Mission

Terna is a leading grid operator for energy transmission. The Company manages electricity transmission in Italy and guarantees its safety, quality and affordability over time. It ensures equal access conditions for all grid users. It develops market activities and new business opportunities based on its experience and technical know-how acquired in managing complex systems. Terna creates value for shareholders with a strong commitment towards professional excellence and with a responsible approach towards the community, fully respecting the environment it operates in.

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Increasing the service efficiency and the company’s competitiveness. Providing services under concessions and planning the electricity grid development. Continuously enhancing the professional skills of collaborators. Working in respect of the environment. Developing a corporate Group identity both nationally and internationally.

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Introduction

Terna Rete Italia S.p.A. is the company responsible for electricity transmission and dispatching on the very-high-voltage and high-voltage electrical grid throughout Italy. To guarantee service quality, continuity and security, Terna must collect all of the data on the status of the electricity system instant by instant. By processing these data, indicators of electricity-system performance are then developed.

The publication “2015 Provisional Data on Operation of the Italian Electricity System” presents a summary of the figures.

The most significant events included in the publication refer to the overall increased electricity consumption in 2015, +1.5% compared to 2014. In 2015, electricity demand reached 315.2 billion kWh. Of this demand, 85.3% was covered by national production allocated for consumption, and the remainder (14.7%) by the balance between imports and exports with other countries, which increased by 6.1% compared to 2014. It should be noted that there was a significant contribution of electricity produced from renewable sources to meet domestic demand. Overall, hydroelectric, photovoltaic, wind power and geothermal production reached 90 billion kWh (compared to 102 billion kWh in 2014), or 33% of net national production*.

In 2015, the maximum electricity demand on the Italian electricity grid was 59,353 MW (+15.1% compared to 2014), recorded on July 21 at 16:00pm.

The following pages provide additional information on these and other management aspects of the Italian electricity system.

(*) A further component of production from renewables was thermoelectric production from biomass, estimated at around 18 billion kWh (6.6% of national production).
Italian Electricity Balance

TWh (2014 data between parentheses)

Total net production 270.7 (269.1)

Wind, photovoltaic and geothermal production 45.1 (42.5)

Import 16.1% (15.1%)

Hydro production 44.7 (59.5)

Thermal production 180.9 (167.1)

1.8 (2.3) Electricity consumed by pumping

0.6% (0.8%) Export 4.5 (3.9)

16.1% (15.1%) Import

Electricity supplied (consumption + losses) 315.2 (310.5) 2015/2014 variation + 1.5 %

Electricity consumed by pumping 1.8 (2.3)

0.6% (0.8%) Export 4.5 (3.9)

16.1% (15.1%) Import

Electricity supplied (consumption + losses) 315.2 (310.5) 2015/2014 variation + 1.5 %
### Electricity Balance by Regional Area and Total (GWh)

<table>
<thead>
<tr>
<th>TURIN</th>
<th>MILAN</th>
<th>VENICE</th>
<th>FLORENCE</th>
<th>ROME</th>
<th>NAPLES</th>
<th>PALERMO</th>
<th>CAGLIARI</th>
<th>Total 2015</th>
<th>Total 2014</th>
<th>Var.%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydro production</td>
<td>11,336</td>
<td>9,923</td>
<td>13,465</td>
<td>1,614</td>
<td>5,254</td>
<td>2,494</td>
<td>403</td>
<td>262</td>
<td>44,751</td>
<td>59,575</td>
</tr>
<tr>
<td>Thermal production</td>
<td>20,033</td>
<td>28,666</td>
<td>19,365</td>
<td>20,932</td>
<td>19,302</td>
<td>46,504</td>
<td>17,114</td>
<td>8,955</td>
<td>180,871</td>
<td>167,080</td>
</tr>
<tr>
<td>Geothermal production</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5,816</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5,816</td>
<td>5,566</td>
</tr>
<tr>
<td>Wind production</td>
<td>34</td>
<td>0</td>
<td>0</td>
<td>246</td>
<td>1,068</td>
<td>9,139</td>
<td>2,579</td>
<td>1,523</td>
<td>14,589</td>
<td>15,089</td>
</tr>
<tr>
<td>Photovoltaic production</td>
<td>1,801</td>
<td>2,398</td>
<td>3,129</td>
<td>3,553</td>
<td>4,905</td>
<td>5,984</td>
<td>1,930</td>
<td>976</td>
<td>24,676</td>
<td>21,838</td>
</tr>
<tr>
<td><strong>Total net production</strong></td>
<td><strong>33,204</strong></td>
<td><strong>40,987</strong></td>
<td><strong>35,959</strong></td>
<td><strong>32,161</strong></td>
<td><strong>30,529</strong></td>
<td><strong>64,121</strong></td>
<td><strong>22,026</strong></td>
<td><strong>11,716</strong></td>
<td><strong>270,703</strong></td>
<td><strong>269,148</strong></td>
</tr>
<tr>
<td>Electricity consumed by pumping</td>
<td>436</td>
<td>477</td>
<td>48</td>
<td>45</td>
<td>53</td>
<td>380</td>
<td>269</td>
<td>142</td>
<td>1,850</td>
<td>2,329</td>
</tr>
<tr>
<td>Net production allocated for consumption</td>
<td>32,768</td>
<td>40,510</td>
<td>35,911</td>
<td>32,116</td>
<td>30,476</td>
<td>63,741</td>
<td>21,757</td>
<td>11,574</td>
<td>268,853</td>
<td>266,819</td>
</tr>
<tr>
<td>Import</td>
<td>18,262</td>
<td>24,231</td>
<td>7,780</td>
<td>0</td>
<td>0</td>
<td>592</td>
<td>0</td>
<td>1</td>
<td>50,846</td>
<td>46,747</td>
</tr>
<tr>
<td>Export</td>
<td>878</td>
<td>64</td>
<td>121</td>
<td>250</td>
<td>0</td>
<td>1,672</td>
<td>1,048</td>
<td>432</td>
<td>4,465</td>
<td>3,031</td>
</tr>
<tr>
<td><strong>Net import/export balance</strong></td>
<td><strong>17,384</strong></td>
<td><strong>24,167</strong></td>
<td><strong>7,639</strong></td>
<td><strong>-250</strong></td>
<td><strong>0</strong></td>
<td><strong>-1,080</strong></td>
<td><strong>-1,048</strong></td>
<td><strong>-431</strong></td>
<td><strong>46,381</strong></td>
<td><strong>43,716</strong></td>
</tr>
</tbody>
</table>
| Balance of physical exchanges between regional areas | -18,266 | 1,638 | 2,958 | 17,880 | 14,303 | -15,328 | -1,126 | -2,059
| Electricity supplied | 31,886 | 66,315 | 46,508 | 49,746 | 44,779 | 47,333 | 19,583 | 9,084 | 315,234 | 310,535 | 1.5 |
| Year 2014 | 32,363 | 66,061 | 46,502 | 47,697 | 43,766 | 45,345 | 19,785 | 9,016 | 310,535 | 310,535 | 0.0 |
| % variation | -1.5 | 0.4 | 0.0 | 4.3 | 2.3 | 4.4 | -1.0 | 0.8 |  |  |  |

N.B. Net import/export balance excluding the Republic of San Marino and the Vatican City.

During the year, electricity demand reached 315.2 billion kWh, up 1.5% on 2014, with a significantly variable monthly demand.

Net domestic production allocated for consumption registered a 0.8% increase.

The variation in the balance of physical exchanges of electricity with other countries was positive compared to the previous year (+6.1%). Specifically, there was an increase in geothermal, wind and photovoltaic production (+6.1%). Hydroelectric production registered a decrease (-24.9%), while thermoelectric production rose (+8.3%). Imports of electricity from other countries increased by 8.8%, with an even greater increase in exports (+47.3%).
Electricity Demand on the Italian Grid

Trend and Coverage

TWh


Net import/export balance
Net production allocated for consumption

Monthly and Cyclical Percentage Variations

%
Components (%) of Electricity Supply Side

* % net of electricity consumed by auxiliary services and by pumping

% Net import/export balance 14.7%

Components (%):
- Thermal*: 56.8%
- Wind, photovoltaic and geothermal*: 14.3%
- Hydro*: 14.2%

Percentage Variations by Regional Area

- Turin 2014/2013: +2.0%
- Turin 2015/2014: +0.0%
- Milan 2014/2013: -2.0%
- Milan 2015/2014: -4.0%
- Venice 2014/2013: -4.0%
- Venice 2015/2014: -6.0%
- Florence 2014/2013: -6.0%
- Florence 2015/2014: +4.0%
- Rome 2014/2013: -6.0%
- Rome 2015/2014: +4.0%
- Naples 2014/2013: -6.0%
- Naples 2015/2014: +4.0%
- Palermo 2014/2013: -6.0%
- Palermo 2015/2014: +4.0%
- Cagliari 2014/2013: +2.0%
- Cagliari 2015/2014: +0.0%

2014/2013:
- Turin +2.0%
- Milan -2.0%
- Venice -4.0%
- Florence -6.0%
- Rome -6.0%
- Naples -6.0%
- Palermo -6.0%
- Cagliari +2.0%

2015/2014:
- Turin +0.0%
- Milan -4.0%
- Venice -6.0%
- Florence +4.0%
- Rome +4.0%
- Naples +4.0%
- Palermo +4.0%
- Cagliari +0.0%
In 2015, the maximum electricity demand on the national electricity system was 59,353 MW, recorded on July 21 at 16:00pm, up 15.1% compared to the 2014 peak (51,550 MW on June 12 at 12 noon).

During the year, monthly peak figures were always greater than those of the same months in the previous year, with June the only exception.

N.B.: Data are net of electricity consumed by auxiliary services and by pumping.
Utilisation Curve of Hourly Load Demand

Peak Loads by Month

N.B. : Data are net of electricity consumed by auxiliary services and by pumping.
The weekly load curve shows the maximum values of load and energy recorded on the Italian electricity grid in each of the 52 weeks of 2015. The diagrams clearly show low demand values during the Easter holidays, August and year-end holidays.
The trend recorded for the capacity factors of hydroelectric dams at the end of each month in 2015 was similar to that of the previous year. It should be noted that increases in hydroelectric productivity for 2015 are exclusively due to an increase in the perimeter of analysis compared to 2014 (ex-ENEL area).
Energy not Supplied (MWh) on the EHV-HV-MV* Grid

<table>
<thead>
<tr>
<th>Regional Area</th>
<th>Year 2015</th>
<th>Year 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turin</td>
<td>60</td>
<td>190</td>
</tr>
<tr>
<td>Milan</td>
<td>540</td>
<td>70</td>
</tr>
<tr>
<td>Venice</td>
<td>332</td>
<td>271</td>
</tr>
<tr>
<td>Florence</td>
<td>670</td>
<td>22</td>
</tr>
<tr>
<td>Rome</td>
<td>1,025</td>
<td>143</td>
</tr>
<tr>
<td>Naples</td>
<td>459</td>
<td>429</td>
</tr>
<tr>
<td>Palermo</td>
<td>144</td>
<td>246</td>
</tr>
<tr>
<td>Cagliari</td>
<td>51</td>
<td>322</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,281</strong></td>
<td><strong>1,693</strong></td>
</tr>
</tbody>
</table>

* MV network directly connected to the National Transmission Grid.
The balance of physical exchanges of electricity mainly shows the energy flows among the various areas of the Italian electricity system. Electricity exports from Sicily to the mainland through the 380 kV connection, provide for the secure operation of the electricity system in Sicily and Calabria.
Physical Exchanges of Electricity between Italy and Neighbouring Countries

(GWh)

<table>
<thead>
<tr>
<th>Year</th>
<th>Electricity imported to Italy from</th>
<th>Electricity exported from Italy to</th>
<th>Net import/export balance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>France</td>
<td>Switzerland</td>
<td>Austria</td>
</tr>
<tr>
<td>2014</td>
<td>January</td>
<td>1,461</td>
<td>2,318</td>
</tr>
<tr>
<td></td>
<td>February</td>
<td>1,581</td>
<td>2,485</td>
</tr>
<tr>
<td></td>
<td>March</td>
<td>1,571</td>
<td>2,697</td>
</tr>
<tr>
<td></td>
<td>April</td>
<td>1,076</td>
<td>1,534</td>
</tr>
<tr>
<td></td>
<td>May</td>
<td>1,223</td>
<td>1,608</td>
</tr>
<tr>
<td></td>
<td>June</td>
<td>1,192</td>
<td>1,619</td>
</tr>
<tr>
<td></td>
<td>July</td>
<td>1,153</td>
<td>1,842</td>
</tr>
<tr>
<td></td>
<td>August</td>
<td>873</td>
<td>1,138</td>
</tr>
<tr>
<td></td>
<td>September</td>
<td>1,208</td>
<td>1,813</td>
</tr>
<tr>
<td></td>
<td>October</td>
<td>1,501</td>
<td>2,394</td>
</tr>
<tr>
<td></td>
<td>November</td>
<td>1,515</td>
<td>2,560</td>
</tr>
<tr>
<td></td>
<td>December</td>
<td>1,168</td>
<td>2,406</td>
</tr>
<tr>
<td></td>
<td>YEAR</td>
<td>15,520</td>
<td>24,414</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Electricity imported to Italy from</th>
<th>Electricity exported from Italy to</th>
<th>Net import/export balance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>France</td>
<td>Switzerland</td>
<td>Austria</td>
</tr>
<tr>
<td>2015</td>
<td>January</td>
<td>1,506</td>
<td>2,900</td>
</tr>
<tr>
<td></td>
<td>February</td>
<td>1,530</td>
<td>2,505</td>
</tr>
<tr>
<td></td>
<td>March</td>
<td>1,555</td>
<td>2,434</td>
</tr>
<tr>
<td></td>
<td>April</td>
<td>1,169</td>
<td>2,004</td>
</tr>
<tr>
<td></td>
<td>May</td>
<td>1,128</td>
<td>1,369</td>
</tr>
<tr>
<td></td>
<td>June</td>
<td>1,295</td>
<td>1,915</td>
</tr>
<tr>
<td></td>
<td>July</td>
<td>1,229</td>
<td>2,292</td>
</tr>
<tr>
<td></td>
<td>August</td>
<td>920</td>
<td>1,388</td>
</tr>
<tr>
<td></td>
<td>September</td>
<td>1,465</td>
<td>1,796</td>
</tr>
<tr>
<td></td>
<td>October</td>
<td>1,476</td>
<td>2,396</td>
</tr>
<tr>
<td></td>
<td>November</td>
<td>1,633</td>
<td>2,692</td>
</tr>
<tr>
<td></td>
<td>December</td>
<td>1,422</td>
<td>2,473</td>
</tr>
<tr>
<td></td>
<td>YEAR</td>
<td>16,328</td>
<td>26,164</td>
</tr>
</tbody>
</table>

Physical Exchanges of Electricity between Italy and Neighbouring Countries from 1963 to 2015 (GWh)

It should be noted that the yearly energy for each border takes account of the decimal places into the monthly values. The decimal places are not displayed in the table.

During 2015, there was an increase in the balance of energy exchanges with other countries. The final value reached 46.4 billion kWh, a 6.1% increase over the previous year.
The limit value of the maximum transfer capacity for imports on the interconnected system with other countries (NTC) during the day (07:00am-11:00pm) is represented by the red broken line, while the same limit value at night (11:00pm-12:00 midnight, 12:00 midnight-06:00am) is represented by the blue dashed line. Specifically, the maximum transfer capacity in winter registered daily variations ranging between 8,935 MW and 8,120 MW. During the summer period (May to September 2015, excluding August), these values were 7,205 MW and 6,700 MW. In August, the range was between 5,405 MW and 3,200 MW.
Legend

- **The electricity supplied on the grid** is the electricity to be injected into the grid for covering the net internal consumption. In the case of a national grid, it is equal to the sum of net electricity production and of electricity imported from foreign countries, after deducting the electricity consumed for pumping and exports to neighboring countries.

- **The trend variation** is the percentage change with respect to the same month or period in the previous year.

- **The net electricity production** of a group of generation plants in a given period of time, is the sum of the amounts of electricity injected into the grid.

- **The electricity consumed for pumping** is the electricity used for the sole purpose of pumping water and storing it for subsequent electricity generation.

- **Regional Areas**: consist in one or more neighboring regions and are grouped as follows:

  - TURIN: Piedmont - Liguria - Valle d’Aosta
  - MILAN: Lombardy
  - VENICE: Friuli Venezia Giulia - Veneto - Trentino Alto Adige
  - FLORENCE: Emilia Romagna - Tuscany
  - ROME: Lazio - Umbria - Abruzzo - Molise - Marche
  - NAPLES: Campania - Apulia - Basilicata - Calabria
  - PALERMO: Sicily
  - CAGLIARI: Sardinia

- **Not supplied energy** is energy that is not withdrawn by users connected to the EHV-HV-MV following an interruption with outage.
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