Beginners:Energy - background

This article is part of Statistics 4 beginners , a section in Statistics Explained where indicators and concepts are described in a simple way to make the world of statistics a bit easier to understand.

Energy is key to our daily lives. We need energy to heat and cool our homes, to provide light and run our appliances, for transport, to run our farms and provide food, to produce the goods and services we all rely on.

The processes involved in energy we produce and energy we consume are complex. Energy statistics make these processes more comprehensible and can help us understand the developments of energy production, trade and consumption.

This article and the article on Energy flows explain the key concepts of EU energy statistics and how they can be used for understanding and analysing different aspects of the energy markets.

What questions can energy statistics answer?

Energy statistics can provide relevant information on important issues such as:

- How large is **energy production** in the EU?

- What are the main **energy products** and which **energy sources** are providing them?

- How much energy is imported and exported?

- Which countries provide the energy imports on which we depend to supplement our own production?

- How large is **energy consumption** in industry, transport, households and other sectors of society? And which energy products are they relying on?

- What are **energy prices** and how are they changing?

- How do **energy balances** help us understand how the energy market works and how are energy production, energy trade and energy consumption interconnected?

- How much of energy production and consumption in the EU are provided by **renewable energy sources** , and how well is the EU doing in increasing these shares?

How are energy statistics used?

Energy statistics are important for numerous public and private sector decision makers. For example, they are used to:

- evaluate the functioning of the EU energy markets, including stability and supply safety;

- analyse the dependency of the EU and the EU Member States on energy and energy products imported from other countries;

- monitor developments in energy prices, including electricity prices, prices of crude oil, natural gas and refined petroleum products, prices of nuclear energy, prices of energy from renewable sources, etc.;

- monitor and document the transition towards a carbon neutral society, as key data in models to estimate CO2emissions;

- help businesses to benchmark and improve their processes with respect to their energy efficiency;

- analyse the development in energy consumption and energy efficiency in different sectors, such as the household sector, the industry sector, the transport sector, the service sector and in electricity production.

Energy policies

To make the energy system more efficient, independent, reliable and affordable, the EU has introduced policies and initiatives to increase energy efficiency, improve energy productivity, reduce energy consumption, ensure stability and supply security, and obtain access to affordable energy for everyone. Indeed, access to reliable and affordable energy for everyone is so vital that it is one of the United Nation's **Sustainable Development Goals** . A very important policy for energy is the EU's Energy union strategy (Commission Communication 80/2015 final), which aims to build an energy union that gives consumers - households and businesses - secure, sustainable, competitive and affordable energy.

Another important policy is the European Green Deal , which provides an action plan to boost the efficient use of energy and other resources by moving to a clean, circular economy, as well as to restore biodiversity and cut pollution. The plan explains how to ensure a just and inclusive transition. The EU aims to be climate-neutral by 2050.

How and what energy data are collected?

Energy statistics in Eurostat is a collection of data and statistics related to **energy production, consumption, and trade** in the EU.

Eurostat and the reporting countries (the EU Member States and the EFTA countries) work together to define the data to be collected and develop harmonised methodologies. The reporting countries are responsible for the data collection at national level and the data transmission to Eurostat, while Eurostat is responsible for collecting, compiling, and disseminating these data.

Eurostat publishes monthly and annual energy data:

- Monthly statistics cover mainly the supply side (production, trade and stock changes) for the main energy products: oil, natural gas, solid fuels and electricity.

- Annual energy data cover the full spectrum of the energy sector, from production, trade and transformation (for example electricity generation from natural gas) to final consumption in the industrial sector, transport sector, households, services, etc. Statistics are available for oil, natural gas, electricity and heat, different types of solid fossil fuels, renewables and waste.

The legal basis for the energy data collection is Annex B of Regulation (EC) No 1099/2008 on energy statistics.

Energy prices Eurostat also collects and publishes half-yearly and yearly data on electricity and natural gas prices, for both households and for non-household final customers, as well as for each consumer category according to different bands of energy consumption (i.e. grouped by how much energy they consume).

To address the need for greater transparency on energy prices, price statistics are provided with all taxes included, without any taxes, or without VAT. Yearly data consist of more disaggregated prices on the energy cost, the network cost and the taxes. In addition, they also include national average prices for each of the sub-components of these three main price categories.

The legal basis for the collection of energy price statistics is Regulation (EU) No 2016/1952 on European statistics on natural gas and electricity prices.

Which energy statistics tools are available?

An intuitive look at the European energy market

Eurostat has developed several easy-to-use tools to better understand the different aspects of the European energy market:

- **Energy prices** visualises data on electricity and natural gas prices in the EU or your country.

- **Energy flows** shows the flow of energy from initial energy sources and the production of energy via transformation processes to the consumption by different users in the EU or your country in a flow diagram (Sankey diagram).

- **Monthly energy data** visualises seasonal energy trends in the EU or your country.

- **Energy trade** illustrates the energy trade flows to and from your country in different ways. Use it and customise your own map!

- **Energy balances** is used to visualise how much energy is imported or produced. Find out which sectors are consuming the energy and check out different energy sources.

- **Energy indicators** provides a dashboard with energy statistics and indicators for your country or the EU.

The interactive publication **Shedding light on energy in the EU** presents the energy process in a user-friendly way combining texts and interactive visualisations. The publication is divided into four chapters:

- **EU policies** presents the challenges of the European Green Deal and the Energy Union.

- **Energy sources looks at the energy mix in the EU, energy production, imports and dependency.**

- **Energy consumption** focuses on the different types of energy consumed, electricity production, and electricity and gas prices.

- **Energy and environment** presents data on greenhouse gas emissions, energy efficiency and renewable energy.

Other articles

Related articles in Statistics 4 beginners:

- Statistics 4 beginners
    - Energy flows

Related articles in Statistics Explained:

- All Statistics Explained articles concerning energy statistics , in particular Energy statistics introduced

Glossary items in Statistics Explained:

Main glossary of energy statistics terms

- Total energy supply
- Primary production of energy
- Energy dependency rate
- Primary energy consumption
- Final energy consumption
- Energy intensity
- Gross electricity generation
- Gross national electricity consumption
- Renewable energy sources
- Fossil fuels
- Petroleum products
- Crude oil
- Biofuels
- Tonnes of oil equivalent (toe)
- Kilowatt hours (KWh)
- Export
- Import
- European Union (EU)