

Energy balances in the MS Excel file format

Eurostat received several requests for publishing energy balances also in the MS Excel file format. Energy balances for period 1990-2016 are included in this zip file. This data are complementing the presentation of data in the standard Eurostat's dissemination tables. In order to access the full scope of energy statistics as covered by Regulation¹ (EC) No 1099/2008 on energy statistics, please visit our website: <http://ec.europa.eu/eurostat/web/energy/data>

Methodology

Legal basis

Eurostat's energy balances are based on the data requirements established by Regulation (EC) No 1099/2008 on energy statistics and its respective amendments. In this Regulation, Annex A defines the geographical scope, aggregates as well as sectors (supply, transformation sector, energy sector, final consumption, end-use specification) and Annex B defines the specific modalities for energy products.

Definitions of product aggregates

For definitions of specific products please refer to Annex B of Regulation (EC) No 1099/2008 on energy statistics and/or the reporting instructions for the annual energy questionnaires, that are available within the [Dedication section – Energy](#) on Eurostat's website.

Key principles of constructing the energy balance

The energy balances (also called energy balance sheets) are expressed in thousands of tonnes of oil equivalent (ktoe). The tonne of oil equivalent is a standardized energy unit defined as a net calorific value of 10^7 kilocalories (41 868 MJ), which is roughly the net energy equivalent of a tonne of crude oil.

The energy balances are compiled according to Eurostat's methodology, which is based on the physical energy content method. The general principle of this method is that the primary energy form should be the first energy form in the production process for which various energy uses are practiced. For directly combustible energy products (for example coal, crude oil, natural gas, biomass, waste) it is their energy content. For products that are not directly combustible, the application of this principle leads to the choice of **heat** as the primary energy form for nuclear, geothermal and solar thermal; and to the choice of **electricity** as the primary energy form for solar photovoltaic, wind, hydro, tide, wave, ocean.

In case the amount of heat produced in the nuclear reactor is not known, the primary energy equivalent is calculated from the electricity generation by assuming an efficiency of 33%. In case of electricity and heat generated with geothermal energy, if the actual amount of geothermal heat is not known, the primary energy equivalent is calculated assuming an efficiency of 10% for electricity production and 50% for derived heat production.

¹ <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32008R1099>

Definitions of key elements in the energy balance

For the definition of a specific element (flow) please refer to Annex A and Annex B of Regulation (EC) No 1099/2008 on energy statistics and/or the reporting instructions for the annual energy questionnaires, that are available within the [Dedicated section – Energy](#) on Eurostat's website.

Users should pay attention when interpreting values for these elements. For some derived products (such as electricity) the value of *Gross inland consumption* is representing only the amount of net trade. For some other derived products (such as petroleum products) the value of *Gross inland consumption* is representing the amount of net trade, stock changes and consumption in the international marine bunkers. As evident from the examples above, the value of *Gross inland consumption* can also be negative.

Negative values for the element *Available for final consumption* indicate inaccuracies in statistical data collections or reporting.

While the *Statistical difference* can be a measure of the quality of data – it symbolises the statistical balance between supply and consumption of energies, its zero value might also be a result of a methodological approach that attributes non-surveyed elements of energy into, among others, one of the following categories: *not elsewhere specified*, *stock changes* or *distribution losses*. Consequently, in some cases low values of *Statistical difference* might indicate data of higher quality than a dataset with a *Statistical difference* equal to zero.

Interpretations of empty cells and zeros

The statistical data collection system in the joint annual energy questionnaires cannot distinguish between the following cases:

- Data are not available to the reporting authority
- Data are confidential and not shown
- Energy quantity is a real zero (there is no consumption)
- Consumption is negligible (quantity is less than 0.5 of the respective reporting unit)

All these cases are shown as "zero" in the questionnaire.

In the data tables, symbol "0" indicates value between 0 and 0.5 and symbol "-0" indicates a value between -0.5 and 0. Values bigger than 0.5 and lower than -0.5 are indicated by the respective value rounded to zero decimal places. This however applies only to non-zero data points reported during data collection (see paragraph above).

Calorific values

Data reported in the joint annual energy questionnaires in physical units (tonnes) have been converted to energy units using national calorific values. In case these values were not provided, the following values were used:

Product	Calorific value (GJ/t)	Product	Calorific value (GJ/t)
Patent Fuel	29.3	Other Kerosene	43.0
Coke Oven Coke	28.5	Gasoline Type Jet Fuel	43.0
Gas Coke	28.0	Kerosene Type Jet Fuel	43.0
Coal Tar	37.7	Naphtha	44.0
BKB/PB	20.0	Gas/Diesel oil	42.6
Natural Gas Liquids	44.0	Residual Fuel Oil	40.0
Refinery Feedstocks	42.5	Fuel Oil	40.0
Additives/Oxygenates	42.5	White Spirit & SBP	43.6
Other Hydrocarbons	42.5	Lubricants	42.0
Biofuels	36.8	Bitumen	39.0
Refinery Gas	49.5	Petroleum Coke	32.0
Ethane	49.5	Paraffin Waxes	40.0
LPG	46.0	Other Oil Products	40.0
Motor Gasoline	44.0	Charcoal	30.0
Aviation Gasoline	44.0		

In order to achieve a consistent energy balance the calorific value for quantities of crude oil entering the refining process has been back-calculated on the basis of the more reliable calorific values of the petroleum products.

Access to detailed data

Readers requiring more detailed energy data are kindly requested to visit Eurostat's website, that offers user-friendly access to detailed data in the energy domain:

Energy database

<http://ec.europa.eu/eurostat/web/energy/data/database>

Pre-defined energy tables

<http://ec.europa.eu/eurostat/web/energy/data/main-tables>

Statistics Explained articles – Energy

<http://ec.europa.eu/eurostat/statistics-explained/index.php/Category:Energy>

Contact

Please use the following link for any questions or comments:

<http://ec.europa.eu/eurostat/help/support>