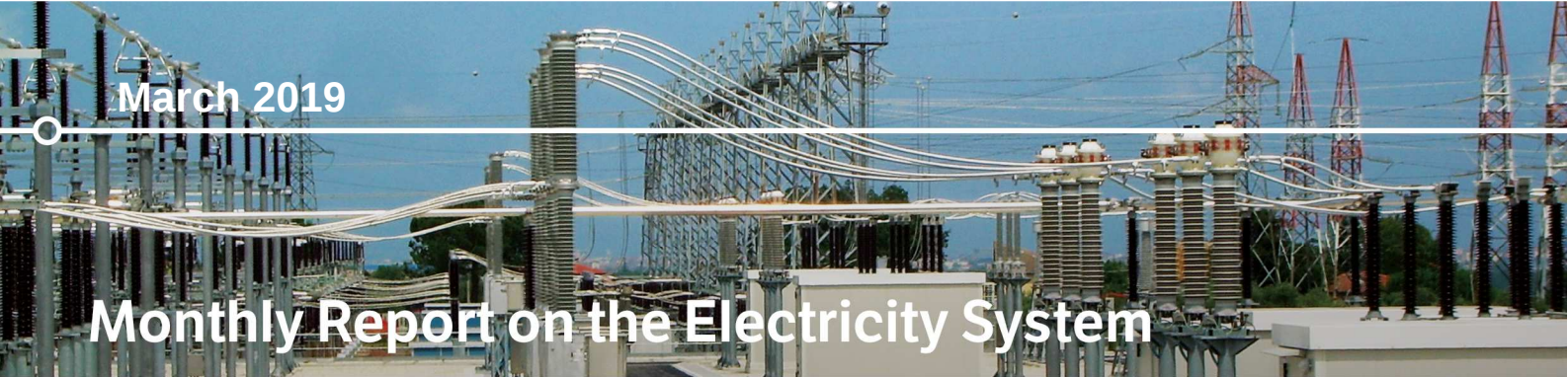


March 2019



Monthly Report on the Electricity System



March 2019

Monthly Report on the Electricity System

Monthly Report on the Electricity System

01 Energy Balance Sheets

page 5

In March 2019, electricity demand in Italy (26.4 billion kWh) recorded a decrease of 5.1% compared to the volumes of March 2018. In the first quarter of 2019, demand rose by -1.0% compared to 2018; adjusted for seasonal, calendar and temperature effects, the change was -0.8%. Lastly, in March 2019, electricity demand in Italy was covered 85.7% by national production, less pumping consumption, (-2.9% of net production compared to March 2019) and for the remainder by imports (net foreign exchange -17.0% compared to March 2018).



02 Electricity System

page 11

In March 2019, electricity demand was 26.378GWh, a decrease compared to the same month of the previous year (-5.1%). In particular, a decrease in renewable production (-3.9%), in thermoelectric production (-2.0%), and in foreign exchange (-17.0%) was recorded compared to the same month of the previous year.



03 Electricity Market

page 14

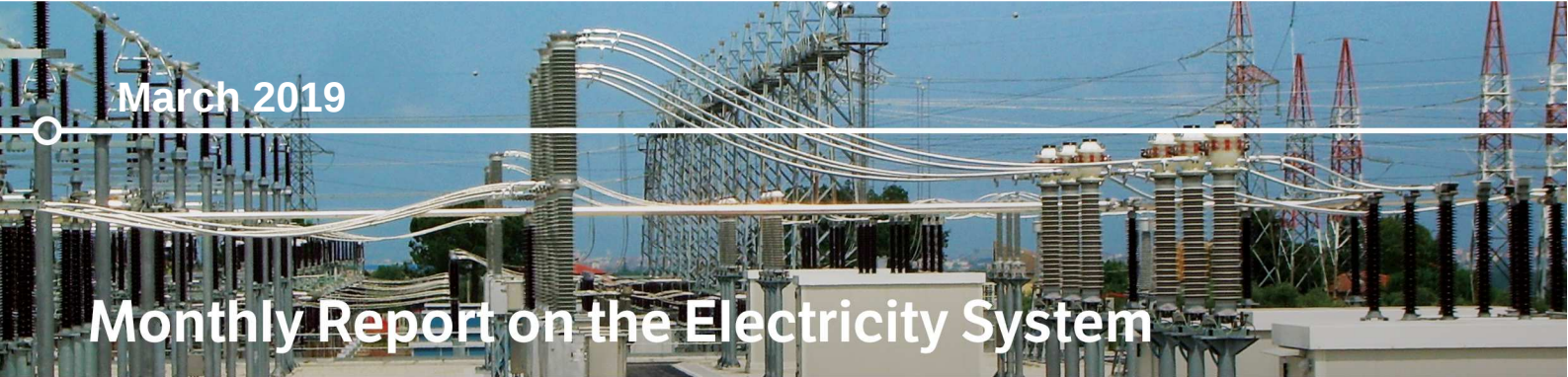
The March total for withdrawal programmes on the DAM was approximately €1.3 Bn, down 5% compared to the previous month and down 11% compared to March 2018. In March, the spread between average bid-up and bid-down prices on the DSM was €120.3/MWh, up by 6% compared to the previous month and up by 25% compared to March 2018. Total volumes increased compared to the previous month (+27%). The spread between bid-up and bid-down prices on the Balancing Market was €138.5/MWh, up compared to the previous month (€133.0/MWh; +4%) and up compared to March 2018 (€112.6/MWh; +23%). Total volumes increased compared to the previous month (+8%).



04 Regulation

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



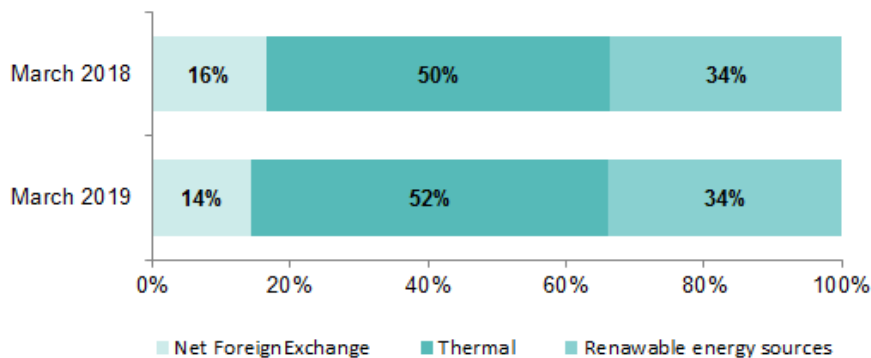
March 2019

Monthly Report on the Electricity System

Monthly Summary

In March 2019, electricity demand was 26.378GWh, a decrease compared to the same month of the previous year (-5.1%). In particular, a decrease in renewable production (-3.9%), in thermoelectric production (-2.0%), and in foreign exchange (-17.0%) was recorded compared to the same month of the previous year.

Demand breakdown – coverage by sources



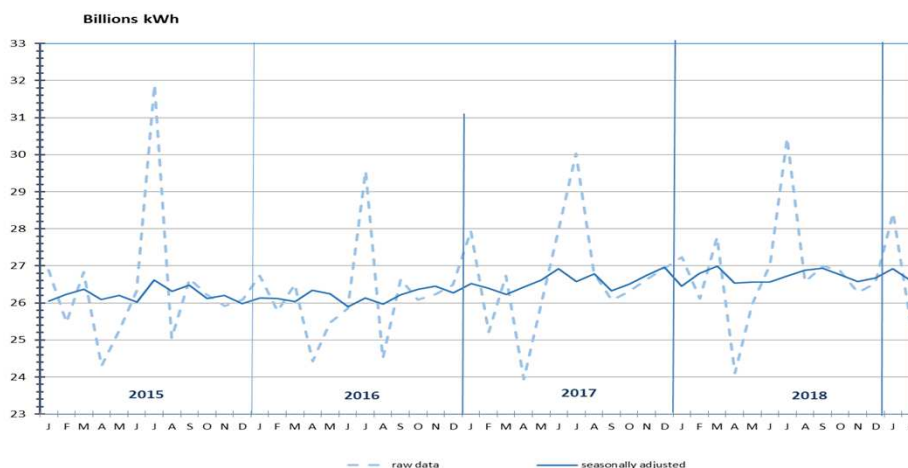
In March, electricity demand on the grid was down -5.1% compared to the same month of 2018.

Source: Terna

Short-term analysis

In March 2019, electricity demand in Italy (26.4 billion kWh) recorded a decrease of 5.1% compared to the volumes of March 2018. This was due to one less working day compared to the same month in 2018, and with an average monthly temperature that was 1.6°C higher. The figure adjusted for seasonal, calendar and temperature effects shows a moderate decrease of -3.1%. In the first quarter of 2019, demand rose by -1.0% compared to 2018; adjusted for seasonal, calendar and temperature effects, the change was -0.8%. At the regional level, in March 2019 the annual trend was negative in all areas: in the North (-5.0%), in Central Italy (-5.3%), and in the South (-5.0%). The short-term data for March 2019, adjusted for calendar and temperature effects, recorded a decrease in electricity demand for the second month in a row: -1.1% compared to the previous month. The first quarter of the year appears to show a slight decrease compared to the last quarter of 2018 (-0.3%). This result represents a downward trend. Lastly, in March 2019, electricity demand in Italy was covered 85.7% by national production, less pumping consumption, (-2.9% of net production compared to March 2019) and for the remainder by imports (net foreign exchange -17.0% compared to March 2018).

Demand – Seasonally adjusted



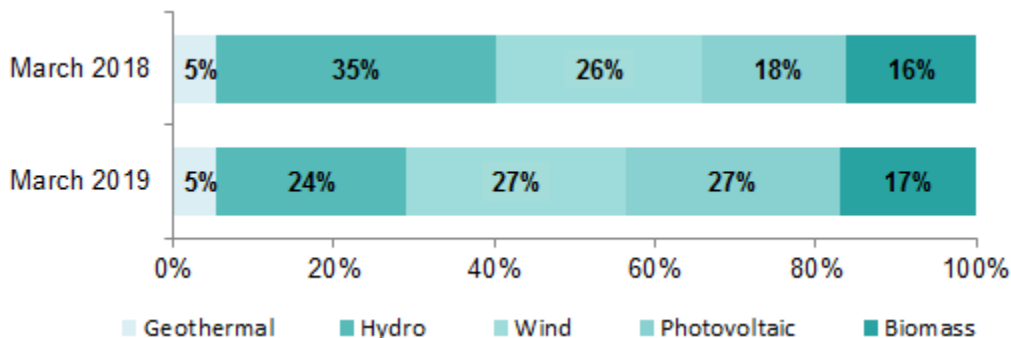
The value, adjusted for seasonal, calendar and temperature effects, shows a decrease of -1.1%.

Source: Terna

Details of Renewable Energy Sources (RESs)

Focusing on monthly production from renewable energy sources (RES), an increase was recorded in photovoltaic production (+41.2%), while there was a drop in hydroelectric (-33.6%) compared to the previous year.

RES Production - Breakdown



In March 2019, the detailed breakdown of production from renewable energy sources recorded a M-o-M percentage increase (+6.0%). In 2019, production from renewables increased +5.2% compared to the previous year.

Source: Terna

Energy Balance Sheet

In 2019, cumulative demand (80,341GWh) decreased (-1.0%) compared to the same period of 2018.

In March 2019, net national production was 22,821GWh, 34% from renewable sources (8,942GWh) and the remaining 66% from thermal sources.

Energy Balance Sheet

[GWh]	March 2019	March 2018	%19/18	Jan-Mar 19	Jan-Mar 18	%19/18
Hydro	2.115	3.187	-33,6%	7.500	8.519	-12,0%
Thermal	15.407	15.725	-2,0%	49.446	48.468	2,0%
<i>of which Biomass</i>	1.528	1.518	0,7%	4.401	4.439	-0,9%
Geothermal	482	492	-2,0%	1.417	1.431	-1,0%
Wind	2.433	2.422	0,5%	7.092	6.104	16,2%
Photovoltaic	2.384	1.688	41,2%	5.110	3.769	35,6%
Net Total Production	22.821	23.514	-2,9%	70.565	68.291	3,3%
Import	4.195	4.732	-11,3%	11.700	14.242	-17,8%
Export	417	179	133,0%	1.272	705	80,4%
Net Foreign Exchange	3.778	4.553	-17,0%	10.428	13.537	-23,0%
Pumping	221	286	-22,7%	652	701	-7,0%
Electricity demand⁽¹⁾	26.378	27.781	-5,1%	80.341	81.127	-1,0%

In 2019, a +80.4% increase in exports was recorded compared to the previous

year.

In March 2019, an increase was recorded in photovoltaic production (+41.2%) and a decrease in hydroelectric production (-33.6%) compared to the previous year.

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

Source: Terna

Monthly Energy Balance Sheets

In 2019, net total production (70,565GWh) met 88% of national electricity demand (80,341GWh).

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										7.500
Thermal	19.177	14.862	15.407										49.446
Geothermal	497	438	482										1.417
Wind	2.321	2.338	2.433										7.092
Photovoltaic	1.068	1.658	2.384										5.110
Net Total Production	25.855	21.889	22.821										70.565
Import	3.352	4.153	4.195										11.700
Export	531	324	417										1.272
Net Foreign Exchange	2.821	3.829	3.778										10.428
Pumping	249	182	221										652
Electricity demand⁽¹⁾	28.427	25.536	26.378										80.341

In March, net total production (-2.9%) is in line with 2018.
In 2019, the month with the maximum demand for electricity was January, with 28,427GWh.

(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
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 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 March 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
March 2019	2.717	5.816	4.129	4.136	3.609	3.731	1.548	692
March 2018	2.840	6.172	4.325	4.347	3.876	3.886	1.585	750
% Mar 2018/2017	-4,3%	-5,8%	-4,5%	-4,9%	-6,9%	-4,0%	-2,3%	-7,7%
Cumulated 2019	8.261	17.589	12.367	12.407	11.029	11.742	4.752	2.194
Cumulated 2018	8.413	17.929	12.504	12.522	11.185	11.560	4.731	2.283
% Cumulated 19/18	-1,8%	-1,9%	-1,1%	-0,9%	-1,4%	1,6%	0,4%	-3,9%

Source: Terna

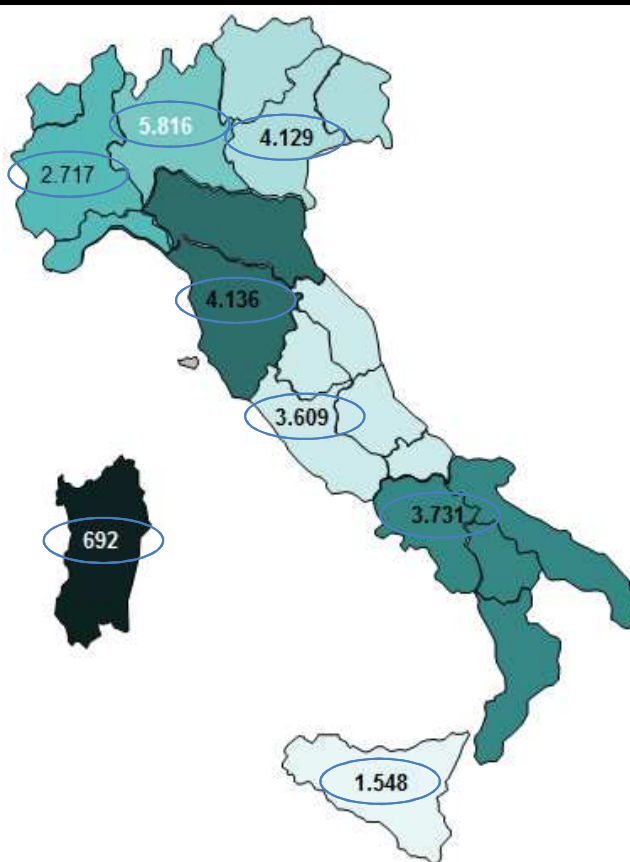
In 2019, the Y-o-Y percentage change in demand was -1.6% in the Northern zone, +1.1% in the Centre, +1.6% in the South and -1.0% for the Islands.

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



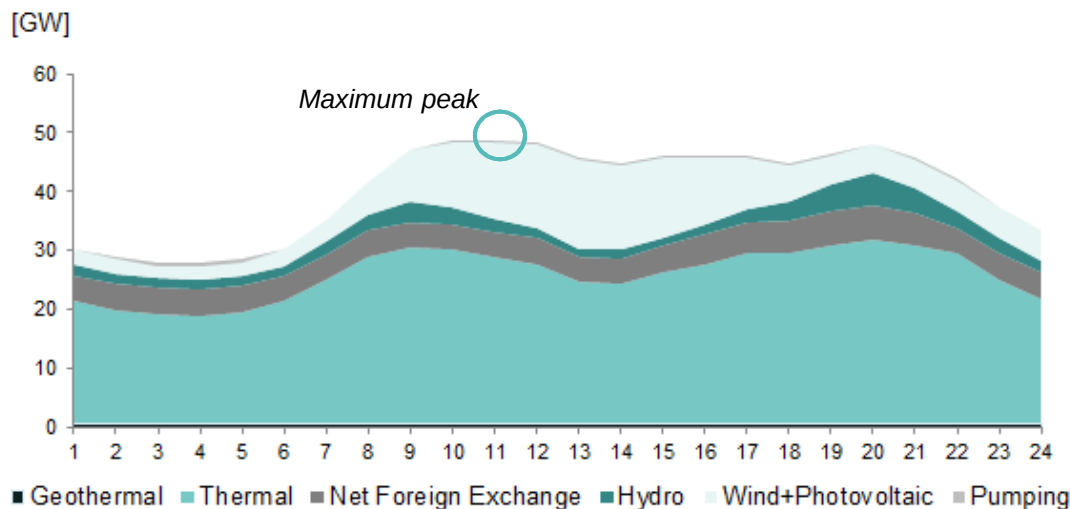
Source: Terna

(*) 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 March 2019, peak demand was recorded on **Wednesday 20 at 11:00** and was 48,464MW (-9.6% Y-o-Y). The hourly demand diagram of the peak day is presented below.

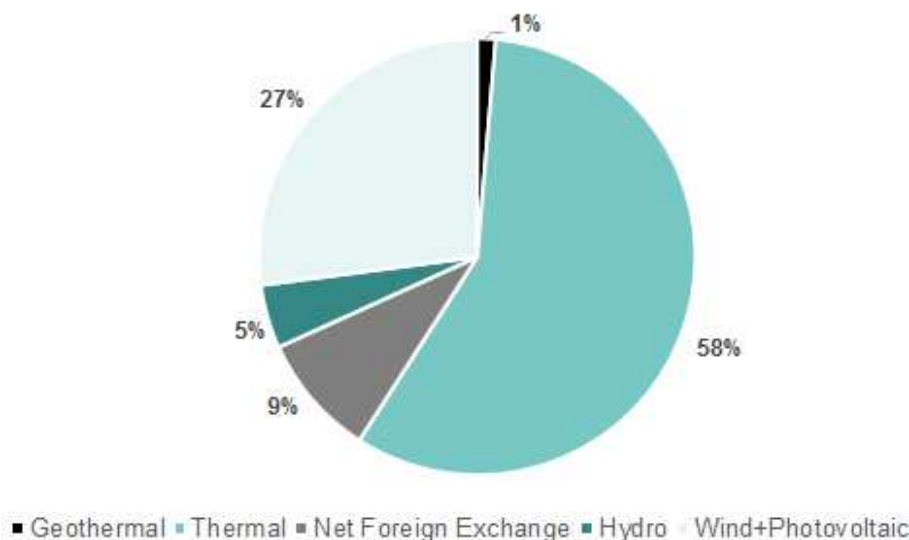
Peak Demand



At peak, the contribution of thermal production was 28,107MW.

Source: Terna

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



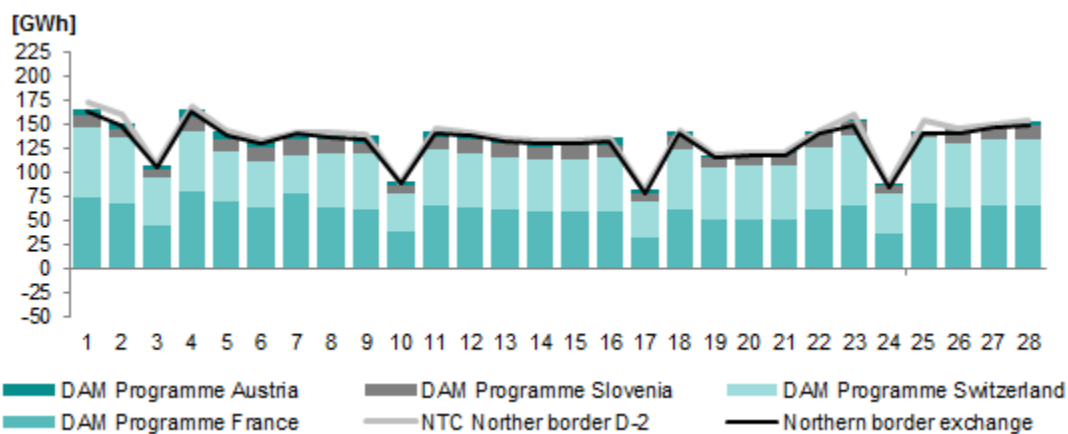
At peak, production from renewable sources contributed to covering 33% of demand, thermal production for 58% and the remainder was covered by the net foreign exchange.

Source: Terna

Net Foreign Exchange – March 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 March 2019, there were imports of 4,891GWh and exports of 479GWh.

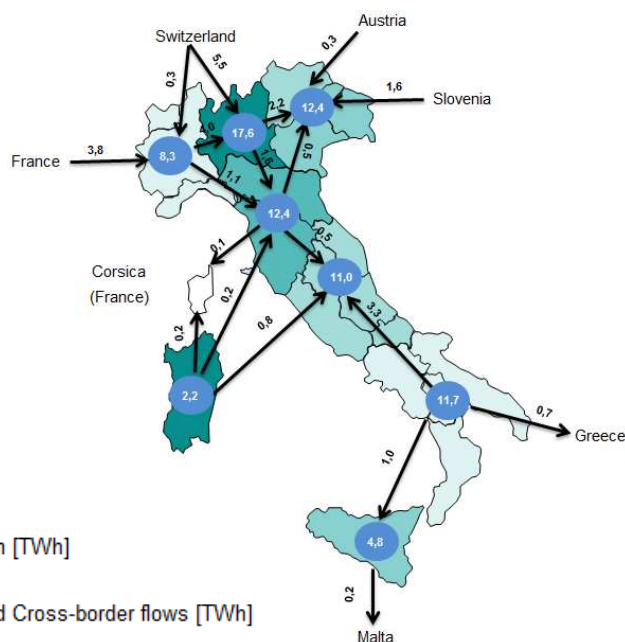
Source: Terna

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



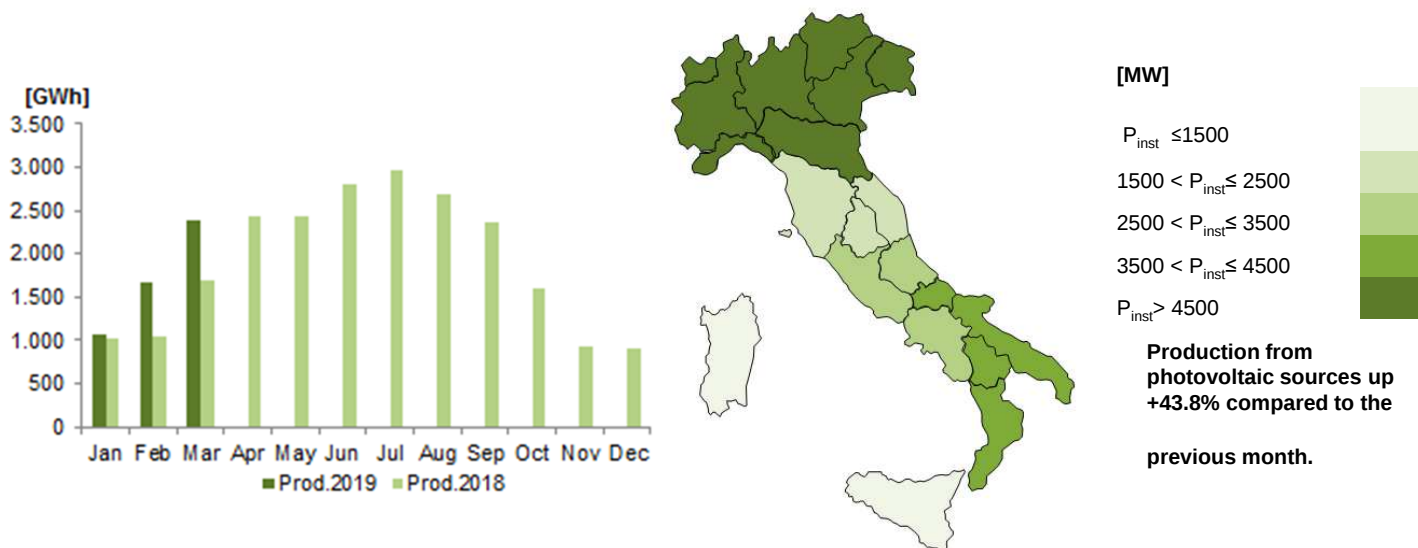
In 2019, a net exchange was recorded from the Northern zone to Emilia Romagna and Tuscany of around 1.2TWh. The Continent recorded a net exchange towards Sicily of 1.0TWh.

Source: Terna

Production and Installed Capacity

The energy produced by photovoltaic sources in March 2019 came out at 2,384GWh, up compared to the previous month by 726GWh. The annual cumulative figure increased compared to the previous year (+35.6%).

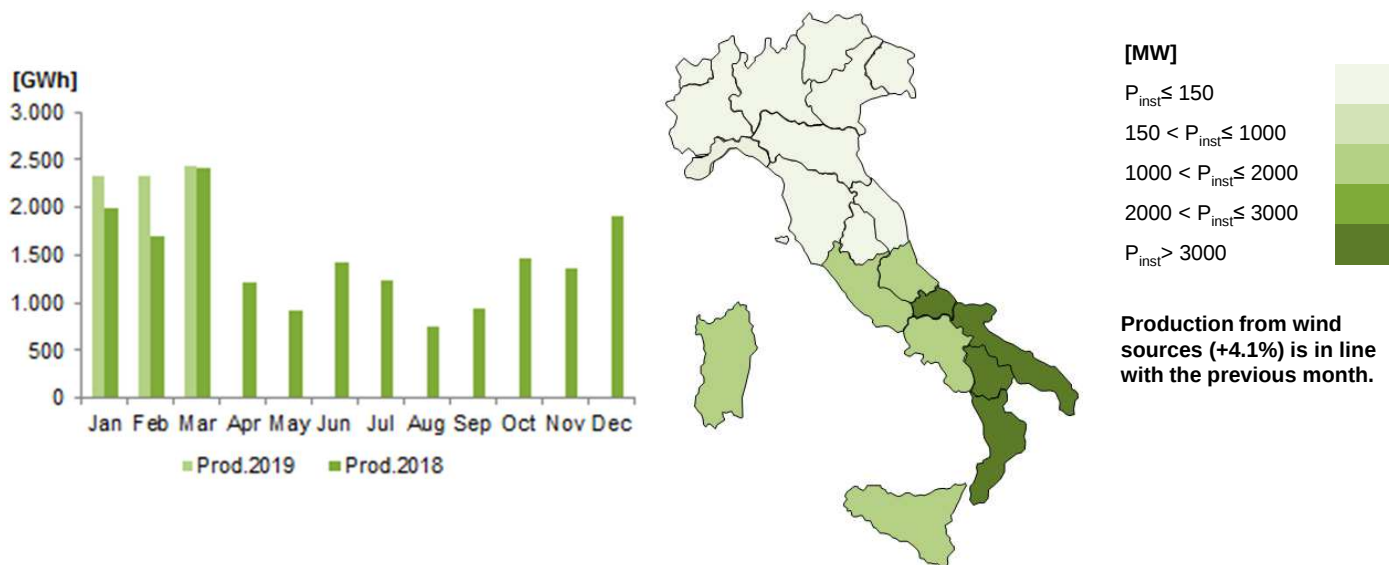
Photovoltaic Production and Capacity



Source: Terna

The energy produced by wind power in March 2019 came out at 2,433GWh, up compared to the previous month by 95GWh. The annual cumulative figure increased compared to the previous year (+16.2%).

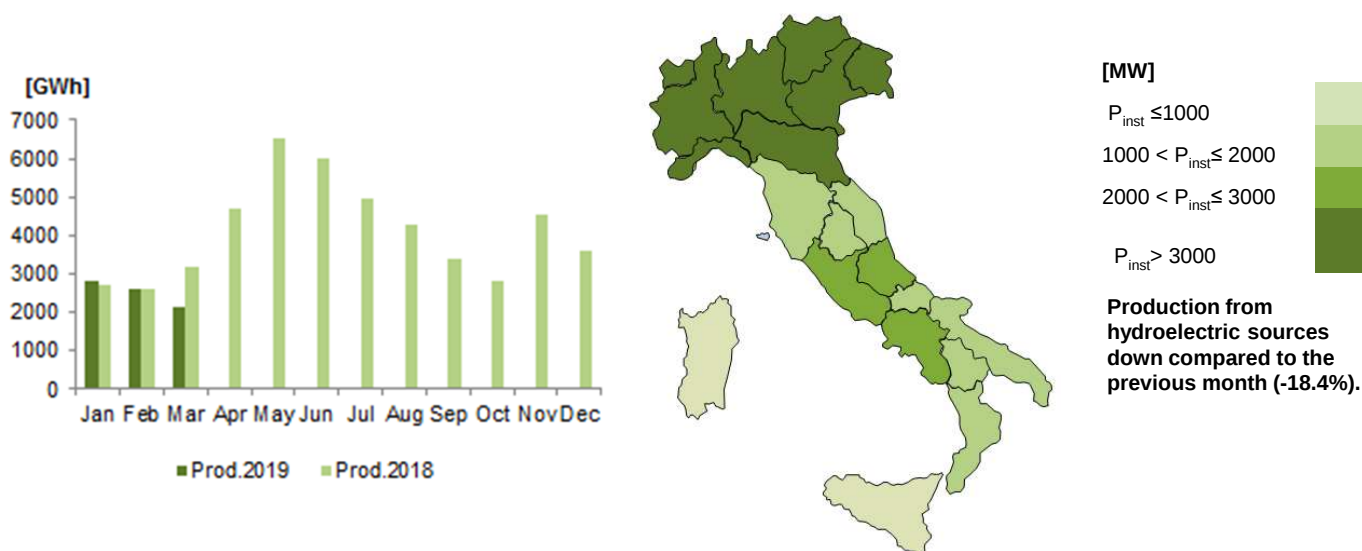
Wind Production and Capacity



Source: Terna

The energy produced by hydroelectric sources (reservoirs, storage and run-of-river) in March 2019 was 2,115GWh, down compared to the previous month by 478GWh. The annual cumulative figure was down (-12.0%) compared to the previous year.

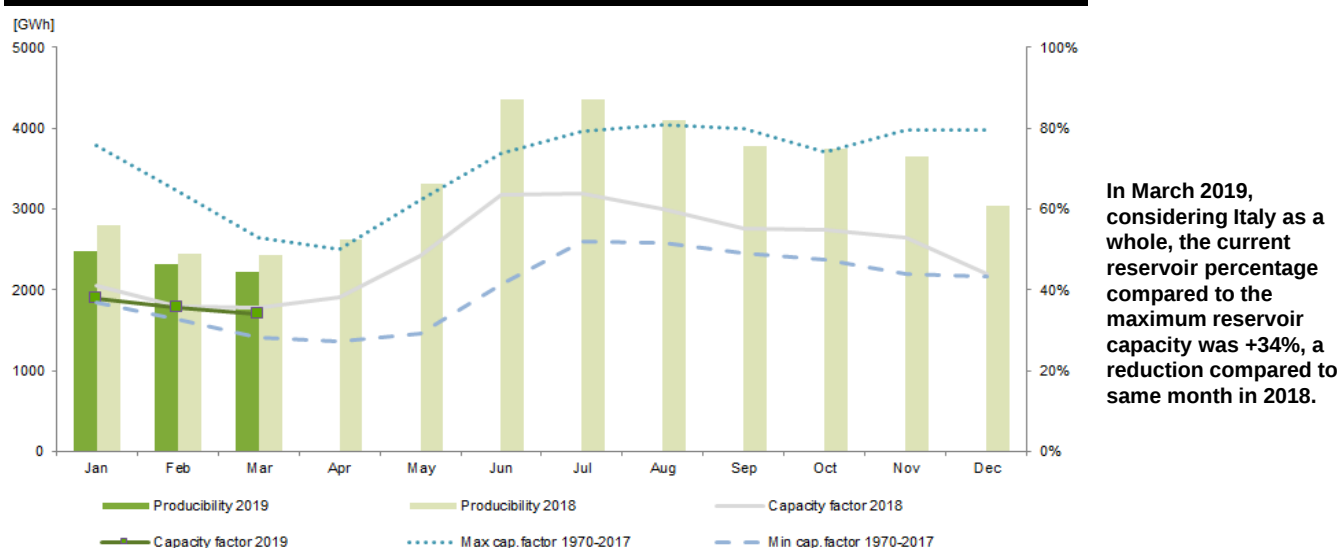
Hydroelectric Production and Capacity



Source: Terna

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

Hydroelectric Producibility and Reservoir Percentage



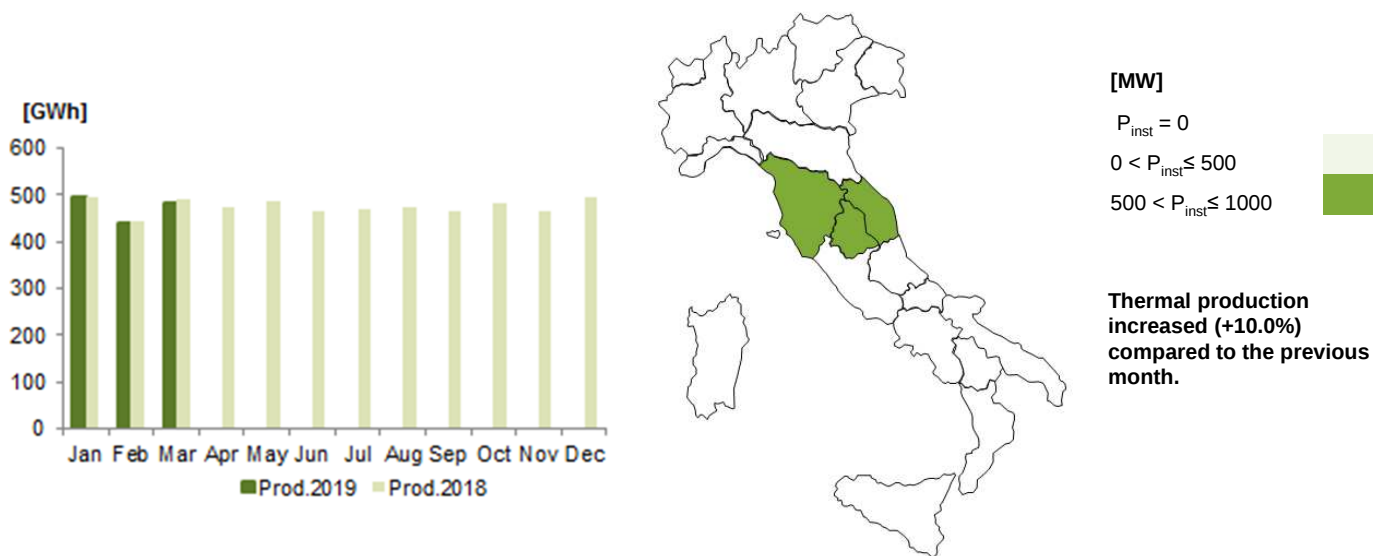
In March 2019, considering Italy as a whole, the current reservoir percentage compared to the maximum reservoir capacity was +34%, a reduction compared to same month in 2018.

Reservoir Capacity		NORTH	CENTRE SOUTH	ISLANDS	TOTAL
2018 2019	[GWh]	1.002	939	283	2.224
	%(capacity / max capacity)	23,2%	51,7%	74,4%	34,1%
	[GWh]	945	1.217	270	2.432
	%(capacity / max capacity)	20,3%	67,1%	70,9%	35,6%

Source: Terna

The energy produced by geothermal sources in March 2019 came out at 482GWh, up compared to the previous month by 44GWh. The annual cumulative figure was down (-1.0%) compared to the previous year.

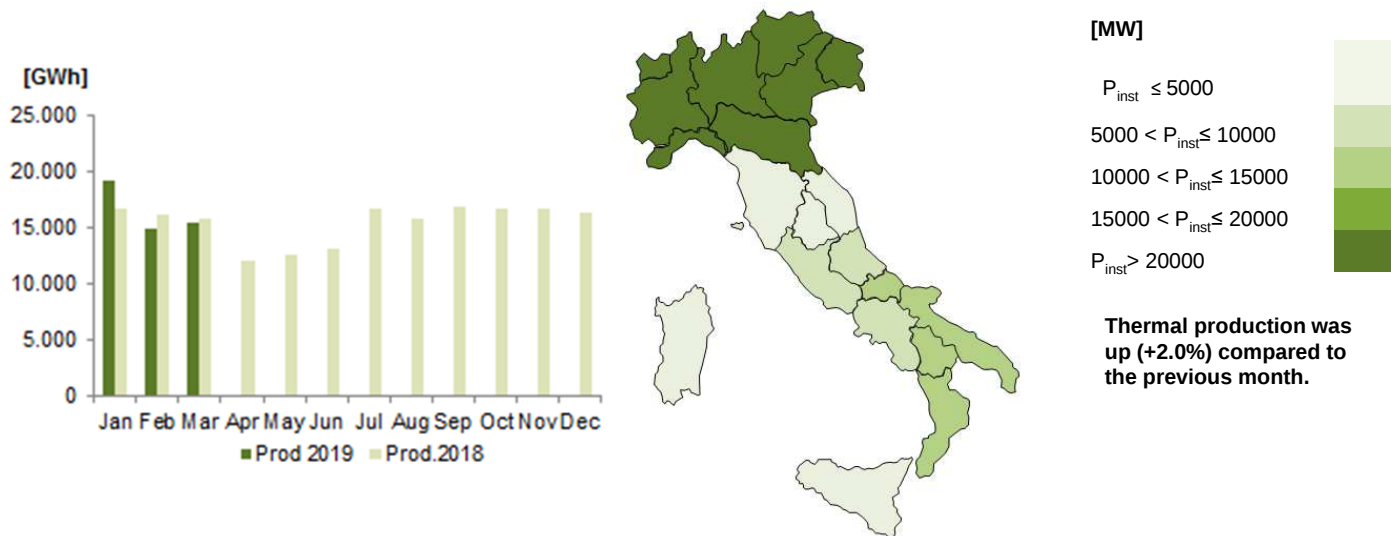
Geothermal Production and Capacity



Source: Terna

The energy produced by thermal sources in March 2019 came out at 15.407GWh, up compared to the previous month by 545GWh. The annual cumulative figure was up (+2.0%) compared to the previous year.

Thermal Production and Capacity

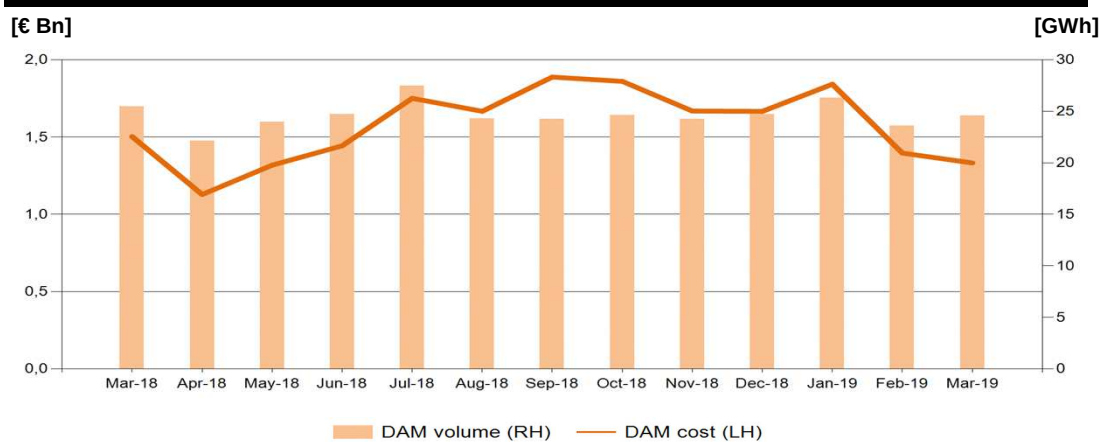


Source: Terna

Day-Ahead Market

The March total for withdrawal programmes on the DAM was approximately €1.3 Bn, down 5% compared to the previous month and down 11% compared to March 2018. In both cases, the reduction is due to a reduction in average PUN. DAM volumes increased compared to February by 4%.

Day-Ahead Market – amounts and volumes

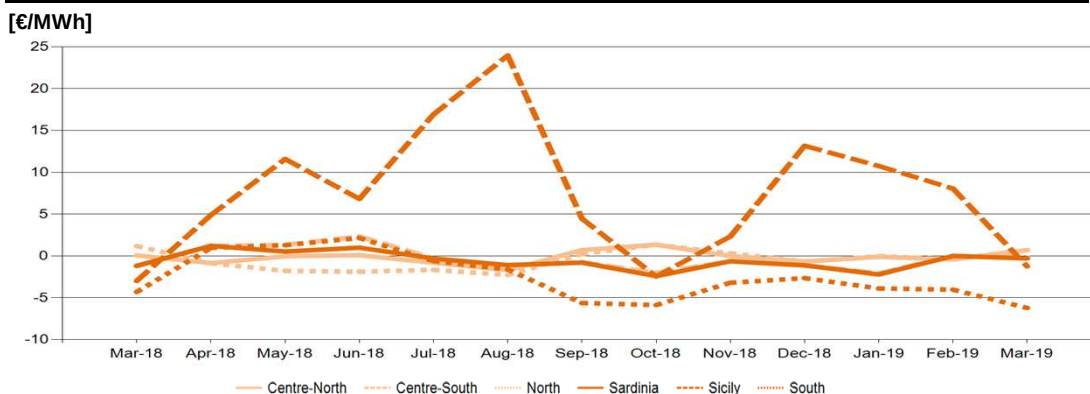


Total amount in March 2019 down 11% compared to March 2018

Source: Terna calculation on GME data

In March, the zonal prices were basically in line with the PUN, with the exception of the South zone, which recorded a spread of around -€6.2/MWh. Compared to March 2018, the price of the Sicily zone remained constant, while the other zones saw an average reduction of €4/MWh.

Spread compared to the PUN



March 2019 zonal prices in line with the PUN for all zones except the South

Source: Terna calculation on GME data

In March, the average spread between the peak and off-peak prices was -€4.3/MWh for the Southern zone, -€8.3/MWh for the Sicily zone and €8.0/MWh for the other zones. In February, the average 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.

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

€/MWh	PUN	North	Centre-North	Centre-South	South	Sicily	Sardinia
Average	52.9	53.6	53.6	52.7	46.7	51.6	52.6
Y-o-Y	-4.0	-4.5	-3.4	-3.0	-5.9	-2.3	-3.1
Δ vs PUN	-	0.7	0.7	-0.2	-6.2	-1.3	-0.3
Δ vs PUN 2017	-	-1.2	-0.1	-1.2	-4.3	-3.0	-1.2
Peak	57.3	59.3	59.3	57.6	43.8	46.1	57.2
Off Peak	50.6	50.6	50.6	50.2	48.1	54.4	50.2
Δ Peak vs Off Peak	-6.6	-8.8	-8.8	-7.4	-4.3	-8.3	-7.0
Minimum	23.2	23.2	23.2	0.1	0.0	0.0	0.1
Maximum	94.2	94.8	94.8	94.8	75	151.5	94.8

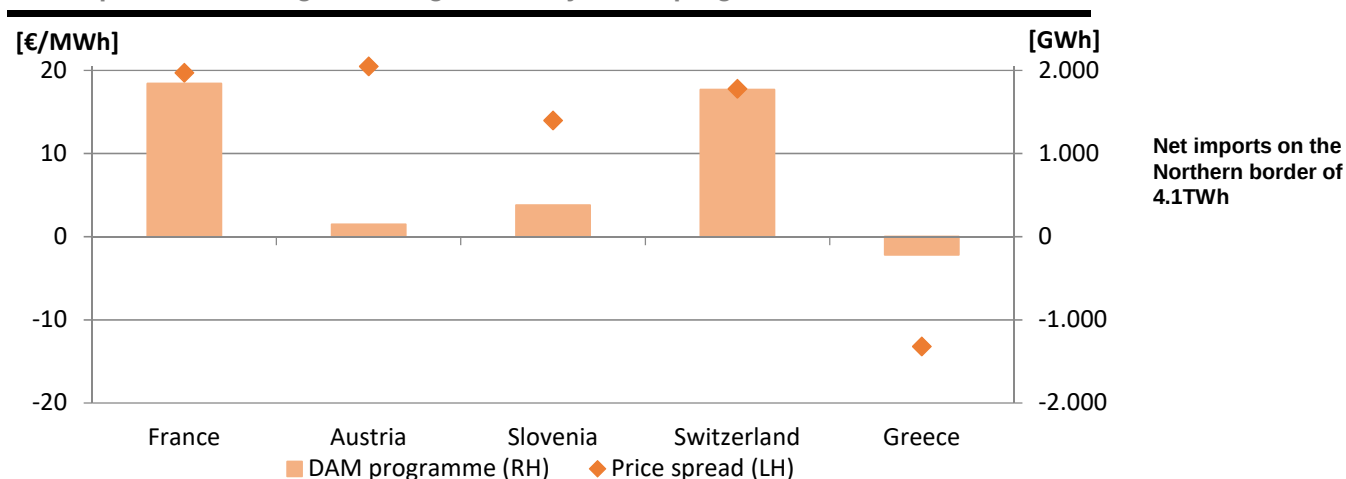
Peak-off peak spread down compared to the previous month for all zones

Source: Terna calculation on GME data

March saw a rise in price spreads on all borders compared with the previous month.

In March, imports totalled 4.3TWh, with France and Switzerland accounting for 43% and 41% of the total, respectively. Total exports were 357GWh, with Greece accounting for 99%.

Price spread with foreign exchanges and day-ahead programmes



Source: Terna calculation

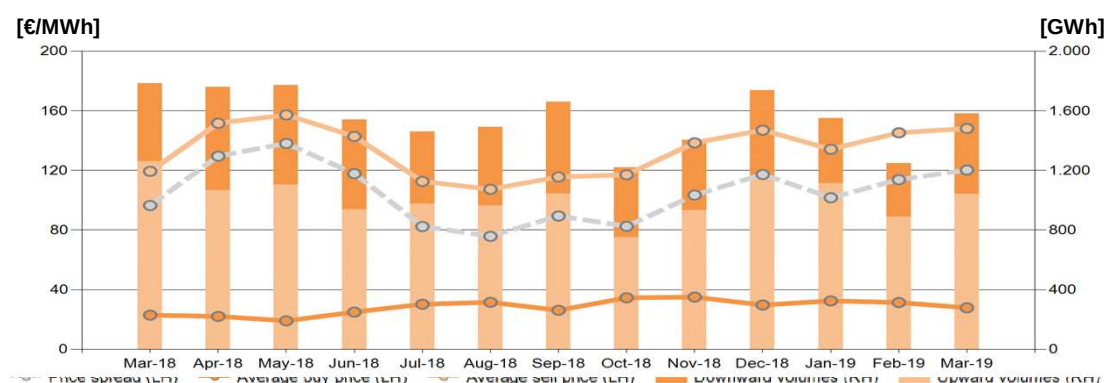
Ex-ante Ancillary Services Market

In March, the spread between average bid-up and bid-down prices was €120.3/MWh, up by 6% compared to the previous month and up by 25% compared to March 2018.

Total volumes increased compared to the previous month (+27%), in particular upward volumes increased by 17% and downward volumes increased by 50%.

The upward volumes fell by 17%, while the downwards volumes rose by 3% compared to the same month of the previous year.

Ex-ante Ancillary Services - prices and volumes



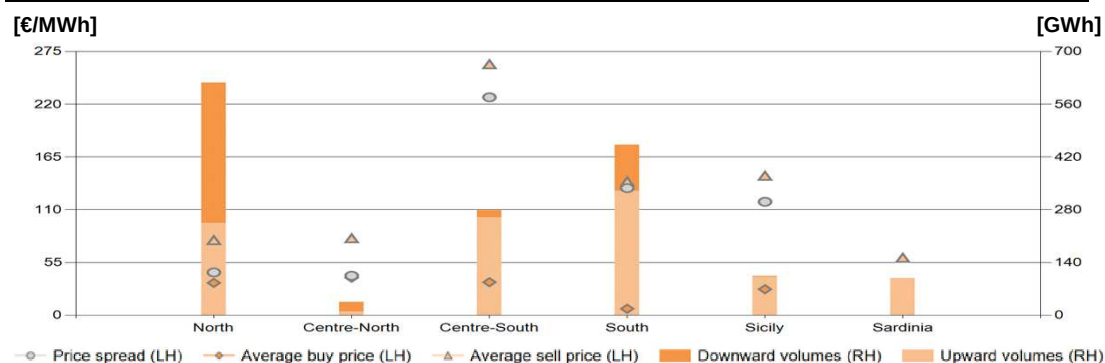
Average bid-up price in March 2019 of €148.1/MWh
Average bid-down price in March 2019 of €27.9/MWh

Source: Terna

The market zone characterised by the highest spread (€227.2/MWh) is the Centre-South, as in the previous month.

This spread saw an 11% decrease compared to the previous month due to a reduction in the average bid-up price (from €292.8/MWh in February to €261.6/MWh in March) and a reduction in the average bid-down price (from €38.6/MWh in February to €34.4/MWh in March).

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

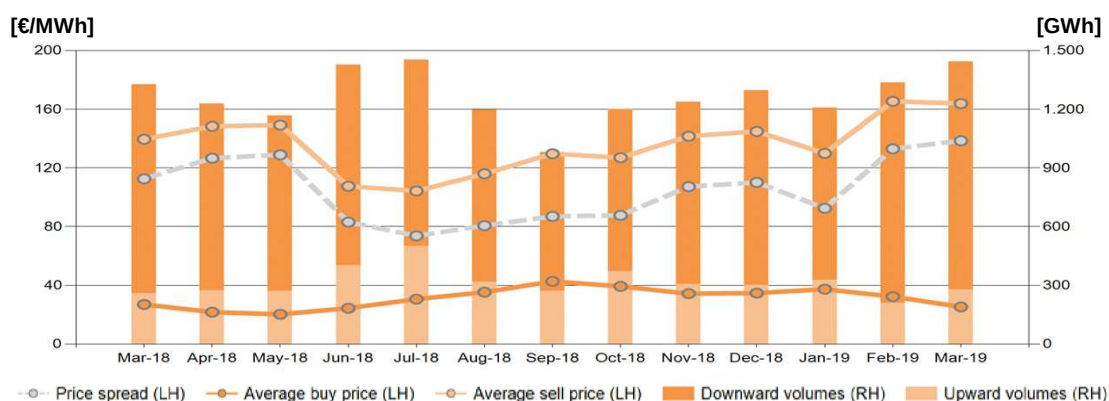
Source: Terna

Balancing Market

In March, the spread between bid-up and bid-down prices was €138.5/MWh, up compared to the previous month (€133.0/MWh; +4%) and up compared to March 2018 (€112.6/MWh; +23%).

Total volumes increased compared to the previous month (+8%), in particular upward volumes increased by 32% and downward volumes increased by 3%. Compared to March 2018, upward volumes increased by 8% and downward volumes fell by 9%.

Balancing market – prices and volumes



Average bid-up price in March 2019 of €163.8/MWh
Average bid-down price in March 2019 of €25.3/MWh

Source: Terna

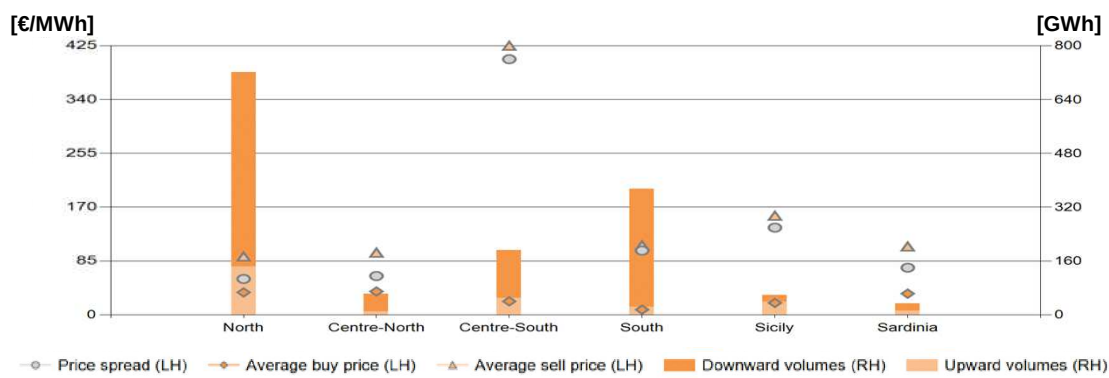
The market zone characterised by the highest spread (€ 404.6/MWh) is the Centre-South, similar to the previous month (spread of € 376.8/MWh).

In March, the Northern zone was confirmed as the zone showing the highest downward volumes (579GWh), followed by the Southern zone (350GWh).

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

The Centre-North was the zone with the greatest decrease compared to the previous month (-€25.1/MWh, -29%).

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

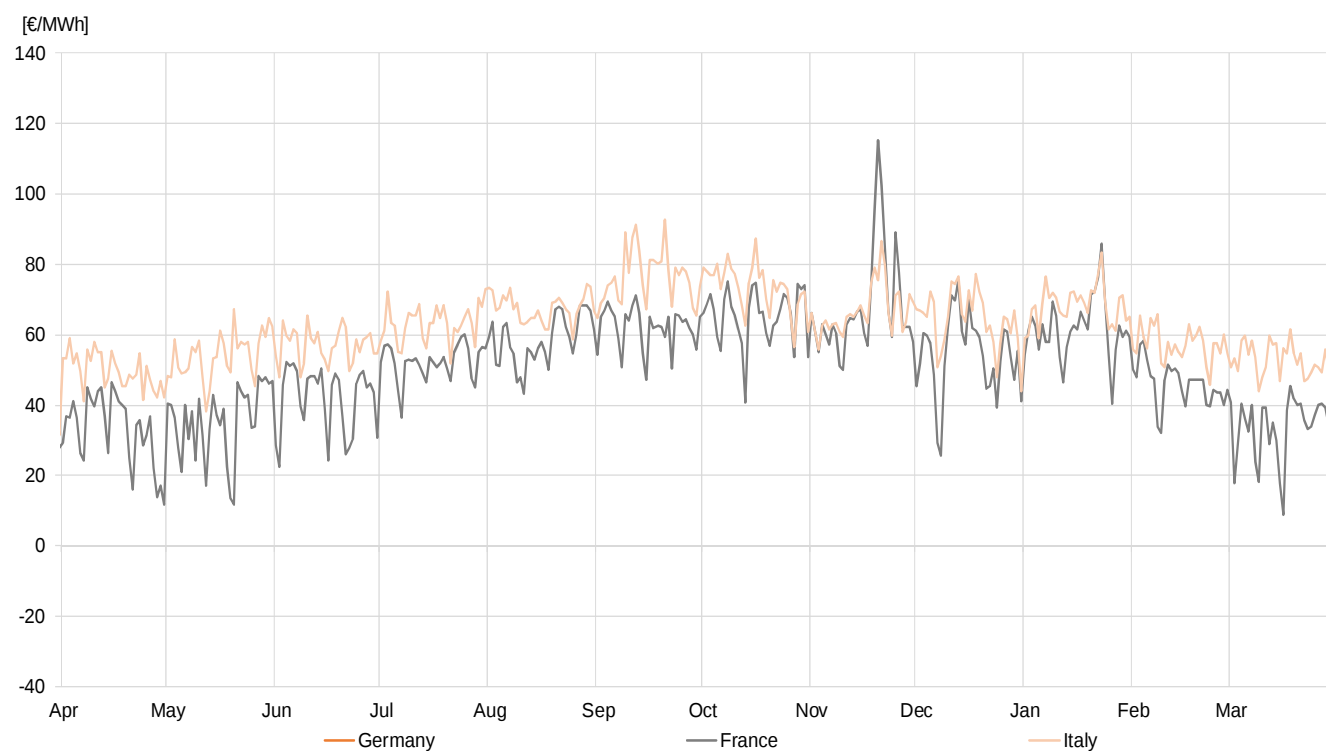
In March 2019, the prices of Brent stood at around \$66.3/bbl, up on the \$64.2/bbl of February (+3.3%).

Coal prices (AP12) came out at approximately \$70.4/t, down against the \$74.7/t for February (-5.8%).

Gas prices in Europe decreased again to €15.7/MWh in March (-13.2% compared to the previous month); the PSV also recorded a decrease to €18.3/MWh (-10.5%).

Electricity prices in Italy fell slightly in March compared to February with a monthly average of €53/MWh (-7.5%).

Spot electricity prices



Source: Terna calculation on GME and EPEX data

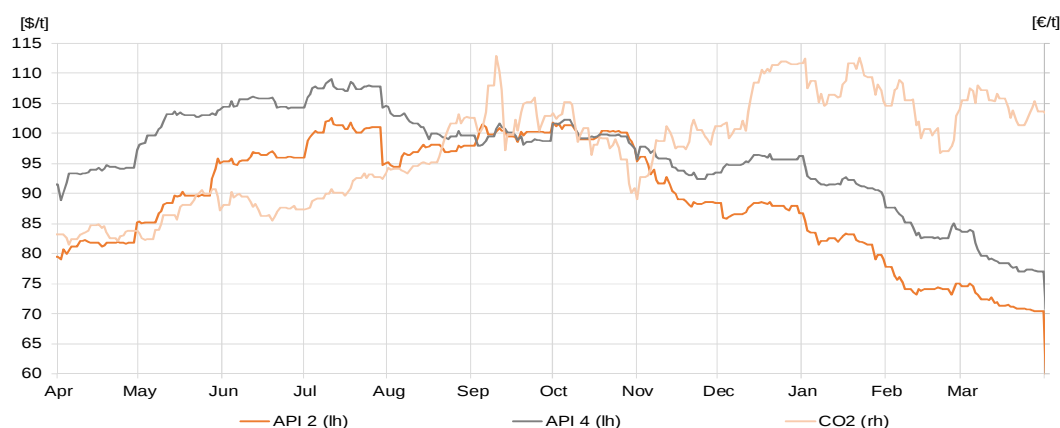
Gas & Oil spot prices



Monthly average
change PSV-TTF =
+€2.6/MWh

Source: Terna calculation on Bloomberg data

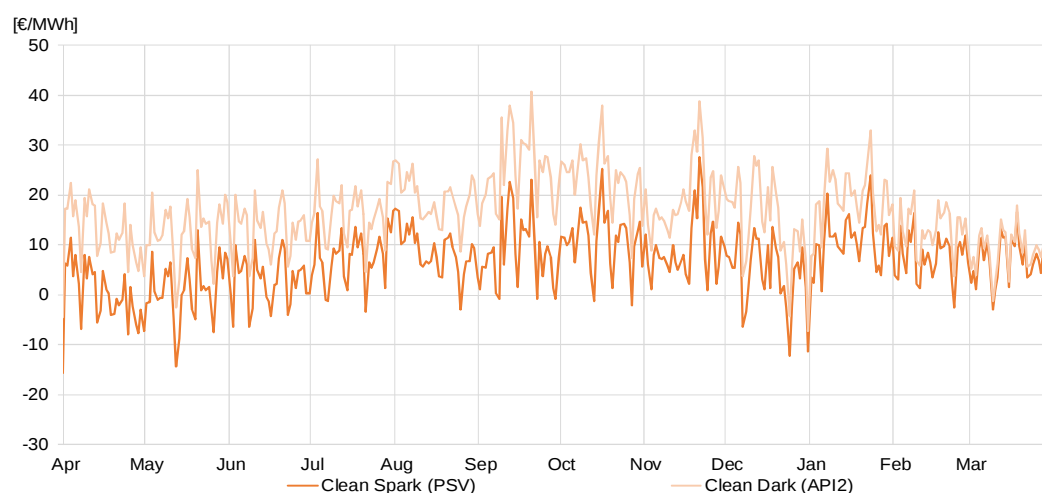
Coal & Carbon spot prices



Monthly average change
API2-API4 = -\$8.8/tn

Source: Terna calculation on Bloomberg data

Clean Dark & Spark spreads Italy



Clean spark spread PSV
monthly average =
€7.3/MWh

Clean dark spread API2
monthly average = €9/MWh

Source: Terna calculation on Bloomberg data

Forward Commodities Market

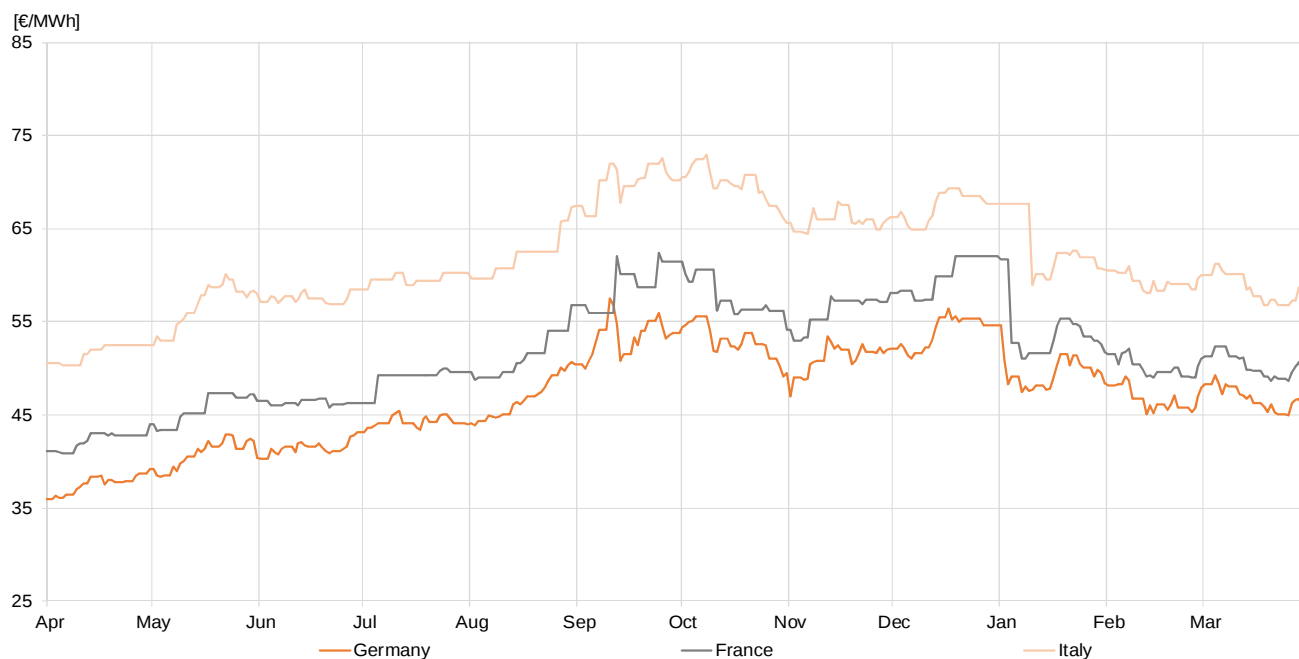
In March, the 2019 Brent forward prices were around \$63.9/bbl, up compared to the \$62.6/bbl of February (+2.1%).

The 2019 average forward prices of coal (API2) fell, coming out at approximately \$75/t (-4.6% compared to February).

The 2019 average forward prices of gas in Italy (PSV) decreased slightly for March compared to the previous month, coming out at approximately €20.9/MWh (-4.2%), as well as in Europe (TTF), which recorded €18.8/MWh (-5.7%).

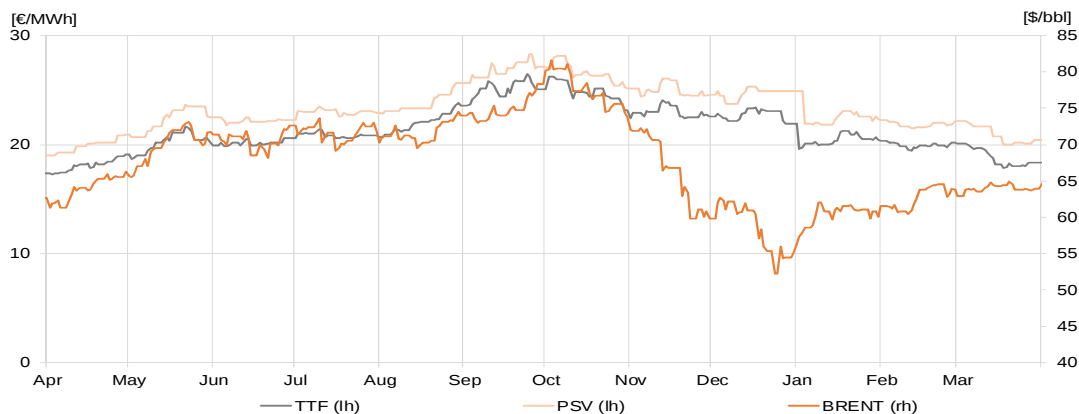
The 2019 average forward prices of electricity in Italy stood at around €58.6/MWh, a decrease (-1.2%) on the previous month's figure of €59.3/MWh. A stable trend was also recorded for the French exchange where the price was approximately €50.3/MWh (+0.2%), while in Germany it came out at approximately €46.7/MWh (+0%).

Year+1 Forward electricity prices



Source: Terna calculation on Bloomberg data

Year+1 Forward Gas & Oil prices



Monthly average change
PSV-TTF = +€2.1/MWh

Source: Terna calculation on Bloomberg data

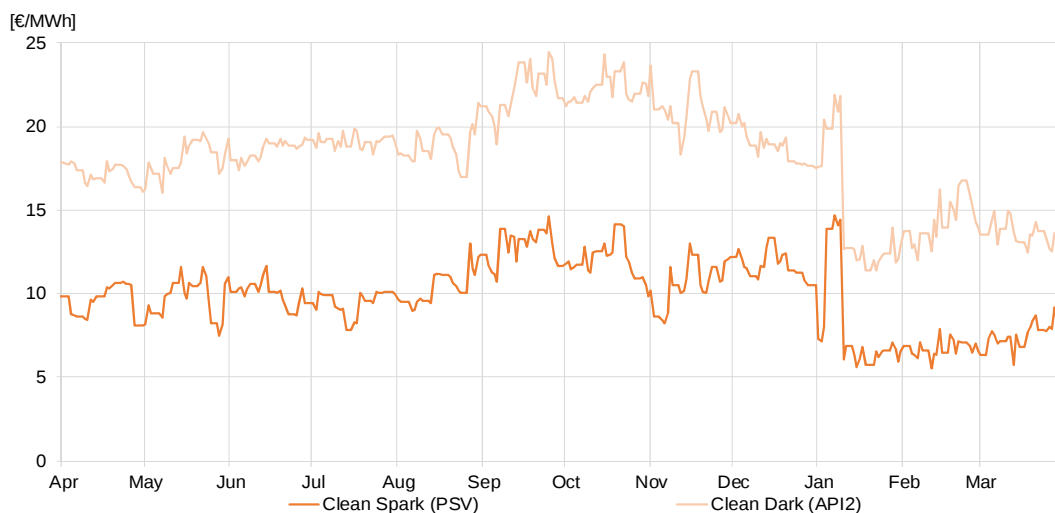
Year +1 Forward Coal & Carbon prices



Monthly average change
API2-API4 = -\$6/t

Source: Terna calculation on Bloomberg data

Year+1 Forward Dark & Spark Spreads Italy



Clean spark spread PSV
monthly average =
€7.5/MWh

Clean dark spread API2
monthly average =
€13.6/MWh

Source: Terna calculation on Bloomberg data

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

Definition of regulation of the physical and economic elements regarding electricity issued and withdrawn on Italian distribution grids interconnected only with foreign grids

With validity from 1 January 2020, the Authority has revised the supply methods for final customers connected to Italian distribution grids fed only by foreign distribution grids (e.g. the Campione d'Italia electricity grid). Specifically, the Authority has defined that Terna establish a contract with the foreign grid operator to which the isolated grids are connected for procurement of services required for secure operation of the Italian grid, including energy necessary for supply to customers connected to such grids.

[Resolution 78/2019/R/EEL](#)

Approval of amendments to the Grid Transmission, Dispatching, Development and Security Code prepared by Terna S.p.A. for implementation of (EU) Regulation 2016/1388 and (EU) Regulation 2016/1447

The Authority has approved Terna's proposal concerning the technical rules for implementation of European Regulations on technical requirements for connection:

- of consumption/distribution systems connected to the national transmission grid, of closed-distribution systems and consumption units that provide demand-side response – the Demand Connection Code (DCC, EU Regulation 2016/1388);
- of HVDC systems, both those connecting synchronous areas/control areas and those integrated within a control area – the High-Voltage Direct Current Code (HVDC, EU Regulation 2016/1447).

[Resolution 82/2019/R/EEL](#)

Verification of conformity of proposals to amend the Grid Transmission, Dispatching, Development and Security Code in relation to the system of guarantees that must be issued to Terna by users of withdrawal dispatching services

The Authority has approved the amendments to the Grid Code in relation to the system of guarantees that users of withdrawal dispatching services are bound to issue to Terna (Regulation for guarantees – Annex A.61 to the Grid Code). Specifically, the amendments approved are aimed at strengthening the system of guarantees and mitigating increased exposure of the system to counterparty risk.

[Resolution 83/2019/R/EEL](#)

Further provisions regarding zonal grid subdivisions, as a result of the reassessment process performed pursuant to Regulation (EU) 2015/1222 (CACM)

The Authority has completed the reassessment process for zonal configuration of the main national electricity grid launched with resolution 22/2018, defining the new zonal configuration, applicable from 2021. Specifically, the Authority has established movement of Umbria from the Centre-North zone to the Centre-South zone and introduction of the Calabria zone with elimination of the limited production hub of Rossano, subject to approval by the Nominated Electricity Market Operator (NEMO) of

[Resolution 103/2019/R/EEL](#)

the request for increased PUN Order functionality of the Price Coupling Algorithm, required to meet growing numbers of purchase offers associated with introduction of the new Calabria zone.

Approval of proposals for calculation of planned exchanges, as a result of the coupling process of the day-ahead market, presented pursuant to (EU) Regulation 2015/1222 (CACM)

The Authority, in coordination with the other European Regulators, has approved the joint proposal for calculation of planned exchanges as a result of the day-ahead

market (single day-ahead coupling – SDAC) and the intraday market (single intraday coupling – SIDC), prepared by Terna together with the other European TSOs pursuant to EU Regulation 2015/1222 that establishes guidelines regarding allocation of capacity and management of congestion (CACM Regulation).

[Resolution 104/2019/R/EEL](#)

Determination of the bonuses and penalties related to electricity transmission service quality, for the year 2017

For 2017, the Authority has established a null result for the transmission service-quality indicator (Reference Energy Not Supplied – RENS), defining that Terna shall not receive any bonus and shall not pay any penalty linked with this indicator.

[Resolution 106/2019/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.

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 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.