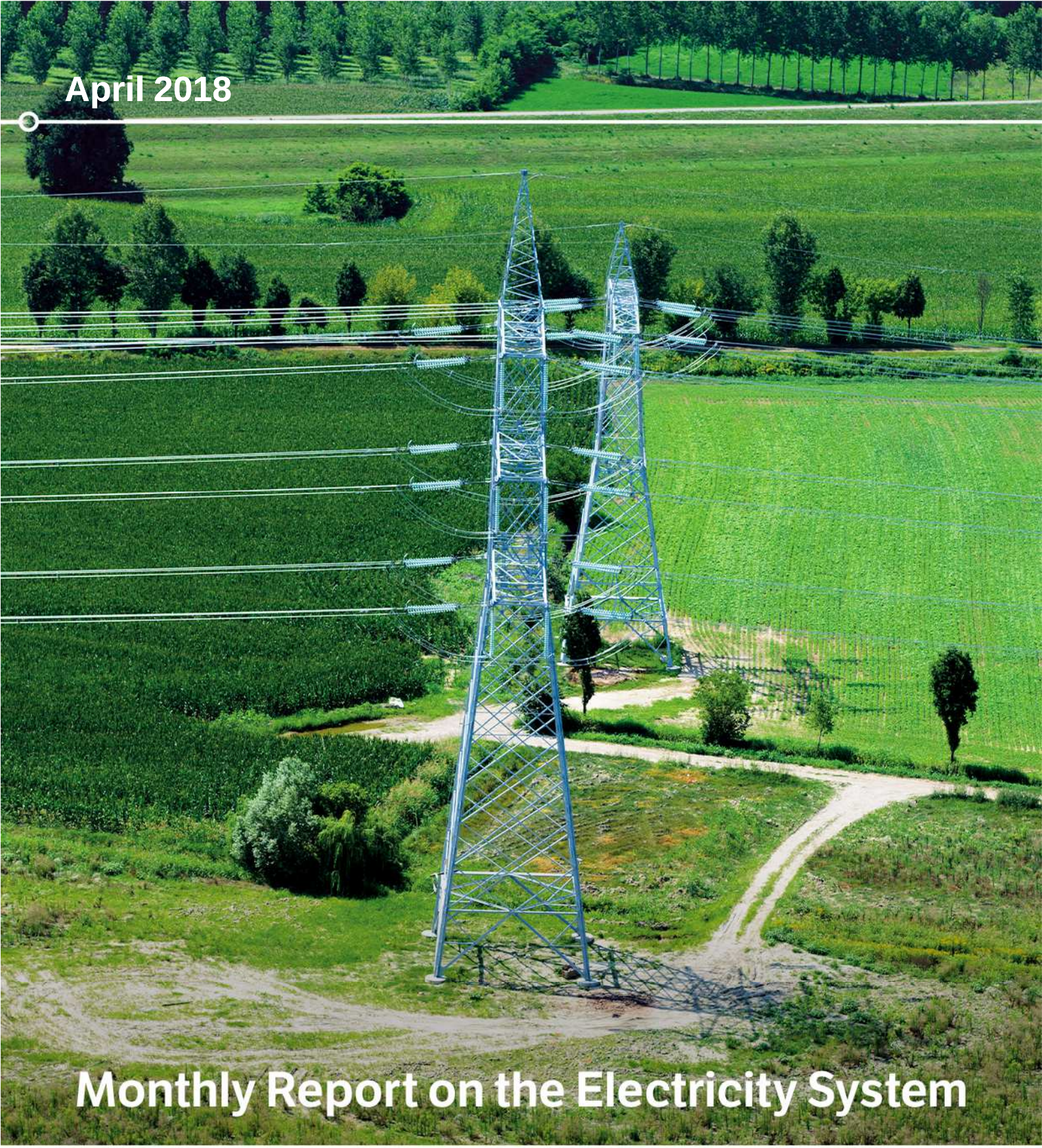
April 2018



Monthly Report on the Electricity System

Terna

TERNA GROUP


April 2018
Monthly Report on the Electricity System

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Summary of 2017 provisional operating data

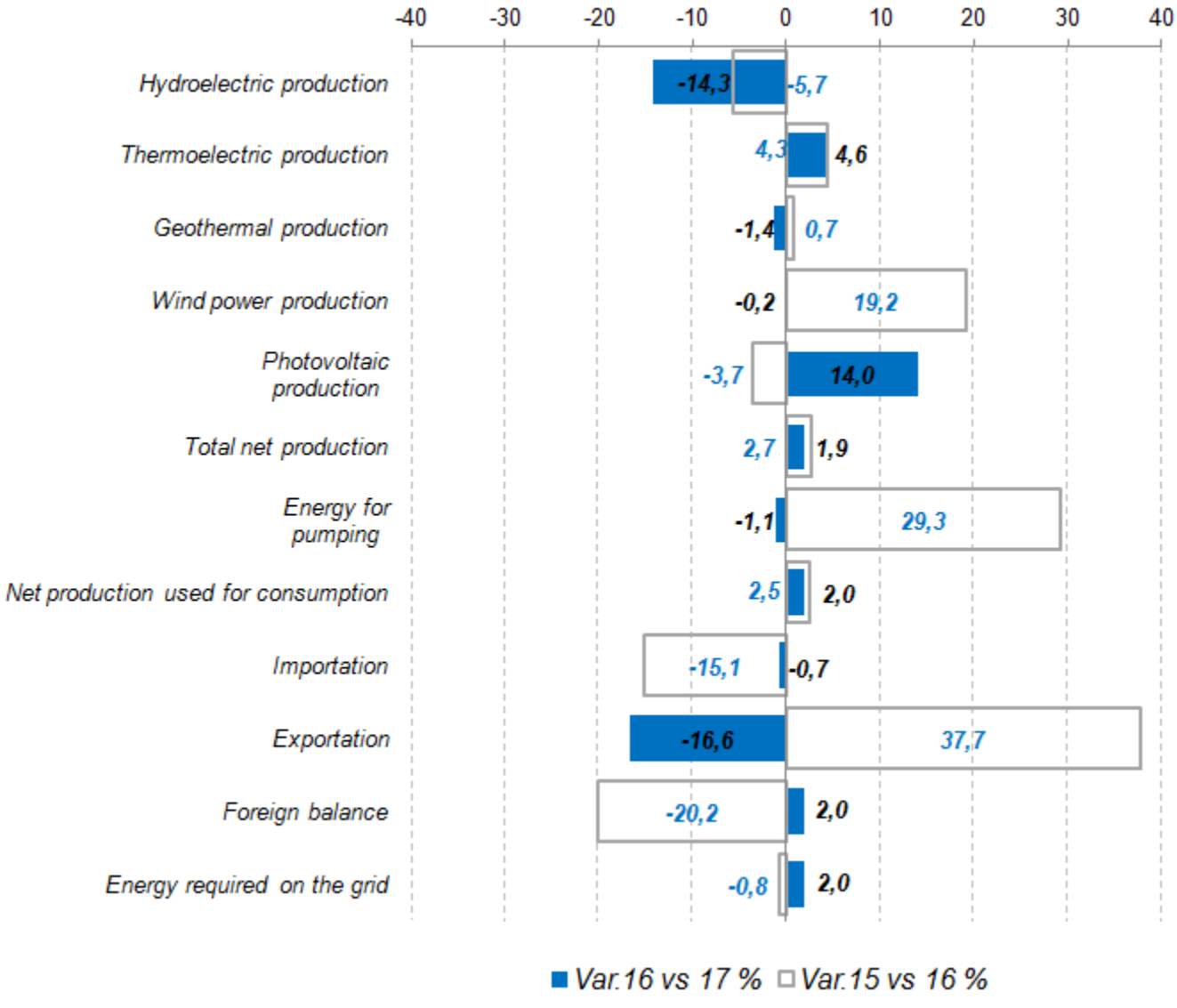
In April, Terna published its 2017 annual report on the "Provisional Operating Data for the National Electricity System".

Below a summary of the performance of the main indexes is given for the 2016 financial year. More information and additional details on this can be found in the above-mentioned report.

Specifically, compared to 2016, we note:

- a **+2.0%** increase in **energy demand**
- a **+14.0%** increase in **photovoltaic production**
- a **-14.3%** decrease in **hydroelectric production**
- a **+4.6%** increase in **thermoelectric production**
- a **+2.0%** increase in **energy exchanged with foreign countries**

Comparison between electricity reports - 2017 vs 2016 and 2016 vs 2015



Source: Terna "2017 Provisional operating data for the National Electricity System"

Electricity demand

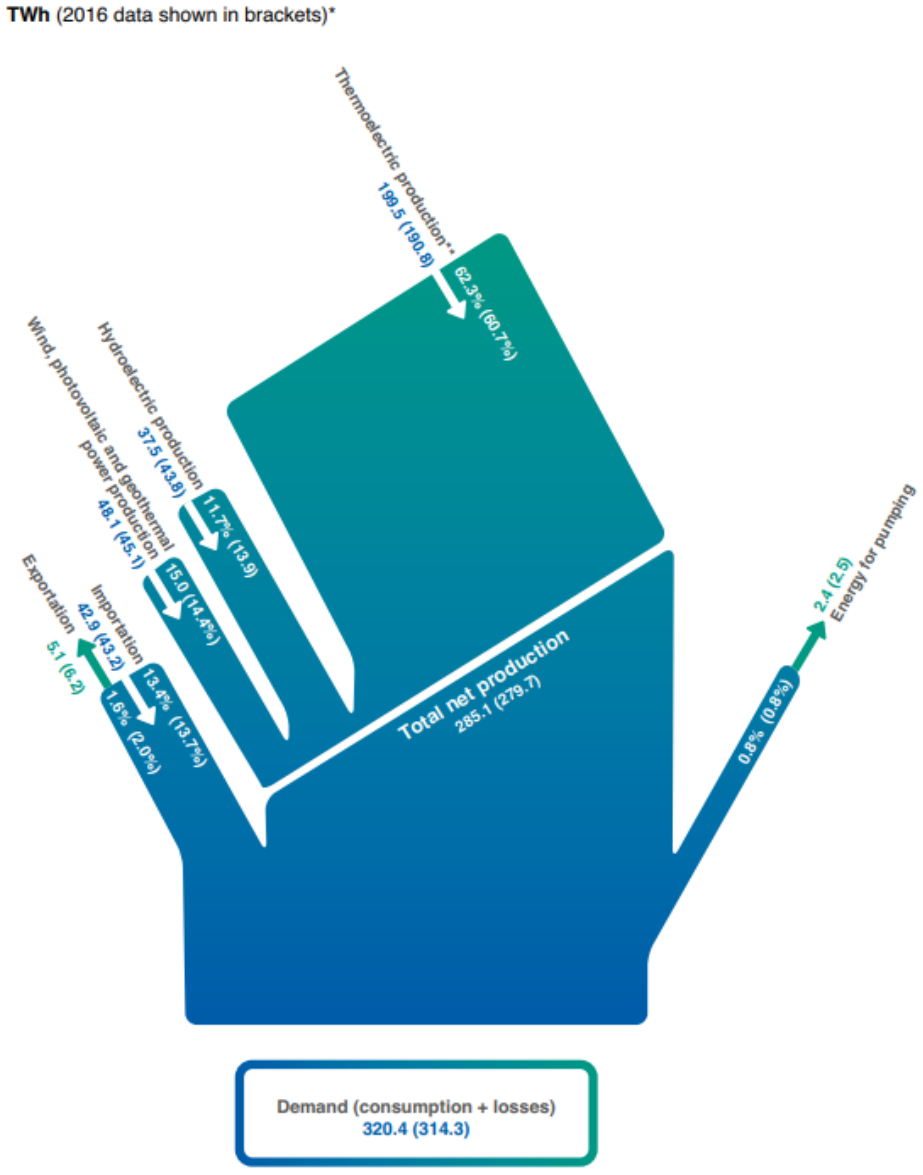
During the year, electricity demand reached 320,438 GWh, up 2.0% on 2017.

In 2017, electricity demand was met 88.2% by national production for consumption (88.2% in 2016), for a figure of 282,667GWh (+2% compared to 2016), net of consumption of auxiliary services and pumping.

The remaining part of this demand (11.8%) was covered by net imports from other countries, amounting to 37,761GWh, an increase of +2.0% over the previous year.

Grid energy demand was met 32% by production from renewable energy sources (hydroelectric, wind, photovoltaic, geothermal and biomass), recording a figure of 103,386GWh (-3.3% compared to the previous year).

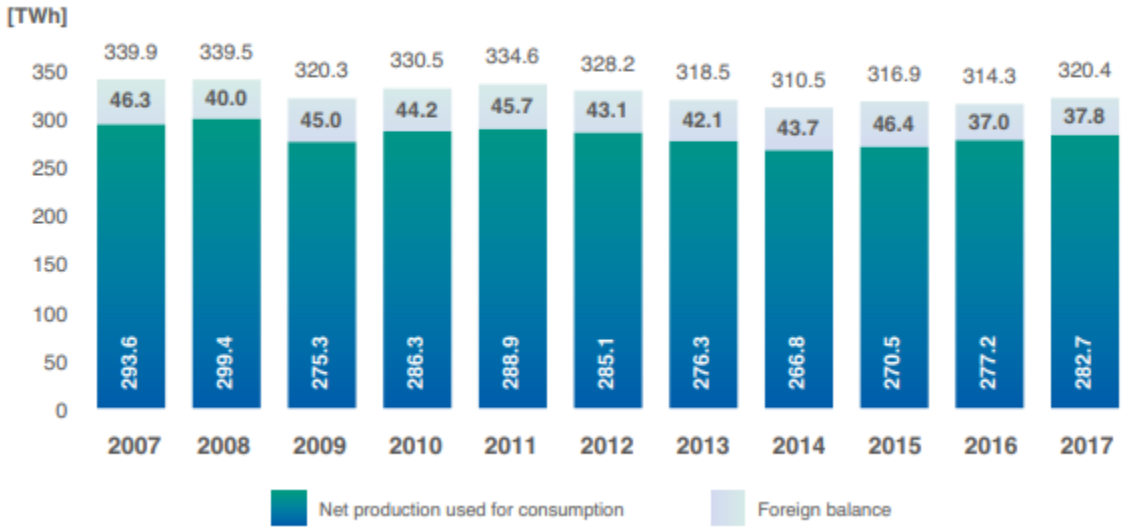
2017 electricity balance sheet for Italy



Source: Terna "2017 Provisional operating data for the National Electricity System"

Evolution in Demand

Evolution and Coverage of Demand

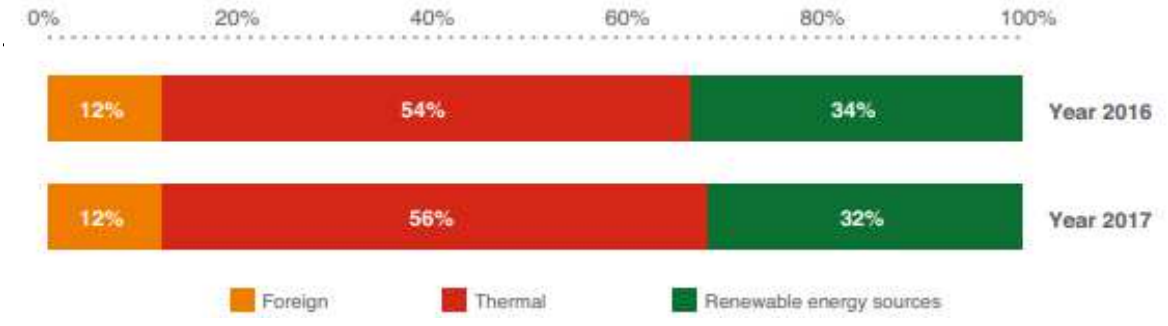


Source: Terna "2017 Provisional operating data for the National Electricity System"

In 2017, Italian electricity demand was 320,438GWh. This value is the highest recorded in the last 5 years, but still far from the values recorded before the economic crisis. Compared to the previous year, the percentage change was +2%, which, in terms of energy. corresponds to 6.2TWh.

This increase in demand was covered by the increase in domestic production, in particular from thermal sources (+4.6%) and to a lesser extent by a slight increase in foreign exchange (+2%). However, as in the previous year, the foreign exchange continues to be well below historic values - a consequence of the evolution in European scenarios and the EURATOM directive, issued by the European Union following the Fukushima accident and implemented by the Autorité de sûreté nucléaire (ASN). This directive makes safety checks more frequent and requires more extraordinary maintenance (France).

Breakdown of Demand

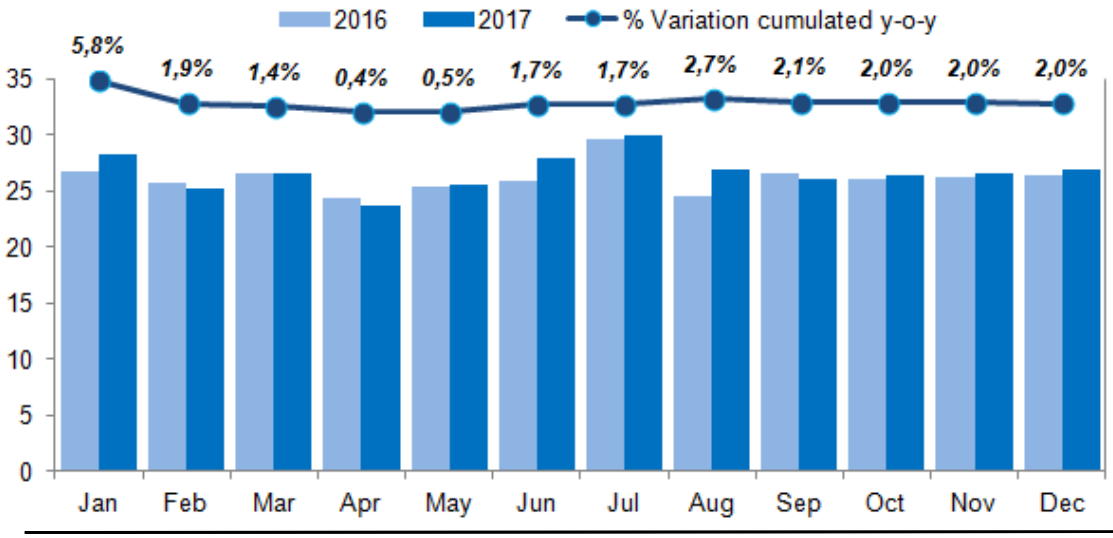


Source: Terna "2017 Provisional operating data for the National Electricity System"

Monthly electricity demand

The monthly Italian electricity demand in 2017 compared to the figure for the previous year is increasing due to a severe winter and a summer with temperatures above the seasonal averages.

2017 Monthly Energy Balance Sheets

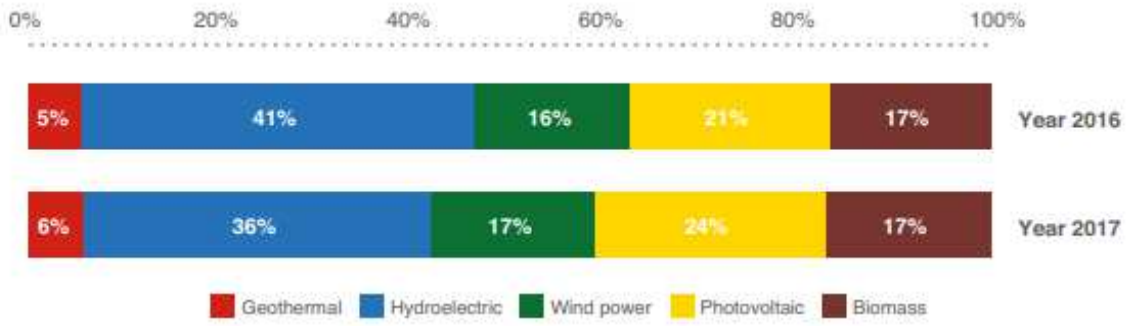


Source: Terna "2017 Provisional operating data for the National Electricity System"

Renewable Energy Sources

In 2017, annual production from Renewable Energy Sources was lower than in 2016, by -3.3%. The details by source show an increase in photovoltaic production (+14.0%), a decline in hydroelectric production (-14.3%) and geothermal production (-1.4%) compared with the previous year.

Detailed breakdown of renewable energy sources



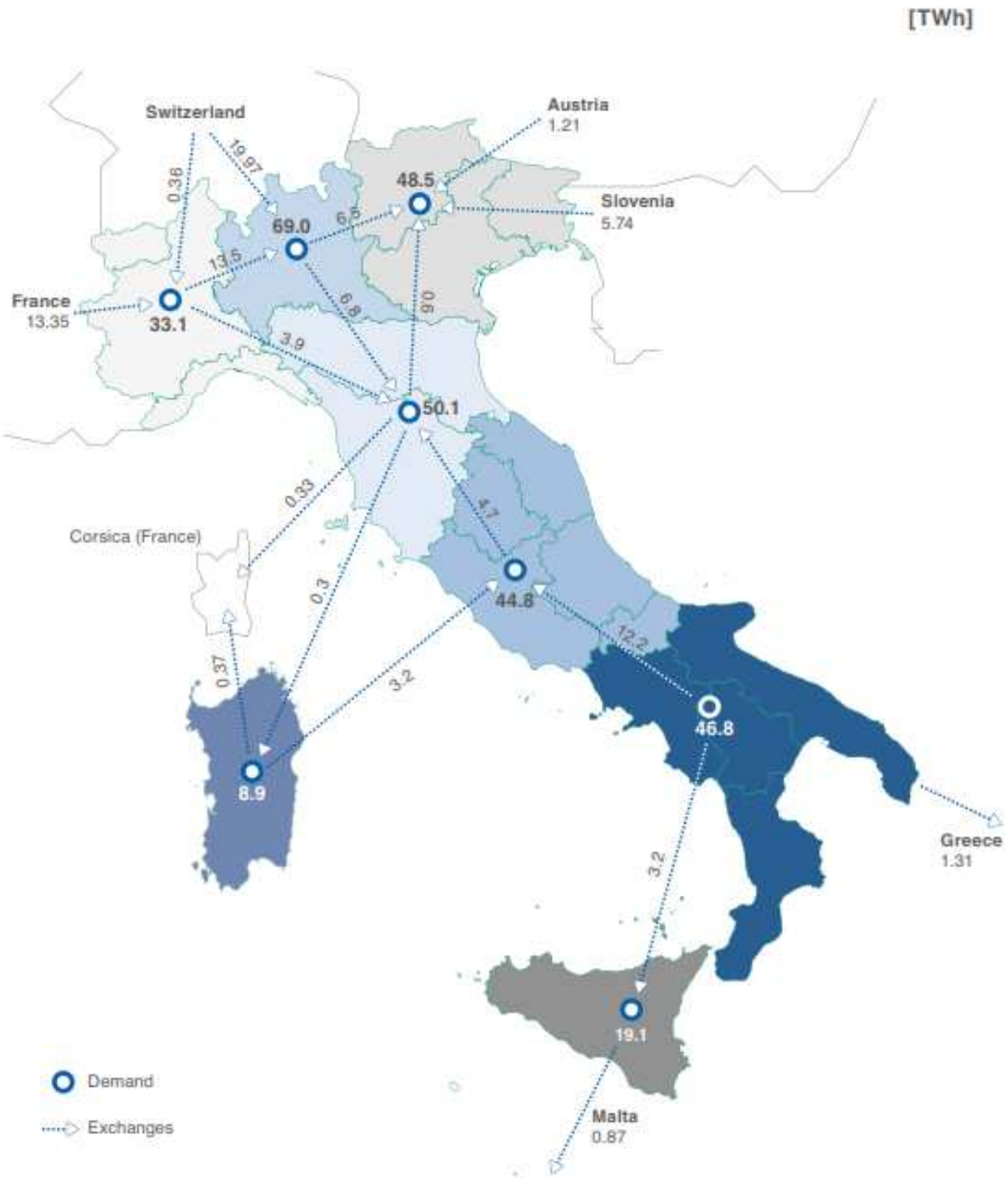
Source: Terna "2017 Provisional operating data for the National Electricity System"

Physical exchanges of electricity between Italy and foreign countries

The balance of physical exchanges of electricity mainly shows a flow of energy from both the South and the North to the Centre-North.

The new 380kV connection between Sicily and Calabria has ensured a greater export capacity from the Continent to Sicily with a net exchange of 3.2TWh.

Final physical exchange 2017

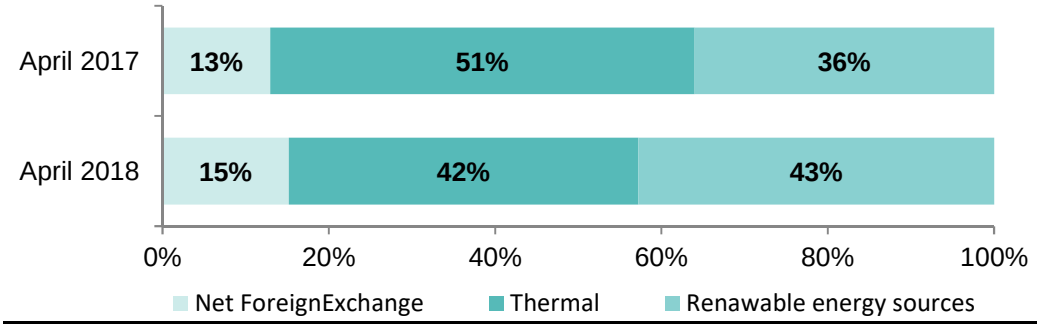


Source: Terna "2017 Provisional operating data for the National Electricity System"

Monthly Summary

In April 2018, electricity demand was 24,096GWh, an increase compared to the same month of the previous year (+1.5%). In particular, an increase in renewable production (+20.4%), net foreign exchange (+19%) and a decrease in thermoelectric production (-14.0%) was recorded.

Demand breakdown – coverage by sources

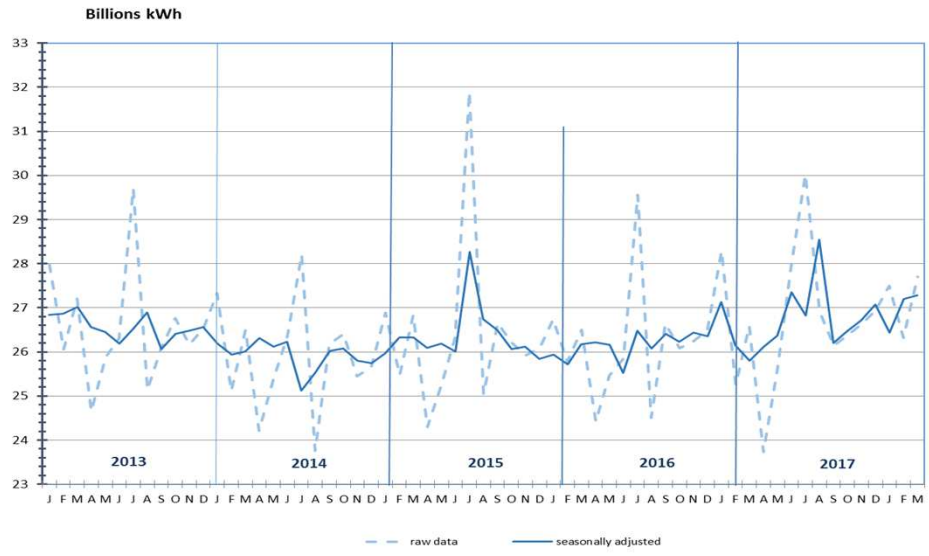


In 2018, the demand for power from the grid increased by +1.7% as compared to 2017.

Source: Terna

In April 2018, electricity demand in Italy (24.1 Bn kWh) recorded an increase of 1.5% compared to the volumes of April last year. The result is due to the fact that there was one more working day than in March 2017, however, the month's average temperature was nearly two degrees higher than it was in April 2017. In the first four months of 2018, demand rose by +1.7% compared to 2017; in seasonally-adjusted terms, the variation was +1.5%. At the regional level, in April 2018 the annual trend was positive everywhere, but to different extents: it was above the national average in the North (+2.3%), practically in line with the national average in Central Italy (+1.2%) and below average in the South (+0.1%).
As regards the monthly figure, seasonally-adjusted demand in April 2018 recorded a negative variation of -1.6% compared to March. The trend continues to be stable.
Lastly, in April 2018, electricity demand in Italy was covered 84.8% by national production, less pumping consumption, (-0.8% of net production compared to April 2017) and for the remainder by imports (net foreign exchange +19% compared to April 2017).

Seasonally-adjusted demand

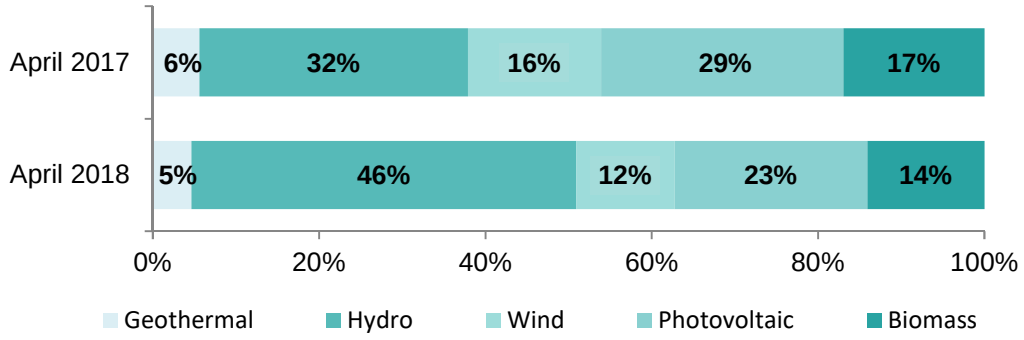


The seasonally-adjusted value for electricity demand during April 2018 recorded a decrease of -1.6% compared to March.

Source: Terna

Focusing on monthly production from renewables, an increase was recorded in hydroelectric production (+72.0%), while there was a drop in wind production (-11.3%) and photovoltaic production (-2.6%) compared to the previous year.

RES Production - Breakdown



In April 2018, the detailed breakdown of production from renewable energy sources recorded a M-o-M percentage increase (+10.5%).

Source: Terna

Energy Balance Sheet

In 2018, cumulative demand (105,626GWh) increased (+1.7%) compared to the same period of 2017.

In April 2018, net national production was 20,756GWh, 50% from renewable energy sources (10.307GWh) and the remaining 50% from thermal sources.

Energy Balance Sheet

[GWh]	April 2018	April 2017	%18/17	Jan-Apr 18	Jan-Apr 17	%18/17
Hydro	4.746	2.759	72,0%	13.330	10.460	27,4%
Thermal	11.872	13.803	-14,0%	60.689	66.360	-8,5%
of which Biomass	1.443	1.449	-0,4%	5.854	5.892	-0,6%
Geothermal	476	479	-0,6%	1.909	1.938	-1,5%
Wind	1.214	1.369	-11,3%	7.303	6.637	10,0%
Photovoltaic	2.428	2.492	-2,6%	6.199	7.088	-12,5%
Net Total Production	**20.736**	**20.902**	**-0,8%**	**89.430**	**92.483**	**-3,3%**
Import	3.998	3.613	10,7%	18.238	14.409	26,6%
Export	339	537	-36,9%	1.042	2.127	-51,0%
Net Foreign Exchange	**3.659**	**3.076**	**19,0%**	**17.196**	**12.282**	**40,0%**
Pumping	**299**	**248**	**20,6%**	**1.000**	**914**	9,4%
Electricity demand(1)	**24.096**	**23.730**	**1,5%**	**105.626**	**103.851**	**1,7%**

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

In 2018, a decrease in exports (-1.0%) was recorded compared to the previous year.
In April 2018, a reduction was recorded in production from thermal (-14.0%), wind (-11.3%) and photovoltaic (-2.6%) sources compared to the previous year, along with an increase in hydroelectric production (+72.0%).

Source: Terna

In 2018, net total production (89,430GWh) met +85% of national electricity demand (105,626GWh).

Monthly Energy Balance Sheet

[GWh]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Hydro	2.747	2.606	3.231	4.746									13.330
Thermal	16.907	16.287	15.623	11.872									60.689
Geothermal	495	446	492	476									1.909
Wind	1.972	1.708	2.409	1.214									7.303
Photovoltaic	1.026	1.052	1.693	2.428									6.199
Net Total Production	**23.147**	**22.099**	**23.448**	**20.736**									**89.430**
Import	4.899	4.610	4.731	3.998									18.238
Export	326	199	178	339									1.042
Net Foreign Exchange	**4.573**	**4.411**	**4.553**	**3.659**									**17.196**
Pumping	223	192	286	299									1.000
Electricity demand(1)	**27.497**	**26.318**	**27.715**	**24.096**									**105.626**

In April, net total production decreased (-3.3%) compared to 2017. In 2018, the month with the maximum demand for electricity was March, with 27,715GWh.

Source: Terna

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

The evolution of the monthly statement for 2017 is given below.

Monthly Energy Balance Sheet

[GWh]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Hydro	2.804	2.249	2.648	2.759	3.896	4.718	4.434	3.860	3.485	2.226	2.101	2.350	37.530
Thermal	21.089	16.850	14.618	13.803	14.186	16.333	17.292	16.079	15.243	17.081	19.032	17.894	199.500
Geothermal	504	454	501	479	488	473	492	478	462	480	476	498	5.785
Wind	1.797	1.536	1.935	1.369	1.251	915	1.255	1.079	1.353	1.265	1.509	2.228	17.492
Photovoltaic	1.081	1.193	2.322	2.492	2.816	2.845	3.023	2.920	2.195	1.918	1.074	932	24.811
Net Total Production	**27.275**	**22.282**	**22.024**	**20.902**	**22.637**	**25.284**	**26.496**	**24.416**	**22.738**	**22.970**	**24.192**	**23.902**	**285.118**
Import	2.073	3.568	5.155	3.613	3.701	3.290	4.161	3.012	3.887	3.782	2.991	3.662	42.895
Export	803	383	404	537	498	461	508	372	347	203	308	310	5.134
Net Foreign Exchange	**1.270**	**3.185**	**4.751**	**3.076**	**3.203**	**2.829**	**3.653**	**2.640**	**3.540**	**3.579**	**2.683**	**3.352**	**37.761**
Pumping	265	211	190	248	204	172	130	144	140	172	250	315	2.441
Electricity demand(1)	**28.280**	**25.256**	**26.585**	**23.730**	**25.636**	**27.941**	**30.019**	**26.912**	**26.138**	**26.377**	**26.625**	**26.939**	**320.438**

In 2017, the month with the maximum demand for electricity was July with 30,019GWh.

Source: Terna

Demand by Geographical Areas

In April 2018, there was an increase in demand in the North (To-Mi-Ve) and Centre (Rm-Fi), while demand in the South (Na) remained in line with the same period of the previous year and demand on the Islands (Ca-Pa) decreased.

Demand by Geographical Areas

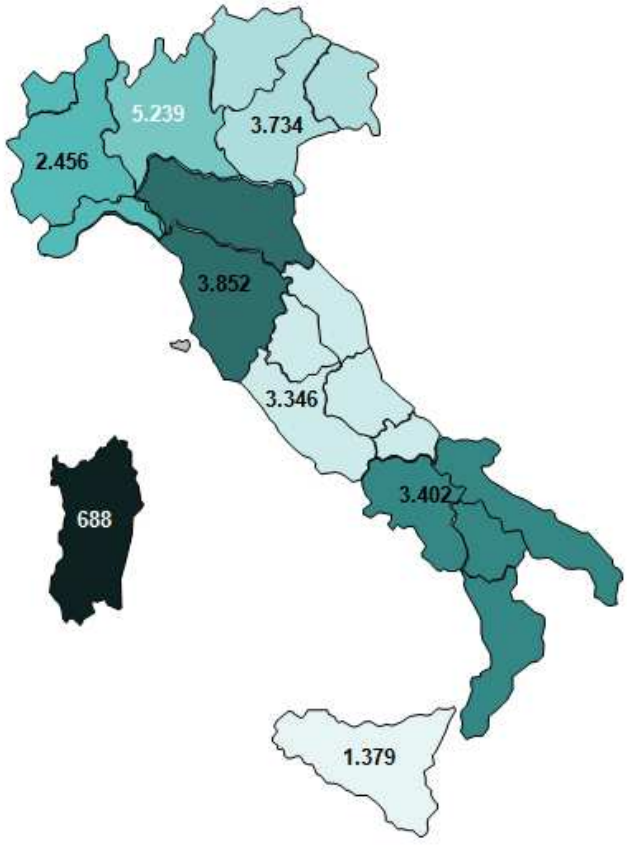
[GWh]	Turin	Milan	Venice	Florence	Rome	Naples	Palermo	Cagliari
April 2018	2.456	5.239	3.734	3.852	3.346	3.402	1.379	688
April 2017	2.448	5.193	3.590	3.701	3.311	3.405	1.401	681
%April 2018/2017	0,3%	0,9%	4,0%	4,1%	1,1%	-0,1%	-1,6%	1,0%
Cumulated 2018	10.860	23.320	16.162	16.597	14.522	15.100	6.095	2.970
Cumulated 2017	10.751	22.857	15.807	15.960	14.407	15.057	6.135	2.877
% Cumulated 18/17	1,0%	2,0%	2,2%	4,0%	0,8%	0,3%	-0,7%	3,2%

In 2018, the Y-o-Y percentage change in demand was +1.9% in the Northern zone, +2.5% in the Centre, +0.3% in the South and +0.6% in 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

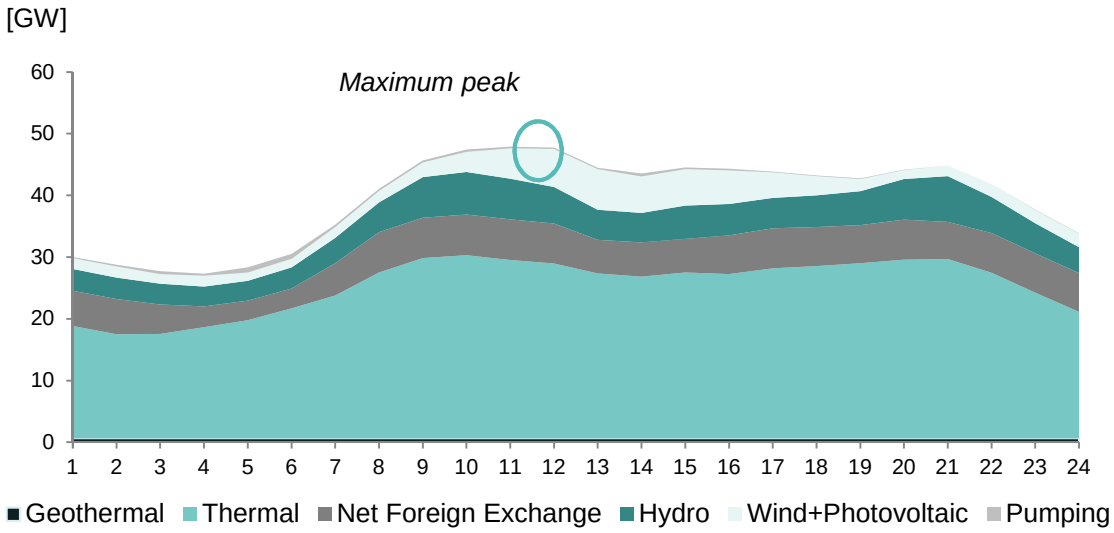
Source: Terna

(*) 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 April 2018, Peak Demand was recorded on **Wednesday 04 at 11:00** and was 47,645MW (+3.6% Y-o-Y). The hourly demand diagram of the peak day is presented below.

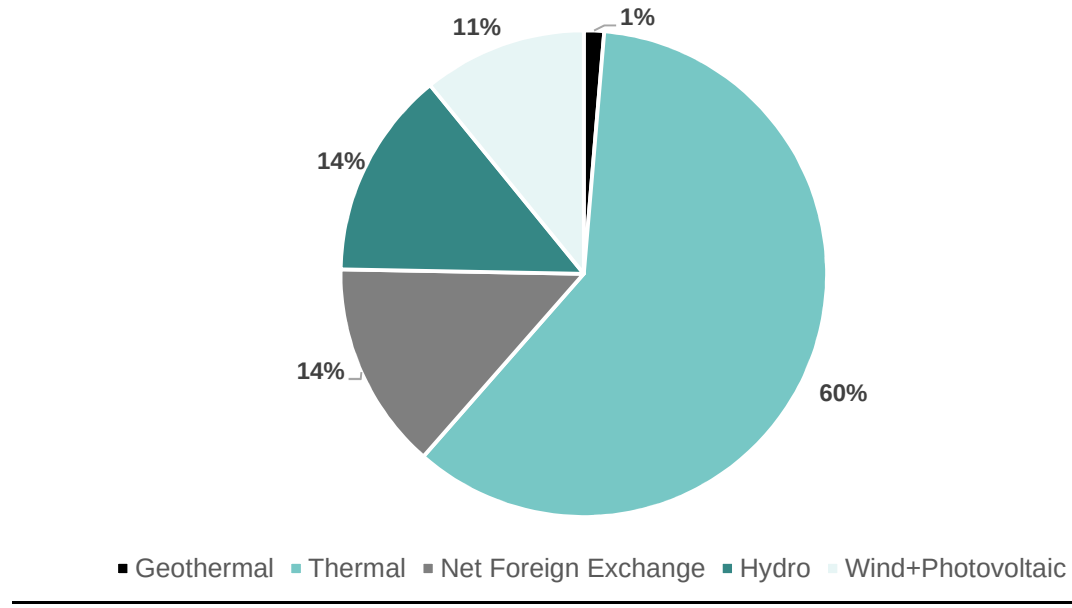
Peak Demand



At peak, the contribution of thermal production was 28,875MW.

Source: Terna

Coverage at Peak Demand – 04 April 2018, 11:00



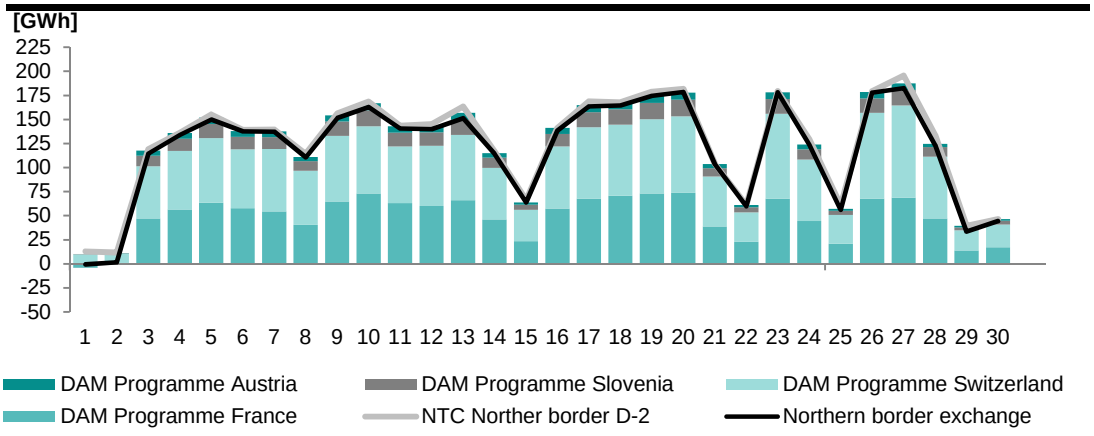
At peak, production from renewable sources contributed to covering demand for 26%, thermal production for 60% and the remainder was the net foreign exchange.

Source: Terna

Net Foreign Exchange – April 2018

In April, 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 April 2018, there were imports of 3,998GWh and exports of 339GWh.

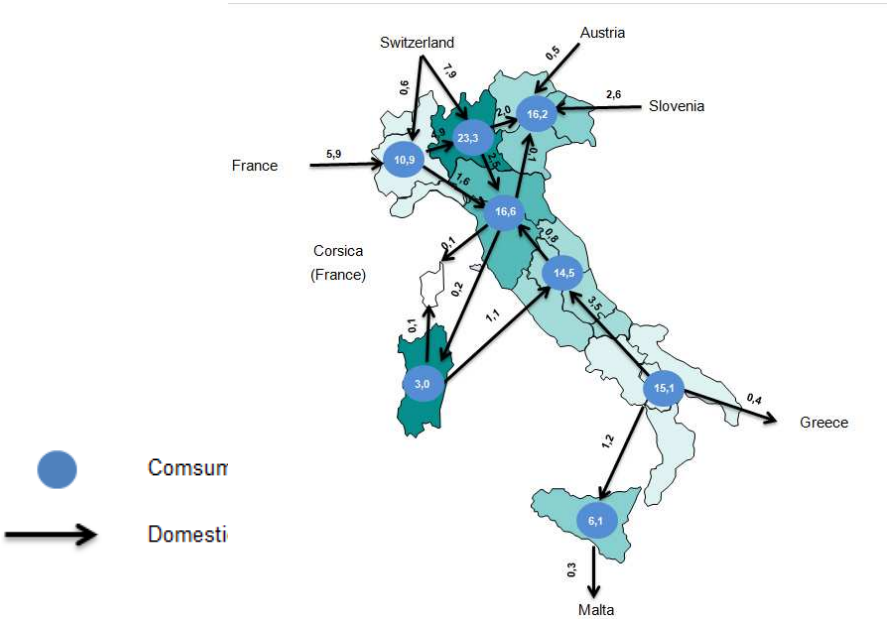
Source: Terna

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



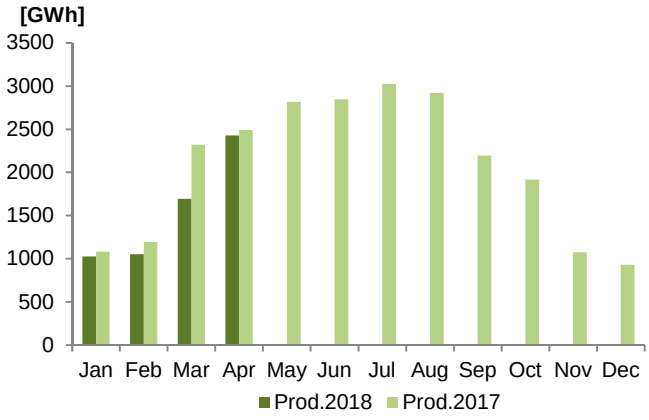
In 2018, a net exchange was recorded from the Northern zone to Emilia Romagna and Tuscany of 4.0TWh. The Continent recorded a net exchange towards Sicily of 1.2TWh.

Source: Terna

Production and Installed Capacity

The energy produced by photovoltaic sources in April 2018 was 2,428GWh, up 735GWh on the previous month. The annual cumulative figure fell compared to the previous year (-12.5%).

Photovoltaic Production and Capacity



[MW]

P_{inst} ≤1500

1500< P_{inst}≤ 2500

2500< P_{inst}≤ 3500

3500< P_{inst}≤ 4500

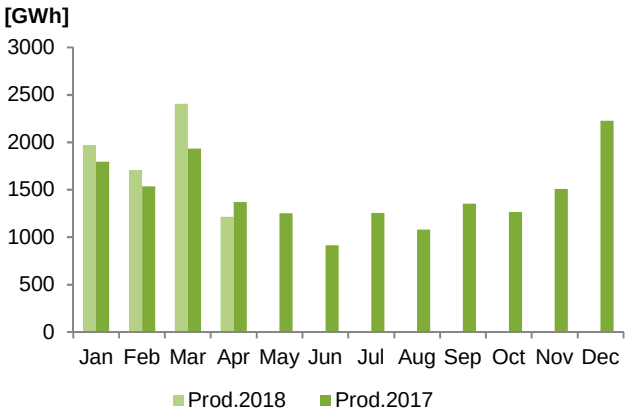
P_{inst}> 4500

Production from photovoltaic sources up by +43.4% compared to the previous month.

Source: Terna

The energy produced by wind sources in April 2018 came out at 1,214GWh, down compared to the previous month by 1,195GWh. The annual cumulative figure increased compared to the previous year (+10.0%).

Wind Production and Capacity



[MW]

P_{inst}≤ 150

150< P_{inst}≤ 1000

1000< P_{inst}≤ 2000

2000< P_{inst}≤ 3000

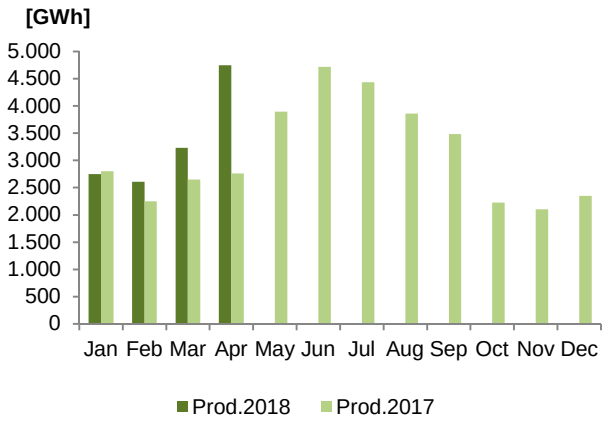
P_{inst}> 3000

Production from wind sources down compared to the previous month by -50.0%.

Source: Terna

The energy produced by hydroelectric sources (e.g. reservoirs and run-of-river) in April 2018 was 4,746GWh, up compared to the previous month by 1,515GWh. The annual cumulative figure was up (+27.4%) compared to the previous year.

Hydroelectric Production and Capacity



[MW]

$P_{inst} \leq 1000$

$1000 < P_{inst} \leq 2000$

$2000 < P_{inst} \leq 3000$

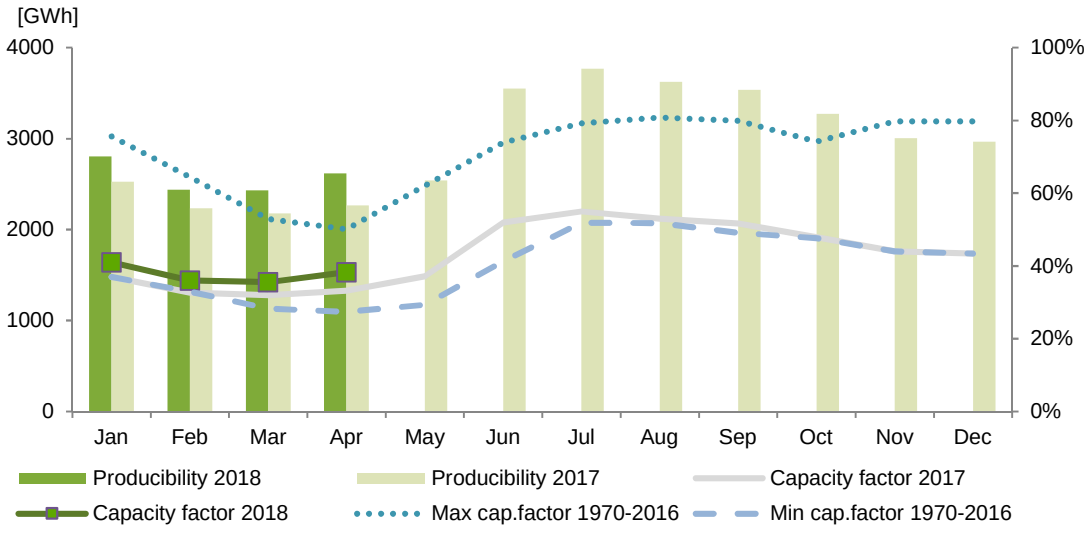
$P_{inst} > 3000$

Production from hydroelectric sources up compared to the previous month (+46.9%).

Source: Terna

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

Hydroelectric Producibility and Reservoir Percentage



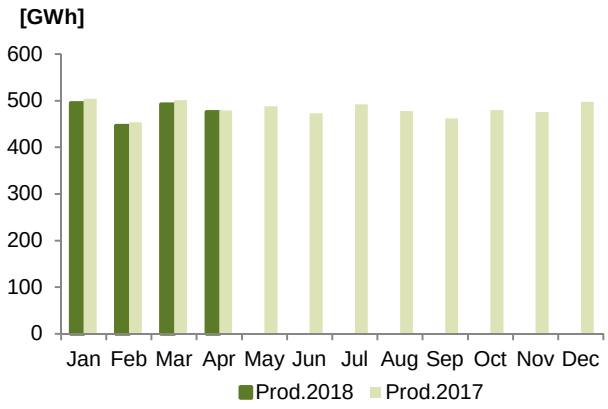
In April 2018, considering Italy as a whole, the current reservoir percentage compared to the maximum reservoir capacity was +38.3%, an increase compared to the same month in 2017.

	Reservoir Capacity	NORTH	CENTRE SOUTH	ISLANDS	TOTAL
2018	[GWh]	1,085	1,261	272	2,618
	% (capacity/max capacity)	23.4%	69.5%	71.4%	38.3%
2017	[GWh]	900	1,081	288	2,269
	% (capacity/max capacity)	19.4%	59.6%	75.6%	33.2%

Source: Terna

The energy produced by geothermal sources in April 2018 came out at 476GWh, down compared to the previous month by 16GWh. The annual cumulative figure was down (-1.5%) compared to the previous year.

Geothermal Production and Capacity



[MW]

P_{inst} = 0

0 < P_{inst} ≤ 500

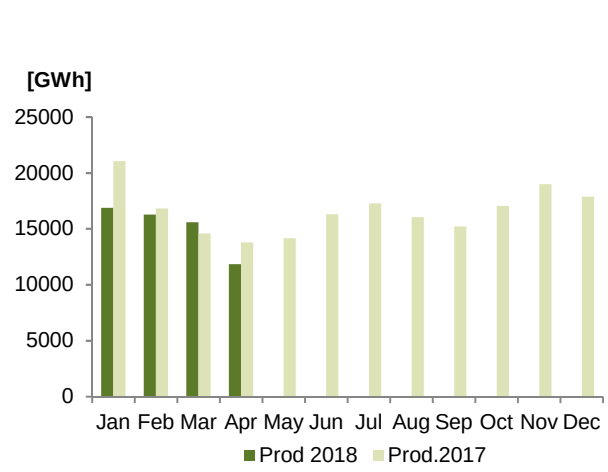
500< P_{inst}≤ 1000

Geothermal production decreased (-3.2%) compared to the previous month.

Source: Terna

The energy produced by thermal sources in April 2018 came out at 11,872GWh, down compared to the previous month by 3,751GWh. The annual cumulative figure was down (-8.5%) compared to the previous year.

Thermal Production and Capacity



[MW]

P_{inst} ≤5000

5000< P_{inst}≤ 10000

10000< P_{inst}≤ 15000

15000< P_{inst}≤ 20000

P_{inst}> 20000

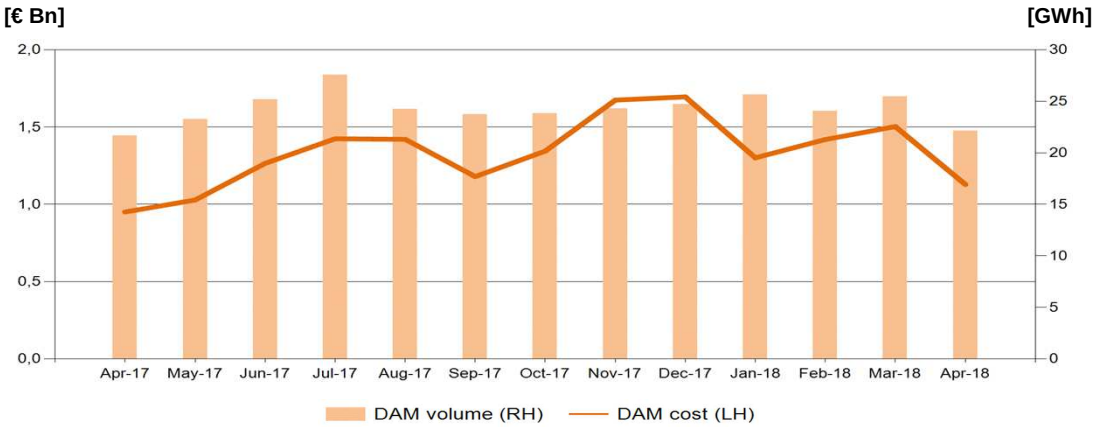
Thermal production was down (-31.6%) compared to the previous month.

Source: Terna

Day-Ahead Market

The April total for withdrawal programmes on the DAM was approximately €1.1 Bn, down 25% compared to the previous month and up 19% compared to April 2017.
The decrease compared to March is due to a reduction in both average PUN and demand, while the increase over the previous year is mainly due to growth in average PUN from €42.9/MWh (April 2017) to €49.4/MWh (April 2018).

Day Ahead Market – amounts and volumes

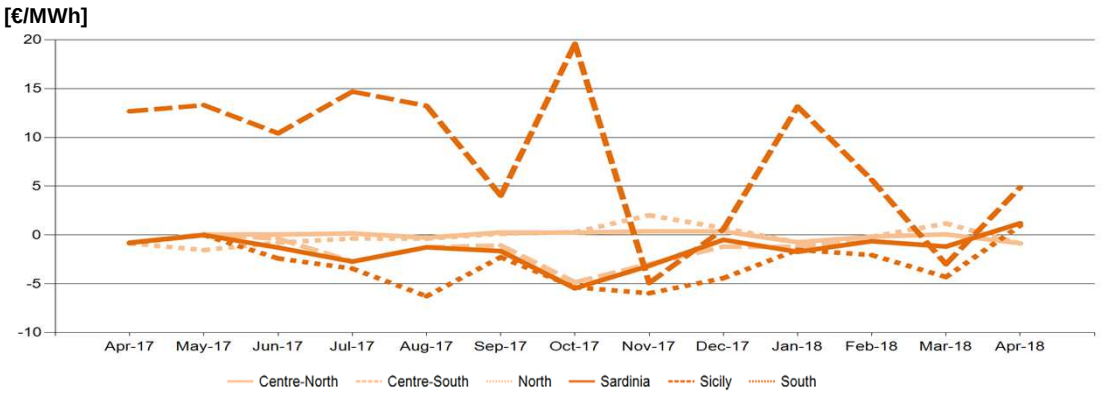


Total amount in April 2018 up by 19% compared to April 2017

Source: Terna calculation on GME data

In April, the zonal prices were basically in line with the PUN, with the exception of the Sicily zone, which recorded a spread of +€4.9/MWh.
The price of the Sicily zone in April 2018 returned to the levels of April 2017, while for the other zones there was an average increase of €7.7/MWh.

Spread compared to the PUN



April 2018 zonal prices in line with the PUN for all zones with the exception of Sicily

Source: Terna calculation on GME data

In April, the spread between the peak and off-peak prices was €8.8/MWh for the Northern and Centre-North zones and €5.7/MWh for the other zones.
In March, the spread between the peak and off-peak prices was €5.0/MWh for the Southern zone and Sicily and €13.4/MWh for the other zones.

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

€/MWh	PUN	North	Centre-North	Centre-South	South	Sicily	Sardinia
Medium	49.4	48.5	48.5	50.6	50.3	54.3	50.6
Y-o-Y	6.5	6.5	6.4	8.5	8.3	-1.3	8.5
Δ vs PUN	-	-0.9	-0.9	1.2	1.0	4.9	1.2
Δ vs PUN 2017	-	-0.9	-0.8	-0.8	-0.8	12.7	-0.8
Peak	54.7	54.5	54.5	54.6	53.9	58.3	54.6
Off Peak	46.9	45.7	45.8	48.7	48.7	52.4	48.7
Δ Peak vs Off Peak	7.8	8.8	8.7	5.9	5.1	5.9	5.9
Minimum	7.0	9.4	0.0	0.0	0.0	0.0	0.0
Maximum	100.5	100.5	100.5	100.5	100.5	100.5	100.5

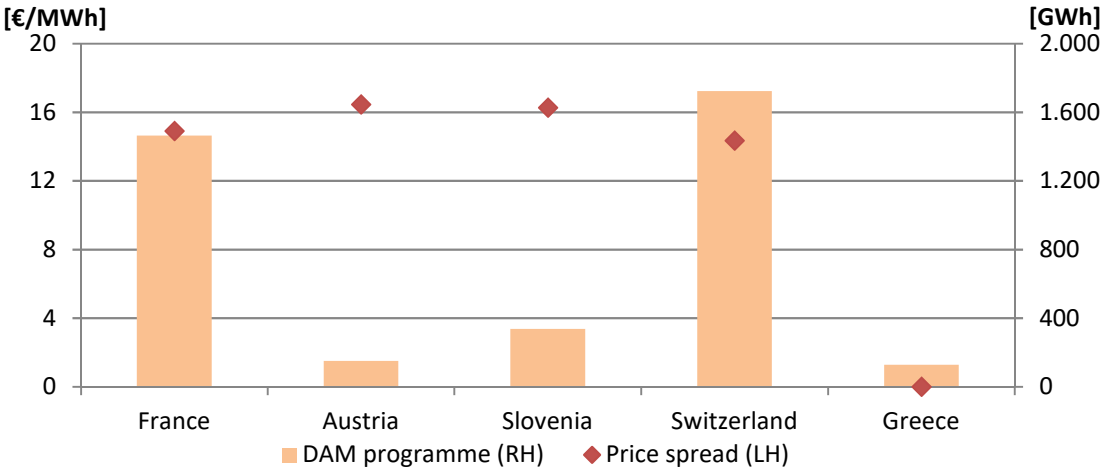
Source: Terna calculation on GME data

Peak-off peak spread down compared to the previous month for all zones, with the exception of the Sicily zone

April saw a rise in price spreads on all borders except Austria and Greece compared with the previous month.

In April, imports totalled 4.0TWh, with France and Switzerland accounting for 37% and 44% of the total, respectively. Total exports were 0.1TWh, with Greece accounting for 90%.

Price spread with foreign exchanges and day-ahead programmes



Source: Terna calculation

Net imports on the Northern border of 4.0TWh

Ex-ante Ancillary Services Market

In April, the spread between the peak and off-peak prices was €8.8/MWh for the Northern and Centre-North zones and €5.7/MWh for the other zones.
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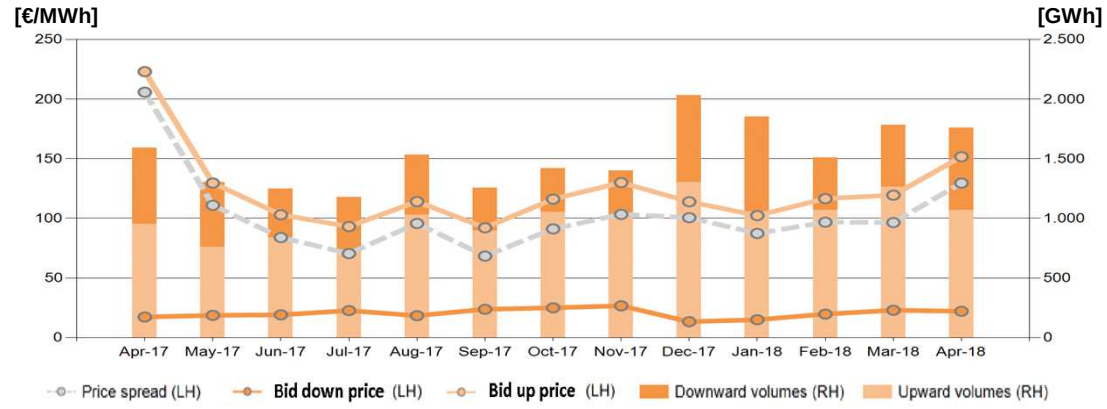
Ex-ante Ancillary Services - prices and volumes



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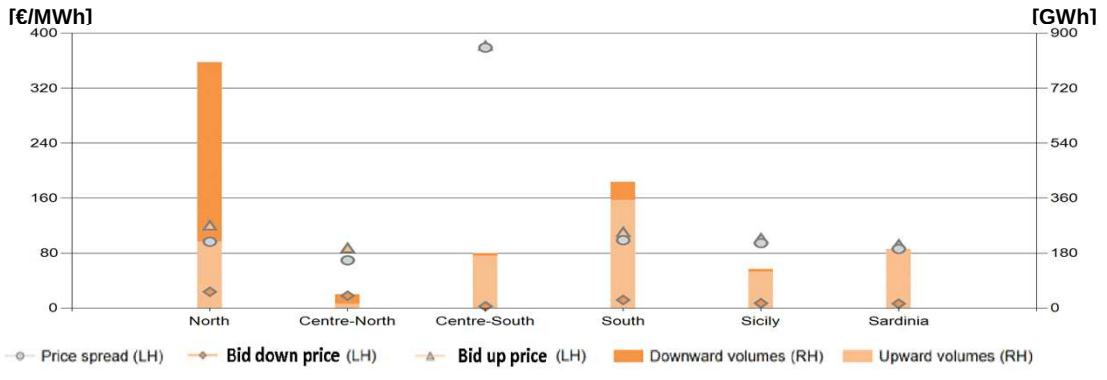
Ex-ante Ancillary Services - prices and volumes by market zone



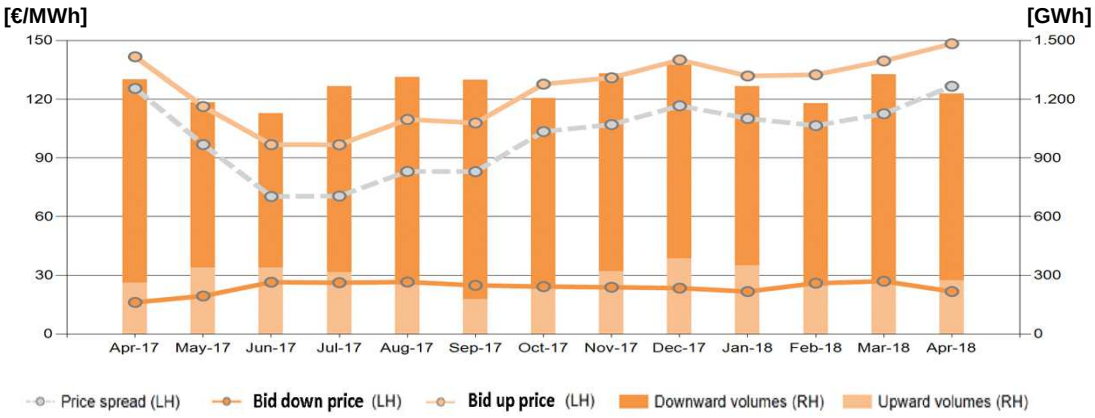
Net imports on the Northern border of 4.0TWh

Source: Terna

Balancing Market

In April, the spread between average bid-up and bid-down prices was €129.6/MWh, up compared to the previous month by 34% and down by 37% compared April 2017.
The total volumes fell slightly compared to the previous month (-1%), in particular upward volumes decreased by 15% and downward volumes increased by 33%.
The upward volumes increased by 12%, while the downward volumes rose by 8% compared to the same month of the previous year.

Balancing market – prices and volumes

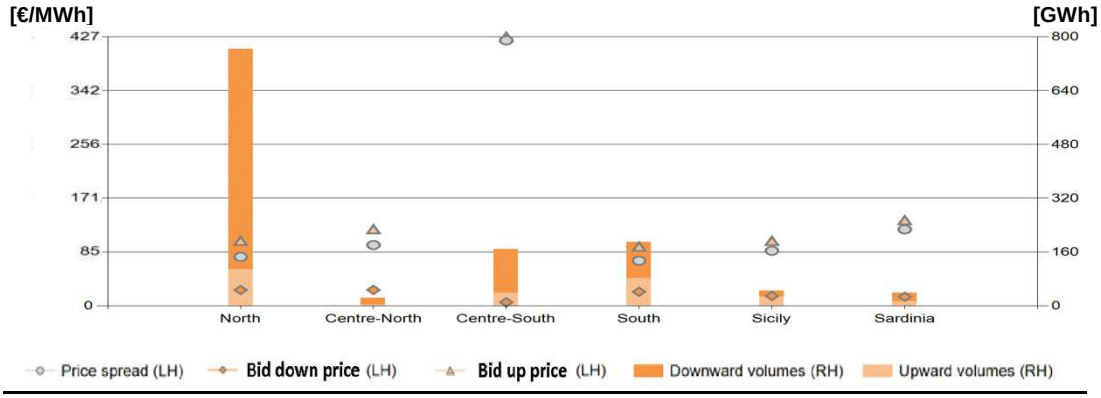


Average bid-up price in April 2018 of €151.6/MWh
Average bid-down price in April 2018 of €22.1/MWh

Source: Terna

The market zone characterised by the highest spread (€379.0/MWh) is the Centre-South, as in the previous month (€289.7/MWh).
This spread recorded a 31% increase compared to the previous month due to an increase in the average bid-up price of 26% (from €303.2/MWh in March to €381.8/MWh in April) and to a reduction in the average bid-down price of 79% (from €13.5/MWh in March to €2.8/MWh in April).

Balancing market – prices and volumes by market zone



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

Source: Terna

Spot Commodities Market

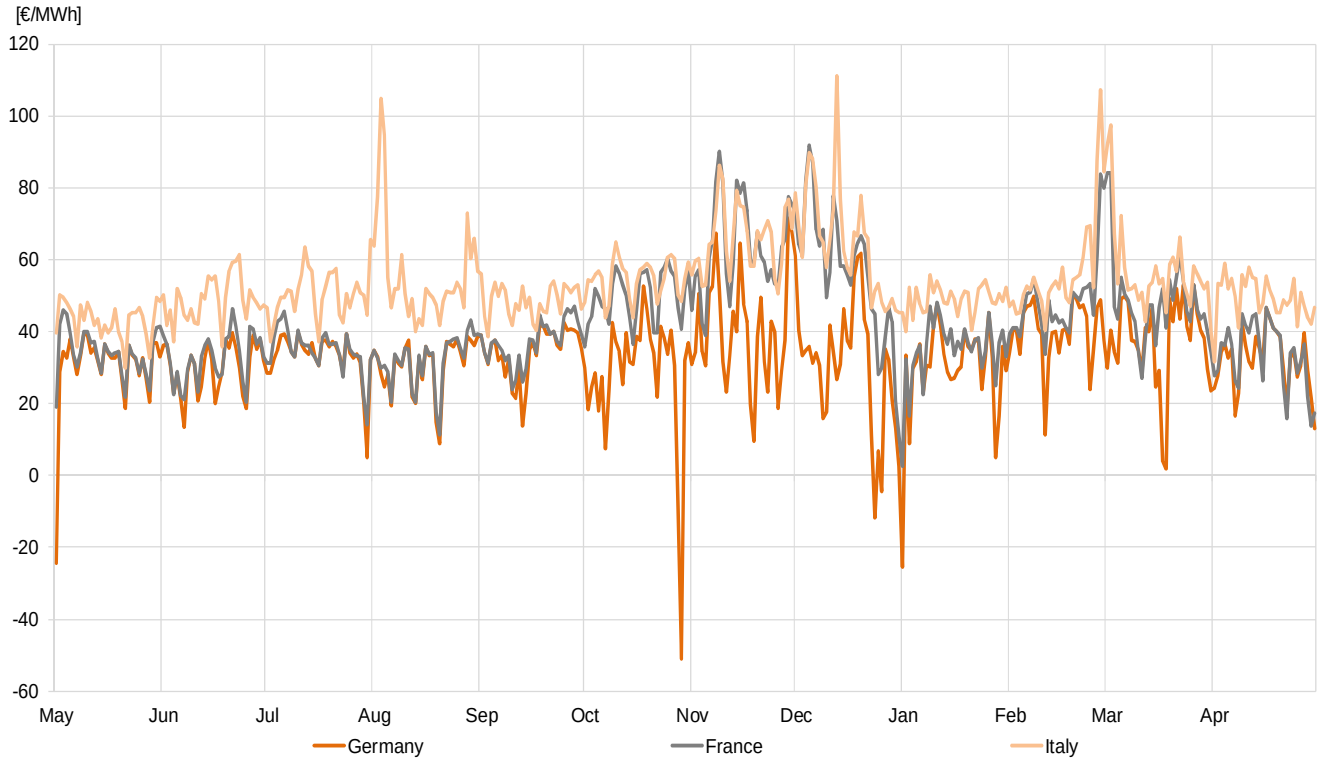
In April, the prices of Brent stood at around $72/bbl, up compared to the $66/bbl of March (+8%).

Coal prices (AP12) came out at approximately $82/t, an increase compared to the prices in March which were around $80/t (+2%).

Gas prices in Europe decreased in April compared to the previous month, coming out at €20/MWh; the PSV recorded an average of €22/MWh, down compared to €23/MWh in March.

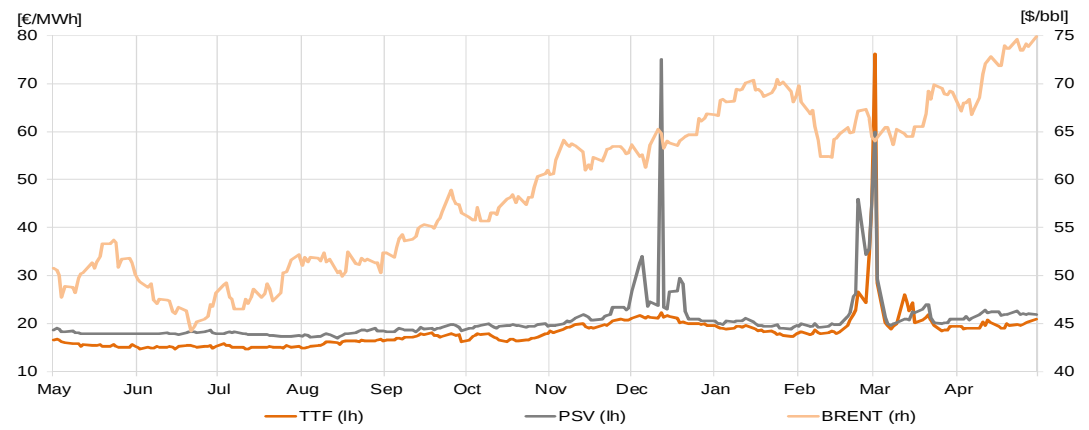
Electricity prices in Italy fell significantly in April compared to March with a monthly average of €52/MWh (-13%).

Spot electricity prices



Source: Terna calculation on GME and EPEX data

Gas & Oil spot prices



Monthly average change PSV-TTF = +€2.2/MWh

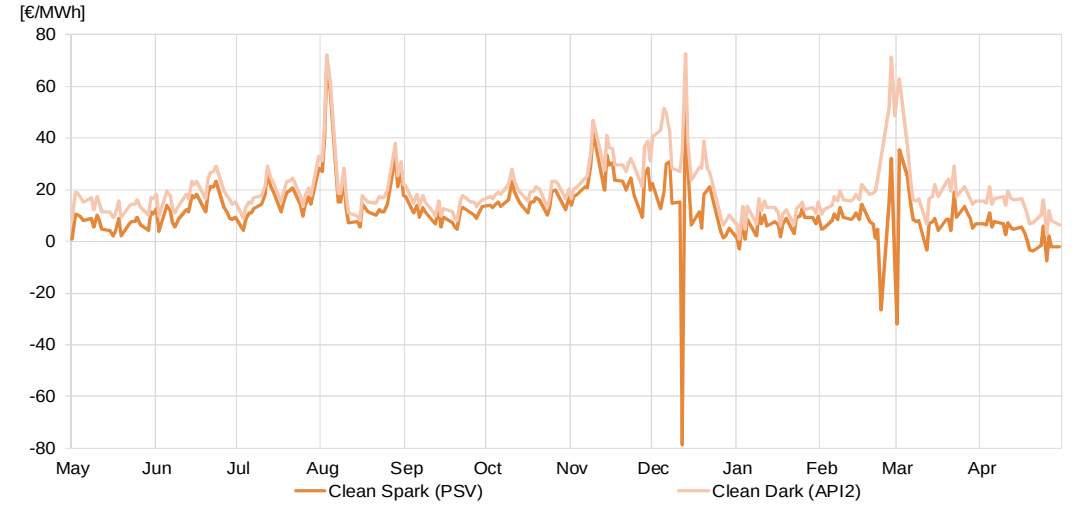
Source: Terna calculation on Bloomberg data

Coal & Carbon spot prices

Monthly average change API2-API4 = $12/t

Source: Terna calculation on Bloomberg data

Clean Dark & Spark spreads Italy



Clean spark spread PSV monthly average = €2.8/MWh (-66% M-o-M)

Clean dark spread API2 monthly average = €13/MWh (-43% M-o-M)

Source: Terna calculation on Bloomberg data

Forward Commodities Market

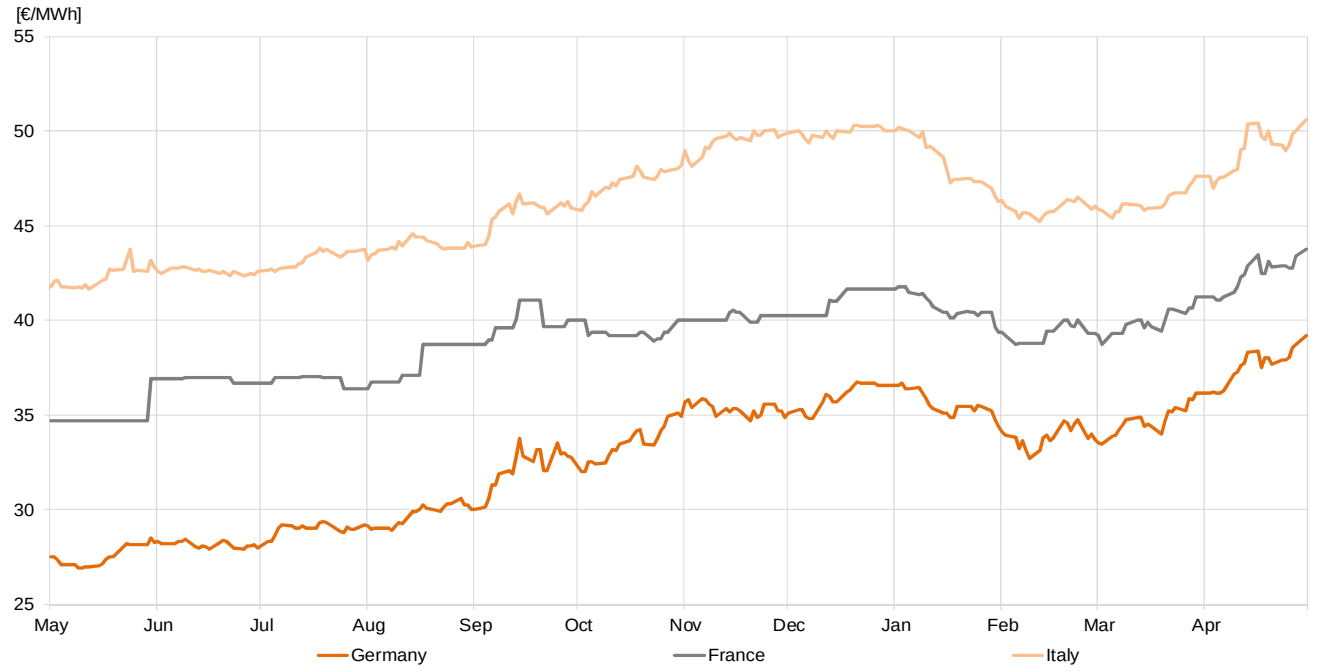
In April, the 2019 Brent forward prices were around $66/bbl, up compared to the $62/bbl of March with an increase of +6%.

The 2019 average forward prices of coal (API2) increased to approximately $81/t (+7%) compared to the $76/t recorded in March.

The 2019 average forward prices of gas in Italy (PSV) increased between April and the previous month, coming out at around €20/MWh.

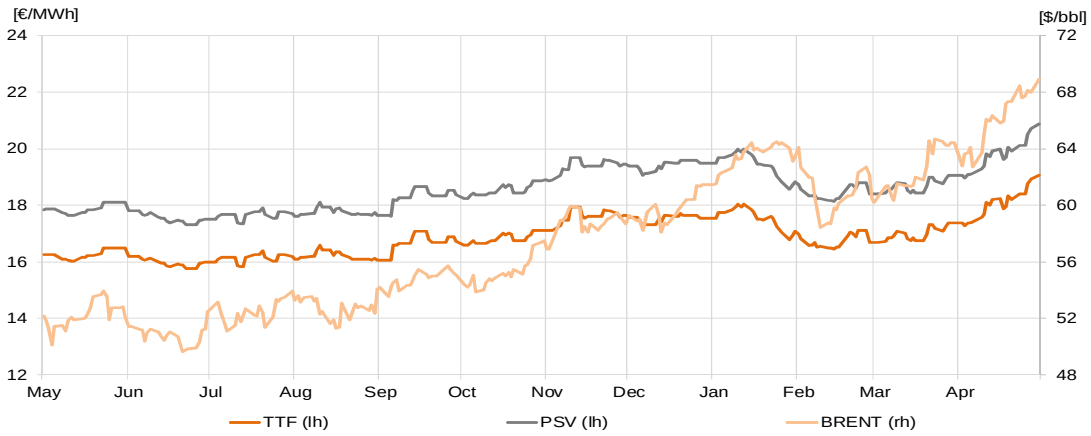
The 2019 average forward prices of electricity in Italy stood at around €49/MWh, an increase of +6% on the previous month. A positive trend was recorded for the French exchange where the price was approximately €42/MWh, while in Germany it came out at approximately €38/MWh.

2019 Forward Electricity Prices



Source: Terna calculation on Bloomberg data

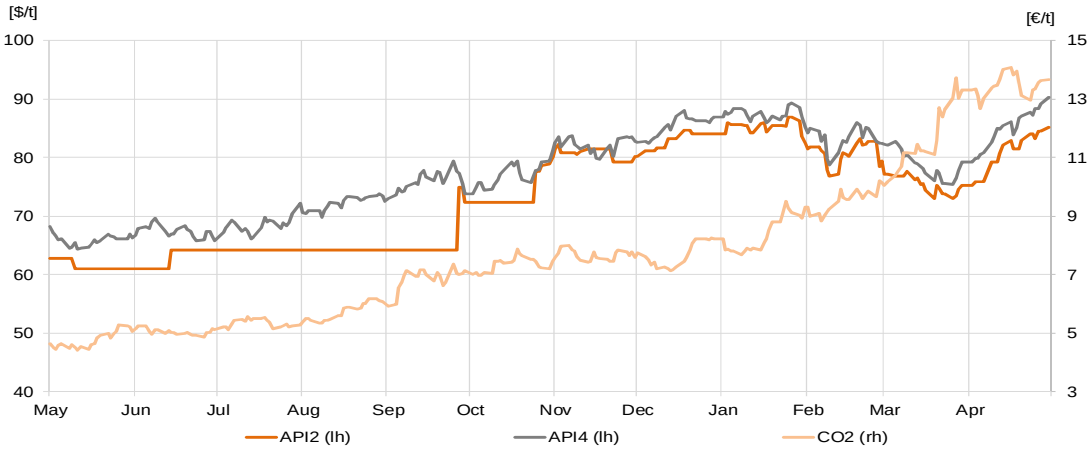
2019 Forward Gas & Oil prices



Monthly average change PSV-TTF = +€1.8/MWh

Source: Terna calculation on Bloomberg data

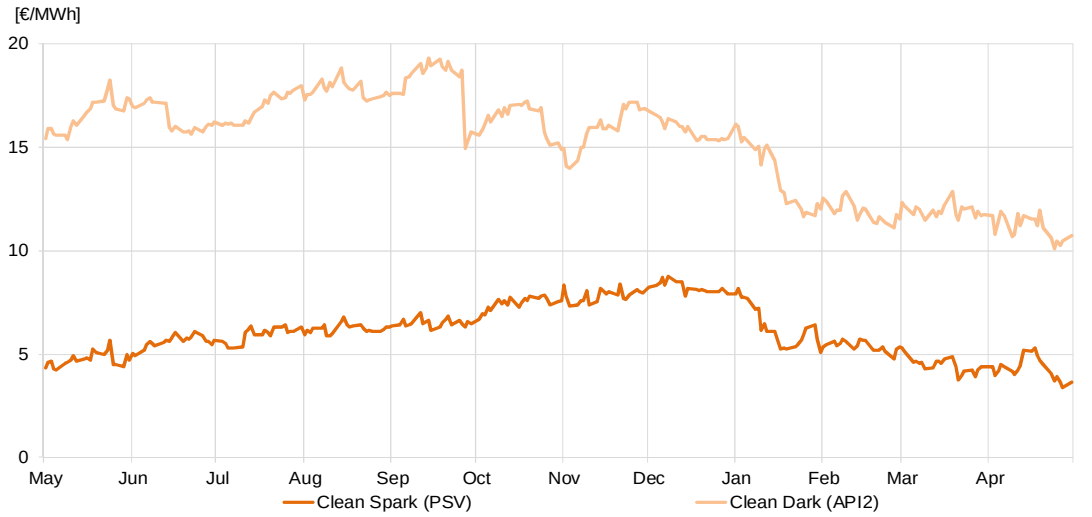
2019 Forward Coal & Carbon prices



Monthly average change API2-API4 = -$3.9/t

Source: Terna calculation on Bloomberg data

Clean 2019 Forward Dark & Spark Spreads Italy



Clean spark spread PSV monthly average = €4.2/MWh (+2% M-o-M)

Clean dark spread API2 monthly average = €11.0/MWh (-6% M-o-M)

Source: Terna calculation on Bloomberg data

Below is a selection of ARERA provisions of major interest for dispatching and transmission activities in April 2018. This selection is not exhaustive with respect to the regulatory framework.

Prescriptive provisions laid down in resolution 342/2016/E/EEL – confirmations and revisions

Resolutions 152-154/2018/E/EEL
Resolutions 183-184/2018/E/EEL
Resolutions 250-260/2018/E/EEL

In the context of the measures initiated with resolution 342/2016/E/EEL for non-diligent programme strategies put in place for dispatching services, the Authority ordered:

- the confirmation of 12 prescriptive measures with the review of the related B Annexes, containing the criteria for calculating the amounts by Terna;
- the confirmation of the 4 prescriptive measures and the related B Annexes.

Resolutions concerning the Centro Energia Ferrara production plant, essential for 2014

Resolution 185/2018/R/EEL

The Authority determined the amount of the price to reintegrate the costs of the Centro Energia Ferrara plant relative to 2014.

Award of costs incurred in 2017 by Terna S.p.A. for carrying out activities inherent to the management and development of the single data management system for power generation plants (GAUDÌ)

Resolution 217/2018/R/EEL

The Authority recognised the costs incurred by Terna in 2017 for carrying out activities to develop and run the GAUDÌ system, applying the criteria reformed with Resolution 557/2012/R/EEL. The Authority also provided that the minor expense deriving from the difference between the final costs awarded for 2017 and the estimated costs to be awarded for the same year are considered for future quantification of the amount for the functioning of Terna for 2019.

Provisions before Terna S.p.A. regarding receivables deemed non-recoverable due to dispatching user insolvency

Resolution 218/2018/R/EEL

The Authority accepted Terna's request to recover, through cost coverage pursuant to Article 44 of Resolution 111/06 (uplift) of the III and IV quarter 2018, the credits accrued in the years 2006-2015 due to the insolvency of the dispatching users involved in bankruptcy or insolvency proceedings that have reached such stage as to lead one to expect that credit recovery actions will be unsuccessful. The Authority has also provided that any revenue that may be received under such bankruptcy and insolvency proceedings will automatically go to reduce said coverage.

Provisions regarding the treatment of withdrawal points for Rete Ferroviaria Italiana S.p.A. under transport and dispatching services

Resolution 221/2018/R/EEL

In order to simplify and improve procedures for application of the Special Rate Scheme (RTS), in line with the provisions already established by Resolution 534/2014/R/EEL, the Authority has provided that Rete Ferroviaria Italiana S.p.A. (RFI) sign a new dispatching and transport contract, respectively, with Terna and with the distribution companies, for the withdrawal points powering the high-speed lines at 25kV. This is to separate these points from the dispatching and transport contracts RFI already holds, thus separating the energy withdrawn to power the high-speed trains — that do not benefit from RTS — from the energy withdrawn to power the remaining railway that instead does benefit from such special rates.

Verification of conformity of proposals to modify the Grid Transmission, Dispatching, Development and Security Code

Resolution 224/2018/R/EEL

The Authority has agreed to the proposed changes to the Grid Code transmitted by Terna and asked it, within the context of future revisions of the Grid Code, to assess certain requirements for the supply of the ready reserve.

Provisions for transitional remuneration fee for the availability of production capacity pursuant to Art. 36 of Authority Regulation 48/04, for 2017

Resolution 248/2018/E/EEL

The Authority has amended the transitional regime for further remuneration for electricity production capacity availability for the year 2017.

Modifications and additions to the criteria and conditions for regulation of the system for remuneration of electricity production capacity availability

Resolution 261/2018/R/EEL

The Authority amended and added to resolution ARG/elt 98/11, in order to:

- adjust the criteria and conditions for regulation of the system for remuneration of electricity production capacity availability (capacity market) to reflect the guidelines laid out by the Ministry of Economic Development and the commitments undertaken by the Italian State before the European Commission in relation to said market;
- introduce some changes to the criteria governing the capacity market following the consultations set out in documents 713/2016/R/EEL and 592/2017/R/EEL;
- make further changes to the aforementioned criteria, also with a view to outline a more efficient allocation of the risks and to modify allocation of the congestion income resulting from the capacity market.

Approval of the nomination rules for exchange programmes between bid zones pursuant to Article 36 of Regulation 2016/1719 (FCA)

Resolution 267/2018/R/EEL

As part of the implementation of the EU Regulation 2016/1719 (FCA) regarding the allocation of forward transmission capacity, the Authority has:

- approved the proposals concerning the nomination rules for allocation of long-term physical transmission rights on the Italian borders, aimed at defining the exchange programmes on the relative borders between bid zones, for the Italy North – France, the Italy North – Austria and the Italy North – Slovenia borders;
- postponed the approval of the nomination rules proposed for the Italy-Brindisi-Greece area border.

Key

Ancillary Services Market: the trading venue of the resources for the dispatching service.

API2 – CIF ARA: the reference index for the coal price (with PCI of 6,000 kcal/kg) imported from north-west Europe. It is calculated 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.

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

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.

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

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: are the hours between 8:00 and 20:00 of working days only. **Off-peak hours**: all the other hours.

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

PUN - Prezzo Unico Nazionale: the electricity national price calculated as a result of the Day-Ahead Market.

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

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 - Greater Venice - 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. The Lombardy region 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.

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

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), 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_2 Price: determined by the European Union Emissions Trading Scheme (EU ETS), a system for the trading of greenhouse gas emission quotas in Europe aimed at reducing emissions.

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

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

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

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

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

Disclaimer

1. The monthly electricity reports for the years 2018 and 2017 are provisional.
2. In particular, the monthly electricity reports of the year 2018 – 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.