

International energy price comparisons

Introduction

This article looks at international comparisons in the EU for gas and electricity prices to both the non-domestic and the domestic sectors. It differs from Section 5 of Quarterly Energy Prices (QEP) as comparisons are also made in Purchasing Power Standard per kWh, whereas QEP only compares energy prices in pence per 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, despite, price differences across borders meaning that different amounts of national currency units are needed to purchase the same goods and services. PPS are derived by dividing any economic aggregate of a country in national currency by its respective purchasing power parities⁽¹⁾.

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.

All data used in this article are sourced from Eurostat, the statistical office of the EU. Data are available at <http://ec.europa.eu/eurostat/web/energy/data/database>.

Summary

There are some significant differences between countries when moving from the simple price £/kWh basis to the PPS basis. For the UK, and when compared to the EU 28:

- For non-domestic gas, the UK moves from the eighth lowest cost on a £/kWh basis to the second lowest cost on a PPS/kWh basis;
- For non-domestic electricity, the UK moves from the third most expensive on a £kWh basis to the twelfth lowest on a PPS/kWh basis;
- For domestic gas, the UK moves from the eleventh lowest cost on a £kWh basis to the second lowest on a PPS/kWh basis; and
- For domestic electricity, the UK moves from the tenth highest cost on a £kWh basis to the seventh cheapest on a PPS/kWh basis.

When comparing prices across the EU28 using market exchange rates, the UK prices are generally below the median for gas and above the median for electricity. When the comparisons correct for differences between countries using the PPS, the UK is below the median for both gas and electricity. UK rankings, when measured using market exchange rates, improved between 2015 and 2016. This is due to the depreciation of the pound.

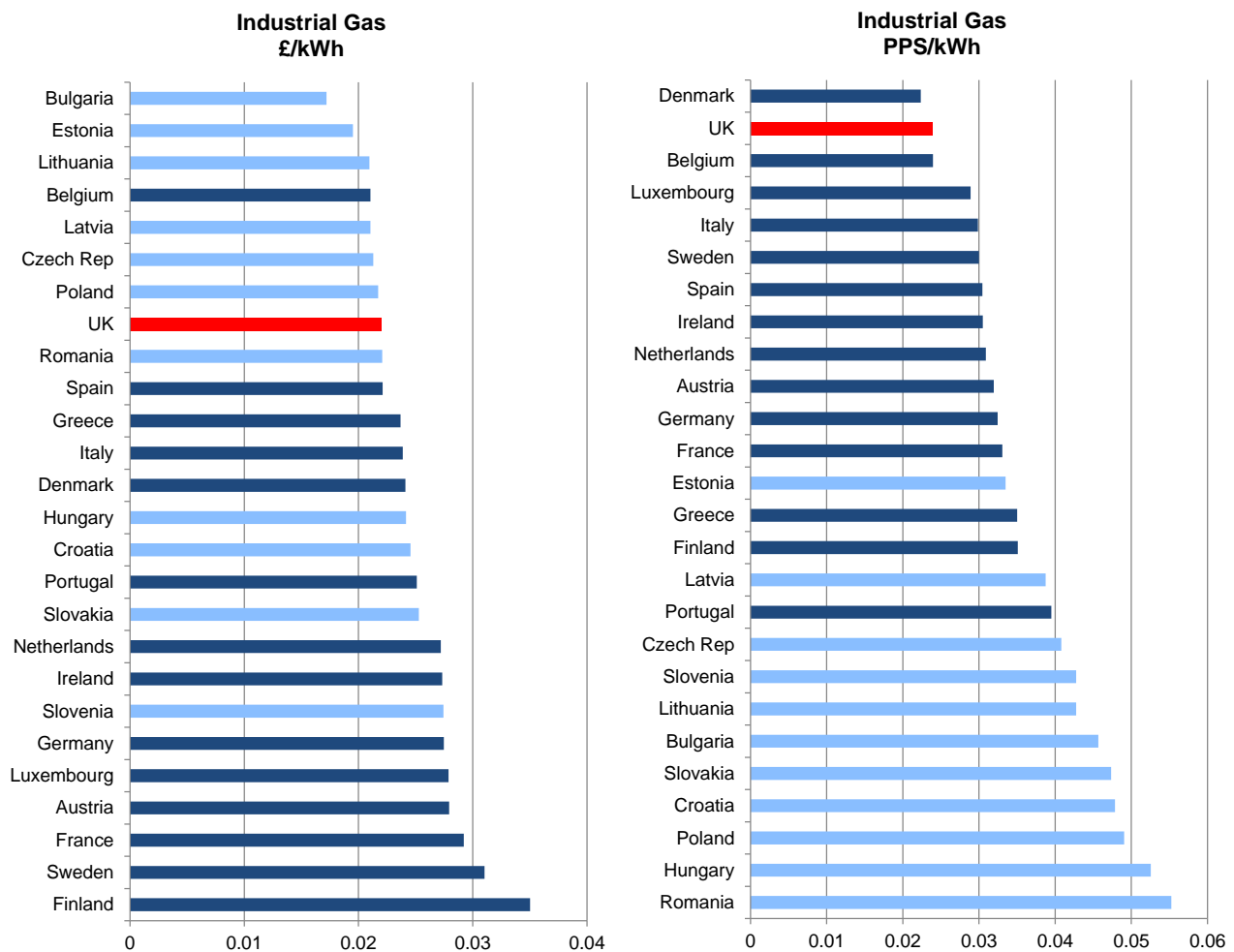
¹ [http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Purchasing_power_parities_\(PPPs\)](http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Purchasing_power_parities_(PPPs))

International non-domestic price comparisons

1.1 Non-domestic gas price comparisons in 2016 ^{(2), (3), (4), (5)}

The UK ranks eighth lowest within the EU28 for non-domestic gas prices for medium sized consumers, measured in £/kWh. However, when measured in PPS/kWh UK gas prices are the second lowest in the EU28, 30 per cent below the median.

The charts below shows the relative prices in pounds, sterling, converted using market exchange rates and prices converted using PPS. Different shades have been used to differentiate between EU15 and the additional EU28 member states. When comparing the prices in pounds, the more expensive end of the scale is dominated by countries within the EU15 with the cheapest prices found in countries from the EU28. However, when measured using PPS, of those with prices at or below the median, all but one are EU15 countries.



When comparing prices over time, changes in the market exchange rates must be considered. Between 2015 and 2016, when measured using market exchange rates, UK prices fell by 14 per cent from 2.57p/kWh to 2.20p/kWh. The median price of the remaining EU countries, excluding the UK, fell by just 6.5 per cent from 2.58p/kWh to 2.42p/kWh. However, this was due to the depreciation of the pound, moving from an average Euro/sterling rate of 1.38 in 2015, to an average of 1.22 in 2016 (an 11 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

When the year-on-year changes in prices are compared in Euros rather than in pounds, the median price of the EU fell by 17 per cent. This is much greater than the 6.5 per cent fall seen when converted to pounds, as seen in table 1 below. This is because the rate that has been used to convert the price from Euros to pounds is 11 per cent lower than in 2015.

Table 1: Prices in the UK and EU in 2015 and 2016 in pounds and Euros

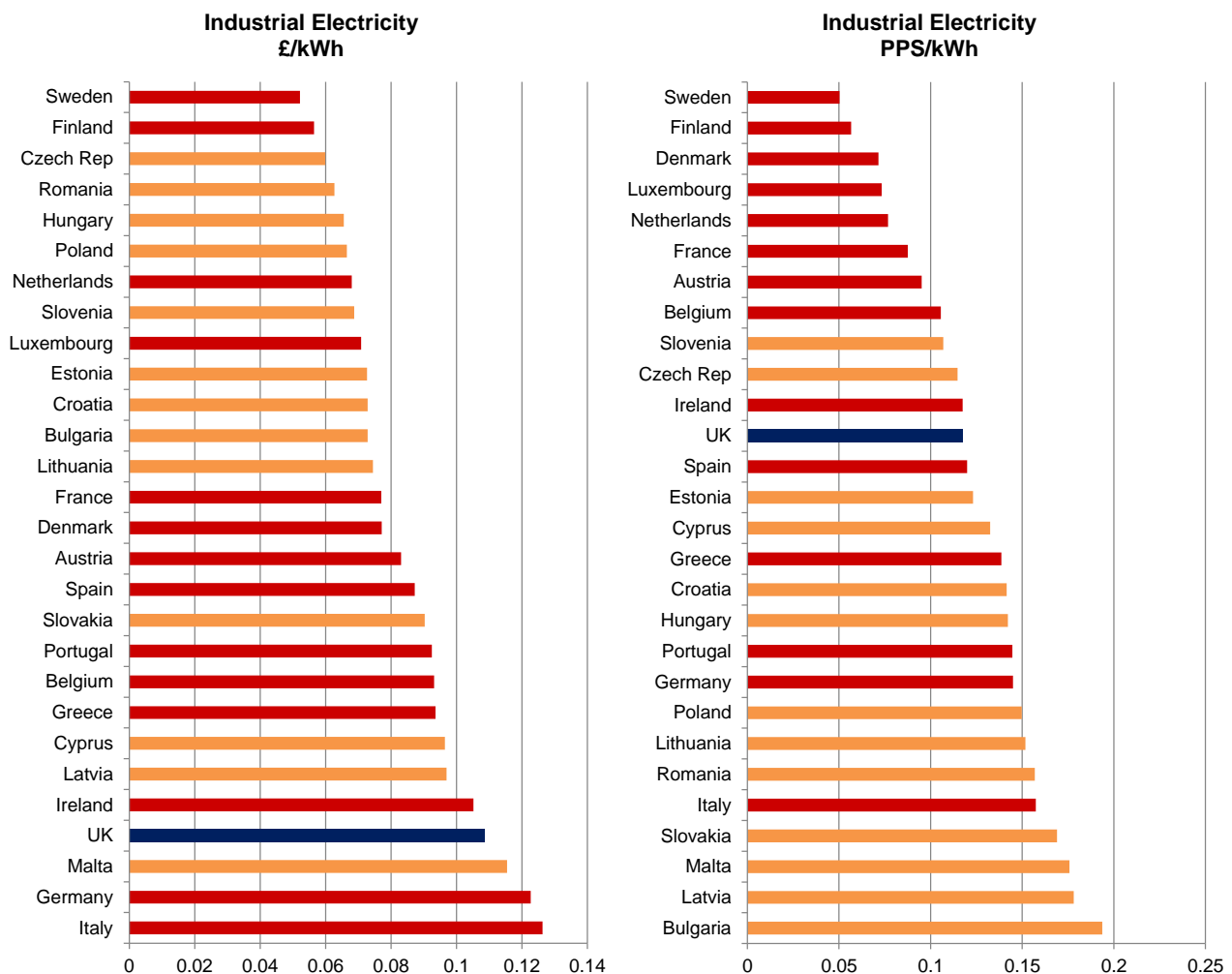
	UK			Rest of the EU		
	2015	2016	% change	2015	2016	% change
£	2.57p/kWh	2.20p/kWh	-14.3%	2.58p/kWh	2.42p/kWh	-6.5%
Euro	3.54c/kWh	2.70c/kWh	-23.7%	3.56c/kWh	2.96c/kWh	-16.9%

When measured using PPS, the changes in market exchange rate do not affect the prices as the PPS measurement is comparable across each country. Using this measurement, the UK price fell by 13 per cent and the median price of the remaining EU countries, excluding the UK, fell by 14 per cent. This shows that the UK prices fell by a broadly similar rate to the rest of the EU once the changes in the market exchange rates have been eliminated.

1.2 Non-domestic electricity price comparisons in 2016 ^{(6), (7)}

For non-domestic electricity prices for medium sized consumers, measured in pence/kWh, the UK ranks fourth highest within the EU28, 41 per cent above the EU28 median. However, when measured in PPS/kWh UK electricity prices are twelfth lowest in the EU28, 8.0 per cent below the median.

As can be seen from the charts below, when measured using PPS, the lowest priced energy comes from mainly countries within the EU15.



Between 2015 and 2016, when measured using market exchange rates UK prices fell by 0.6 per cent. This contrasts with an increase in the median price of the remaining EU countries of 7.3 per cent. However, as with the industrial gas prices, the EU prices when converted to pounds are impacted by the market exchange rates. When measured using PPS, the impact of changes in the market exchange rates are excluded. The UK prices fell by 0.6 per cent whilst the median price of the remaining EU countries actually fell, rather than increased, by 8.0 per cent.

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

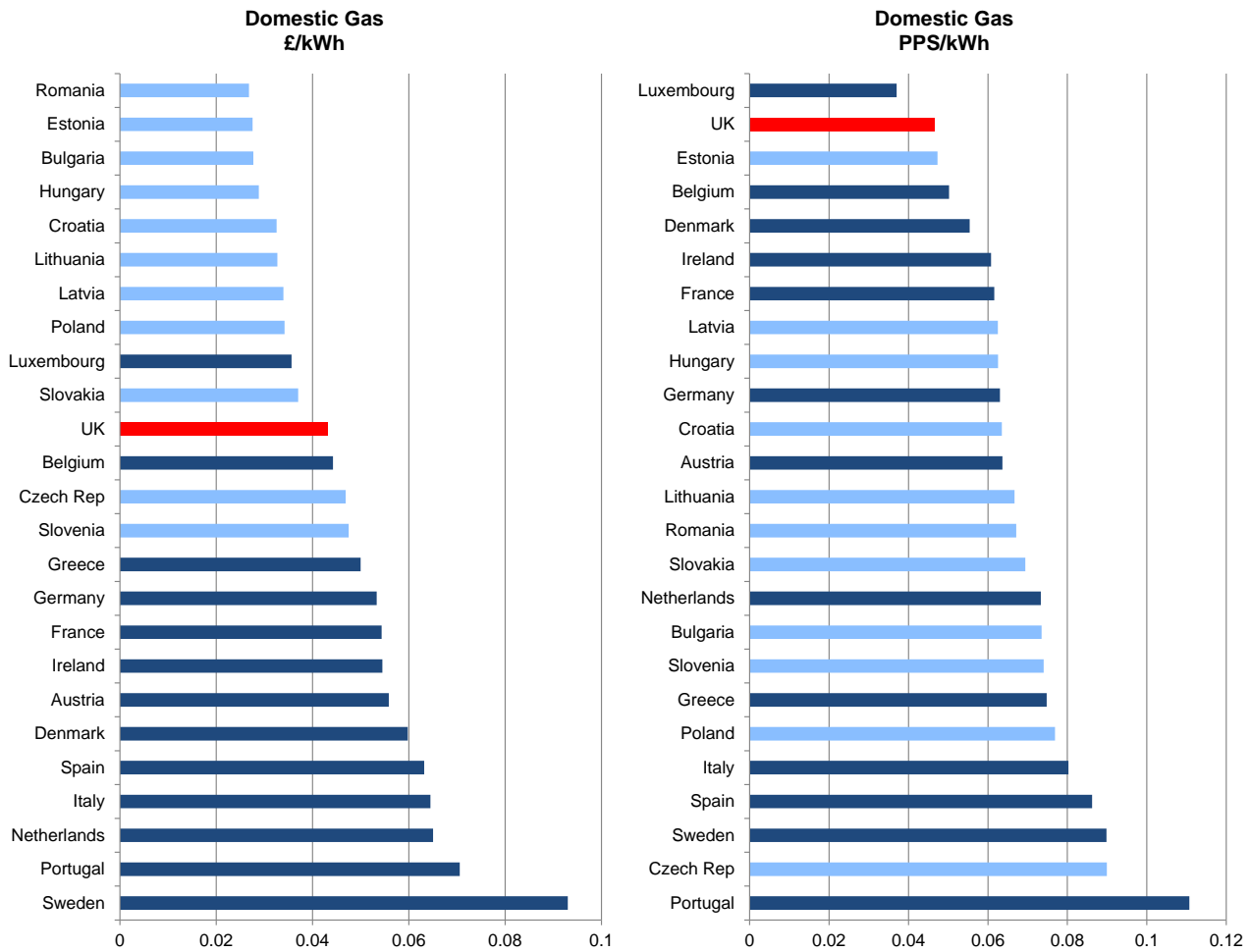
⁷ Prices include all taxes where not refundable on purchase

International domestic price comparisons

2.1 Domestic gas price comparisons in 2016 ^{(8), (9)}

For domestic gas prices for medium sized consumers, measured in pence/kWh, the UK ranks eleventh lowest within the EU28, 8.2 per cent below the EU28 median. However, when measured in PPS/kWh UK gas prices are second lowest in the EU28, 30 per cent below the median.

As can be seen from the charts below, 8 of the 12 countries whose prices rank below the EU28 Median, when measured using PPS, are in the EU15. This is only true of three EU15 countries when measured in GBP, Luxembourg, Belgium and the UK.



The UK prices fell by 8.9 per cent in 2016 compared to 2015 when in pounds. The median price of the rest of the EU countries increased by 6.5 per cent over the same time period. This difference is due to the depreciation of the pound between 2015 and 2016 as discussed in the industrial gas section. When measured using PPS to eliminate the impact of the changes in the market exchange rates, the UK price again fell by 8.9 per cent whereas the EU median excluding the UK fell by a 7.0 per cent.

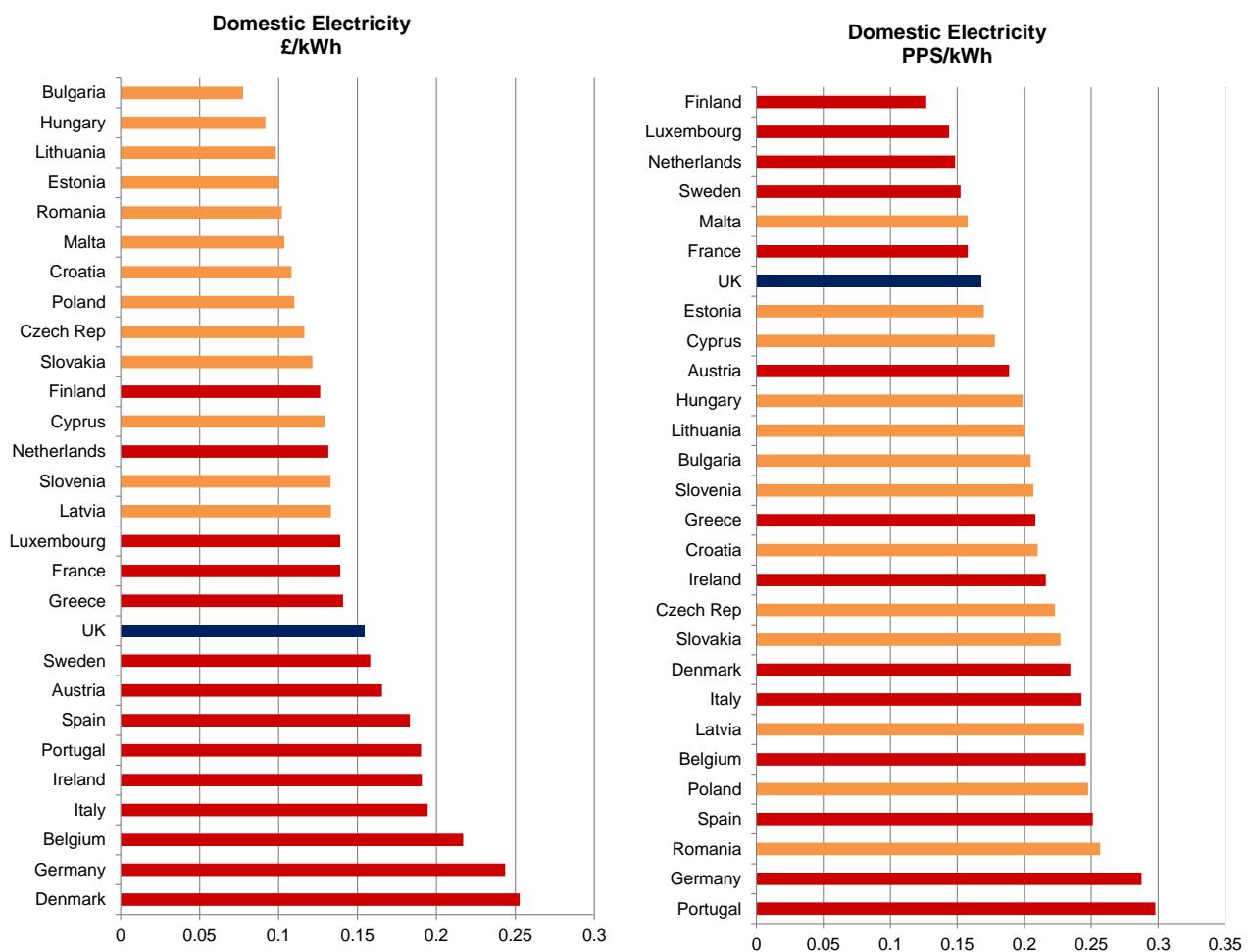
⁸ Gas prices for domestic medium consumers: consuming 5,557 – 55,557 kWh per annum

⁹ Prices include all taxes

2.2 Domestic electricity price comparisons in 2016 ^{(10), (11)}

For domestic electricity prices for medium sized consumers, measured in pence/kWh, the UK ranks tenth highest within the EU28, 16 per cent above the EU28 median. However, when measured in PPS/kWh UK electricity prices are seventh cheapest in the EU28, 19 per cent below the median.

When measured in pence per kWh, the majority of the EU15 prices are above the median price. However, when measured in PPS, the prices for the EU15 countries are distributed more evenly with 5 of the 6 lowest from the EU15.



Similarly to domestic gas, when comparing prices using the market exchange rate, UK prices have fallen (by 1.1 per cent) whereas the median of all other EU countries actually increased (by 9.1 per cent) in 2016 compared to 2015. By comparing in PPS, the impact of the change in exchange rates are excluded and UK prices fell again by 1.1 per cent whilst the median remained broadly similar with a slight increase of 0.5 per cent.

¹⁰ Electricity prices for domestic medium consumers: consuming 2,000 – 19,999 kWh per annum

¹¹ Prices include all taxes

Conclusion

Using Purchasing Power Standards allows an alternative method of making international comparisons of energy prices. Using PPS, for both non-domestic and domestic, energy prices in the UK are ranked more favourably amongst the EU28 compared to the ranking based on pence per kWh.

Gas prices, for both UK non-domestic and domestic, move from being ranked around the EU median when measured in pence per kWh, to one of the lowest in PPS. Similarly, electricity prices for the UK move from being amongst the highest, to being below the EU median when PPS are used to convert currencies.

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