



Department for Business, Energy & Industrial Strategy

International Comparisons – data sources and methodologies

1. Introduction

Comparisons of energy prices in the UK with prices in other countries are an important part of the department's work. They are used to measure the competitiveness of the UK, and to monitor the effects of liberalising energy markets across the EU.

Prices vary between countries for many reasons, including differences in indigenous resources and market structures. Varying exchange rates and inflation rates can have an impact when comparing international prices.

2. Publications

BEIS produces energy statistics tables covering international price comparisons on a monthly, quarterly and annual basis. Tables are published within Quarterly Energy Prices (QEP): <https://www.gov.uk/government/collections/international-energy-price-comparisons> and can also be found on the BEIS energy statistics prices web page: <https://www.gov.uk/government/collections/quarterly-energy-prices>

On a monthly basis, premium unleaded petrol and diesel prices in the EU are published in Tables 5.1.1 and 5.2.1. On a quarterly basis, bi-annual domestic and industrial gas and electricity prices for EU countries, split by consumption band, are published in Tables 5.4.1, 5.6.1, 5.8.1 and 5.10.1. On an annual basis, domestic and industrial gas and electricity prices in IEA countries are published in Tables 5.3.1, 5.5.1, 5.7.1 and 5.9.1.

3. Monthly statistics

Data Sources:

The motor fuel prices published in Tables 5.1.1 and 5.2.1 are taken from the European Commission's 'Oil Bulletin'. The data is required from EU member states under Council Decision 1999/280/EC.

Methodology and data quality:

Prices are provided by the EU member states to the Commission which publishes the data in Euros. BEIS takes the published Commission data, converts the prices to pound sterling using exchange rates for the appropriate month, and re-publishes the data in QEP.

Prices are for on or about the 15th of each month, and are provided with and without taxes & duties. The UK collects prices on a weekly basis from 6 companies covering around 65% of the market and supplies these to the EU. Other countries may have different sampling methodologies, depending on the structure of their own internal markets (for example, prices

may be regulated by government or supplied by a monopoly supplier, or there may be a market similar to that within the UK). See the Road Fuel Price Statistics methodology note at <https://www.gov.uk/government/publications/road-fuel-price-statistics-data-sources-and-methodologies> for more details.

4. Eurostat comparisons (electricity and gas)

Data Sources:

The data in sections 5.4, 5.6, 5.8 and 5.10 of QEP are derived from Eurostat's Statistics in Focus series. The data is requested from EU member states under Regulation (EU) 2016/1952. Data on industrial and domestic prices is a statutory requirement.

In addition to the bi-annual transmission of price data, once per year additional supporting information on prices has to be reported by each country, including details of applicable taxes and levies, and a breakdown of electricity prices into 'energy and supply' costs and 'network' costs. Once every 2 years, additional information about the price compilation system (market coverage, methodology, etc) used by each country has to be reported.

Methodology & data quality:

Prices are provided by the EU member states to Eurostat, and published on the Eurostat website. Eurostat performs basic data quality checks before publication, including comparisons with data from previous periods. BEIS downloads prices from Eurostat's website and converts them to sterling using exchange rates for the appropriate period.

In the UK, for industrial consumers a quarterly survey of 8 gas and 7 electricity suppliers, covering 60 - 75% of the market, is undertaken, with the volume and value figures for the 2 appropriate quarters amalgamated to produce the 6-monthly prices (for more information see the Industrial Price Statistics methodology note at <https://www.gov.uk/government/publications/industrial-price-statistics-data-sources-and-methodologies>). The proportion of the value that is due to environmental and social policy costs is calculated from data supplied by the companies and internal estimates. A similar survey is run for domestic prices, surveying the 6 major domestic gas and electricity suppliers covering around 85% of the market (see Domestic Prices methodology note for more details). Other countries may have different sampling methodologies, depending on the structure of their own internal markets (for example, prices may be regulated by government or supplied by a monopoly supplier, or there may be a market similar to that within the UK).

Once all data has been downloaded and collated, the UK rank and median price are calculated and the tables are updated. Where data is not available, a price is estimated. In the table, estimated prices are shown in the cell in the spread sheet, but in the printed headline output estimates are replaced by symbols: a '+' indicates that the price is likely to exceed the EU28 median, a '+/-' indicates that the price is likely to be around the median, and a '-' indicates that the price is likely to be below the median. Price estimates to missing data are calculated using historic data and price movements seen in neighbouring countries. This methodology is intended to give a better indication of the UK rank and median when compared with those countries where up-to-date data is not available. In general, when data becomes available the use of +, - or +/- indicators is shown to have been appropriate.

From 1st January 2008, the data shows average prices over 6-month periods (January - June and July - December), and each sizeband covers a range of consumption. Previously, the Price Transparency data was for a single point in time (1st January and 1st July), and each sizeband was represented by a single consumption figure.

The sizebands for consumers published by BEIS from January 2008 onwards are defined as follows:

Industrial Electricity	Eurostat size band	Annual consumption (MWh)
Small	Band IB	20 - 499
Medium	Band ID	2,000 - 19,999
Large	Band IE	20,000 - 69,999
Very Large	Band IF	70,000 – 150,000
Industrial Gas	Eurostat size band	Annual consumption (MWh)
Small	Band I2	278 - 2,777
Medium	Band I3	2,778 - 27,777
Large	Band I4	27,778 - 277,777
Domestic Electricity	Eurostat size band	Annual consumption (kWh)
Small	Band DB	1,000 – 2,499
Medium	Band DC	2,500 – 4,999
Large	Band DD	5,000 – 15,000
Domestic Gas	Eurostat size band	Annual consumption (kWh)
Small	Band D1	<5,557
Medium	Band D2	5,557 – 55,557
Large	Band D3	>55,557

Data on other sizebands are calculated and supplied to Eurostat, and published on the Eurostat website, eg sizebands IA, IC and IG for industrial electricity. The sizebands BEIS publishes, as shown above, have been selected for several reasons:

- 1) they most closely match the consumption used in the previous methodology for this data collection, allowing current data to be compared with data from previous years;
- 2) the volume of fuel covered by the other sizebands is relatively low;
- 3) the prices for all sizebands move in a similar manner (prices for the other sizebands are checked periodically to ensure that this is the case);
- 4) the largest sizeband for each fuel (IG for electricity and I6 for gas) does not show data from all countries and so would be of less use for comparison purposes.

The following tables show total UK volumes for industrial gas and electricity in 2013 by sizeband, and the percentage of total volume that each sizeband represents.

ELECTRICITY 2013		
Band	Consumption Volumes (MWh)	Percent of total volume
Band IA	10,756,692	8%
Band IB	25,290,172	19%
Band IC	15,378,385	11%
Band ID	29,435,092	22%
Band IE	15,910,010	12%
Band IF	9,453,412	7%
Band IG	30,245,100	22%
Total	136,468,863	

GAS 2013		
Band	Consumption Volumes (GJ)	Percent of total volume
Band I1	59,555,646	13%
Band I2	94,672,005	20%
Band I3	99,162,114	21%
Band I4	140,457,375	30%
Band I5	80,515,787	17%
Band I6	Not reported, as only 3 companies provide data	
Total	474,362,927	

5. IEA comparisons (electricity and gas)

Data Sources:

For Tables 5.3.1, 5.5.1, 5.7.1 and 5.9.1, the data used are collated and published by the International Energy Agency (IEA) in 'Energy Prices and Taxes'.

Methodology & data quality:

In the UK, domestic prices are calculated using an historic price and the change in the Consumer Price Index (CPI) for gas or electricity. Industrial electricity prices are taken from a monthly survey of electricity suppliers run by a statistical team within BEIS, and industrial gas prices are taken from the monthly Producer Price Index (PPI) series for gas. Other countries may have different methodologies, depending on the structure of their own internal markets (for example, prices may be regulated by government or supplied by a monopoly supplier, or there may be a market similar to that within the UK).

Prices are downloaded from the IEA in national currencies, and are converted to sterling using average annual exchange rates. Once all data has been downloaded and collated, the UK rank and median price are calculated and the tables are updated. Where data is not available, the price is estimated. In the table, estimated prices are shown in the cell in the spreadsheet, but in the printed headline output estimates are replaced by symbols: a '+' indicates that the price is likely to exceed the IEA median, a '+/-' indicates that the price is likely to be around the median, and a '-' indicates that the price is likely to be below the median. Price estimates are evaluated using historic data and price movements seen in neighbouring countries to those missing data. This methodology is intended to give a better indication of the UK rank and median when compared with those countries where up-to-date data is not available. In general, when data becomes available the use of +, - or +/- indicators is shown to have been appropriate.

6. Users of the data

The published international price comparison statistics are used by a variety of groups for a variety of purposes, including:

- Within BEIS (eg to answer official queries concerning energy prices across the EU and IEA);
- Academics and students from the UK and abroad (eg to compare different tax rates on energy across Europe);
- Industry and business consultants (eg to compare energy costs in different EU countries for specific industries);
- Media;
- Motoring organisations;
- Members of the public.