

International energy price comparisons

Introduction

This article provides an overview on the comparisons of gas and electricity prices in both the non-domestic and the domestic sectors in the European Union (EU) in 2017, in terms of the purchasing power standard per kWh (PPS/kWh) and in pounds Sterling per kWh (£/kWh).

The purchasing power standard (PPS) is an artificial currency unit which attempts to remove the effects of exchange rate variations and place comparisons on an equal footing. Theoretically, one PPS can buy the same amount of goods and services in each country. PPS are derived by dividing any economic aggregate of a country in national currency by its respective purchasing power parities¹.

Energy prices in Western European countries are generally lower when in PPS per kWh (PPS/kWh) than in pence per kWh (pence/kWh). The generally higher GDP in Western Europe offsets the typically higher cost of living in western European countries, with higher energy costs seen when data presented in a pence/kWh format.

The data used in this article are sourced from Eurostat at:

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

Summary

There can be significant differences between countries when the electricity and gas prices are compared in terms of the £/kWh and the PPS/kWh. For the UK, prices including taxes for the medium size band, compared to the rest of the EU28 in 2017:

- For non-domestic gas, the UK prices were the lowest in the EU28 on both the £/kWh basis and on the PPS/kWh basis;
- For non-domestic electricity, the UK prices were the fifth highest on a £/kWh basis but mid-ranked on a PPS/kWh basis;
- For domestic gas, the UK prices were the eleventh lowest on a £/kWh basis but second lowest on a PPS/kWh basis; and
- For domestic electricity, the UK prices were the eleventh highest on a £/kWh basis but the seventh lowest on a PPS/kWh basis.

When comparing prices across the EU28 using market exchange rates, in 2017 the UK prices including taxes were below the EU median for gas but above the EU median for electricity. When comparing the prices including taxes using the PPS, the UK were below the EU median for both gas and electricity.

¹ [https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Purchasing_power_parities_\(PPPs\)](https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Purchasing_power_parities_(PPPs))

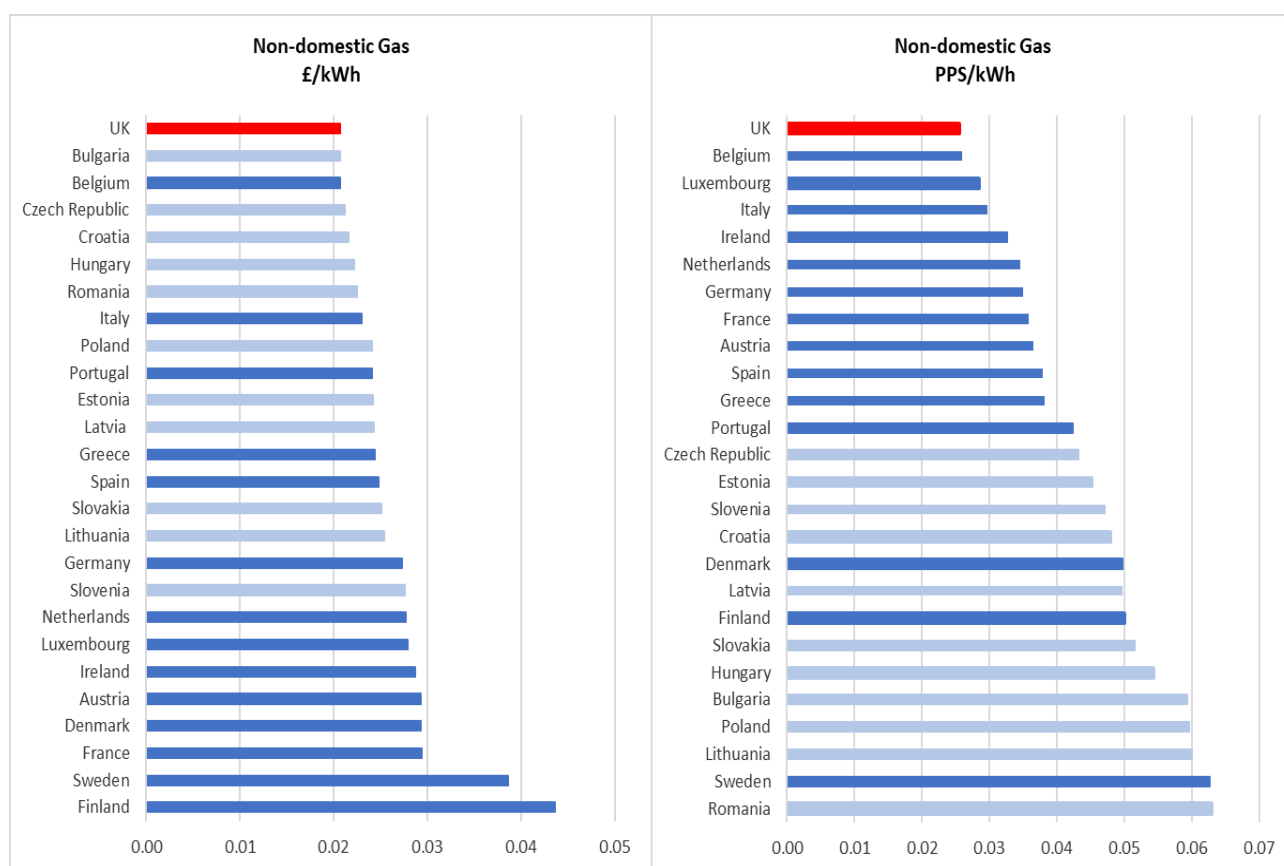
International non-domestic price comparisons

1.1 Non-domestic gas price comparisons in 2017 ⁽²⁾, ⁽³⁾, ⁽⁴⁾, ⁽⁵⁾

In 2017, the UK non-domestic gas prices for medium sized consumers, measured in £/kWh ranked the lowest in the EU28, 16 per cent below the median. When measured in PPS/kWh, the UK gas prices were also the lowest in the EU28, 42 per cent below the median.

Chart 1 below shows the relative non-domestic gas prices in pounds sterling per kWh, converted using market exchange rates and prices in PPS per kWh in 2017. The EU15 countries within the EU28 member states are represented in bold. When comparing the prices in pounds, the most expensive end of the scale is dominated by countries from within the EU15 while the cheapest end consists mainly of countries from the other EU28 countries. However, when measured using PPS, all but three of the EU15 countries, namely Sweden, Finland and Denmark were at the lower end of the scale.

Chart 1 – Non-domestic gas prices in the EU



When comparing prices over time, changes in the market exchange rates must be taken into account. Between 2016 and 2017, using the market exchange rates, UK non-domestic gas prices fell by 6.2 per cent from 2.20 pence/kWh to 2.07 pence/kWh whilst the median price for the remaining EU countries, excluding the UK, rose by 1.0 per cent from 2.45 pence/kWh to 2.48 pence/kWh (see Table 1). This was mostly due to the depreciation of the pound, which fell from an average euro/sterling rate of 1.22 in 2016, to an average of 1.14 in 2017 (a 6.8 per cent depreciation).

² Gas prices for non-domestic medium consumers: consuming 2,778 – 27,777 MWh per annum.

³ Prices include all taxes where not refundable on purchase.

⁴ Source: Eurostat Statistics in Focus and database for all data in this article.

⁵ Data are not published by Eurostat for Cyprus and Malta – there is limited gas use by non-domestic consumers in both these countries

The year-on-year changes in prices, in euros terms, for the EU median fell by 5.9 per cent. In pound terms the EU median prices increased by 1.0 per cent. This was mostly due to the rate used to convert the price from Euros to pounds being 6.8 per cent lower than in 2016.

Table 1: UK and EU non-domestic gas price and PPS comparison

	UK			Median of the rest of the EU		
	2016	2017	% change	2016	2017	% change
Pence/kWh	2.203	2.067	-6.2%	2.455	2.478	+1.0%
Euro cents/kWh	2.696	2.359	-12.5%	3.004	2.828	-5.9%
PPS	0.028	0.026	-9.5%	0.047	0.045	-3.6%

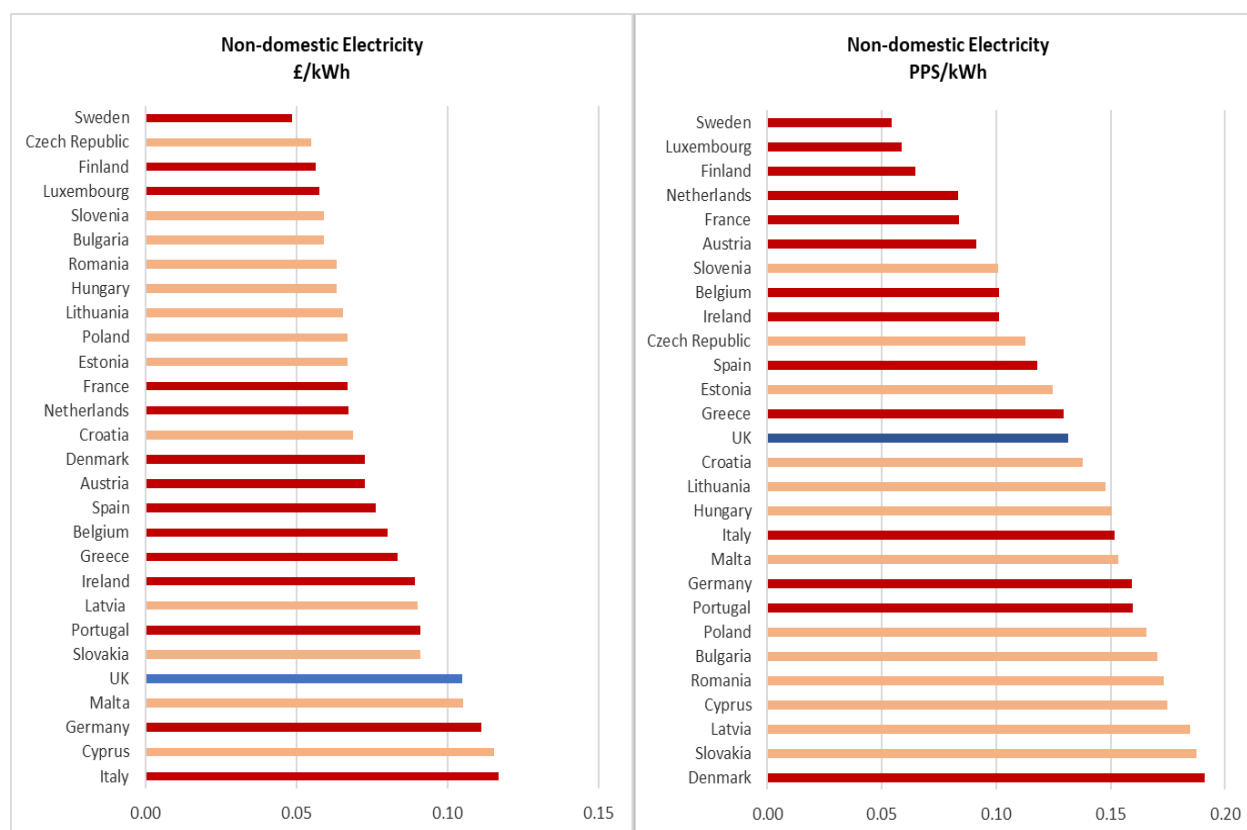
When measured using PPS, changes in market exchange rates do not affect the prices as the PPS measurements are comparable across countries. Using this measurement, the UK price fell by 9.5 per cent and the median price of the remaining EU countries, excluding the UK, fell by 3.6 per cent indicating that in 2017 the UK prices fell by a much higher rate than the rest of the EU once changes in the market exchange rates have been eliminated.

1.2 Non-domestic electricity price comparisons in 2017 ^{(6), (7)}

For non-domestic electricity prices for medium sized consumers, measured in £/kWh, in 2017 the UK ranked fifth highest within the EU28, 48 per cent above the EU28 median. However, when measured in PPS/kWh the UK electricity prices were ranked middle in the EU28, 2.5 per cent below the median.

As can be seen from chart 2 below, when measured using PPS, the lowest energy prices were mainly from the EU15 countries (highlighted in bold).

Chart 2 – Non-domestic electricity prices in the EU



⁶ Electricity prices for non-domestic medium consumers: consuming 2,000 – 19,999 MWh per annum

⁷ Prices include all taxes where not refundable on purchase

Special feature – International energy price comparisons

Between 2016 and 2017, as a result of the market exchange rates the UK prices rose by 4.8 per cent while the median price for the remaining EU countries rose by 3.3 per cent (see Table 2). As with the non-domestic gas prices, the EU prices when converted to pounds are impacted by the market exchange rates. With the PPS, this impact from the market exchange rates are eliminated and as a result the UK PPS prices rose by 0.9 per cent whilst the median price of the remaining EU countries fell by 2.5 per cent in 2017.

Table 2: UK and EU non-domestic electricity price and PPS comparison

	UK			Median of the rest of the EU		
	2016	2017	% change	2016	2017	% change
Pence/kWh	10.002	10.481	+4.8%	0.067	0.069	+3.3%
Euro cents/kWh	12.242	11.959	-2.3%	0.081	0.078	-3.7%
PPS	0.130	0.131	+0.9%	0.142	0.138	-2.5%

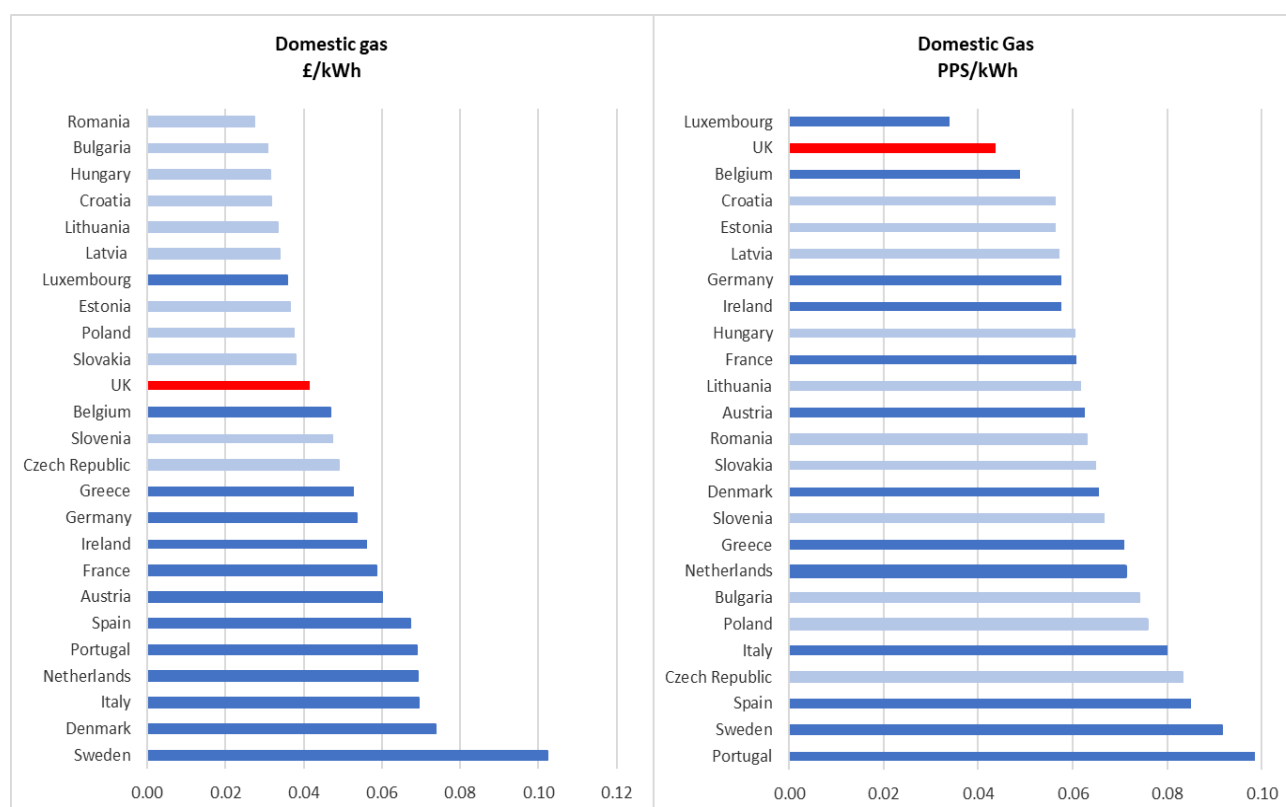
International domestic price comparisons

2.1 Domestic gas price comparisons in 2017 ⁽⁸⁾, ⁽⁹⁾

In 2017 the UK domestic gas prices for medium sized consumers, measured in £/kWh, ranked eleventh lowest within the EU28, 12 per cent below the EU28 median. However, when measured in PPS/kWh, the UK gas prices were second lowest in the EU28, 31 per cent below the median.

As can be seen from chart 3 below, of the 12 EU countries whose prices rank below the EU28 PPS/kWh median, 7 were from the EU15 block. However, in terms of the market exchange rates measure only three of the EU15 countries were below the EU28 £/kWh median, namely Luxembourg, Belgium and the UK.

Chart 3 – Domestic gas prices in the EU



⁸ Gas prices for domestic medium consumers: consuming 5,557 – 55,557 kWh per annum

⁹ Prices include all taxes

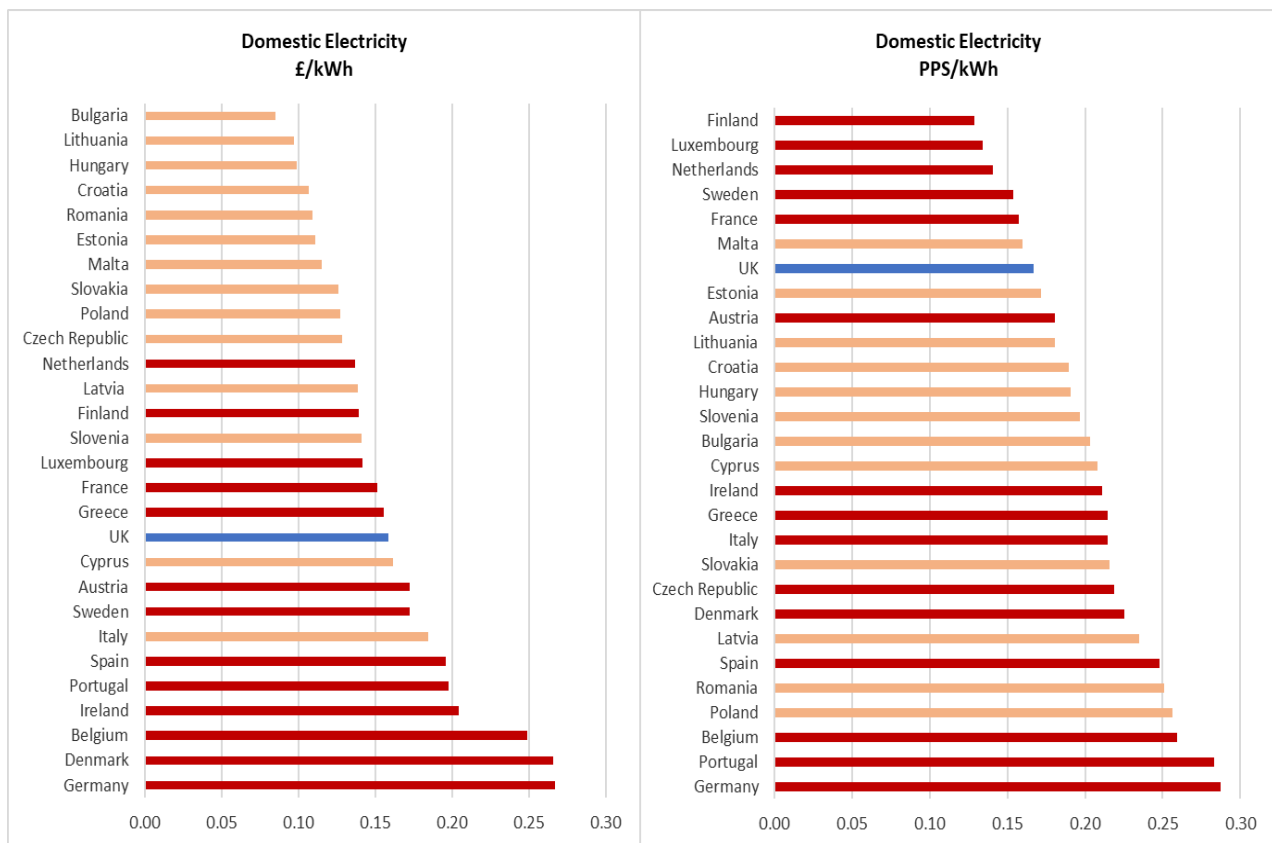
The UK domestic gas prices fell by 3.4 per cent in 2017 compared to 2016 when measured using the market exchange rates. The median price of the rest of the EU countries in terms of similar measure increased by 2.1 per cent over the same time period. The difference was mostly due to the depreciation of the pound between 2016 and 2017. In terms of the PPS which eliminates the impact of the market exchange rates, the UK domestic gas prices fell by 6.3 per cent while the EU median (excluding the UK) fell by 4.3 per cent.

2.2 Domestic electricity price comparisons in 2017 ⁽¹⁰⁾, ⁽¹¹⁾

In 2017 the UK domestic electricity prices for medium sized consumers, measured in £/kWh, ranked eleventh highest within the EU28, 12 per cent above the EU28 median. However, when measured in PPS/kWh, the UK electricity prices were the seventh lowest in the EU28, 19 per cent below the median.

In 2017 all of the EU15 countries except Finland and the Netherlands prices were above the median £/kWh price (chart 4). However, when measured in PPS, half of the EU15 countries were above the corresponding median price.

Chart 4 - Domestic electricity prices in the EU



Compared to the previous year, in 2017 using the market exchange rates, the UK domestic electricity prices rose by 2.7 per cent whereas the median for the other EU countries rose by 6.2 per cent. In PPS terms, the UK prices fell by 0.4 per cent whilst the median for the rest of the EU countries fell slightly by 0.1 per cent.

¹⁰ Electricity prices for domestic medium consumers: consuming 2,000 – 5,000 kWh per annum

¹¹ Prices include all taxes

Conclusion

The PPS provides an alternative method of making international comparisons of energy prices. Using the PPS measure, both the UK non-domestic and domestic energy prices including taxes in 2017 were below the corresponding EU28 median.

With regard to the gas prices for both non-domestic and domestic, the UK prices including taxes were much lower than the EU28 median in terms of the PPS measure than in terms of the exchange rates measure. The electricity prices on the other hand, for both non-domestic and domestic, whilst above the EU28 median in terms of the exchange rates measure, were below the EU28 median in terms of the PPS measure.

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