

# Load and consumption data:

## Specificities of member countries

### 1. Definitions

This description is only related to continental Europe countries (former UCTE block). Harmonisation, collection and publishing of similar data for other members of ENTSO-E is now in process and will be finalised during 2010.

#### 1.1 Load

Load on a power system is referred to as the hourly average active power absorbed by all installations connected to the transmission network or to the distribution network.

The load is the value at a given moment of the electrical power supplied or absorbed at any point of a system as determined by an instantaneous measurement or by the integration of power during a given period of time.

Load can refer to a consumer, an appliance, a group of consumers or appliances or a network.

Load is the power consumed by the network including (+) the network losses but excluding (-) the consumption for pumped storage and excluding (-) the consumption of generating auxiliaries.

For the power balance, the load of each country, also called reference load, is represented at 11 a. m. on the 3<sup>rd</sup> Wednesday of each month without regard to the export power.

Concerning the calculation method for the 24 load values, the countries use the average values of the 10, 15 or 60 minutes load preceding the hour.

#### 1.2 Consumption / national consumption

It is the net electricity consumption including network losses without consumption for pumped storage. It is the sum of:

- The amount of electrical energy supplied by the electricity service utility to end consumers of the network under consideration
- The amount of net electricity produced or imported directly from abroad by industrial or commercial companies on the network and used directly for their own needs or to supply end consumers directly
- The amount of electricity consumed by establishments (offices, workshops warehouses etc.) of the electricity service utilities, but excluding the electricity absorbed by the auxiliaries of the power stations and the losses in the main transformers of the power stations, and that consumed for pumping and the network losses. These consumptions are commonly called consumptions of the electricity sector or own consumptions

Net consumption can be therefore calculated as follows:

Gross production–Consumption of auxiliary devices=Net production

Net production–Consumption of pumps–Export+Import=Net consumption including transmission losses.

Consumption should not be confused with load. In the statistics, load is always a snapshot of one single moment (in GW) while consumption describes a time period (in GWh).

Moreover, load is calculated as an average value for every hour and therefore consumption which would be calculated based on a load integral is not precise.

Consumption figures are usually based on more precise measurements (invoicing).

### 1.3 Representativity

For most countries the electricity supply is not analysed in total, but only for those areas participating in parallel operation of the high voltage and extra-high voltage networks of the public supply; these are the undertakings of the public supply and – in some countries also – all or part of the industrial power stations, especially their deliveries to the public network.

The areas concerned represent between 80 and 100 % of the total supply, depending on the countries concerned.

Therefore, in some countries differences to other comparable statistics as well as to the statistics published regularly in periodical reports may result.

The representativity of every collected value must be provided by countries concerned. To make the compilations of values from different countries consistent, all published values are recalculated to represent 100 % of national values which is not the case of hourly load data except of third Wednesdays in a month.

### 1.4 Common time stamp and the daylight saving time (DST) transitions

For all values, a common time stamp is defined to be able to aggregate values for the whole continental Europe area. Therefore, power exchange data (at 3 a. m. and 11 a.m.) and all 24 load values should all refer to Central European Time (CET). For example, Portuguese data of 2 a. m. and 10 a. m. (local time) have to be harmonised with the data of 3 a. m. and 11 a. m. (local time) in Spain.

On the last Sunday of March, at 2 a. m., the time changes to 3 a. m. (1 hour less), therefore this month has only 743 hourly values instead of 744.

A similar situation, but this time, in the reverse way, occurs on last Sunday of October, at 3 a. m., the time will change to 2 a. m. (1 hour more), and therefore this month has 745 values instead of 744.

Hourly values stored in the ENTSO-E Information System are structured for those two days as follows:

- No value in the column for 3 a. m. in March;
- Two columns 3A.00 and 3B.00 in October.

## 2. National specificities

### 2.1 Austria

The hourly load data do not represent the whole country but only the Austrian public grid without own production of industry.

Two kinds of statistics are available: total values (e.g. including own production of industry) and values for the public grid. If the values of the public grid are used, representativity is needed to calculate the total synchronous consumption (representativity = consumption of public grid / total consumption).

For statistical data, total values for energy (representativity = 100%) and the values for public grid for the load profile (the load profile is only available for the public grid) are used.

### 2.2 Belgium

The figures on the Elia web pages concern the Elia control area. They comprise the Elia grid in Belgium and the Sotel grid in Luxembourg. The Elia grid is limited to the voltage level 30kV or higher. Finally, the figures on the Elia website reflect real measurements that are given on quarter-hourly basis.

The Belgian figures on the ENTSO-E web pages are related to the Belgian territory and reflect the Belgian national figures ( including all voltage levels in Belgium ). Furthermore, the figures on the ENTSO-E web pages are based on the hourly average of real measurements and estimates.

The Belgian transmission network losses are the losses from the 380 kV, 220 kV and 150 kV network, including losses of internal transformers ( 380 kV <-> 150 kV ) and excluding the losses of transformers towards HV-networks < 150 kV.

### 2.3 Bulgaria

Monthly consumption values are net while the hourly load data values are gross.

### 2.4 Czech Republic

All Czech load values are based on online gross production data. The values of net production for the formula of the load are only calculated afterwards.

### 2.5 France

French national consumption includes also Corsica but excludes overseas territories.

The French transmission network includes lines from 63 kV to 380 kV. Losses as requested by ENTSO-E include only values from 220 kV and above.

Load data on the RTE website excludes Corsica in order to be consistent with provisional data.

Losses data on the RTE website mean network losses from 63 kV to 380 kV.

## 2.6 Germany

The values identified by the country code D only cover the former Federal Republic of Germany (Bundesrepublik Deutschland) until June 1995. From 07 / 1995 on, the country code D identifies values for re-unified Germany (including the 5 Bundesländer of the former German Democratic Republic, GDR).

The hourly load data are obtained from inquiries among the German TSOs representing so-called "Common / Public supply" including the network feed-in produced on the basis of renewable energy sources, which means also the network feed-in of the distribution grid.

According to experience gained in the past before the liberalization of the electricity industry, these values cover around 91% of the total supply. That means that industry's own production for own consumption and some parts of German railways are not included in the "Common / Public supply" and the hourly load values for that part are not available.

## 2.7 Hungary

Monthly consumption values are net while the hourly load data values are gross until end of 2009. Since January 2010, load values are net.

## 2.8 The Netherlands

Explanation on a significant "load decrease" between 2007 and 2008:

The load decreased only from the view of the TSO (TenneT). It can't be concluded implicitly that the energy consumption also has a downward tendency. There are two phenomena accounting for that:

1. There are some irregularities in TenneT's measurements on which the hourly load data is based. These accountable measurements are done in the scope of the national balancing system of the Netherlands and included until the beginning of 2008 nearby 93% of the national load. Electrical energy which is generated by some industries and auto-generators for their own use isn't included in this balancing system. So to reach a 100% representativity for data multiplication by factor 1,07. These data can be downloaded from TenneT's website as measurement data:  
[http://www.tennet.org/english/operational\\_management/export\\_data.aspx](http://www.tennet.org/english/operational_management/export_data.aspx).
2. The amount of CHP generation installed with green growers and small renewable units increased the last years very fast. Even on hours of high load there's a higher export than ever before and it can be concluded from that that in the meantime, their installed power increased to 8000-9000 MW. TenneT does not know exactly how much power is fed in on certain hours on lower voltage grids but it appears anyhow as a lower load of the high voltage network. That means that the correction factor will have to be adapted after official figures about electricity consumption from the National Statistics are published.

## 2.9 Poland

Concerning the consumption and the production data, till the end of 2003 all values are gross. Since the beginning of 2004, Poland has been publishing net values in the same way as all other countries.

## 2.10 Slovenia and Croatia

Until 1997, the Slovenian and the Croatian values were collected together. They are identified by the country code (SH). From 1998 on, separate values are available for Slovenia (SI) and Croatia (HR).

## 2.11 Switzerland

The hourly load values for the whole year in the ENTSO-E database are vertical load values and do not represent the complete load for the country as is the case for most of the ENTSO-E countries. Only the hourly load values of the 3<sup>rd</sup> Wednesday, as published in the monthly reports, represent the whole load.

## 2.12 Serbia and Montenegro

Please note that until end of 2006, the values for Serbia and Montenegro were collected together. They are identified by the country code CS. From 2007 on, separate values are available for Montenegro (ME) and Serbia (RS).