

February 2019



# Monthly Report on the Electricity System

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## 01 Energy Balance Sheets

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In February 2019, electricity demand in Italy (25.5 billion kWh) recorded a decrease of 2.2% compared to the volumes of February 2018. In the first two months of 2019, demand rose by +1.1% compared to 2018; adjusted for seasonal, calendar and temperature effects, the change was +0.5%. Finally, in February 2019 85% of electricity demand in Italy was covered by national production, less pumping consumption, (0.0% of net production compared to February 2018) and for the remainder by imports (net foreign exchange -13.4% compared to February 2018).



## 02 Electricity System

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In February 2019, net national production was 21,889GWh, 38% from renewable sources (8,413GWh) and the remaining 62% from thermal sources. As regards monthly production from renewable energy sources, compared to the previous year increases were recorded in wind (+37.9%) and solar (+57.6%) production, while geothermal production fell (-1.6%).



## 03 Electricity Market

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The February total for withdrawal programmes on the DAM was approximately €1.4 Bn, down 24% compared to the previous month and down 2% compared to February 2018. In May, the spread between average bid-up and bid-down prices on the Ancillary Services Market was €113.8/MWh up by 12% compared to the previous month and by 18% compared to February 2018. Total volumes decreased compared to the previous month (-20%). The spread between bid-up and bid-down prices on the Balancing Market was €133.0/MWh, up compared to the previous month (€92.5/MWh; 44%) and up with respect to February 2018 (€106.5/MWh; 25%). Total volumes increased compared to the previous month (+11%).



## 04 Regulation

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

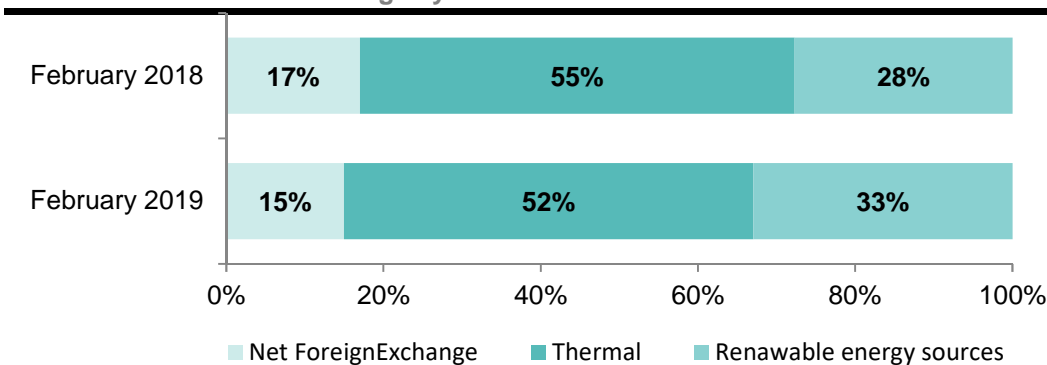
February 2019

# Monthly Report on the Electricity System

## Monthly Summary

In February 2019, electricity demand was 25,529GWh, a decrease compared to the same month of the previous year (-2.2%). In particular, an increase in renewable production (+16.9%) and a decrease in thermoelectric production (-7.6%) and foreign exchange (-13.4%) was recorded compared to the same month of the previous year.

### Demand breakdown – coverage by sources



In February electricity demand on the grid was down -2.2% compared to the same month of 2018.

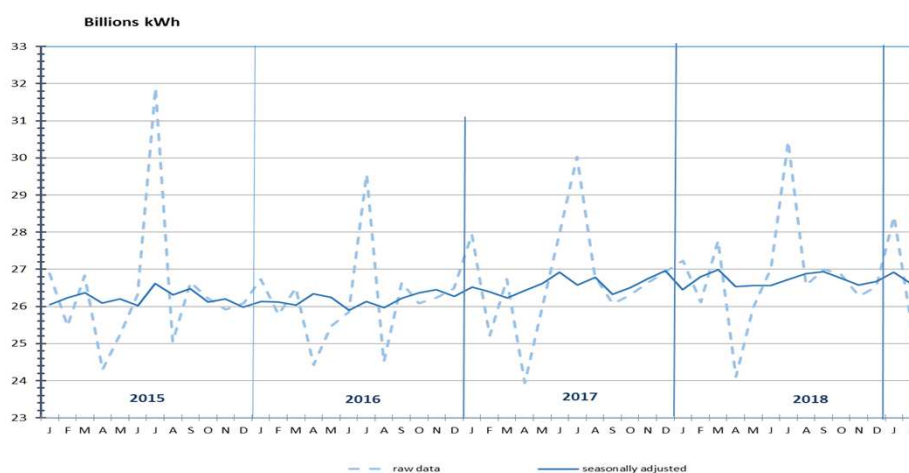
Source: Terna

## Short-term analysis

In February 2019, electricity demand in Italy (25.5 billion kWh) recorded a decrease of 2.2% compared to the volumes of February 2018. This was due to the same number of working days as the same month in 2018, yet with an average monthly temperature that was two degrees higher. However the value, adjusted for seasonal, calendar and temperature effects, shows a moderate decrease of -0.7%. In the first two months of 2019, demand rose by +1.1% compared to 2018; adjusted for seasonal, calendar and temperature effects, the change was +0.5%. At the regional level, in February 2019 the annual trend was negative in all areas: in the North (-2.2%), in Central Italy (-1.7%), and in the South (-2.6%).

The data for February 2019, adjusted for calendar and temperature effects, recorded a decrease in electricity demand (-1.2%) compared to the previous month (January 2019). Considering this result the general trend is stable. Finally, in February 2019 85% of electricity demand in Italy was covered by national production, less pumping consumption, (0.0% of net production compared to February 2018) and for the remainder by imports (net foreign exchange -13.4% compared to February 2018).

### Demand – Seasonally adjusted



The value, adjusted for seasonal, calendar and temperature effects, shows a decrease of -0.7%.

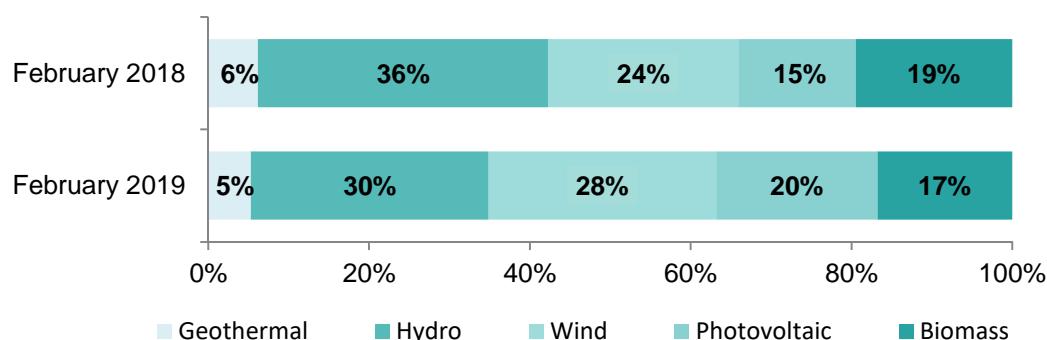
Source: Terna



## Details of Renewable Energy Sources (RESs)

As regards monthly production from renewable energy sources, compared to the previous year increases were recorded in wind (+37.9%) and solar (+57.6%) production, while geothermal production fell (-1.6%).

### RES Production - Breakdown



In February 2019, the detailed breakdown of production from renewable energy sources recorded a M-o-M percentage increase (+3.0%). In 2019, production from renewables increased +10.9% compared to the previous year.

Source: Terna

## Energy Balance Sheet

In 2019, cumulative electricity demand (53,951GWh) increased (+1.1%) compared to 2018.

In February 2019, net national production was 21,889GWh, 38% from renewable sources (8,413GWh) and the remaining 62% from thermal sources.

### Energy Balance Sheet

[GWh]	February 2019	February 2018	%19/18	Jan-Feb 19	Jan-Feb 18	%19/18
Hydro	2.593	2.601	-0,3%	5.385	5.332	1,0%
Thermal	14.862	16.093	-7,6%	34.039	32.743	4,0%
<i>of which Biomass</i>	1.386	1.401	-1,1%	2.873	2.921	-1,6%
Geothermal	438	445	-1,6%	935	939	-0,4%
Wind	2.338	1.696	37,9%	4.659	3.682	26,5%
Photovoltaic	1.658	1.052	57,6%	2.726	2.081	31,0%
<b>Net Total Production</b>	<b>21.889</b>	<b>21.887</b>	<b>0,0%</b>	<b>47.744</b>	<b>44.777</b>	<b>6,6%</b>
Import	4.146	4.611	-10,1%	7.491	9.510	-21,2%
Export	324	200	62,0%	853	526	62,2%
<b>Net Foreign Exchange</b>	<b>3.822</b>	<b>4.411</b>	<b>-13,4%</b>	<b>6.638</b>	<b>8.984</b>	<b>-26,1%</b>
<b>Pumping</b>	<b>182</b>	<b>192</b>	<b>-5,2%</b>	<b>431</b>	<b>415</b>	<b>3,9%</b>
<b>Electricity demand<sup>(1)</sup></b>	<b>25.529</b>	<b>26.106</b>	<b>-2,2%</b>	<b>53.951</b>	<b>53.346</b>	<b>1,1%</b>

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

Source: Terna

In 2019, a +62.2% increase in exports was recorded compared to the previous year.

In February 2019, an increase was recorded in wind production (+37.9%) and in photovoltaic production (+57.6%) compared to the previous year.

## Monthly Energy Balance Sheets

In 2019, net total production (47,744GWh) met 88% of national electricity demand (53,951GWh).

### Monthly Energy Balance Sheet

[GWh]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Hydro	2.792	2.593											5.385
Thermal	19.177	14.862											34.039
Geothermal	497	438											935
Wind	2.321	2.338											4.659
Photovoltaic	1.068	1.658											2.726
<b>Net Total Production</b>	<b>25.855</b>	<b>21.889</b>											<b>47.744</b>
Import	3.345	4.146											7.491
Export	529	324											853
<b>Net Foreign Exchange</b>	<b>2.816</b>	<b>3.822</b>											<b>6.638</b>
Pumping	249	182											431
<b>Electricity demand<sup>(1)</sup></b>	<b>28.422</b>	<b>25.529</b>											<b>53.951</b>

In February, net total production (+0.0%) is in line with 2018.  
In 2019, the month with the maximum demand for electricity was January, with 28,422GWh.

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

Source: Terna

The evolution of the monthly statement for 2018 is provided 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
<b>Net Total Production</b>	<b>22.890</b>	<b>21.887</b>	<b>23.514</b>	<b>20.740</b>	<b>22.863</b>	<b>23.833</b>	<b>26.226</b>	<b>23.975</b>	<b>24.076</b>	<b>23.057</b>	<b>23.967</b>	<b>23.206</b>	<b>280.234</b>
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
<b>Net Foreign Exchange</b>	<b>4.573</b>	<b>4.411</b>	<b>4.553</b>	<b>3.667</b>	<b>3.301</b>	<b>3.338</b>	<b>4.359</b>	<b>2.707</b>	<b>3.019</b>	<b>3.953</b>	<b>2.471</b>	<b>3.557</b>	<b>43.909</b>
Pumping	223	192	286	299	201	139	135	109	101	155	161	232	2.233
<b>Electricity demand<sup>(1)</sup></b>	<b>27.240</b>	<b>26.106</b>	<b>27.781</b>	<b>24.108</b>	<b>25.963</b>	<b>27.032</b>	<b>30.450</b>	<b>26.573</b>	<b>26.994</b>	<b>26.855</b>	<b>26.277</b>	<b>26.531</b>	<b>321.910</b>

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

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

Source: Terna

## Demand by Geographical Areas

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

### Demand by Geographical Areas

[GWh]	Turin	Milan	Venice	Florence	Rome	Naples	Palermo	Cagliari
February 2019	2.654	5.631	3.961	3.932	3.505	3.683	1.464	699
February 2018	2.729	5.778	4.018	4.017	3.595	3.698	1.520	751
% Feb 2018/2017	-2,7%	-2,5%	-1,4%	-2,1%	-2,5%	-0,4%	-3,7%	-6,9%
Cumulated 2019	5.538	11.769	8.237	8.303	7.420	8.010	3.203	1.471
Cumulated 2018	5.573	11.757	8.179	8.175	7.309	7.674	3.146	1.533
% Cumulated 19/18	-0,6%	0,1%	0,7%	1,6%	1,5%	4,4%	1,8%	-4,0%

Source: Terna

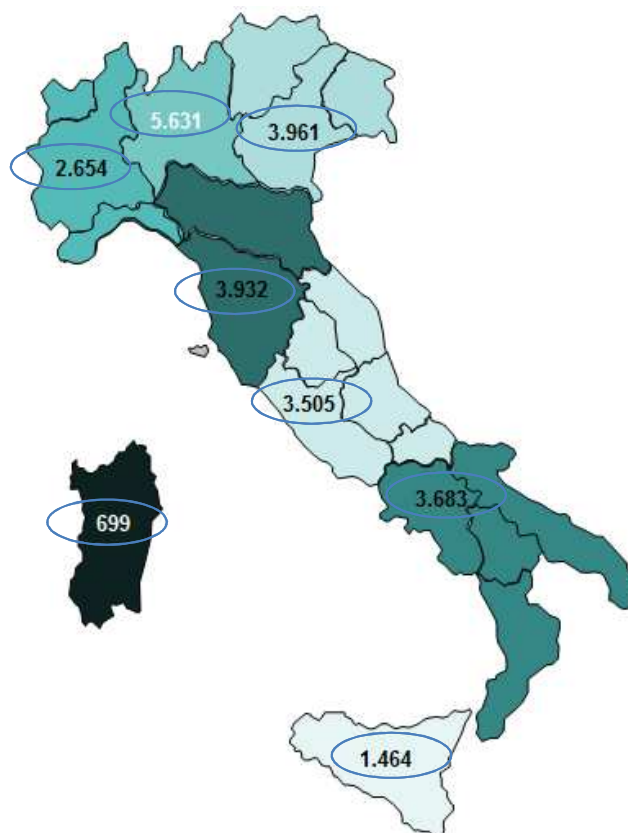
In 2019, the Y-o-Y percentage change in demand was +0.1% in the Northern zone, +1.5% in the Centre, +4.4% in the South and -0.1% for the Islands.

### 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 - Puglia - 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.

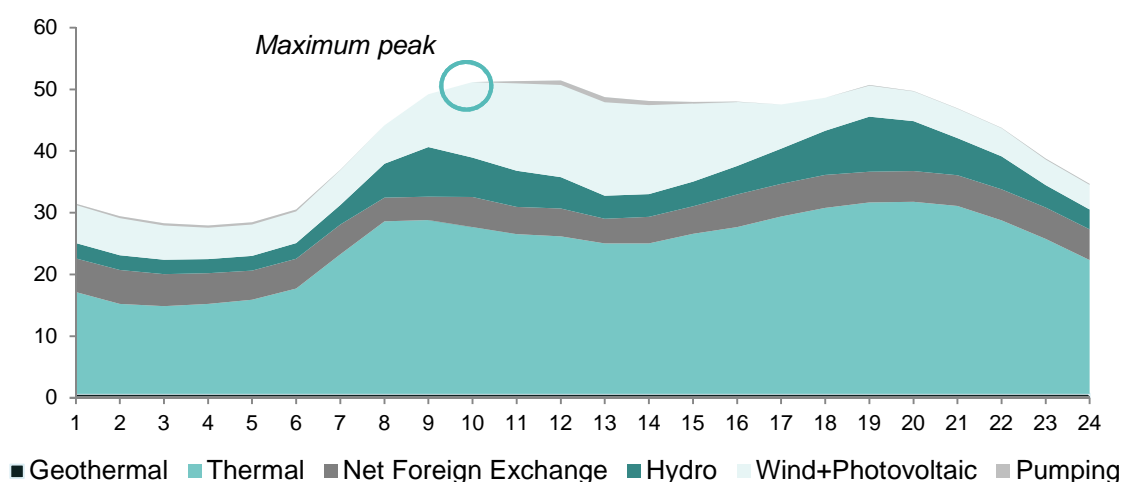


## Peak Demand

In February 2019, peak demand was recorded on **Wednesday 6 at 10:00** and was 51,180 MW (-5.9% Y-o-Y). The hourly demand diagram of the peak day is presented below.

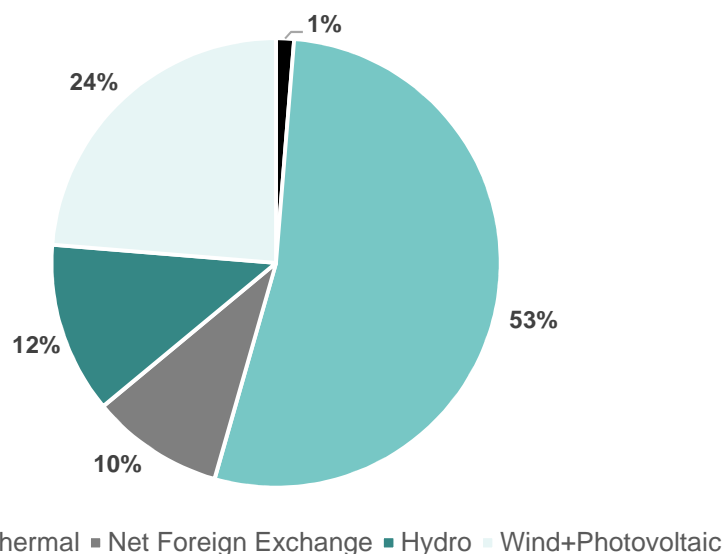
### Peak Demand

[GW]



Source: Terna

### Coverage at Peak Demand - 6 February 2019, 10:00



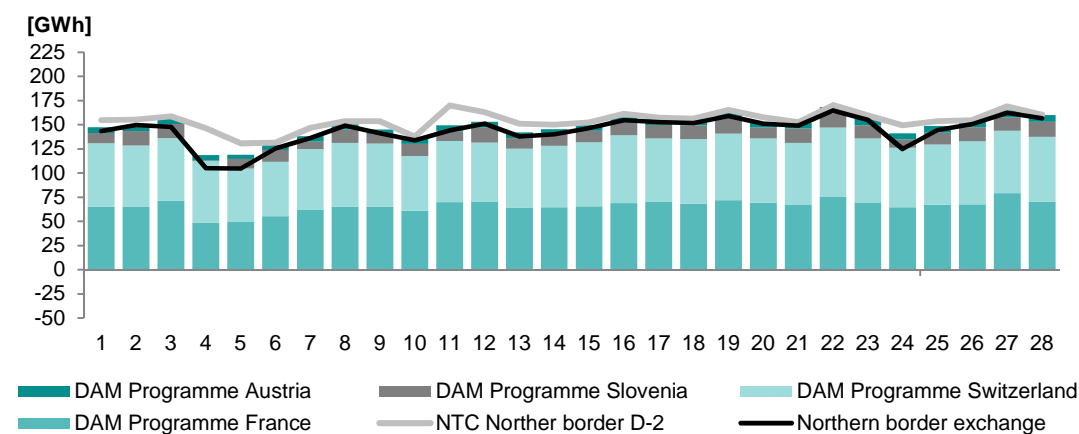
At peak, production from renewable sources contributed to covering 37% of demand, thermal production for 53% and the remainder was covered by the net foreign exchange.

Source: Terna

## Net Foreign Exchange – February 2017

In February, 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 February 2019, there were Imports of 4,146GWh and Exports of 324GWh.

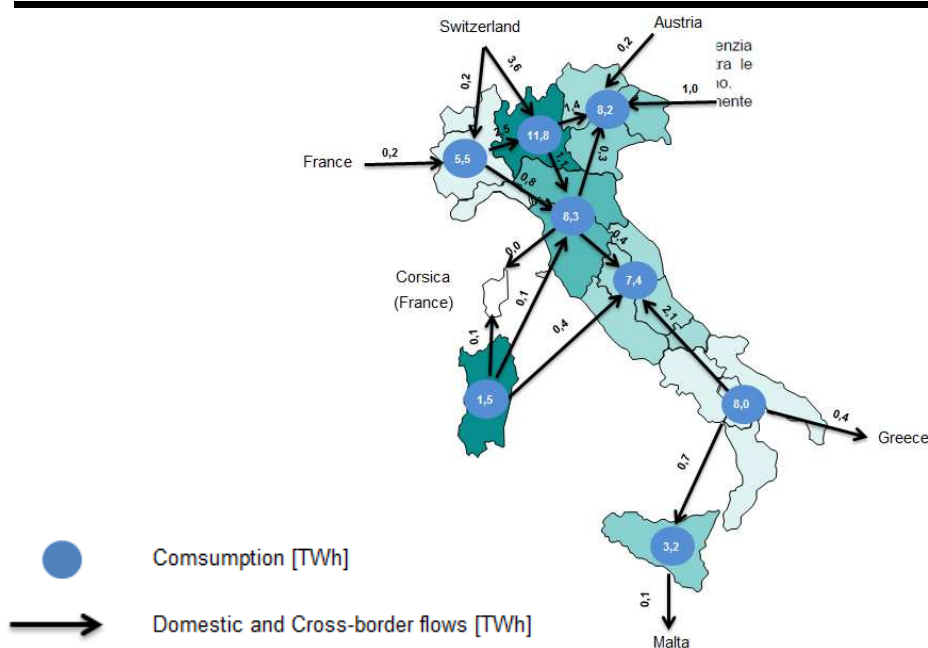
Source: Terna

## Balance of Physical Exchanges – Annual Cumulative Figure

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

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

### Balance of physical electricity exchanges: map chart



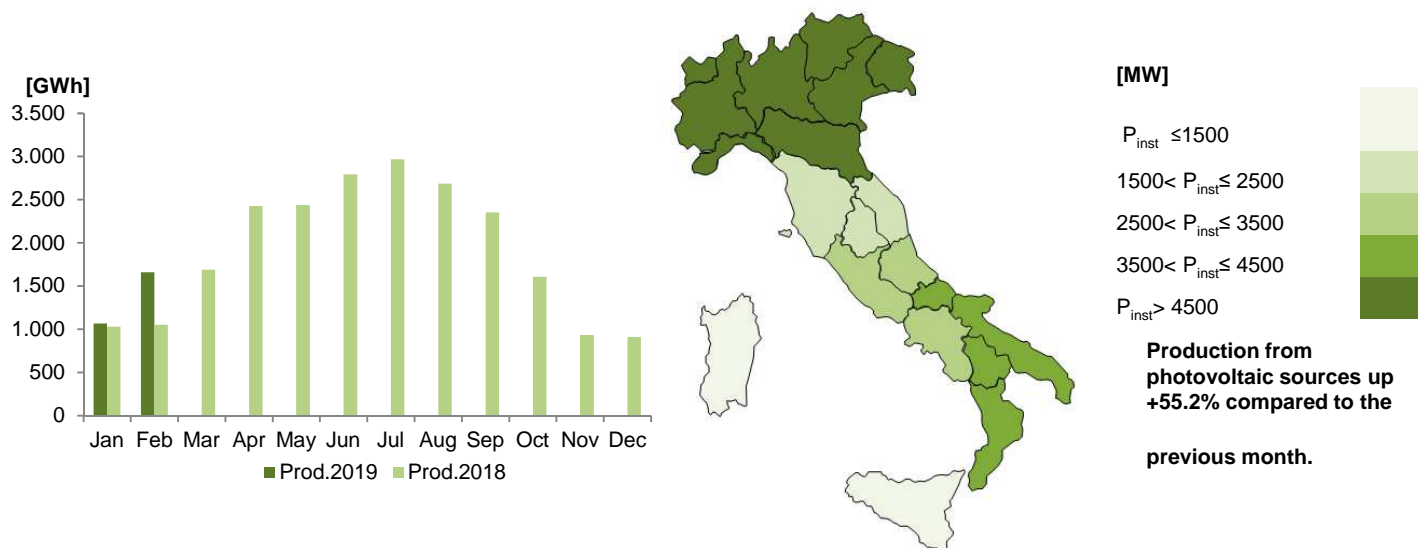
In 2019, a net exchange was recorded from the Northern zone to Emilia Romagna and Tuscany of around 1.6TWh. The Continent recorded a net exchange towards Sicily of 0.7TWh.

Source: Terna

## Production and Installed Capacity

The energy produced by photovoltaic sources in February 2019 was 1,658GWh, up compared to the previous month by 590GWh. The annual cumulative figure increased compared to the previous year (+31.0%).

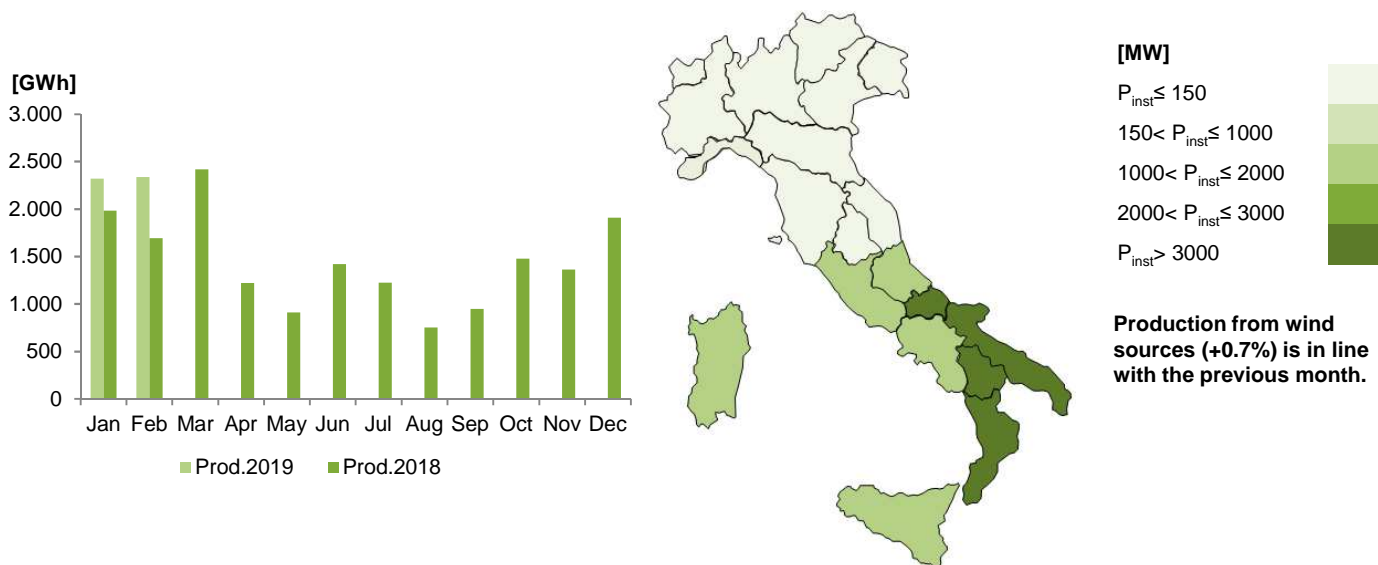
### Photovoltaic Production and Capacity



Source: Terna

The energy produced by wind generation in February 2019 came out at 2,338GWh, up slightly compared to the previous month by 17GWh. The annual cumulative figure increased compared to the previous year (+26.5%).

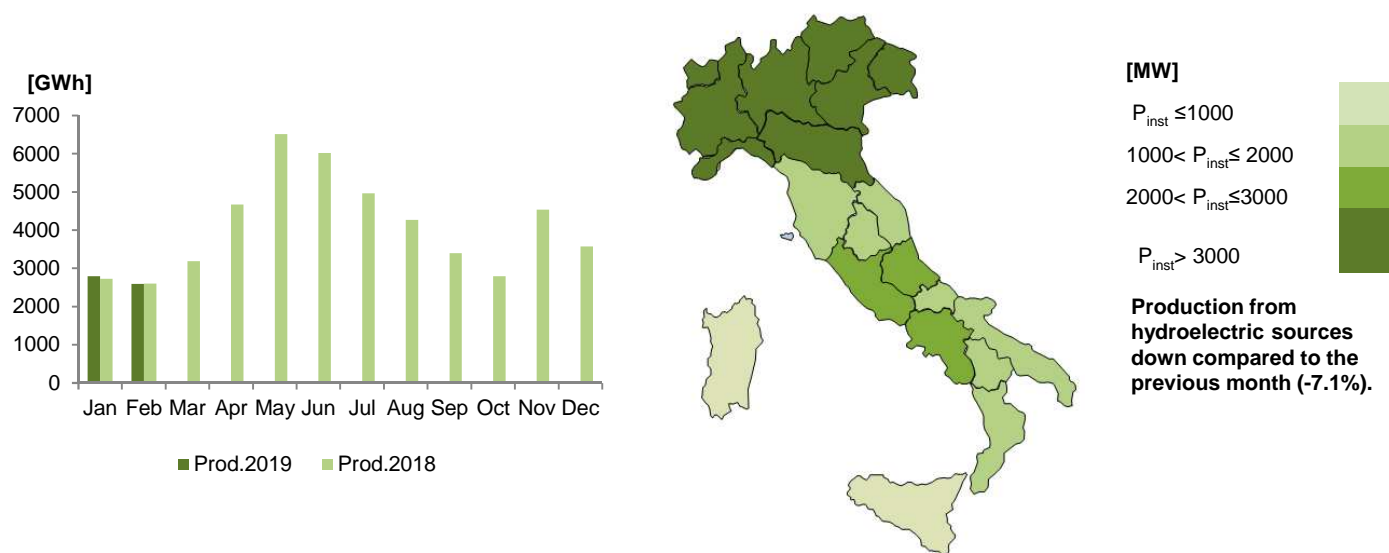
### Wind Production and Capacity



Source: Terna

The energy produced by hydroelectric sources (reservoirs, storage and run-of-river) in February 2019 was 2,593GWh, down compared to the previous month by 199GWh. The annual cumulative figure has slightly increased (+1.0%) compared to the previous year.

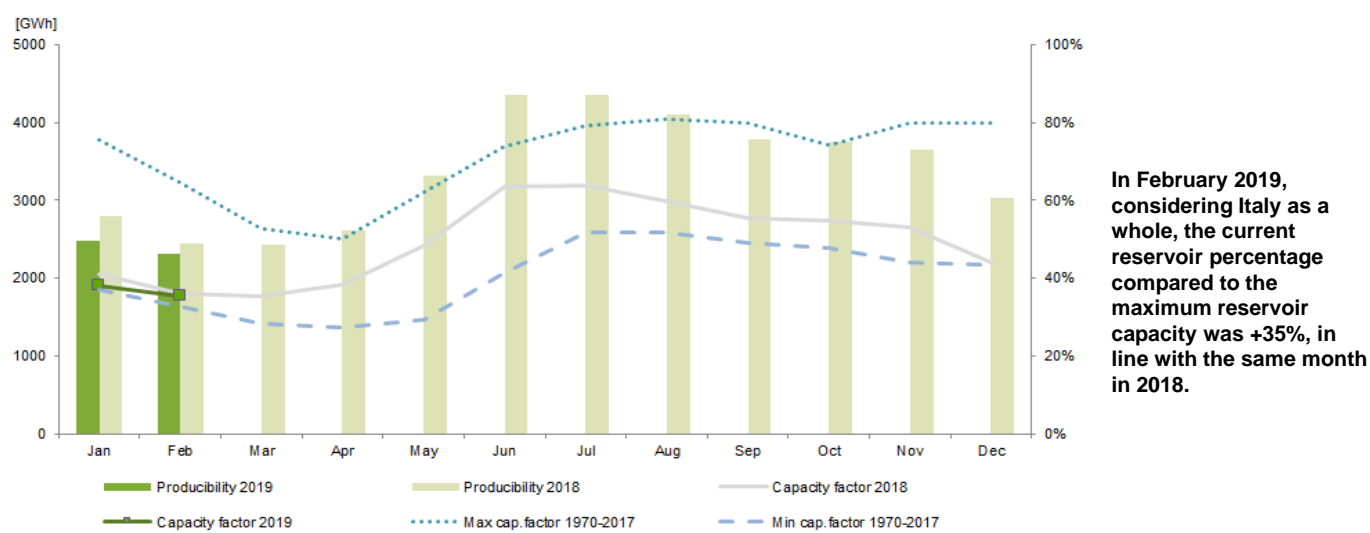
### Hydroelectric Production and Capacity



Source: Terna

In February, hydroelectric producibility fell compared to the previous month.

### Hydroelectric Producibility and Reservoir Percentage

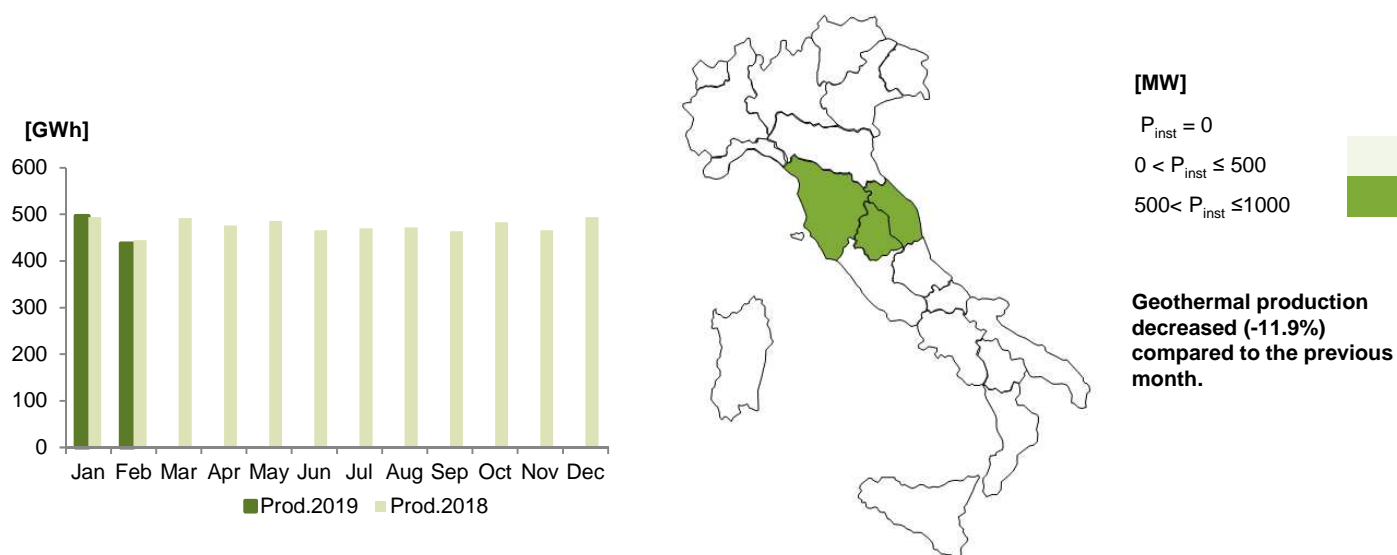


Reservoir Capacity		NORTH	CENTRE SOUTH	ISLANDS	TOTAL
2017 2018	[GWh]	1.180	840	294	2.313
	%(capacity / max capacity)	27,3%	46,3%	77,1%	35,5%
	[GWh]	1.380	872	188	2.440
	%(capacity / max capacity)	29,7%	48,0%	49,5%	35,7%

Source: Terna

The energy produced by geothermal sources in February 2019 came out at 438GWh, down compared to the previous month by 59GWh. The annual cumulative figure was in line with the previous year (-0.4%).

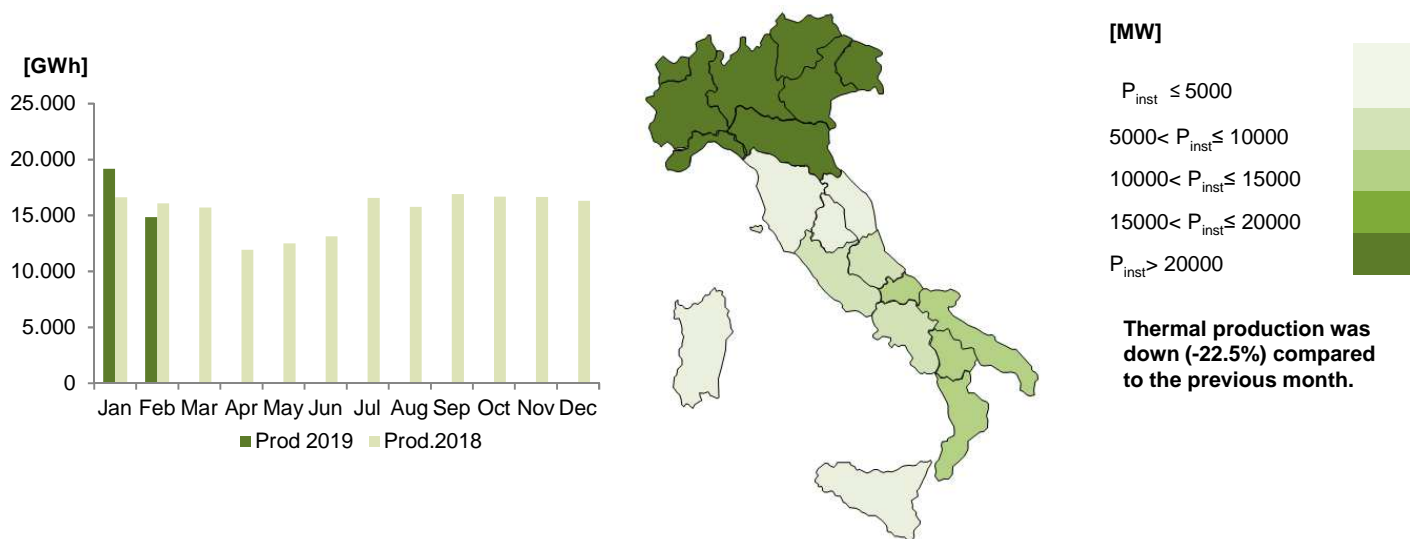
## Geothermal Production and Capacity



Source: Terna

The energy produced by thermal sources in February 2019 came out at 14,862GWh, a significant decrease of 4,315GWh compared to the previous month. The annual cumulative figure was up (+4.0%) compared to the previous year.

## Thermal Production and Capacity



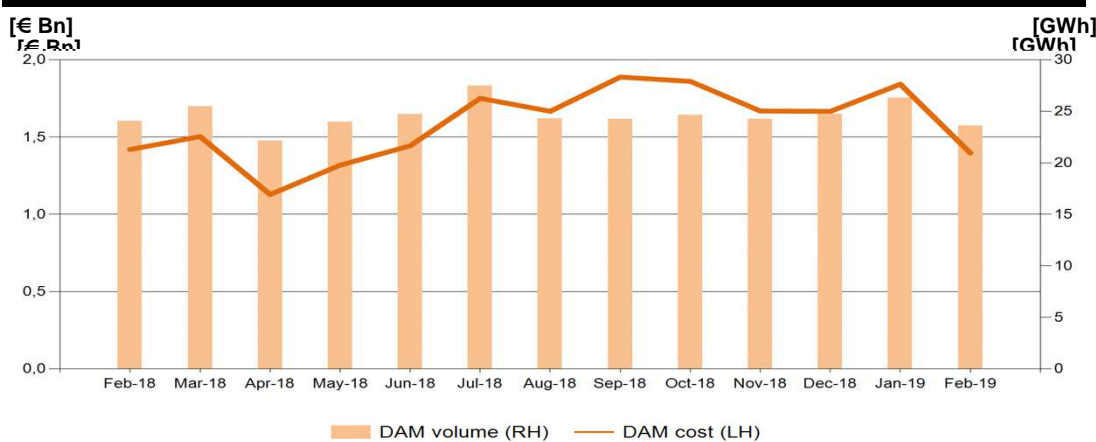
Source: Terna



## Day-Ahead Market

The February total for withdrawal programmes on the DAM was approximately €1.4 Bn, down 24% compared to the previous month and down 2% compared to February 2018. The decrease compared to January is due to a reduction in both average PUN and demand, while the decrease compared to the previous year is due to a reduction in demand of 2%.

### Day-Ahead Market – amounts and volumes

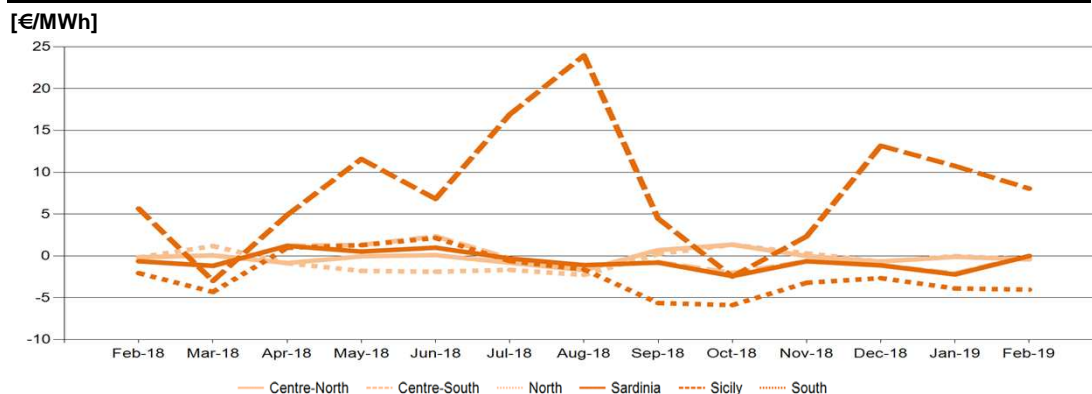


Total amount in February 2019 down 2% compared to February 2018

Source: Terna calculation on GME data

In February, the zonal prices were essentially in line with the PUN, with the exception of the Sicily zone, which recorded a spread of +€8/MWh. Compared to February 2018, the price of the Sicily zone recorded an average increase of €3.1/MWh, while for the other zones there was an average increase of €0.4/MWh.

### Spread compared to the PUN



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

Source: Terna calculation on GME data

In February, the spread between the peak and off-peak prices was €1.8/MWh for the Southern zone and Sicily and €8.7/MWh for the other zones.

In January, the spread between the peak and off-peak prices was €17.7 for the Sicily zone and €12.8/MWh on average for the other zones.

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

€/MWh	PUN	North	Centre-North	Centre-South	South	Sicily	Sardinia
Average	57.7	57.3	57.2	57.7	53.6	65.7	57.6
Y-o-Y	0.7	0.5	0.4	1.3	-1.3	3.1	1.3
Δ vs PUN	-	-0.4	-0.4	0.0	-4.0	8.0	0.0
Δ vs PUN 2017	-	-0.2	-0.2	-0.6	-2.1	-5.6	-0.6
Peak	63.0	63.5	63.5	62.6	54.7	67.0	62.6
Off Peak	54.7	53.8	53.8	54.9	53.0	65.0	54.9
Δ Peak vs Off Peak	-8.3	-9.7	-9.7	-7.7	-1.6	-2.0	-7.8
Minimum	18.7	18.7	18.7	18.7	9.0	1.0	18.7
Maximum	85.1	87.5	87.5	81.6	80.0	152.0	81.6

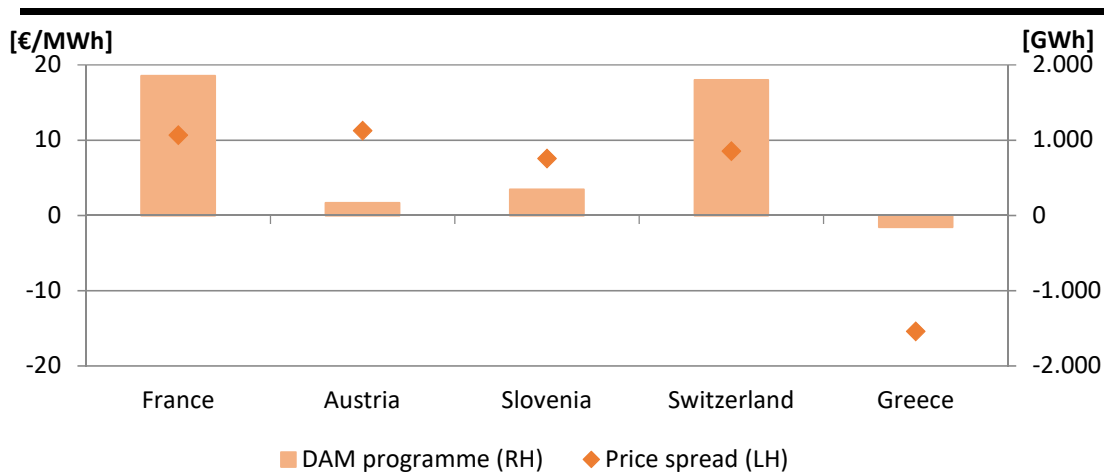
Peak-off peak spread down compared to the previous month for all zones

Source: Terna calculation on GME data

February saw an increase in price spreads with France, Slovenia and Switzerland compared with the previous month and a decrease in price spreads on the other borders.

In February, imports totalled 4.4TWh, with France and Switzerland accounting for 43% and 41% of the total, respectively. Total exports were 355GWh, with Greece accounting for 94%.

## Price spread with foreign exchanges and day-ahead programmes



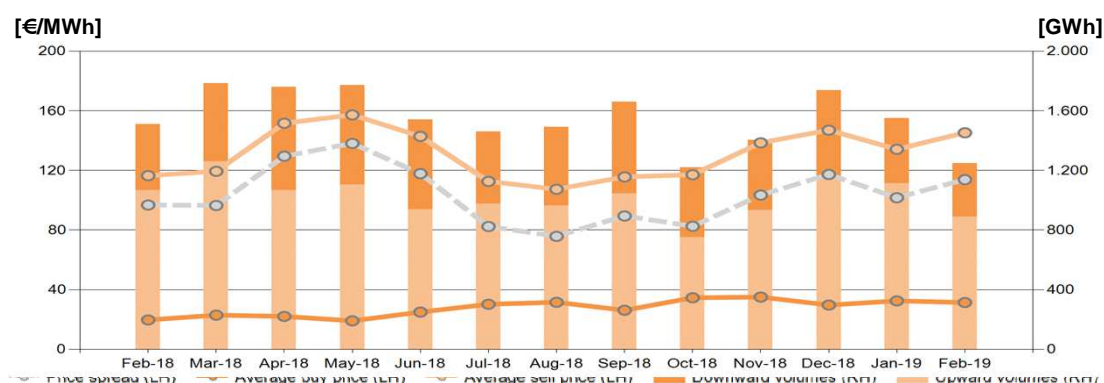
Net imports on the Northern border of 4.2TWh

Source: Terna calculation

## Ex-ante Ancillary Services Market

In February, the spread between average bid-up and bid-down prices was €113.8/MWh up compared to the previous month by 12% and up by 18% compared to February 2018. The total volumes fell compared to the previous month (-20%), in particular upward volumes decreased by 20% and downward volumes decreased by 18%. Upward volumes fell by 17%, while downward volumes fell by 19% compared to the same month of the previous year.

### Ex-ante Ancillary Services - prices and volumes

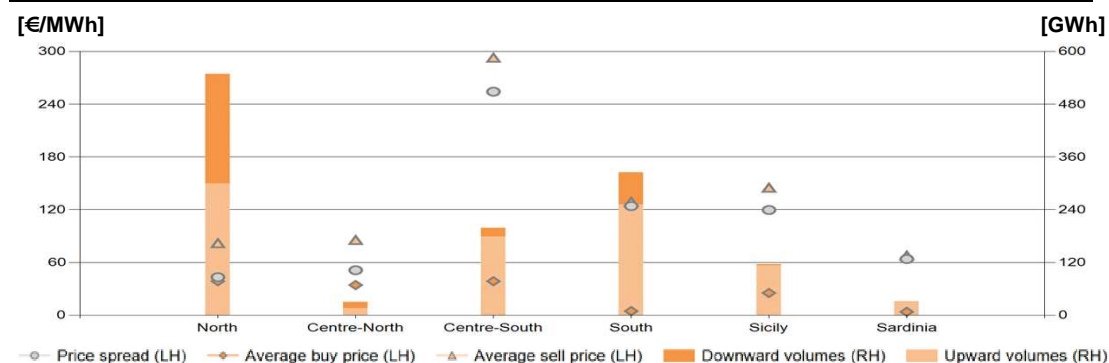


Average bid-up price in February 2019 of €145.3/MWh  
Average bid-down price in February 2019 of €31.4/MWh

Source: Terna

The market zone characterised by the highest spread (€254.2/MWh) is the Centre-South, as in the previous month. This spread recorded a 5% decrease compared to the previous month due to a reduction in the average bid-up price of 7% (from €314.9/MWh in January to €292.8/MWh in February) and a reduction in the average bid-down price of 18% (from €46.9/MWh in January to €38.6/MWh in February).

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



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

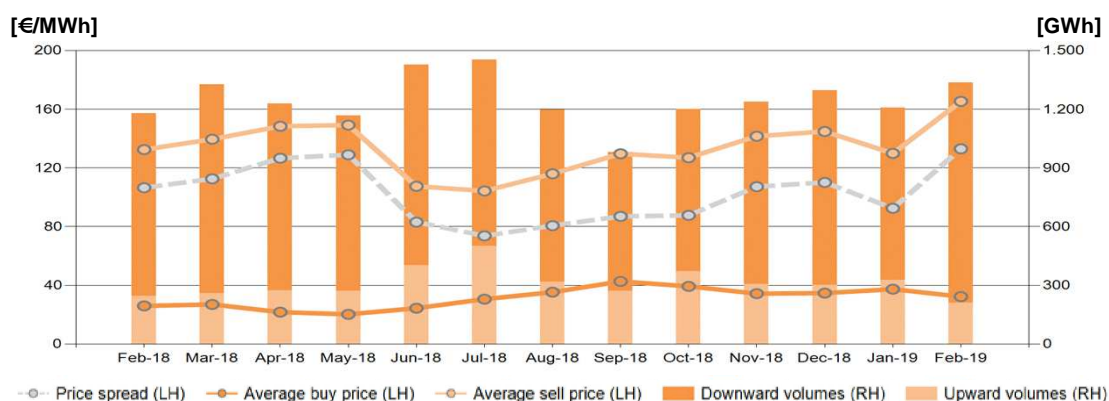
Source: Terna

## Balancing Market

In February, the spread between bid-up and bid-down prices was €133.0/MWh, up compared to both the previous month (€92.5/MWh; 44%) and compared to February 2018 (€106.5/MWh; 25%).

The total volumes increased compared to the previous month (+11%), in particular upward volumes decreased by 36% and downward volumes rose by 28%. Compared to February 2018, upward volumes decreased by 14% and downward volumes rose by 20%.

### Balancing market – prices and volumes



Average bid-up price in February 2019 of €165.3/MWh  
Average bid-down price in February 2019 of €32.3/MWh

Source: Terna

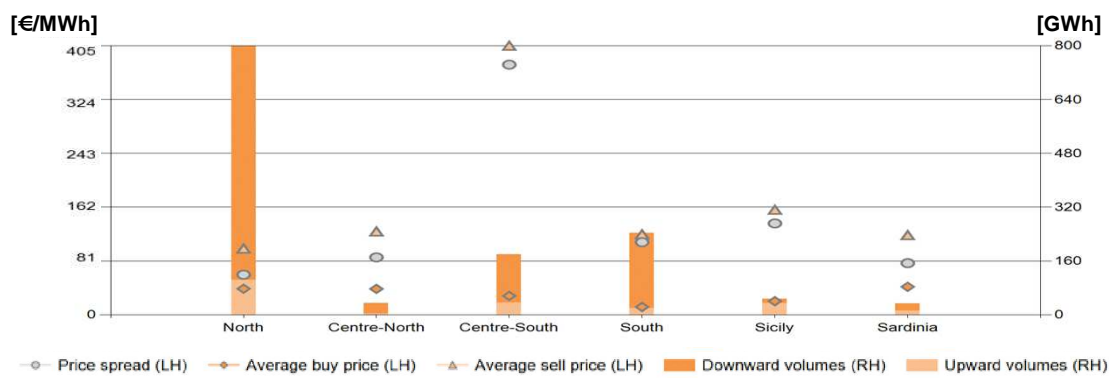
The market zone characterised by the highest spread (€376.8/MWh) is the Centre-South, similar to the previous month (spread of € 304.6/MWh).

In February, the Northern zone was confirmed as the zone showing the highest downward volumes (695GWh), followed by the Southern zone (223GWh).

The price spread compared to the previous month increased in all zones, with the exception of Sardinia.

The zone that recorded the greatest increase in absolute terms compared to the previous month is the Centre-South (€72.2/MWh; +24%), while in percentage terms it was in the South zone (€42.0/MWh; +62%).

### Balancing market – prices and volumes by market zone



Centre-south: zone characterised by the highest price spread  
North: zone with the most volumes moved

Source: Terna

## Spot Commodities Market

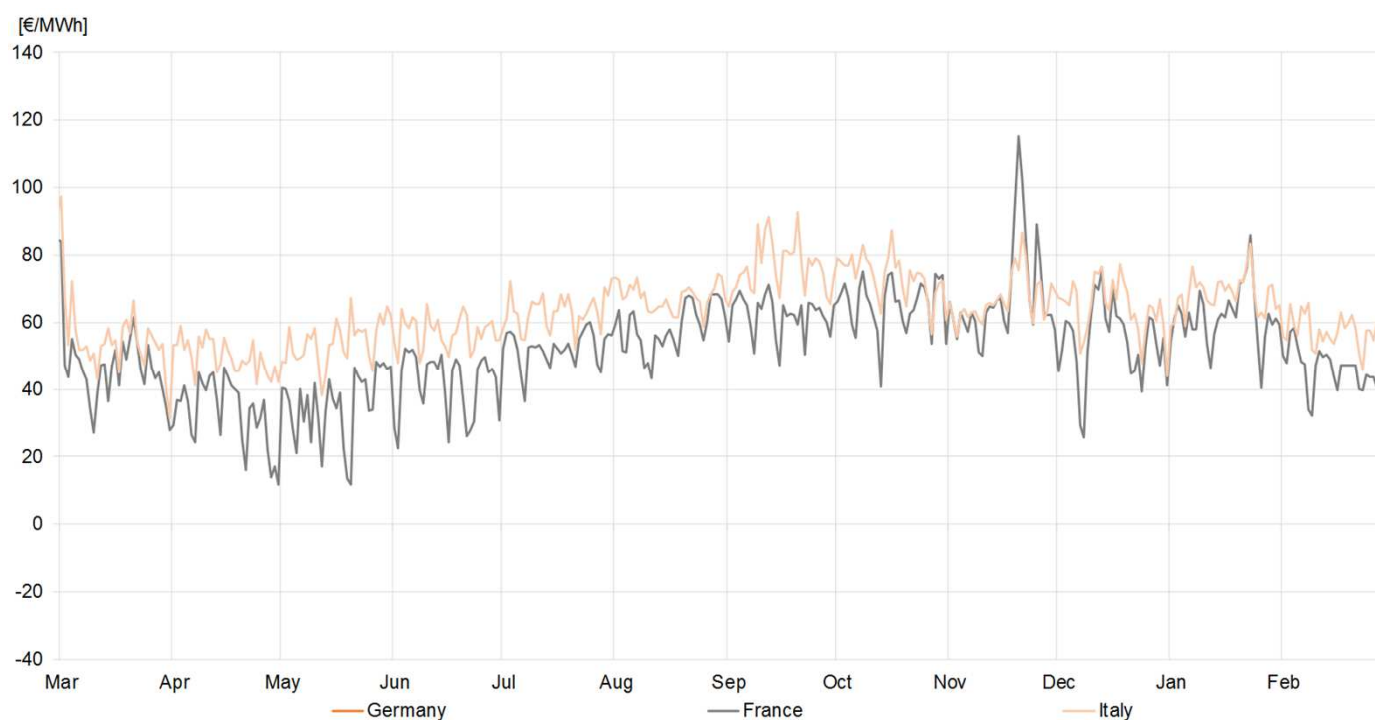
In February 2019 the prices of Brent stood at around \$64.2/bbl, up compared to the \$59.4/bbl of January (+8%).

Coal prices (AP12) came out at approximately \$74.7/t, down against the \$82.3/t for January (-9.2%).

Gas prices in Europe decreased again to €218.1/MWh in February (-15.8% compared to the previous month); the PSV also recorded a decrease to €20.5/MWh (-14.4%).

Electricity prices in Italy in January rose compared to January with a monthly average of €57.3/MWh (-16.1%).

### Spot electricity prices



Source: Terna calculation on GME and EPEX data



## Gas & Oil spot prices



Monthly average change PSV-TTF = +€2.4/MWh

Source: Terna calculation on Bloomberg data

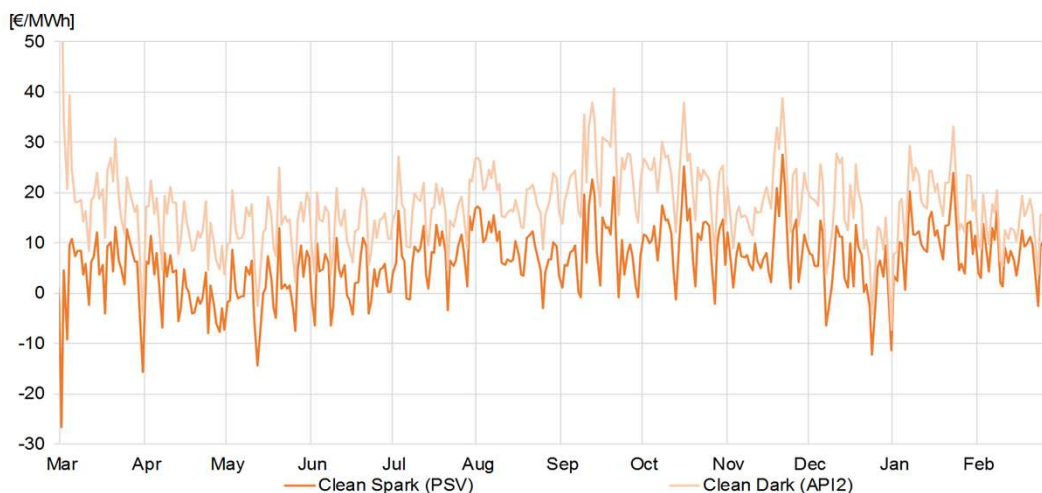
## Coal & Carbon spot prices



Monthly average change API2-API4 = - \$9.7/tn

Source: Terna calculation on Bloomberg data

## Clean Dark & Spark spreads Italy



Clean spark spread PSV monthly average = €7.7/MWh

Clean dark spread API2 monthly average = €13.1/MWh

Source: Terna calculation on Bloomberg data

## Forward Commodities Market

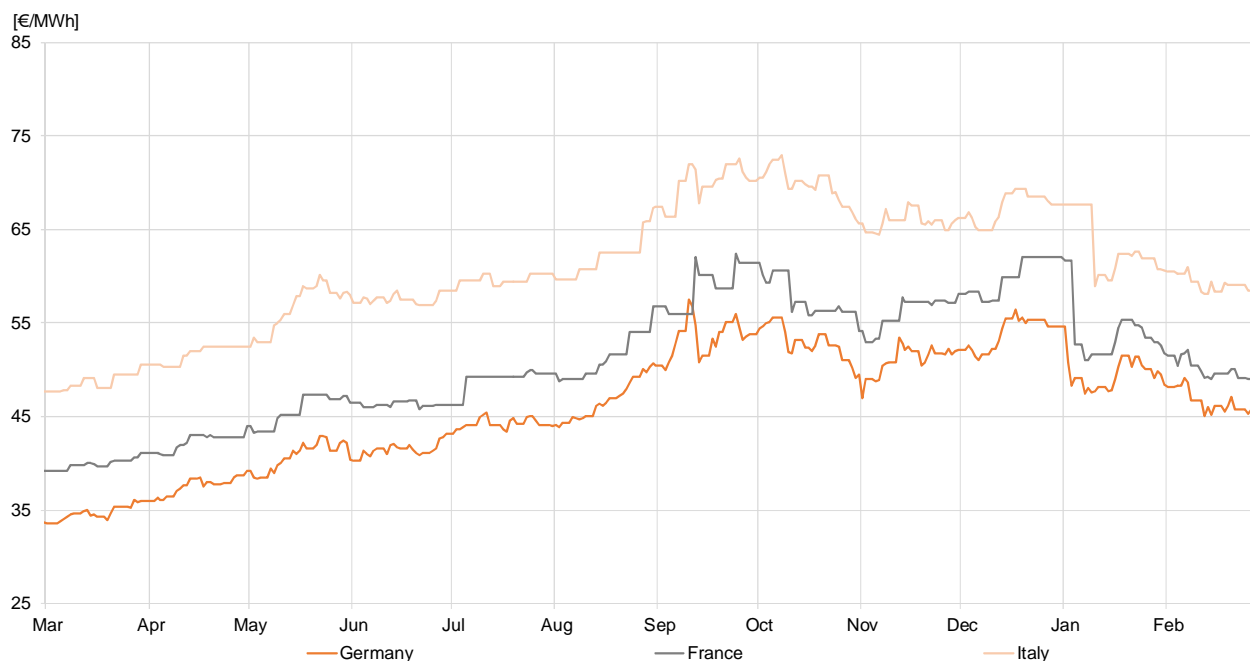
In February, the 2019 Brent forward prices were around \$62.6/bbl, up compared to the \$60.3/bbl of January (+3.2%).

The 2019 average forward prices of coal (API2) fell, coming out at approximately \$78.6/t (-5.3% compared to January).

The 2019 average forward prices of gas in Italy (PSV) decreased slightly for February compared to the previous month, coming out at approximately €21.9/MWh (-3.3%), as well as in Europe (TTF), which recorded €20/MWh (-2.5%).

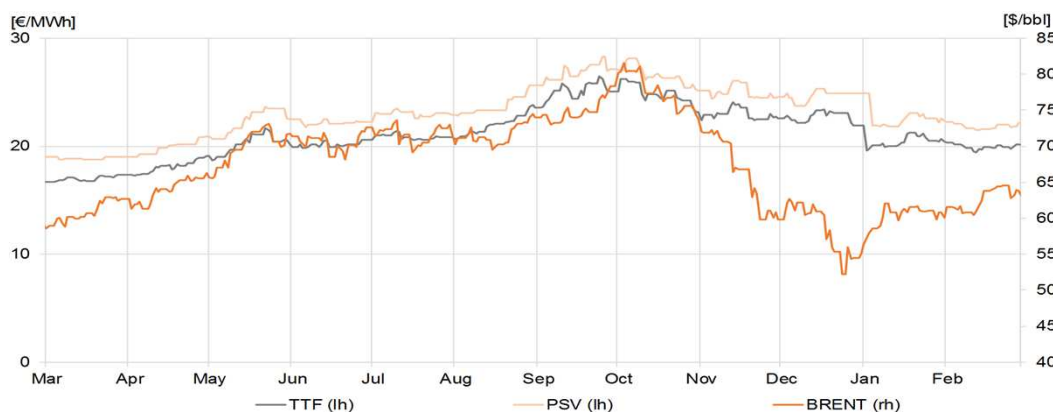
The 2019 average forward prices of electricity in Italy stood at around €59.3/MWh, a decrease (-6.1%) on the previous month's figure of €63.1/MWh. A negative trend was also recorded for the French exchange where the price was approximately €50.2/MWh (-7%), while in Germany it came out at approximately €46.7/MWh (-5.7%).

### Year+1 Forward electricity prices



Source: Terna calculation on Bloomberg data

## Year+1 Forward Gas & Oil prices



Monthly average change  
PSV-TTF = +€1.9/MWh

Source: Terna calculation on Bloomberg data

## Year +1 Forward Coal & Carbon prices



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

Source: Terna calculation on Bloomberg data

## Year+1 Forward Dark & Spark Spreads Italy



Clean spark spread PSV  
monthly average =  
€6.7/MWh

Clean dark spread API2  
monthly average =  
€14.4/MWh

Source: Terna calculation on Bloomberg data

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

### **Amendment to parameters of the transitional regime for the remuneration for production capacity for 2018**

With reference to the transitional remuneration for the availability of production capacity (capacity payment), the Authority has established:

- the amounts payable to the dispatching users for the year 2018;
- the 2018 time slots relevant for the calculation of remuneration for the availability of production capacity.

[Resolution  
30/2019/R/EEL](#)

### **Verification of the contractual obligations of Terna S.p.A. and the company Gestore dei Mercati Energetici S.p.A. for the launch of the single day-ahead coupling**

The Authority has verified, with a positive outcome, the contractual schedules submitted by Terna and Gestore dei Mercati Energetici for the creation of the single day-ahead coupling, as provided for in the European Regulation 1222/2015 which establishes guidelines on allocation of capacity and congestion management (CACM Regulation).

[Resolution  
69/2019/R/EEL](#)

## 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 - Puglia - 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 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 of working days only. **Off-peak hours** are all hours that are not in the peak.

**CO<sub>2</sub> 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

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1. The monthly electricity reports of the year 2019 and 2018 are provisional.
2. In particular, the monthly electricity reports of the year 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](http://www.terna.it).