99.3	99.1	98.8	98.4	97.6	98.4
Y-o-Y	-75.3	-77.6	-77.8	-73.5	-68.8	-65.2	-70.6	-64.9
Δ vs PUN	-	0.2	0.2	0	-0.4	-0.8	-1.6	-0.8
Δ vs PUN 2023	-	2.5	2.6	-1.9	-6.9	-10.8	-6.3	-11.2
Peak	110.3	110.8	110.8	110.4	109.4	108.2	105.9	108.2
Off-Peak	93	93	93	92.9	92.9	93	92.9	93
Δ Peak vs Off-Peak	17.3	17.8	17.8	17.5	16.5	15.2	13.0	15.2
Minimum	35.2	35.2	35.2	35.2	35.2	35.2	0	35.2
Average	143.8	144.1	144.1	144.1	144.1	143.8	144.1	143.8

Peak-off peak spread down on average compared to the previous month

Source: Terna calculation on GME data

January 2024 saw a drop in price spreads on all borders compared with the previous month. Imports totalled 6.1 TWh, an increase compared to the previous month, with France and Switzerland accounting for 42% and 38% of the total respectively. Total exports were 0.3 TWh, with Slovenia accounting for 38% and Greece 21%.

Price spread with foreign exchanges and day ahead programmes



Net imports on the northern border of 5.3 TWh.

Source: Terna calculation

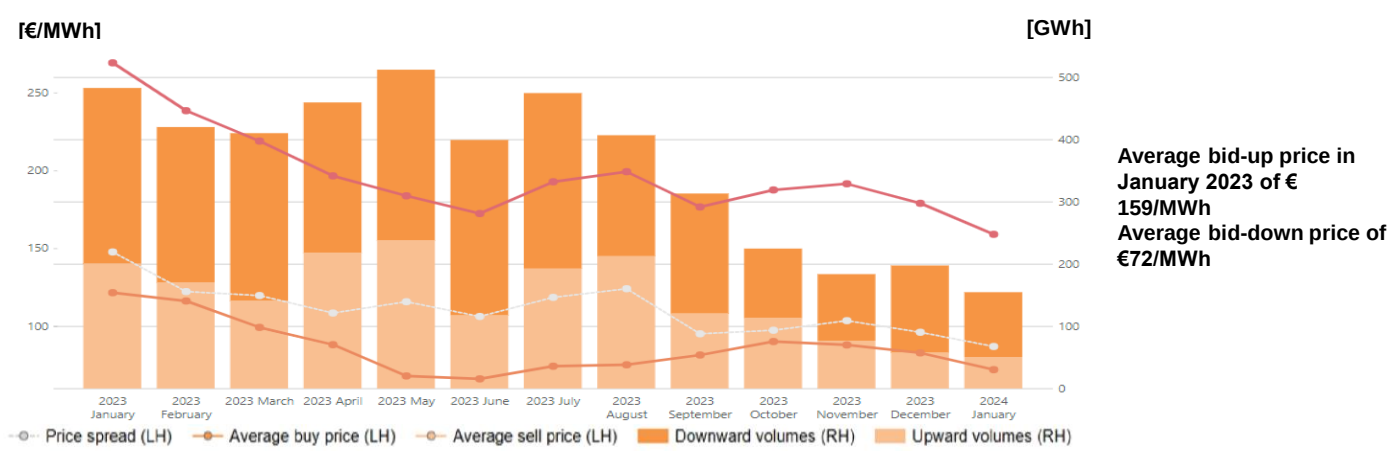
Ex-ante Ancillary Services Market

In January, the spread between average bid-up and bid-down prices was €87/MWh, down compared to the previous month by 9% and down by 41% compared to January 2023.

Total volumes fell compared to the previous month (-22%). More specifically, upward volumes decreased by 12% and downward volumes decreased by 26%.

Upward volumes fell by 75%, while downward volumes fell by 63% compared to the same month of the previous year.

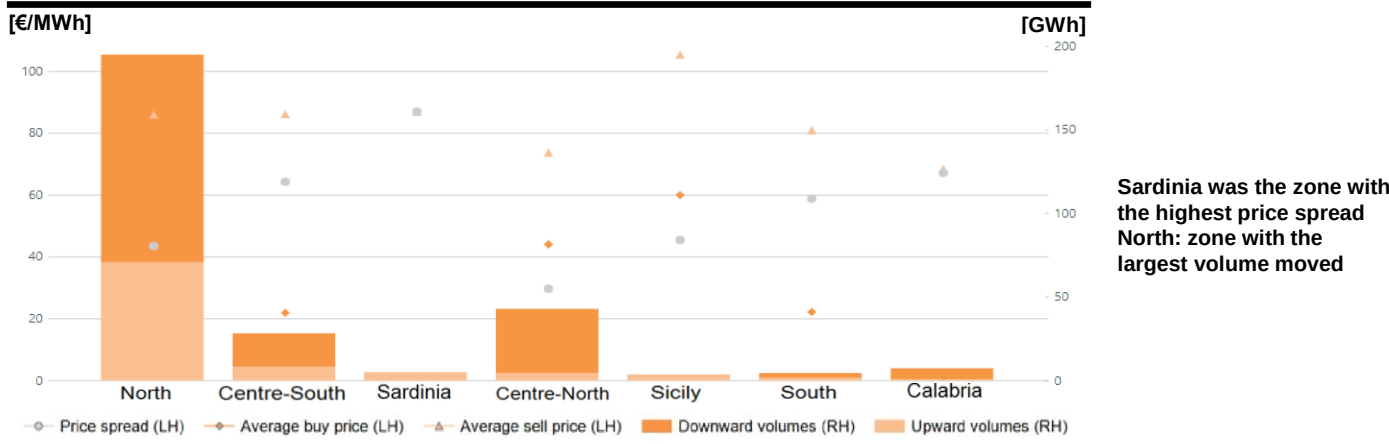
Ex-ante Ancillary Services - prices and volumes



Source: Terna

The market zone characterised by the highest spread (€161/MWh) is Sardinia. In the other zones the spread was between € 55/MWh in Centre-North and € 124/MWh in Calabria. The North remains the zone with the largest volume moved (38 GWh upward volumes and 67 GWh downward volumes).

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



Source: Terna

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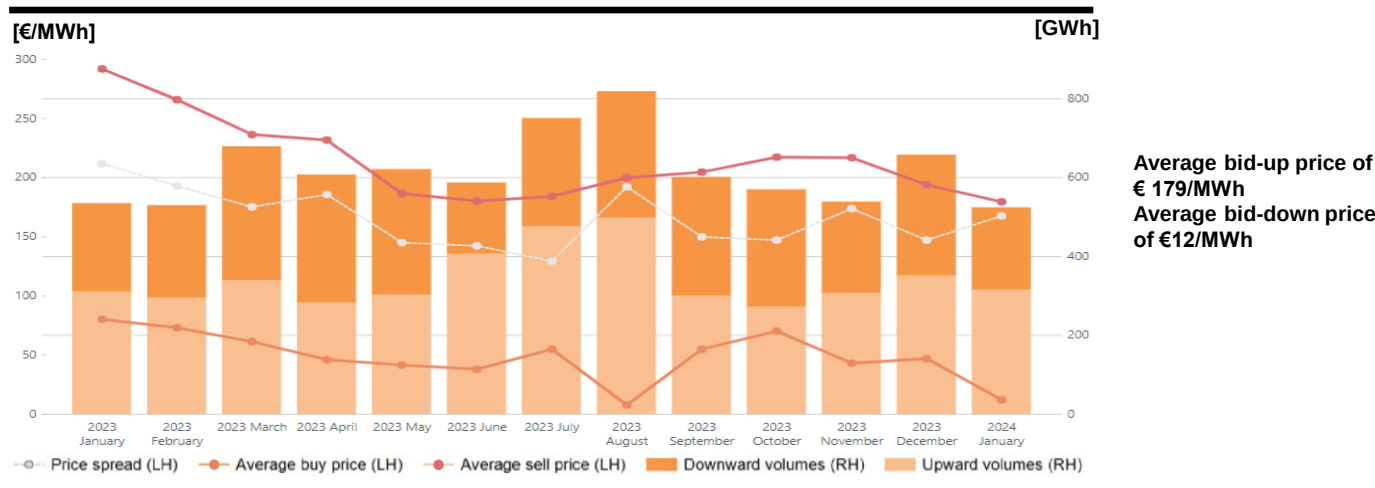
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Balancing Market

In January 2024, the spread between the bid-up and bid-down prices was €167/MWh, which is up on the previous month (€147/MWh; +14%) and down compared to January 2023 (€212/MWh; -21%).

The total volumes decreased compared to the previous month (-20%), in particular upward volumes decreased by 10% and downward volumes by 32%. Compared to January 2023, the upward volumes increased by 2% and the downward volumes fell by 7%.

Balancing market – prices and volumes

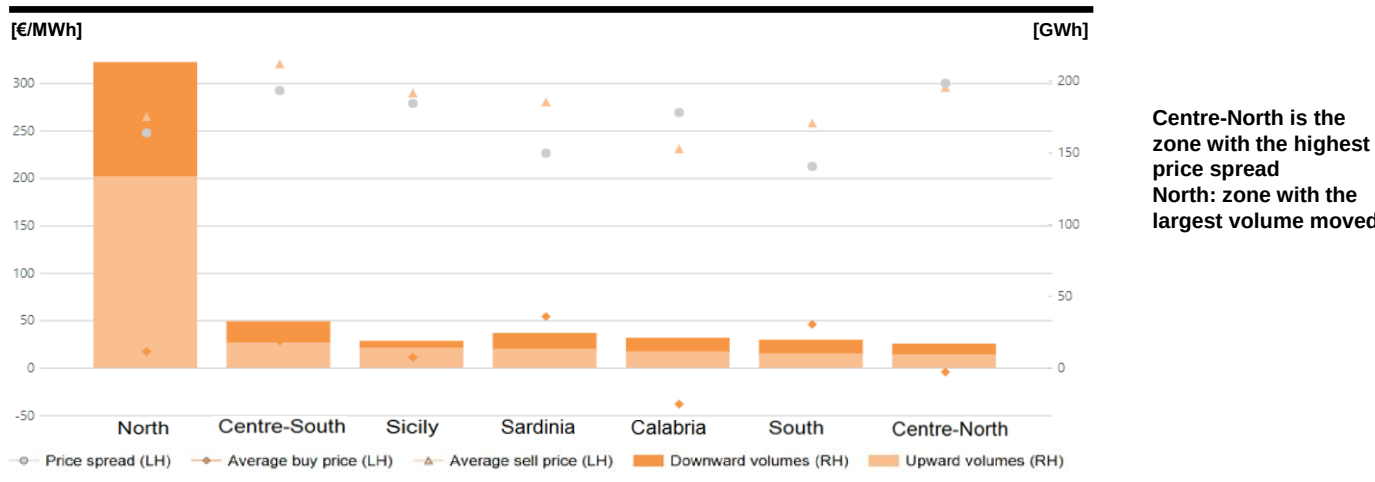


Source: Terna

The market zone featuring the highest spread (€ 198/MWh) is Centre-North, unlike the previous month (Sicily).

In January, the Northern zone was confirmed as the zone featuring the highest upward volumes (202 GWh) and the highest downward volumes (121 GWh).

Balancing market – prices and volumes by market zone



Source: Terna

Commodities – Spot Market

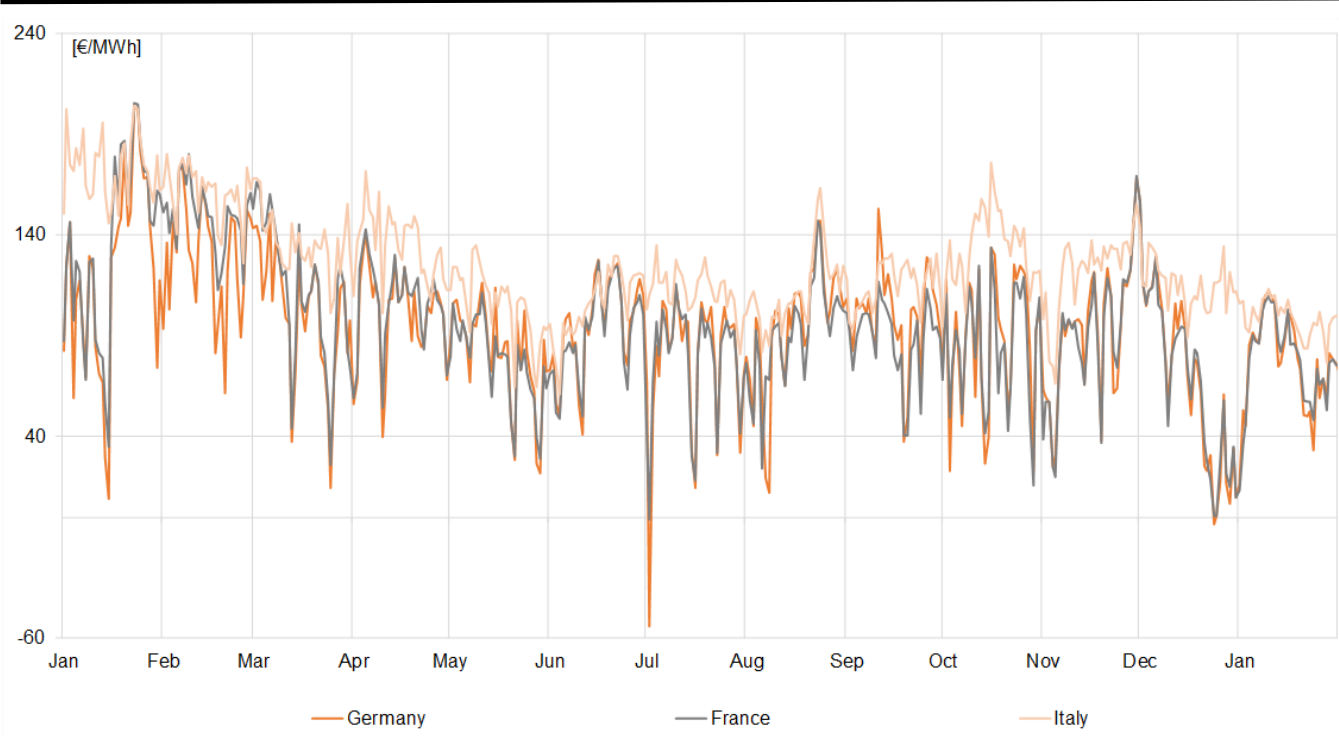
In January, Brent prices recorded an average value of \$80.1/bbl, up compared to December (+2.3%).

The average coal prices (API2) were down compared to December, settling at around \$108.2/t (-8.5%).

European gas prices (TTF) in January fell compared to December, with a monthly average of €29.8/MWh (-16.5% compared to the previous month); the PSV recorded a decrease, settling at €31.1/MWh (-15.5%).

Electricity prices in Italy fell in January compared to the previous month, with a monthly average of €99.2/MWh (-14.1%). The French power exchange was up, with the price of electricity at €76.6/MWh (+11.9%), as was the German exchange at €76.6/MWh (+11.8%).

Spot electricity prices



Source: Terna calculation on GME and EPEX data

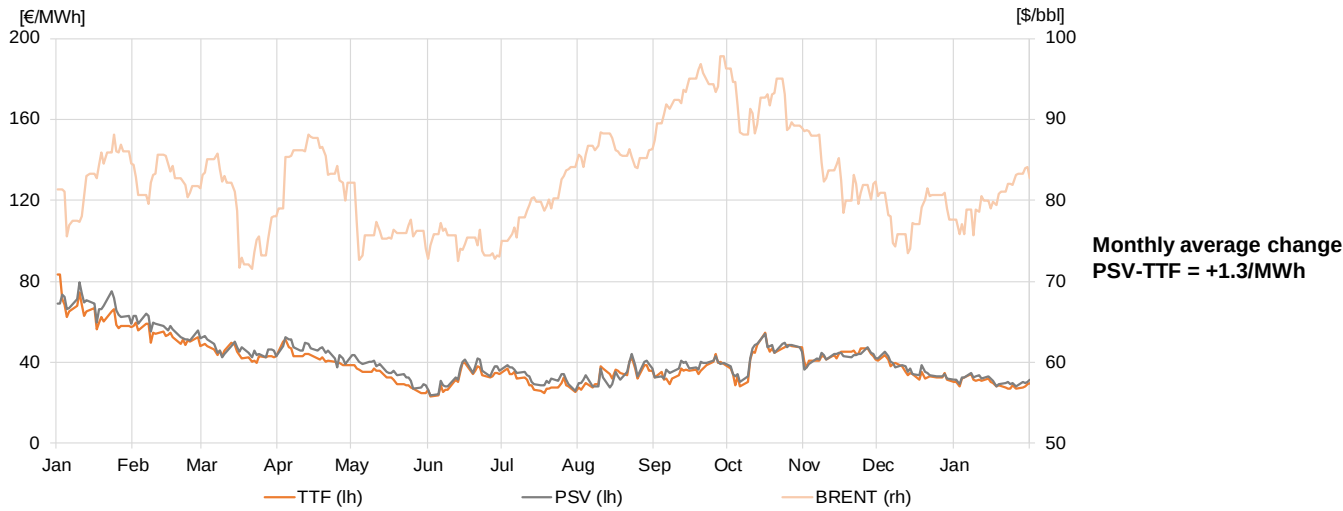
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Gas & Oil spot prices



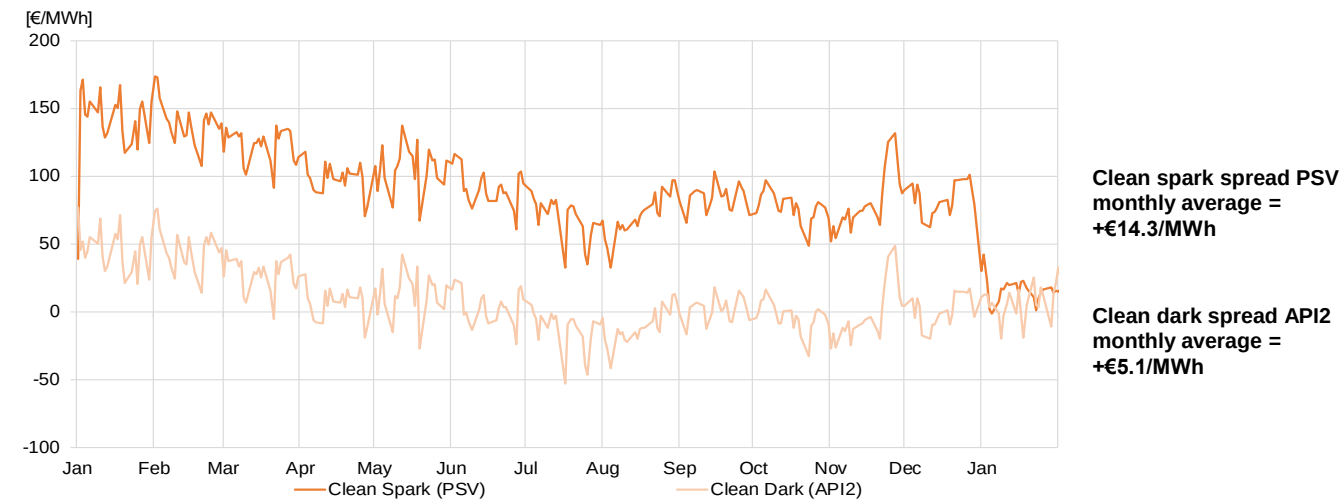
Source: Terna calculation on Bloomberg data

Coal & Carbon spot prices



Source: Terna calculation on Bloomberg data

Clean Dark & Spark spreads Italy



Source: Terna calculation on Bloomberg data

Commodities – Forward Market

In January, Brent forward prices recorded an average value of \$73.1/bbl, down compared to December (-16.4%).

The average forward prices of coal (API2) were down compared to December, settling at around \$99.5/t (-5.5%).

Forward prices of gas in Europe (TTF) were down compared to the previous month (-12.5%), settling at around €33.2/MWh. Forward prices in Italy (PSV) were also up, which showed an average figure of €33.8/MWh (-9.9%).

The average forward prices of electricity in Italy stood at around €99.6/MWh, down compared to the previous month (-11.2%). The French power exchange was down, where the price stood at around €81.2/MWh (-13.7%), as was the German power exchange, where the price was €86.5/MWh (-8.3%).

Forward Electricity Prices – Year+1



Source: Terna calculation on Bloomberg data

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Year+1 Forward Gas & Oil Prices



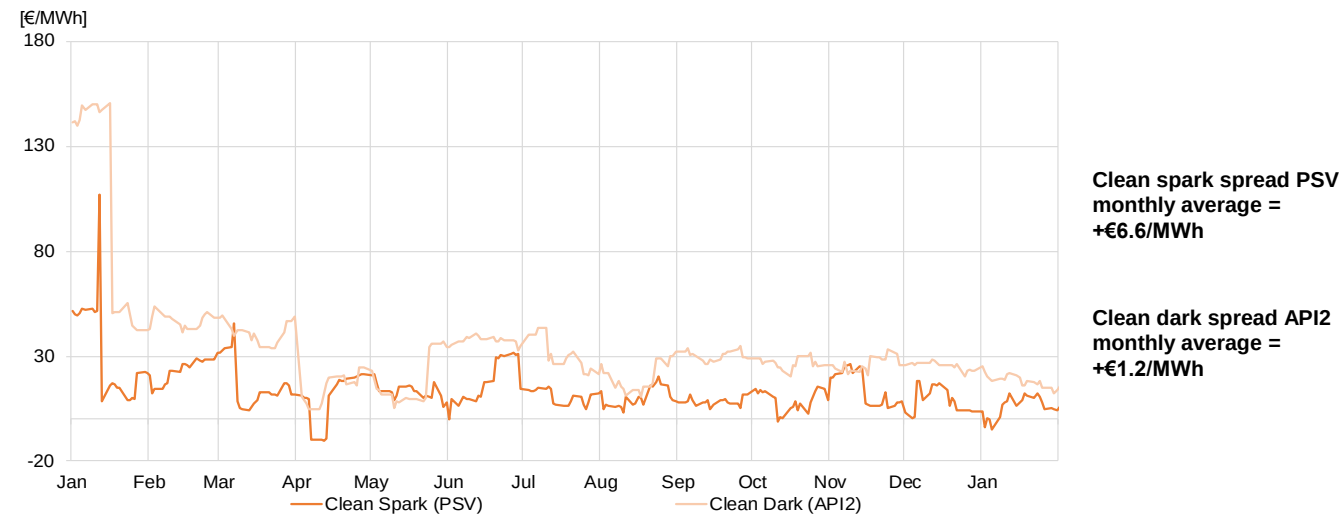
Source: Terna calculation on Bloomberg data

Year+1 Forward Coal & Carbon Prices



Source: Terna calculation on Bloomberg data

Clean Year+1 Forward Dark & Spark spreads Italy



Source: Terna calculation on Bloomberg data

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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 CO2 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 CO2 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.

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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.

CO₂ 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 index was constructed based on the size of the monthly withdrawals of the approximately 530 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.

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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 and precise 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.