Monthly electrical energy overview
January 2017
The cold spell of January 2017 caused a strong increase in gross electricity demand (+14.3%) compared to January 2016. The French exchange balance was in favour of imports for the second consecutive month.

Demand recorded a peak on 20/01/2017 at 94.2 GW. It is the highest peak since February 2012. Corrected electricity demand trend stabilised in January 2017.

Fossil fuel thermal generation was 8.3 TWh up by 71% compared to January 2016.

Solar production grew significantly compared to last year with a 37.7% increase.

The regions whose gross electricity demand increased the strongest as a result of the cold spell in January, were Occitanie, Nouvelle-Aquitaine and Bourgogne-Franche-Comté.

French prices were at their highest since February 2012.

The balance of exchanges was in favour of imports for the second consecutive month with a total of 0.95 TWh of electricity imported.

4 new installations went into service in January 2017.
key developments

DEMAND
Gross demand increased by 14.3% compared to January 2016, due to the cold spell that persisted in the month. This cold spell triggered a demand peak on 20/01/2017 at 94.2 GW, the highest since 2012. Demand corrected for weather vagaries, which was moving slightly downwards since November 2016, stabilised in January 2017. The increase in demand by large industry seen since September 2016 slowed a little in January 2017.

GENERATION
Fossil fuel thermal generation has increased constantly since May 2016. It reached a new record level since February 2012 at 8.3 TWh. At the same time, hydraulic production fell by 8.1%. Nuclear generation fell only by 2.6% compared with January 2016.

WIND AND SOLAR
Since wind conditions were not favourable enough for wind generation, it again fell by 29% compared to January 2016. Solar generation increased significantly by nearly 38%.

TERRITORIES AND REGIONS
The regions of Occitanie and Nouvelle-Aquitaine were those which increased more significantly their gross demand in comparison to January 2016 with respectively +21% and 19%. The most important increase were for the regions for which the difference of temperature compared to January 2016 were better than 4°C. Grand-Est and Auvergne-Rhône-Alpes managed to moderate the increase in their demand compared to the drop record in temperatures that they suffered.

ELECTRICITY MARKETS
Prices are very high in most countries, in particular during the cold spell which affected Europe in the third and fourth weeks of the month. It reached €78/MWh as the monthly average in France, but also exceeded €70/MWh in Italy, Belgium, Spain, Slovenia and Portugal. The reduced availability of the nuclear base in France but also in Germany, the poor wind conditions and the increase in gas and coal prices were also factors contributing to the price increases.

INTERNATIONAL EXCHANGES
The balance of exchanges was in favour of imports for the second consecutive month and reached a new record with a total of 0.95 TWh of electricity imported. 516 hourly points were in favour of imports which is an historic record. Since November 2016, the export balance for France has become increasingly in favour of imports with respect to Great Britain. The balance became in favour of imports with Spain for the first time since April 2016. In terms of physical exchanges, this was the highest import balance since January 1980.

NEW INSTALLATIONS
The purpose of the 4 installations commissioned in January 2017 was firstly to increase and secure the power supply in the territories in question and secondly, to connect a customer distributor.
Consumption

Monthly energy consumption

Peak consumption*

January 2017

Gross monthly consumption at the peak and actual temperature

Evolution of monthly power extrema

Monthly Overview - January 2017
Generation

Installed capacity (MW) January 2017

- Hydro-electric: 25,484
- Conventional Thermal: 21,847
- Other RES: 1,918
- Solar: 6,772
- Wind: 11,710

Energy generated (GWh) January 2017

- Nuclear: 8,256
- Hydro-electric: 5,250
- Conventional Thermal: 797
- Other RES: 797
- Solar: 366
- Wind: 1,996
- Thermal: 8,256

Focus on generation sectors

Nuclear generation

- Period 2015-16: GWh
- Period 2016-17: GWh

Hydro-electric generation

- Period 2015-16: GWh
- Period 2016-17: GWh

Fossil-fuel thermal generation

- Period 2015-16: GWh
- Period 2016-17: GWh

RES generation excl. hydro-electric

- Period 2015-16: GWh
- Period 2016-17: GWh

Monthly Overview - January 2017
Wind and Photovoltaic

Monthly generation

Wind generation

Photovoltaic generation

Load factor of wind generation

January 2017

Rate of coverage of consumption by wind generation (%)

Development of generating fleets in France**

Planned fleet on the PTN

Fleet development in France

Installed capacity* at 31/01/17 | Queued projects * | Projects in preparation*
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Wind | 661 MW | 30 | 2211 MW | 7 | 272 MW
of which Offshore | 0 MW | 14 | 3 192 MW | 0 | 0 MW
Photovoltaic | 571 MW | 4 | 101 MW | 3 | 58 MW

** Refer to glossary for category definitions

Wind capacity awaiting connection at Enedis as of 31/12/2016: 5 552 MW
Solar capacity awaiting connection at Enedis as of 31/12/2016: 2 089 MW

** data available up to December 2016
During January 2017, all regions felt a cold spell with difference temperatures compared to January between -2°C and -6°C. The increase in regional demand varies from 8% to 21%.

It's worth noting that the regions that suffered the most important drop in temperatures, Grand-Est and Auvergne-Rhône-Alpes, are not those that had the strongest increase in their demand. It seems then, that eco-citizen gestures have been more applied in these regions.
Electricity markets

Spot prices in Europe

Monthly average value

Daily average value evolution of the spot prices during the month

Actuality of Market mechanisms

Very frequent price peaks in France in January

The hourly French price exceeded €100/MWh 113 times in the month (almost always between 8.00 and 20.00), including 102 times between 16 and 26 January, the most difficult period in the French market. These peaks are more frequent but lower than in the last quarter of 2016: the hourly price reached a maximum of €206 /MWh on Wednesday 25 January between 8.00 and 9.00.
The energy values described correspond to contracted exchanges on Euronext.

### Monthly Overview - January 2017

**Export**: 3,433 GWh  
**Import**: 4,383 GWh  
**Balance**: -951 GWh

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**Daily extrema of the export balance**

![Graph showing daily extrema of the export balance]

**Minimal balance**  
**Maximal balance**

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**Monthly exchange balances on each border**

**With Great Britain**

![Graph showing monthly exchange balances with Great Britain]

**With Switzerland**

![Graph showing monthly exchange balances with Switzerland]

**With Italy**

![Graph showing monthly exchange balances with Italy]

**With Spain**

![Graph showing monthly exchange balances with Spain]
Network development

- **63 kV underground cable**
  - Remise - Trie-Château
  - Oise (60)
  - Strengthening of the electricity supply of the Trie-Château substation

- **225 kV overhead-underground line**
  - Plessis-Gassot - Villiers-Le-Bel
  - Val d’oise (95)
  - Partial burial of cables as part of the reconstruction of the 225 kV substation of Villiers-le-Bel

- **63 kV substation**
  - Messimy-Nemouz
  - Messimy-Nemouz - Piquage à Chaponost
  - Rhône (63)
  - Connection of a distributor customer
This document relies on metered data collected by RTE and also on data sent by the French DSOs, especially EDF and EDF SEI.

The installed capacity values are valid for the end of the month, with the exception of the "Other RES" category, which is valid for the start of the month.

Extreme capacity value trend
Max/Min Power:
Maximum/minimum power consumption in France over the month, excluding Corsica
Absolute extreme value:
Extreme value for consumption observed since 1 January 2008

Trend by sector in sliding year adjusted from the climate effect
Total consumption: Consumption of France, with Corsica, losses included.
Adjusted consumption on PDN: Represents the consumption of residential and SMEs/SMEs sector. Data adjusted from weather effect. Direct RTE customers: Industrial sites connected directly to the PTN (excluding consumption at source). Energy sector is excluded
Trend in sliding year: growth between the last 12 cumulative monthly values and the previous 12

Generation
The "Hydro-electric" category includes all types of hydro plants (impoundment, run-of-river, etc.). Consumption for pumping by pumped storage facilities is not deducted from generation. The "Nuclear" category includes all nuclear units. Consumption by auxiliary units is deducted from generation. The "Fossil-fuel thermal" category includes Coal, Oil and Gas-fired technologies. The "Other RES" category includes PV solar, Biomass, Biogas and paper/card waste. The installed capacity values are valid for the end of the month, with the exception of the "Other RES" category, which is valid for the start of the month.

Wind Generation
Load factor:
Ratio of wind power generated to nominal installed wind capacity

Coverage of demand
Coverage rate:
Ratio of wind power generated to gross national consumption at a given time

Prices in Europe
Monthly average of spot prices in the different price zones of the coupled area. France is always represented in white, the other areas are coloured based on the difference in price compared with France (blue: lower price, red: higher price, the deeper the colour, the greater the difference).

International exchanges
Daily extrema:
Extrema of the half hour mean power value of the global international commercial exchanges, observed daily.
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CHIFFRES CLÉS RTE

- 8 500 personnes
- 100 000 km de lignes électriques
- 2 500 postes électriques
- 1,4 milliard d’€ d’investissement en 2013

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