A close-up photograph of two workers in safety gear working on a high-voltage electrical structure. The worker on the left wears a yellow helmet and an orange jacket, while the worker on the right wears a white helmet and a blue jacket. They are both wearing gloves and are focused on adjusting a metal component of the structure. The background is slightly blurred, showing more of the industrial setting.

July 2019

Monthly Report on the Electricity System



July 2019

Monthly Report on the Electricity System

Monthly Report on the Electricity System

01 Energy Balance Sheets

page 5

In July 2019, electricity demand in Italy (31.4 billion kWh) increased 3.1% compared to the volumes of the previous July. This result was achieved with one more business day (23 vs. 22) and with an average temperature essentially the same as July 2018. The value, adjusted for seasonal, calendar and temperature effects, shows a more modest increase of 1.5%.

Demand in the first seven months of 2019 remained stable, with a 0.0% change compared to the same period in 2018. In adjusted terms, it remains essentially unchanged at -0.1%.



02 Electricity System

page 11

In July 2019, net domestic production was 27,994 GWh, 41% from renewable sources (11,606 GWh) and the remaining 59% from thermal sources.

Monthly production from renewable energy sources compared to the previous year saw increases in hydroelectric (9.2%) and geothermal (2.1%) production, while photovoltaic production fell (-0.9%).



03 Electricity Market

page 14

The July total for withdrawal programmes on the DAM was approximately €1.5 billion, up 23% compared to the previous month and down 13% compared to July 2018.

In July, the spread between average bid-up and bid-down prices on the DSM was €74.0/MWh, down 31% compared to the previous month and 10% compared to July 2018. Total volumes decreased compared to the previous month (-40%). The spread between bid-up and bid-down prices on the Balancing Market was €72.2/MWh, lower than the previous month (€90.4/MWh) and consistent compared with July 2018 (€73.7/MWh; -2%). Total volumes increased 18% compared to the previous month.



04 Regulation

page 22

This month, we present a selection of ARERA resolutions relevant for dispatching and transmission activities.



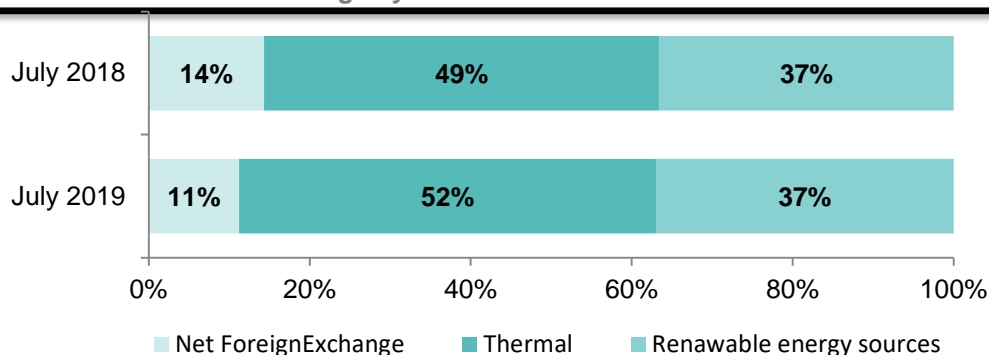
July 2019

Monthly Report on the Electricity System

Monthly Summary

In July 2019, electricity demand was 31,386 GWh, a 3.1% increase compared to the same month of the previous year. In particular, compared to July of last year, there was a 19.1% decrease in foreign exchange, a 7.9% increase in thermoelectric production, and a 4.2% increase in production from renewable energy sources.

Demand breakdown – coverage by sources



In July, electricity demand on the grid was up 3.1% compared to the same month of 2018.

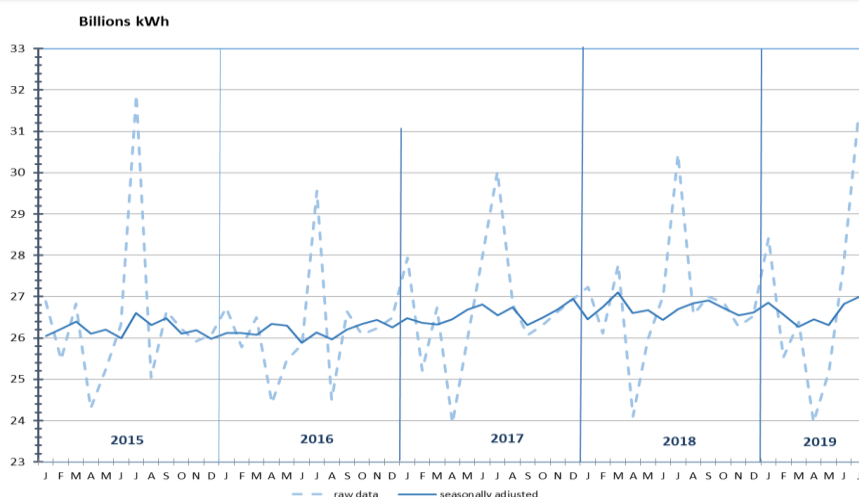
Source: Terna

Short-term analysis

In July 2019, electricity demand in Italy (31.4 billion kWh) recorded an increase of 3.1% compared to the volumes of the previous July. This result was achieved with one more business day (23 vs. 22) and with an average temperature essentially the same as July 2018. The value, adjusted for seasonal, calendar and temperature effects, shows a more modest increase of 1.5%. Demand in the first seven months of 2019 remained stable, with a 0.0% change compared to the same period in 2018. In adjusted terms, it remains essentially unchanged at -0.1%. At the regional level, in July 2019, the annual trend was positive, but different according to the area of the country: +3.0% in the North, +3.8% in Central Italy, and +2.9% in the South.

The data for July 2019, adjusted for calendar and temperature effects, recorded a slight increase of 0.4% in electricity demand compared to the previous month. After the increase of the month before, this value continues the slightly increasing trend. Finally, in July 2019, 88.8% of electricity demand in Italy was covered by domestic production, less pumping, (+6.7% of net production compared to July 2018) and the remainder by imports (foreign exchange down 19.1% compared to July 2018).

Demand – Seasonally adjusted



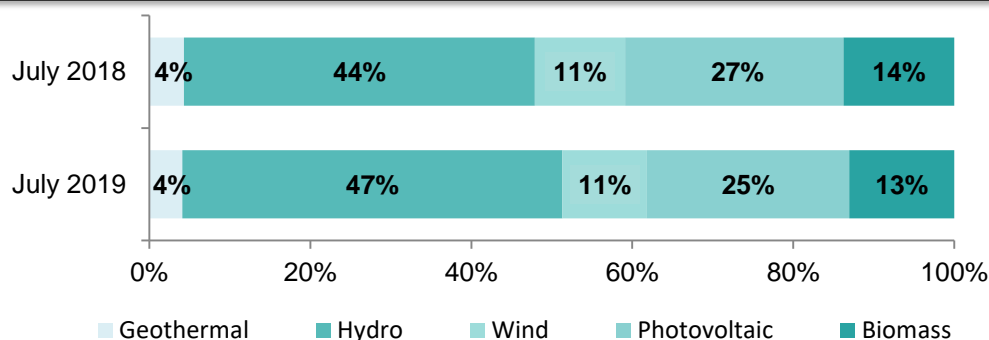
The value, adjusted for seasonal, calendar and temperature effects, shows a change of 0.4%.

Source: Terna

Details of Renewable Energy Sources (RESs)

Monthly production from renewable energy sources compared to the previous year saw increases in hydroelectric (9.2%) and geothermal (2.1%) production, while photovoltaic production fell (-0.9%).

RES Production - Breakdown



In July 2019, the detailed breakdown of production from renewable energy sources recorded a M-o-M percentage decrease of 1.2%. In 2019, production from renewables is down 2.0% on the previous year.

Source: Terna

Energy Balance Sheet

In 2019, cumulative demand (188,736 GWh) is stable at 0.0% change compared to the same period of 2018.

In July 2019, net domestic production was 27,994 GWh, 41% from renewable sources (11,606 GWh) and the remaining 59% from thermal sources.

Energy Balance Sheet

[GWh]	July 2019	July 2018	%19/18	Jan-Jul 19	Jan-Jul 18	%19/18
Hydro	5.427	4.968	9,2%	26.745	30.698	-12,9%
Thermal	17.915	16.596	7,9%	109.184	102.654	6,4%
<i>of which Biomass</i>	1.527	1.506	1,4%	10.245	10.351	-1,0%
Geothermal	480	470	2,1%	3.327	3.329	-0,1%
Wind	1.231	1.224	0,6%	12.439	10.876	14,4%
Photovoltaic	2.941	2.968	-0,9%	15.492	14.396	7,6%
Net Total Production	27.994	26.226	6,7%	167.187	161.953	3,2%
Import	4.114	4.686	-12,2%	26.114	30.216	-13,6%
Export	587	327	79,5%	3.176	2.014	57,7%
Net Foreign Exchange	3.527	4.359	-19,1%	22.938	28.202	-18,7%
Pumping	135	135	0,0%	1.389	1.475	-5,8%
Electricity demand⁽¹⁾	31.386	30.450	3,1%	188.736	188.680	0,0%

In 2019, a 57.7% increase in exports has been recorded compared to the previous year. In July 2019, an increase was recorded in thermal (7.9%) and hydroelectric (9.2%) production compared to the previous year.

(1) Electricity Demand = Production + Net Foreign Exchange – Pumping Consumption.

Source: Terna

Monthly Energy Balance Sheets

So far in 2019, net total production (167,187 GWh) is meeting 89% of national electricity demand (188,736 GWh).

Monthly Energy Balance Sheet

[GWh]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Hydro	2.792	2.593	2.115	3.235	4.631	5.952	5.427						26.745
Thermal	19.177	14.862	15.407	14.289	13.184	14.350	17.915						109.184
Geothermal	497	438	482	472	490	468	480						3.327
Wind	2.321	2.338	2.433	1.475	1.648	993	1.231						12.439
Photovoltaic	1.068	1.658	2.384	2.194	2.305	2.942	2.941						15.492
Net Total Production	25.855	21.889	22.821	21.665	22.258	24.705	27.994						167.187
Import	3.352	4.153	4.202	3.040	3.559	3.694	4.114						26.114
Export	531	324	418	509	398	409	587						3.176
Net Foreign Exchange	2.821	3.829	3.784	2.531	3.161	3.285	3.527						22.938
Pumping	249	182	221	226	197	179	135						1.389
Electricity demand⁽¹⁾	28.427	25.536	26.384	23.970	25.222	27.811	31.386						188.736

In July, net total production increased 6.7% compared to 2018. In 2019, so far, the month with the highest demand for electricity is July, with 31,386 GWh.

(1) Electricity Demand = Production + Net Foreign Exchange – Pumping Consumption.

Source: Terna

The evolution of the monthly statement for 2018 is given below.

Monthly Energy Balance Sheet

[GWh]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Hydro	2.731	2.601	3.187	4.675	6.518	6.018	4.968	4.273	3.397	2.796	4.535	3.576	49.275
Thermal	16.650	16.093	15.725	11.940	12.513	13.137	16.596	15.792	16.918	16.696	16.671	16.315	185.046
Geothermal	494	445	492	476	486	466	470	472	464	483	466	494	5.708
Wind	1.986	1.696	2.422	1.221	909	1.418	1.224	750	946	1.475	1.361	1.910	17.318
Photovoltaic	1.029	1.052	1.688	2.428	2.437	2.794	2.968	2.688	2.351	1.607	934	911	22.887
Net Total Production	22.890	21.887	23.514	20.740	22.863	23.833	26.226	23.975	24.076	23.057	23.967	23.206	280.234
Import	4.899	4.611	4.732	4.004	3.671	3.613	4.686	2.992	3.168	4.065	2.771	3.967	47.179
Export	326	200	179	337	370	275	327	285	149	112	300	410	3.270
Net Foreign Exchange	4.573	4.411	4.553	3.667	3.301	3.338	4.359	2.707	3.019	3.953	2.471	3.557	43.909
Pumping	223	192	286	299	201	139	135	109	101	155	161	232	2.233
Electricity demand⁽¹⁾	27.240	26.106	27.781	24.108	25.963	27.032	30.450	26.573	26.994	26.855	26.277	26.531	321.910

In 2018, the month with the highest demand for electricity was July, with 30,450 GWh.

(1) Electricity Demand = Production + Net Foreign Exchange – Pumping Consumption.

Source: Terna

Demand by Geographical Areas

In July 2019, there was an increase in demand in the Northern zone (TO, MI, VE), in the Centre (RM, FI), in the Southern zone (NA) and for the Islands (PA-CA) compared to the same period of the previous year.

Demand by Geographical Area

[GWh]	Turin	Milan	Venice	Florence	Rome	Naples	Palermo	Cagliari
July 2019	3.120	6.675	4.886	4.946	4.401	4.568	1.937	853
July 2018	3.062	6.539	4.611	4.851	4.260	4.347	1.920	860
% Jul 2019/2018	1,9%	2,1%	6,0%	2,0%	3,3%	5,1%	0,9%	-0,8%
Cumulated 2019	18.969	40.758	29.675	29.411	26.242	27.156	11.239	5.286
Cumulated 2018	19.370	41.308	29.257	29.667	26.121	26.528	11.123	5.306
% Cumulated 19/18	-2,1%	-1,3%	1,4%	-0,9%	0,5%	2,4%	1,0%	-0,4%

In 2019, the Y-o-Y percentage change in demand is -0.6% in the Northern zone, -0.2% in the Centre, 2.4% in the South and 0.6% for the Islands.

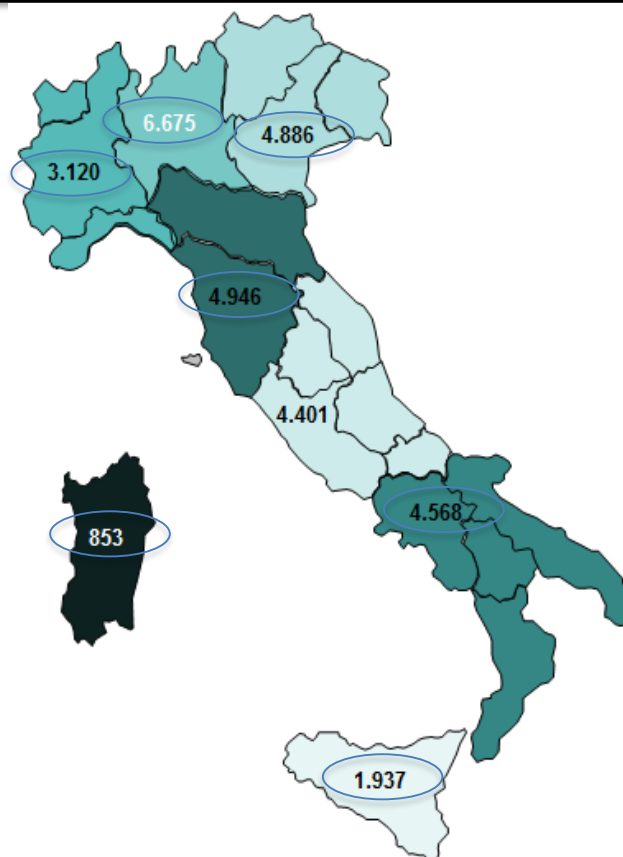
Source: Terna

Demand by Geographical Areas: 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 - Marche
- NAPLES: Campania - Apulia - Basilicata - Calabria
- PALERMO: Sicily
- CAGLIARI: Sardinia



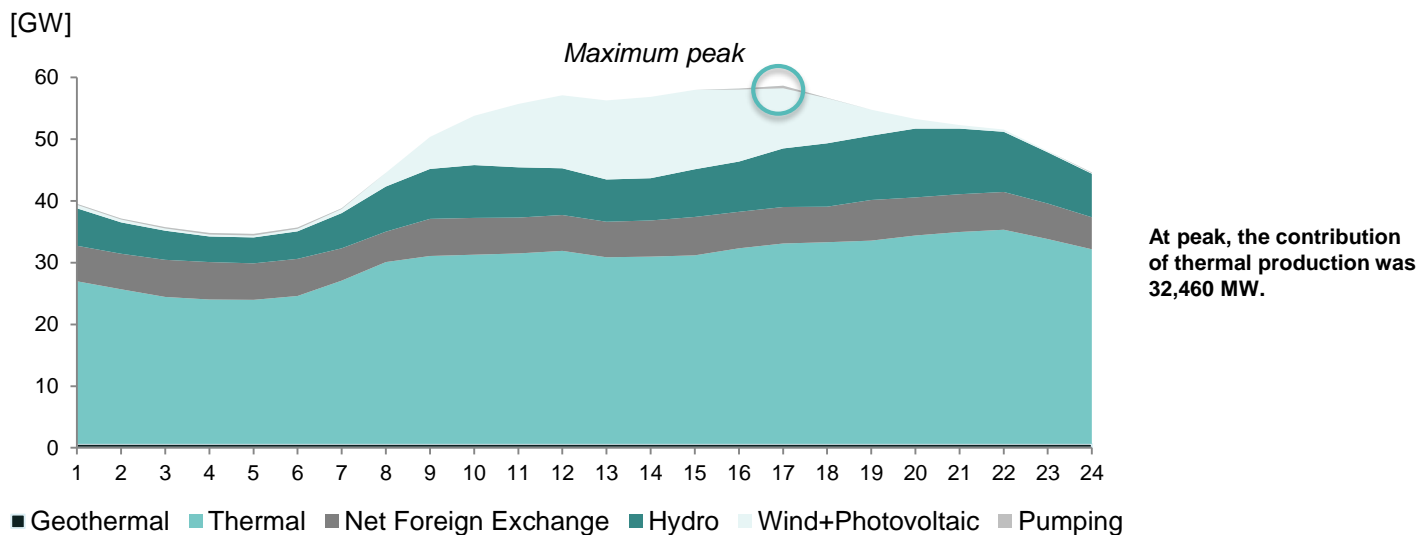
Source: Terna

(*) 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

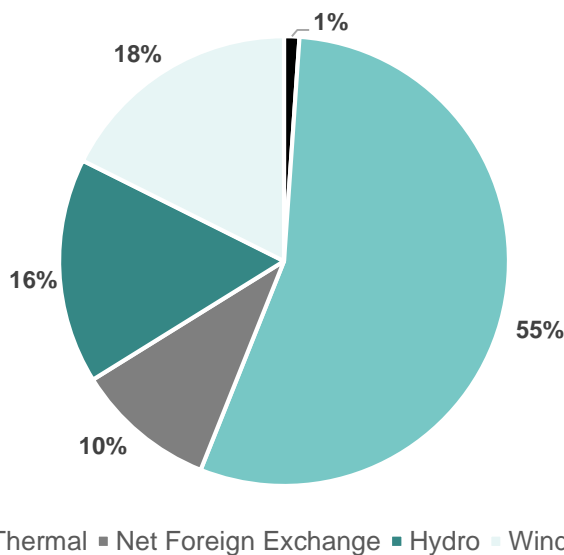
In July 2019, peak demand was recorded on **Thursday 25th between 16:00 and 17:00** at 58,219 MW (+3.3% Y-o-Y). The hourly demand diagram of the peak day is presented below.

Peak Demand



Source: Terna

Coverage at Peak Demand - 25 July 2019, 16:00 - 17:00



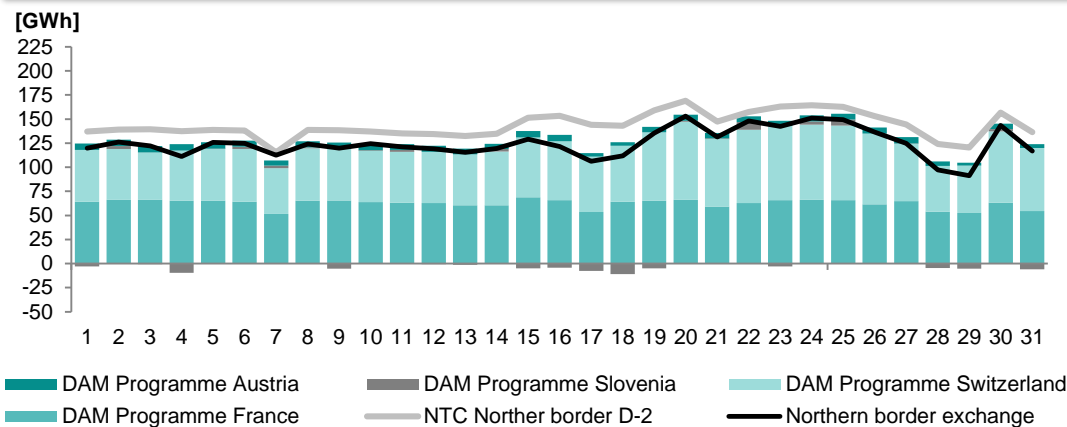
At peak, production from renewable sources helped to cover 35% of demand, thermal production 55%, and the remainder was covered by foreign exchange.

Source: Terna

Net Foreign Exchange – July 2019

In July, there was good saturation of the planned figure for NTC (Net Transfer Capacity) calculated in D-2 compared to the exchange programmes on the Northern border.

Net Foreign Exchange on the Northern border



In July 2019, there were imports of 4,114 GWh and exports of 587 GWh.

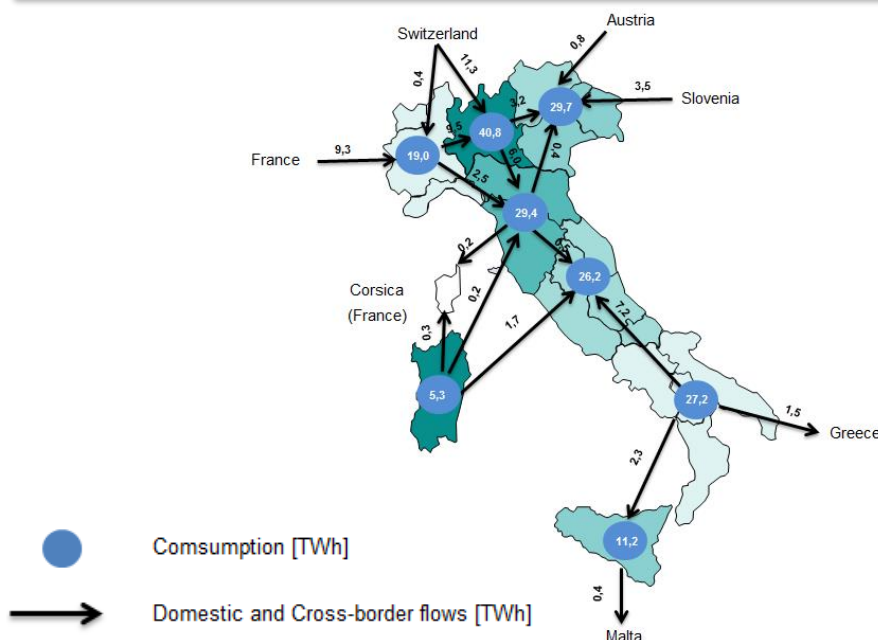
Source: Terna

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.

The 380 kV connection between Sicily and the Mainland ensures secure management of the electricity system in Sicily and Calabria.

Balance of physical electricity exchanges: map chart*



In 2019, a net exchange was recorded from the Northern zone to Emilia Romagna and Tuscany of around 8.1 TWh. The mainland is showing a net exchange towards Sicily of 2.3 TWh.

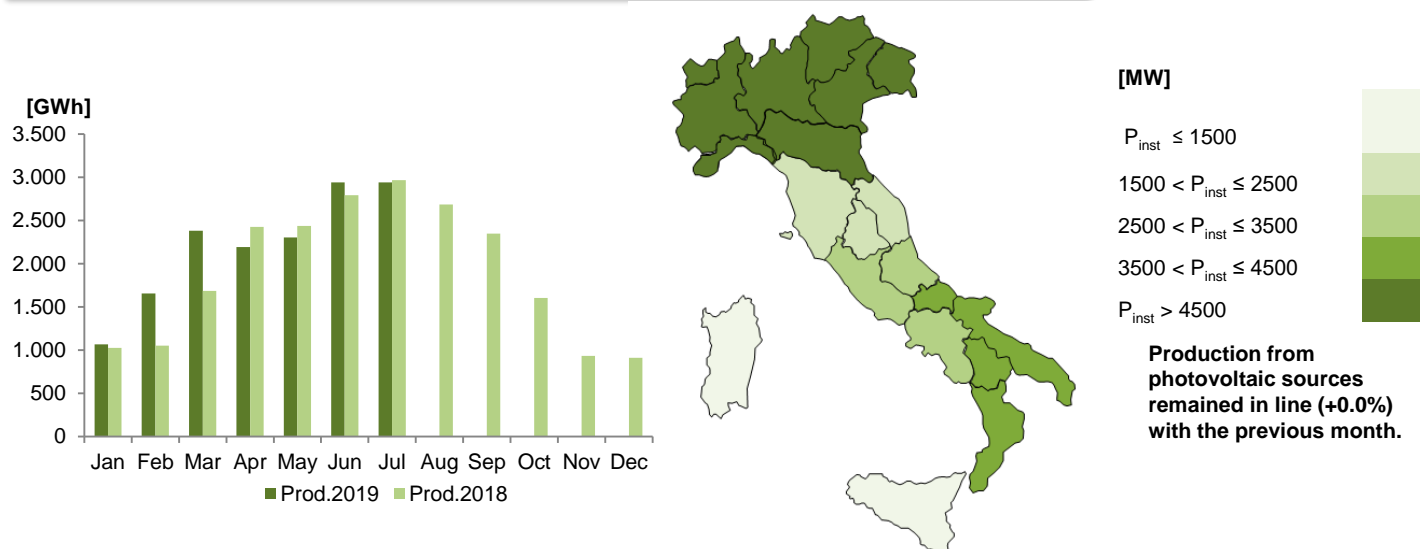
Source: Terna

* The relative reports for 2019 do not consider energy exchanges linked to tests on new interconnection grid elements.

Production and Installed Capacity

Energy produced by photovoltaic sources in July 2019 was 2,941 GWh, consistent with the previous month. The annual cumulative figure increased by 7,6% compared to the previous year.

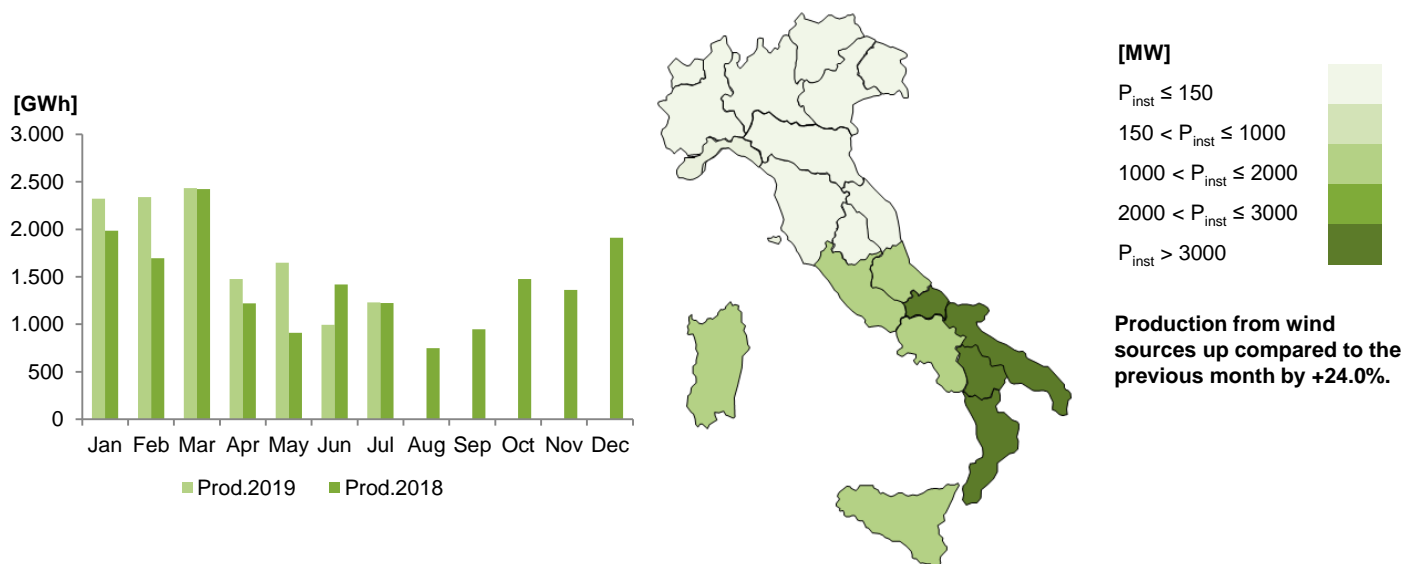
Photovoltaic Production and Capacity



Source: Terna

Energy produced by wind power in July 2019 was recorded at 1,231 GWh, up compared to the previous month by 238 GWh. The annual cumulative figure increased by 14.4% compared to the previous year.

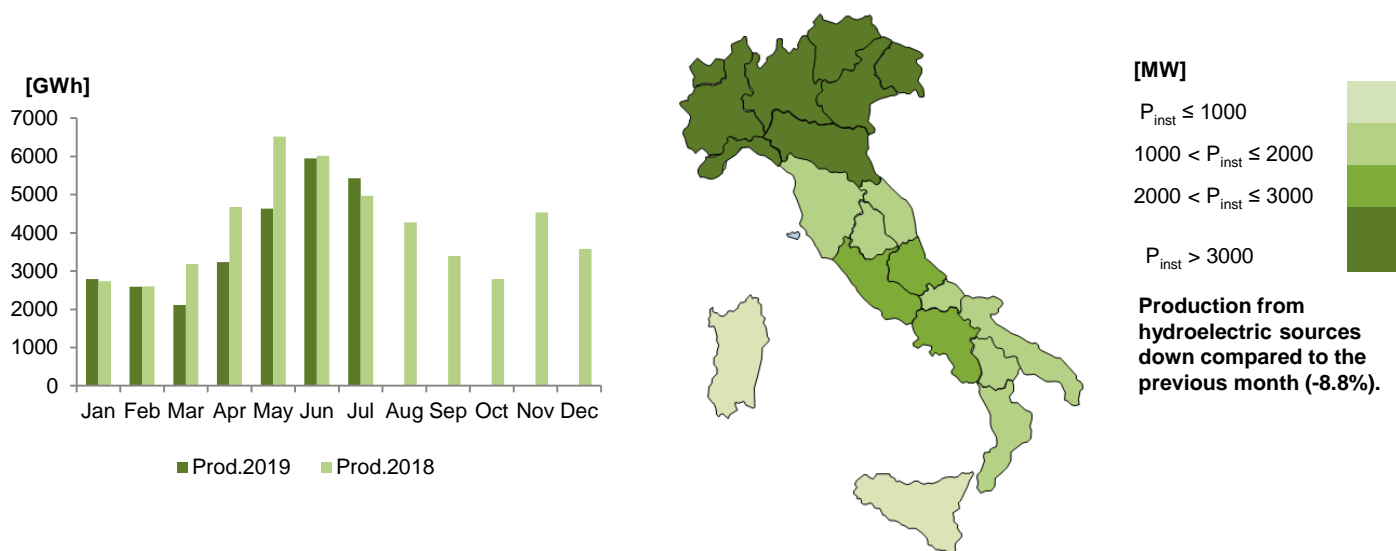
Wind Production and Capacity



Source: Terna

Energy produced by hydroelectric sources (e.g. reservoirs, tanks and run-of-river) in July 2019 was 5,427 GWh, down on the previous month by 525 GWh. The annual cumulative figure was down (-12.9%) compared to the previous year.

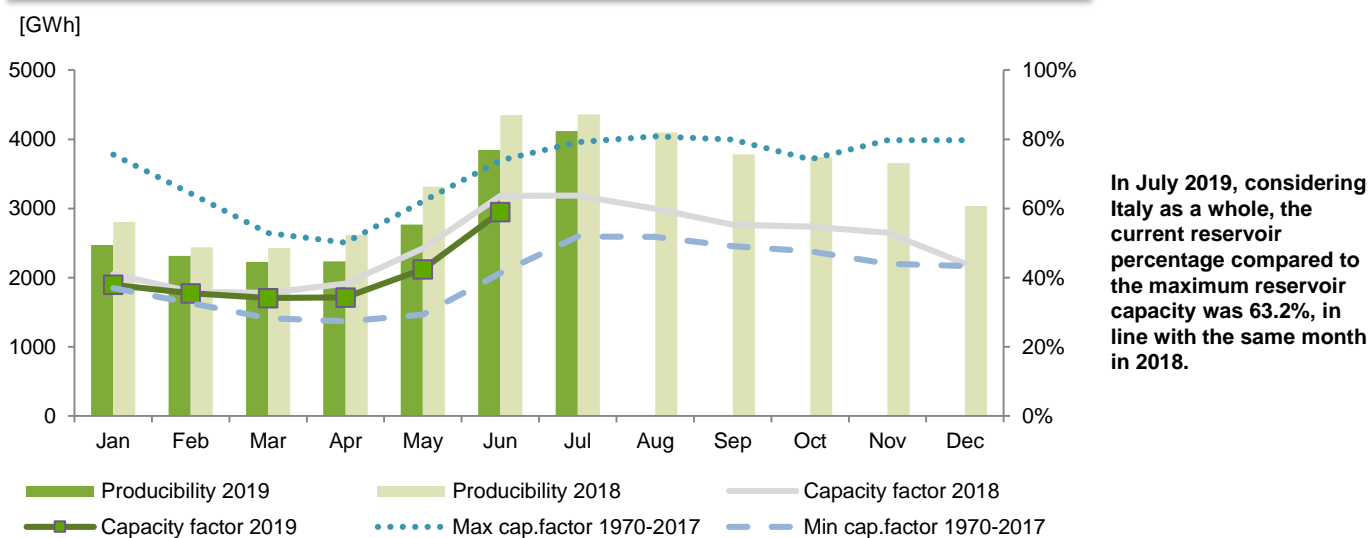
Hydroelectric Production and Capacity



Source: Terna

In July, hydroelectric producibility increased compared to the previous month.

Hydroelectric Producibility and Reservoir Percentage

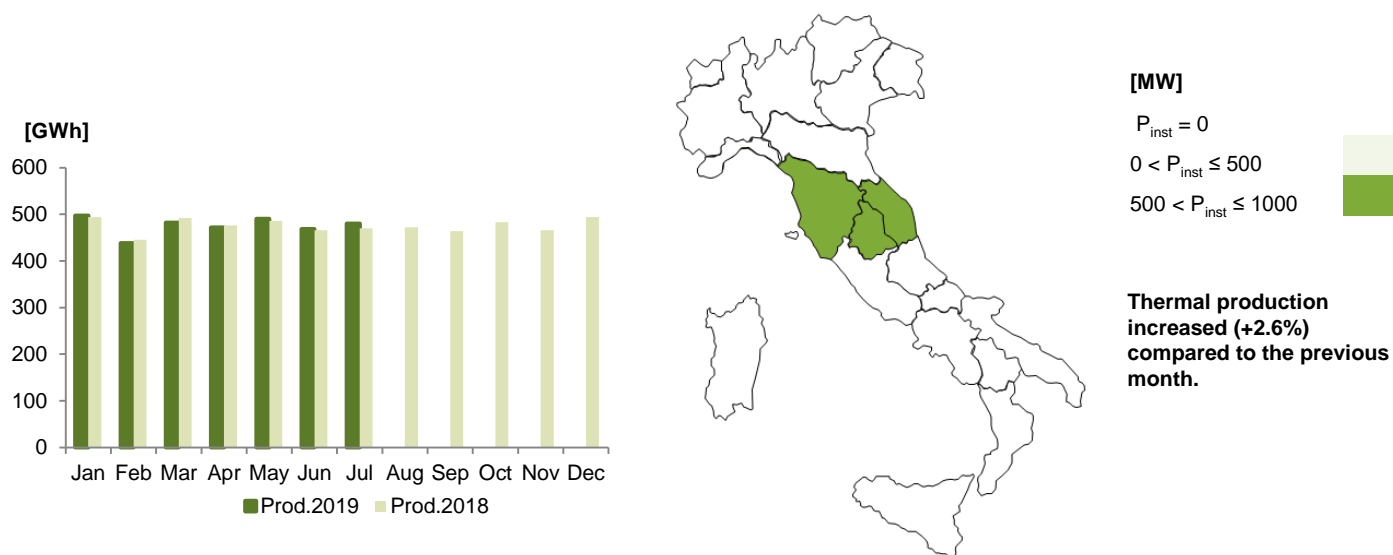


Reservoir Capacity		NORTH	CENTRE SOUTH	ISLANDS	TOTAL
2018 2019	[GWh]	2.844	1.026	250	4.119
	%(capacity / max capacity)	65,8%	56,5%	65,5%	63,2%
	[GWh]	3.009	1.107	244	4.360
	%(capacity / max capacity)	64,8%	61,0%	64,1%	63,8%

Source: Terna

Energy produced by geothermal sources in July 2019 was 480 GWh, up compared to the previous month by 12 GWh. The annual cumulative figure was in line with the previous year (-0.1%).

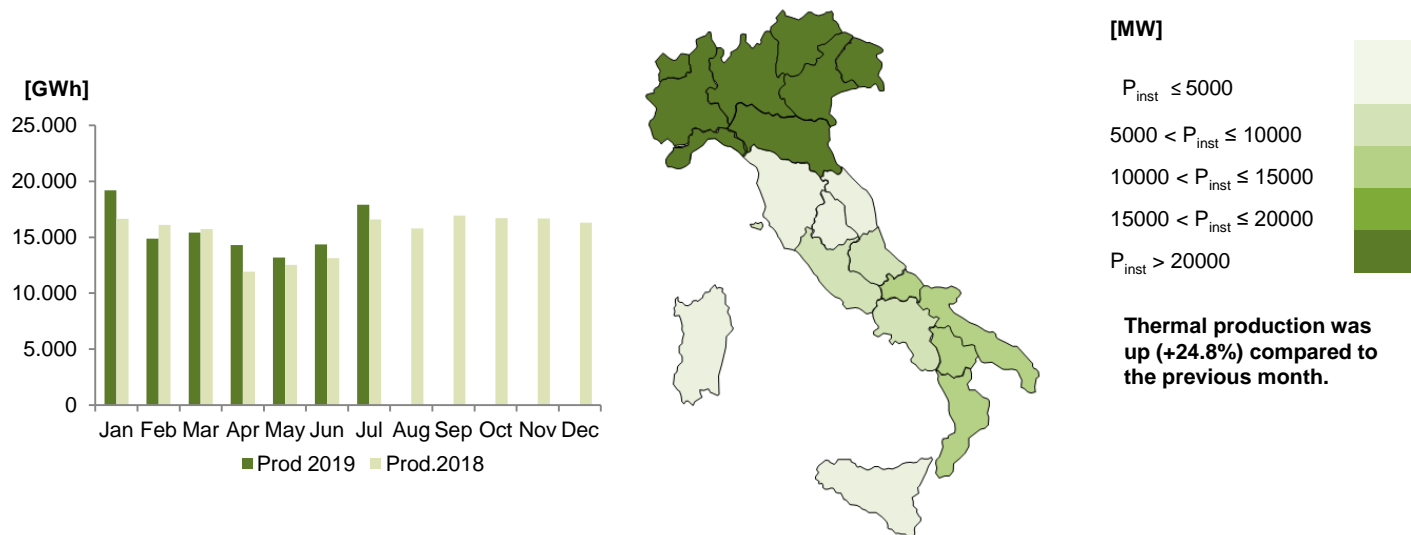
Geothermal Production and Capacity



Source: Terna

Energy produced by geothermal sources in July 2019 was 14,915 GWh, up on the previous month by 3,565 GWh. The annual cumulative figure was up (+6.4%) compared to the previous year.

Thermal Production and Capacity



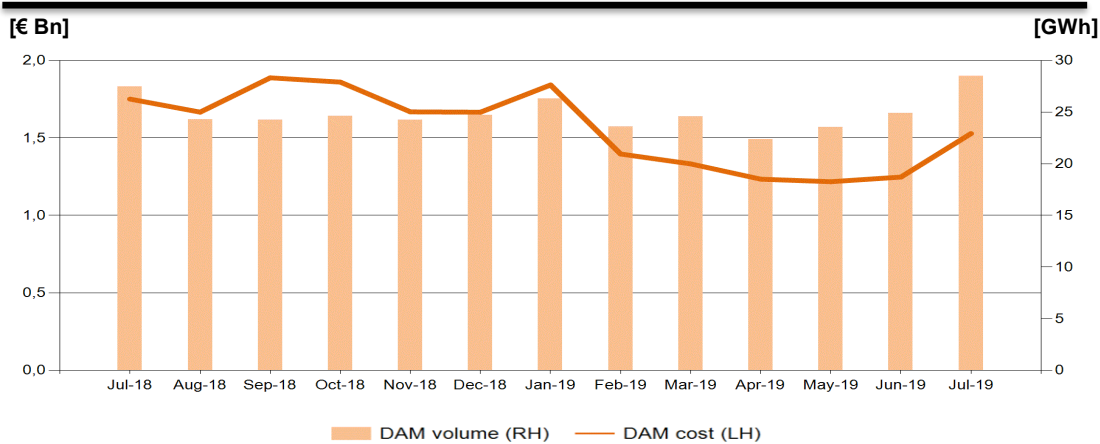
Source: Terna

Day-Ahead Market

The July total for withdrawal programmes on the DAM was approximately €1.5 billion, up 23% compared to the previous month and down 13% compared to July 2018.

The increase compared to June is due to growth in both average PUN and demand, while the decrease over the previous year is due to a drop in average PUN from €62.7/MWh in July 2018 to €52.3/MWh in July 2019.

Day-Ahead Market – amounts and volumes



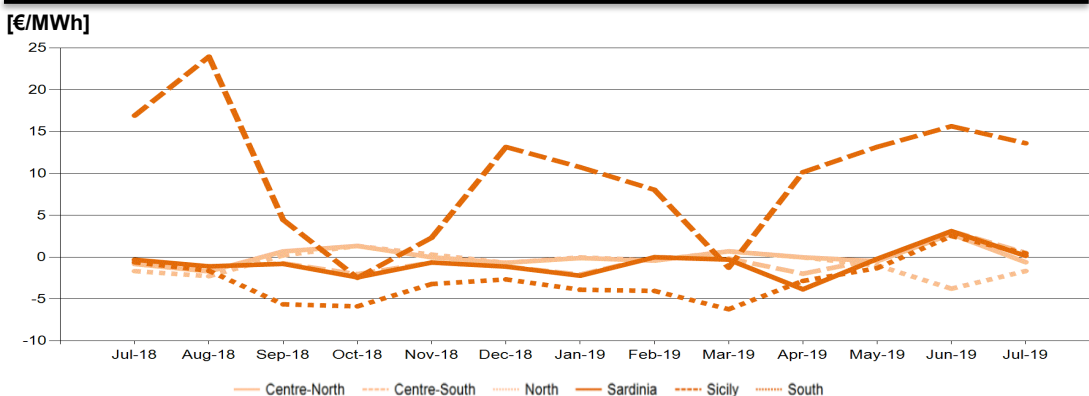
Total amount in July 2019 down 13% compared to July 2018

Source: Terna calculation on GME data

In July, the zonal prices were basically in line with the PUN, with the exception of Sicily, which recorded a spread of +€13.6/MWh.

Compared to July 2018, the price of the Sicily zone recorded an average decrease of €13.7/MWh, while for the other zones, there was an average decrease of €10.2/MWh.

Spread compared to the PUN



July 2019 zonal prices in line with the PUN for all zones except Sicily

Source: Terna calculation on GME data

In July, the spread between the peak and off-peak prices was, on average, €10.5/MWh for the Northern and Centre-North zones, and €7.2/MWh on average for the Centre-South, Southern and Sardinia zones, while Sicily was €3.2/MWh on average.

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

€/MWh	PUN	North	Centre-North	Centre-South	South	Sicily	Sardinia
Average	52.3	50.6	51.7	52.8	52.8	65.9	52.5
Y-o-Y	-10.4	-10.4	-10.2	-9.6	-9.3	-13.7	-9.9
Δ vs PUN	-	-1.7	-0.6	0.5	0.4	13.6	0.1
Δ vs PUN 2018	-	-1.7	-0.8	-0.3	-0.6	16.9	-0.3
Peak	58.3	57.7	57.8	57.6	57.6	67.9	56.4
Off Peak	48.8	46.5	48.1	50.0	49.9	64.7	50.1
Δ Peak vs Off Peak	9.5	11.3	9.6	7.6	7.7	3.2	6.2
Minimum	30.2	30.2	30.2	30.2	23.2	23.2	0.0
Maximum	81.1	84.6	84.6	73.4	73.4	129.2	84.6

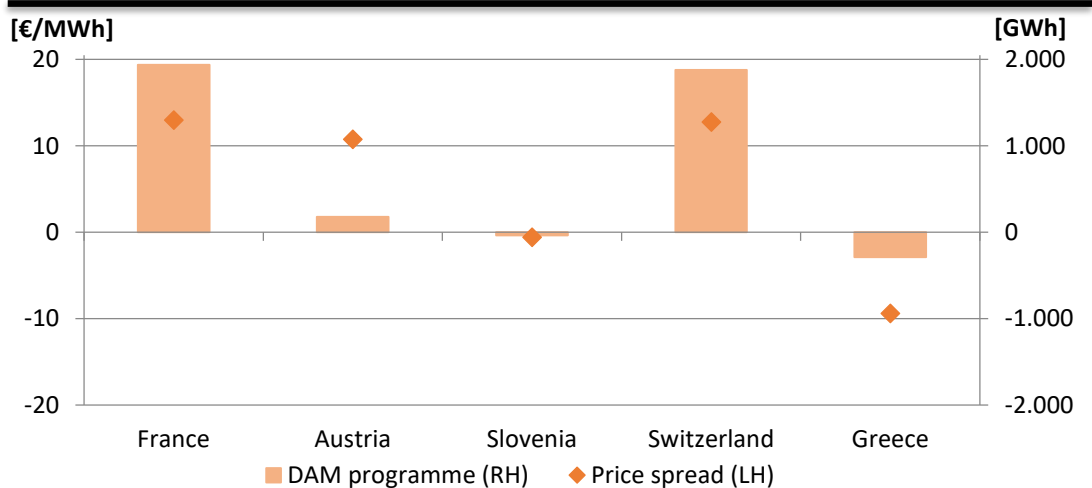
Peak-off peak spread up compared to the previous month for all zones except the North

Source: Terna calculation on GME data

In July, a reduction in the price spread compared to the previous year was recorded on all borders except for those with Austria and Greece.

In July, imports totalled 4.2 TWh, with France and Switzerland accounting for 47% and 46% of the total, respectively. Total exports were 480 GWh, with Greece accounting for 69% and Slovenia 28%.

Price spread with foreign exchanges and day-ahead programmes



4 TWh in net imports on the Northern border

Source: Terna calculation

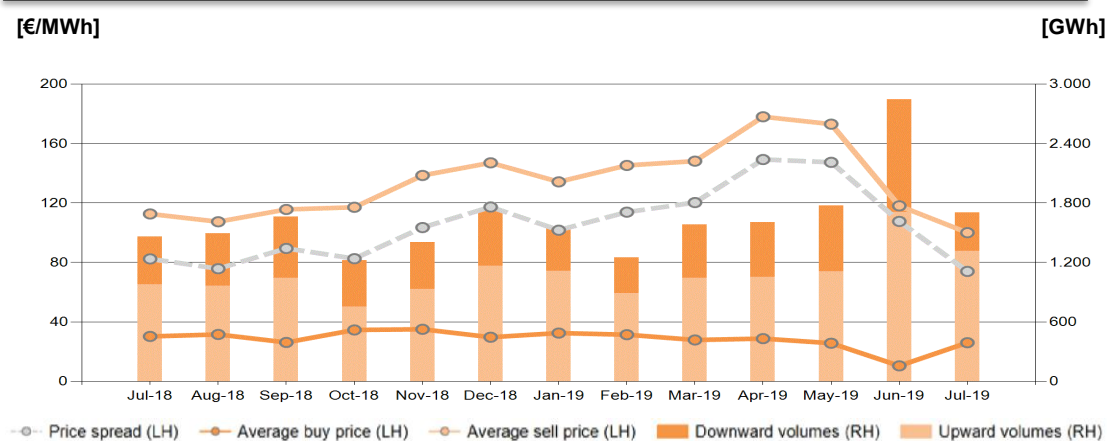
Ex-ante Ancillary Services Market

In July, the spread between average bid-up and bid-down prices was €74.0/MWh, down 31% compared to the previous month and 10% compared to July 2018.

Total volumes fell 40% compared to the previous month. More specifically, upward volumes decreased by 23% and downward volumes decreased by 66%.

Upward volumes increased by 35%, while downward volumes fell by 20% compared to the same month of the previous year.

Ex-ante Ancillary Services - prices and volumes



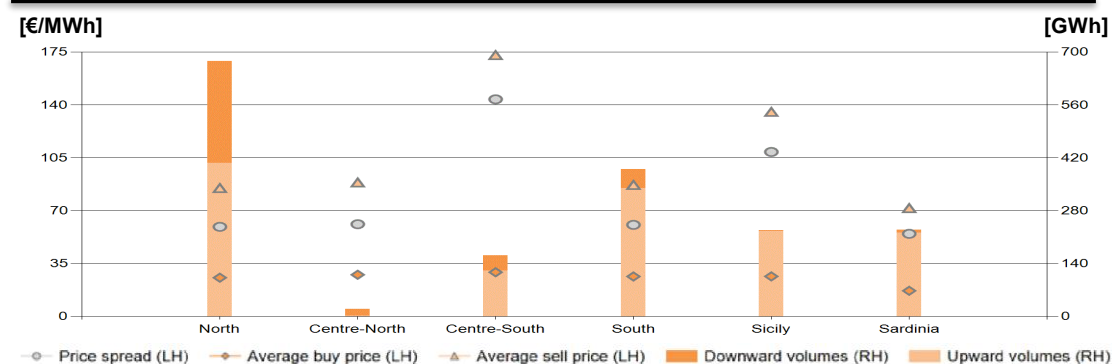
Average bid-up price in July 2019 of €100.0/MWh
Average bid-down price in July 2019 of €26.0/MWh

Source: Terna

The market zone featuring the highest spread (€143.7/MWh) is the Centre-South, as in the previous month.

This spread was 23% lower than the previous month due to an 18% reduction in the average bid-up price (from €210.1/MWh in June to €173/MWh in July) and a 26% increase in the average bid-down price (from €23.2/MWh in June to €29.2/MWh in July).

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



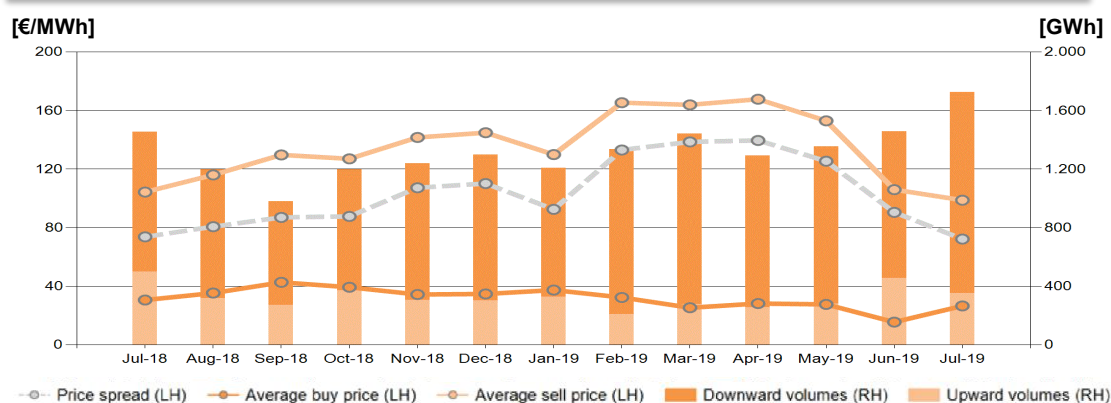
Centre-South: zone with the highest price spread
North: zone with the greatest volumes

Source: Terna

Balancing Market

In July, the spread between bid-up and bid-down prices was €72.2/MWh, lower than the previous month (€90.4/MWh) and consistent compared with July 2018 (€73.7/MWh; -2%). The total volumes increased 18% compared to the previous month. More specifically, upward volumes decreased by 22% and downward volumes rose by 37%. Compared to July 2018, upward volumes decreased by 29% and downward volumes rose by 44%.

Balancing market – prices and volumes



Average bid-up price in July 2019 of €98.7/MWh
Average bid-down price in July 2019 of €26.5/MWh

Source: Terna

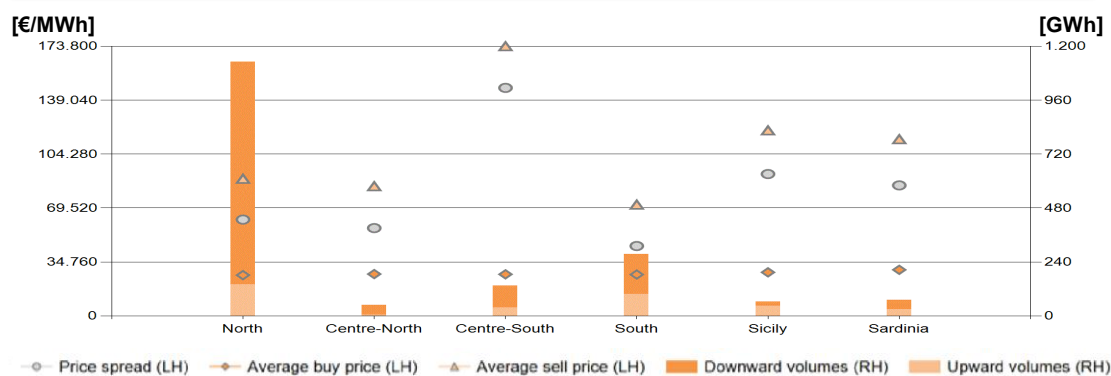
The market zone featuring the highest spread (€146.9/MWh) is the Centre-South, similar to the previous month (spread of €270.7/MWh).

In July, the northern zone was confirmed as the zone showing the highest downward volumes (989 GWh), followed by the Southern zone (179 GWh).

The price spread decreased across all zones, with the exception of Sicily.

Sardinia was the zone with the highest decrease compared to the previous month (-€89.3/MWh; -51%)

Balancing market – prices and volumes by market zone



Centre-south: zone featuring the highest price spread
North: zone with the greatest volumes

Source: Terna

Spot Commodities Market

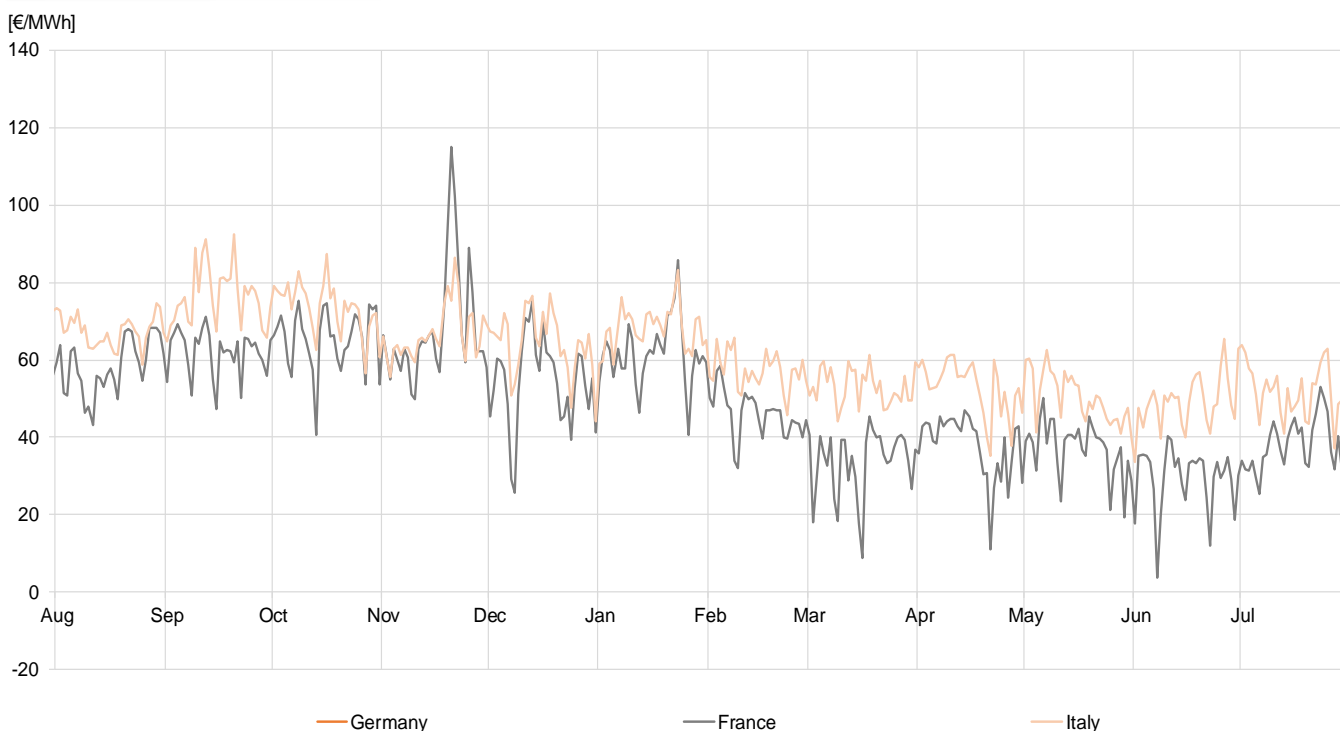
In July 2019, the prices of Brent stood at around \$64.1/bbl, up 0.9% compared to the \$63.5/bbl of June.

Coal prices (API2) came out at approximately \$57/t, up 12.7% from the \$50.6/t of June.

In July, European gas prices increased 4.9% over June, standing at €10.9/MWh. However, the PSV decreased 10.8% to €12.8/MWh.

Electricity prices in Italy rose 5.3% in July compared to the previous month, with a monthly average of €51.9/MWh. The French stock exchange also rose, with the price of electricity at €38 (+30%), and the German exchange with € 40.1/MWh (+22.8%) compared to June.

Spot electricity prices



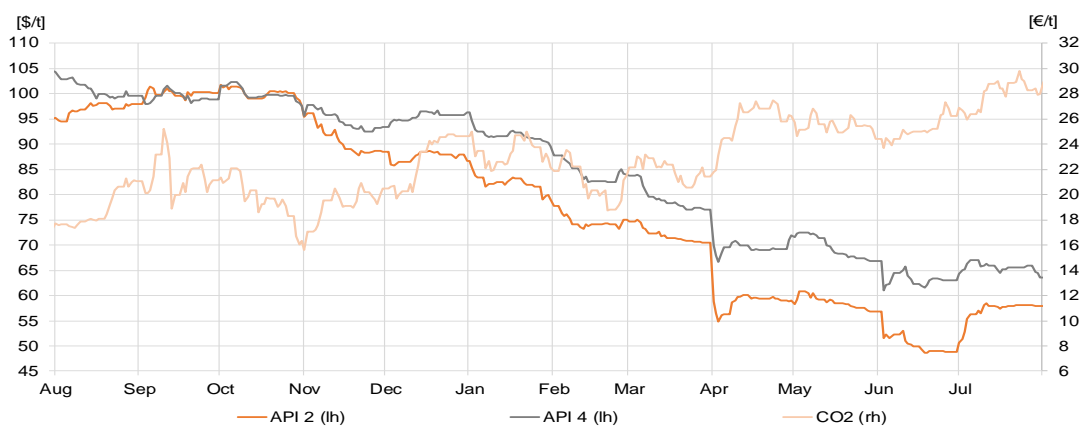
Source: Terna calculation on GME and EPEX data

Gas & Oil spot prices



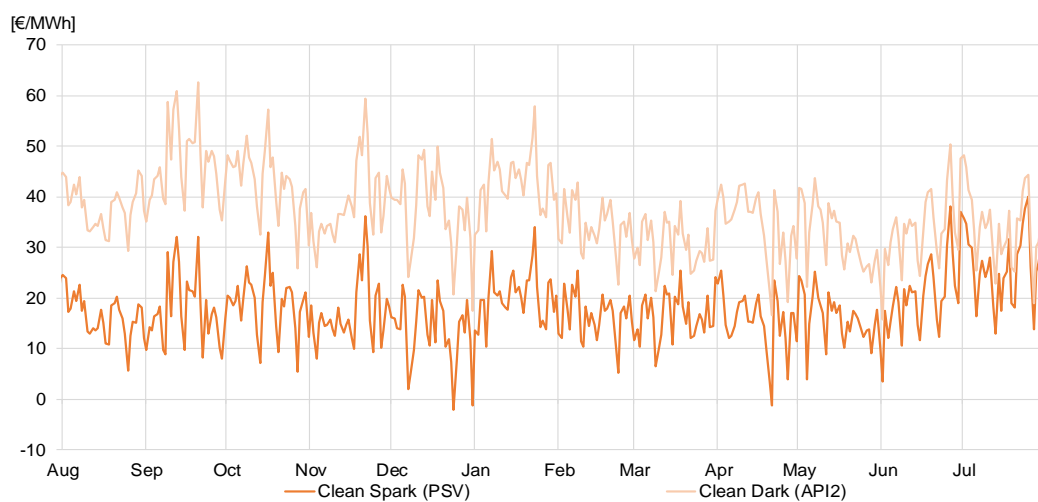
Source: Terna calculation on Bloomberg data

Coal & Carbon spot prices



Source: Terna calculation on Bloomberg data

Clean Dark & Spark spreads Italy



Source: Terna calculation on Bloomberg data

Forward Commodities Market

In July, forward prices of Brent stood at around \$60.9/bbl, up 2.3% compared to the \$59.5/bbl of June.

The average forward prices of coal (API2) rose, coming out at approximately \$71.5/t (+5.8% compared to June).

The average forward prices of gas in Italy (PSV) were consistent between July and to the previous month, coming out at approximately €20.7/MWh (+0.5%), and lower in Europe (TTF), at €17.9/MWh (-1.5%).

The average forward prices of electricity in Italy stood at around €62.5/MWh, a 2.7% increase on the previous month's figure of €60.8/MWh. There was a positive trend on the French exchange, where the price was approximately €52/MWh (+2.7%), and also in Germany, where it reached approximately €51/MWh (+7.3%).

Year+1 Forward electricity prices



Source: Terna calculation on Bloomberg data

Year+1 Forward Gas & Oil prices



Monthly average change
PSV-TTF = €2.8/MWh

Source: Terna calculation on Bloomberg data

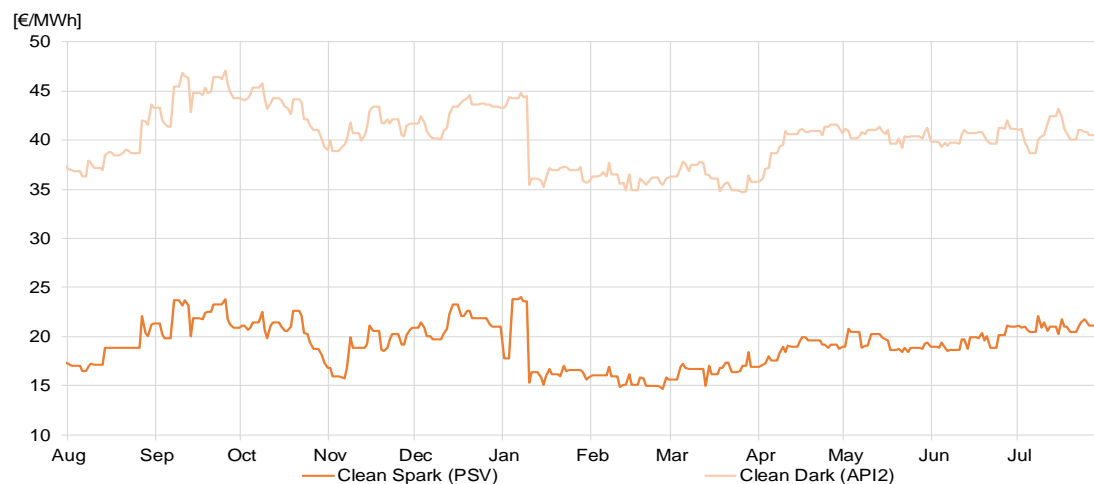
Year +1 Forward Coal & Carbon prices



Monthly average change
API2-API4 = -\$6.3/tn

Source: Terna calculation on Bloomberg data

Year+1 Forward Dark & Spark Spreads Italy



Clean spark spread PSV
monthly average =
€21/MWh

Clean dark spread API2
monthly average =
€40.6/MWh

Source: Terna calculation on Bloomberg data

Below is a selection of ARERA provisions of major interest for dispatching and transmission activities in July 2019. This selection is not exhaustive with respect to the regulatory framework.

Terna and GME instructions for membership in the European intra-day market

The Authority has authorised Terna and Gestore dei Mercati Energetici S.p.A. (GME) to implement, according to their responsibilities, developments and functional procurement regarding the launch of the European intra-day continuous trading market (XBID project) and for its coordination with the dispatching services market.

[Resolution 350/2019/R/EEL](#)

Terna instructions for the implementation of changes to the proposed methodologies prepared pursuant to Regulation (EU) 2017/2195 (Balancing Regulation)

With the implementation of Regulation (EU) 2017/2195 (Guideline on Electricity Balancing), The Authority, in coordination with other European regulatory authorities, has asked Terna and other TSOs involved to change:

[Resolution 349/2019/R/EEL](#)
[Resolution 348/2019/R/EEL](#)
[Resolution 323/2019/R/EEL](#)
[Resolution 310/2019/R/EEL](#)

- the proposal for classification methodology for the activation purposes of balancing energy bids - Resolution 349/2019;
- the proposal for common settlement rules between TSOs for intended exchanges of energy resulting from the European platforms for the exchange of balancing energy - Resolution 348/2019;
- the proposal for an implementation framework for a European platform for the imbalance netting process pursuant to the IGCC (International Grid Control Cooperation) project - Resolution 323/2019;
- the proposal to further specify and harmonise imbalance settlement - Resolution 310/2019.

Approval of the Regulation, prepared by Terna S.p.A., on rules for qualification and participation in the consumption unit dispatching services market for the capacity market and provisions on insolvency procedures to take place by 2019

[Resolution 343/2019/R/EEL](#)

The Authority:

- approved the regulation, prepared by Terna, on the rules for qualification and participation in the dispatching services market for traded consumption units on the capacity market;
- redefined the deadlines for preparatory actions for insolvency procedures to take place by 2019.

Decisions on the request to include the Modugno power station in the supplementary cost coverage system

The Authority accepted Sorgenia's request to include the Central Modugno Plant in the supplementary cost coverage system from 15 July 2019 to 31 December 2020.

[Resolution 290/2019/R/EEL](#)

Key

API2 – CIF ARA: the reference index for the price of coal (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 price of coal (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 is **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 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 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, on working days only. **Off-peak hours** are all hours not falling within 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



Disclaimer

1. The 2019 and 2018 monthly electricity reports are provisional.
2. More specifically, the monthly electricity reports for 2019 – prepared at the end of each month using the operating archives – are subject to further and precise verification or recalculation in the following months on the basis of additional information. This operation to refine the monthly figures translates, for the reporting data, 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.