Household Energy Price Index for Europe

January 29, 2016

January Prices Just Released

The most up-to-date picture of European household electricity and gas prices: VaasaETT and two leading European energy market authorities collaborate to track monthly energy prices in 29 European countries

Energie-Control Austria, the Hungarian Energy and Public Utility Regulatory Authority (MEKH) and VaasaETT are delighted to publish the results of our study of residential electricity and gas prices now covering 29 European countries. VaasaETT was recently commissioned by Hungary's MEKH to expand the coverage of HEPI to the remaining 6 countries that were not yet part of our study, namely, Estonia, Cyprus, Latvia, Lithuania, Malta, and Bulgaria. Our price survey now includes all of the 28 EU member countries in addition to Serbia who is a full candidate to membership. We would like to use this opportunity to thank the energy market authorities of the newly included countries for their time and cooperation to ensure the quality and accuracy of the data.

If you would like to know more about the latest developments in residential energy prices, visit our project webpage at www.energypriceindex.com and subscribe to the free monthly update of the HEPI index for Europe.

In This Month's Edition

HEPI price trend – European energy prices stable around their all-time high

Significant changes in both electricity and gas market

Important decrease of electricity prices in Amsterdam, Madrid and Bucharest; price increase in Vienna and Copenhagen

Important increase in gas prices in Stockholm, Amsterdam and Prague; price decrease in Tallinn and Zagreb

Prices at PPS highest in Central and Eastern Europe

Energy Price breakdown – Market forces represent less than half of the energy bill

European energy price development

Figure 1 shows the evolution of residential energy and distribution prices **excluding taxes** between January 2009 and January 2016 in 15 European capital cities. The index is calculated by weighing prices in each of the capital cities by the respective national electricity or gas residential consumption.

Residential electricity prices steadily decreased over the first half of 2009 and reached a trough at 96 index points in June 2009 as the economic crisis took its toll on demand and wholesale prices plummeted. Prices started to recover in the second half of 2009 together with (temporary) green shoots in economic activity and a general feeling that the worst of the crisis was behind us. They have been on an upward trend since then. The index for electricity reached its highest value in January 2015 at 121 index points. The index currently hovers around its all-time high at 117 index points.

The economic downturn which impacted energy demand and wholesale prices in 2009 is much more visible in the development of residential gas prices. The gas price index dropped significantly in 2009 and reached its lowest value only in February 2010 at 82 index points (eight months after the lowest value in the electricity price index). Retail prices started to recover in the winter of 2010 when a cold wave hit many parts of Europe. The index steadily increased until the beginning of 2013. It remained between 105 and 110 index points ever since despite a significant drop in natural gas prices on international markets during the year 2015. It currently stands at 104 index points.

Figure 1 Evolution of residential energy and distribution prices excluding taxes in the EU-15

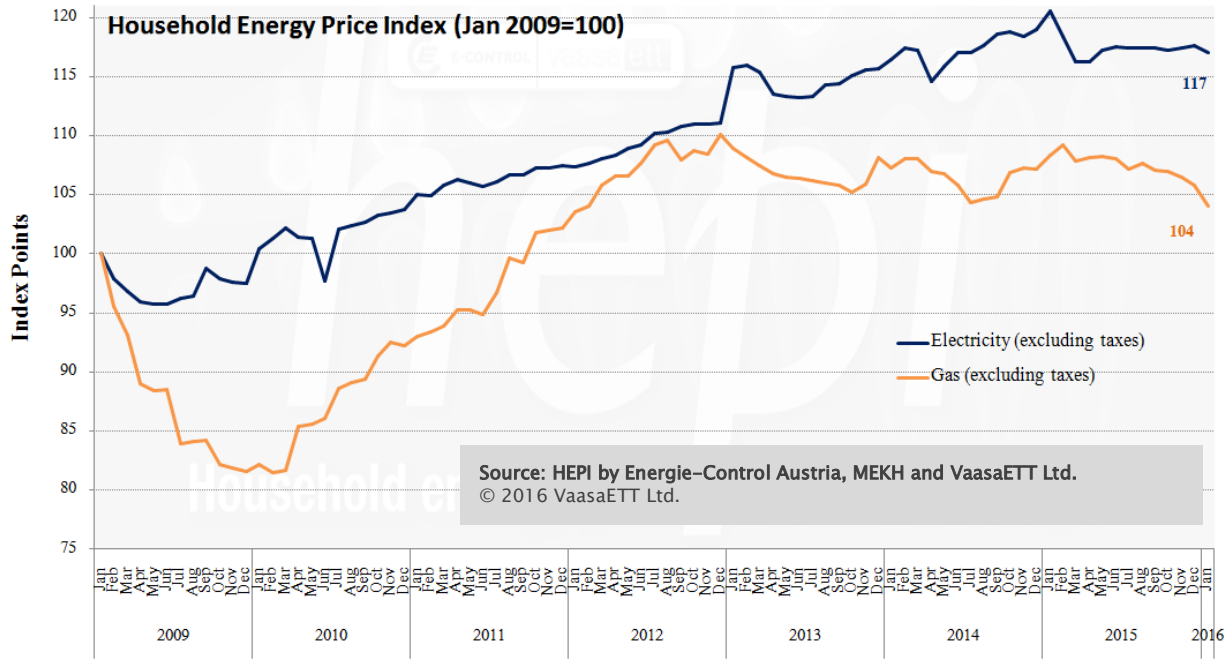
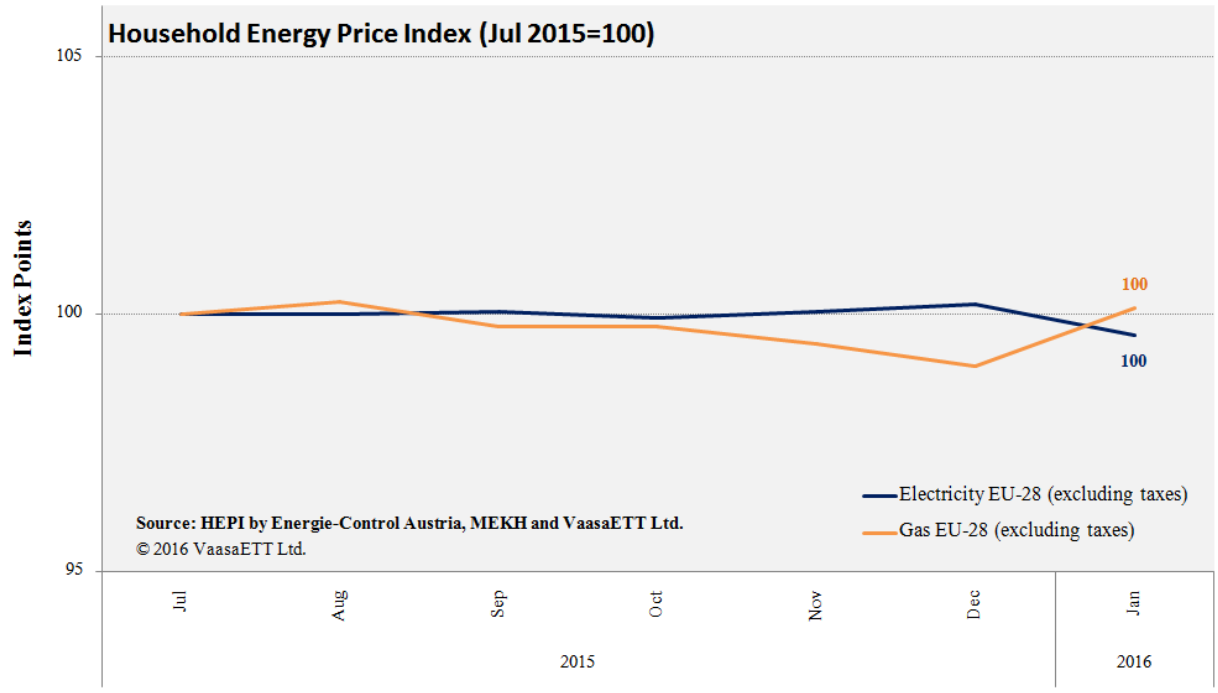


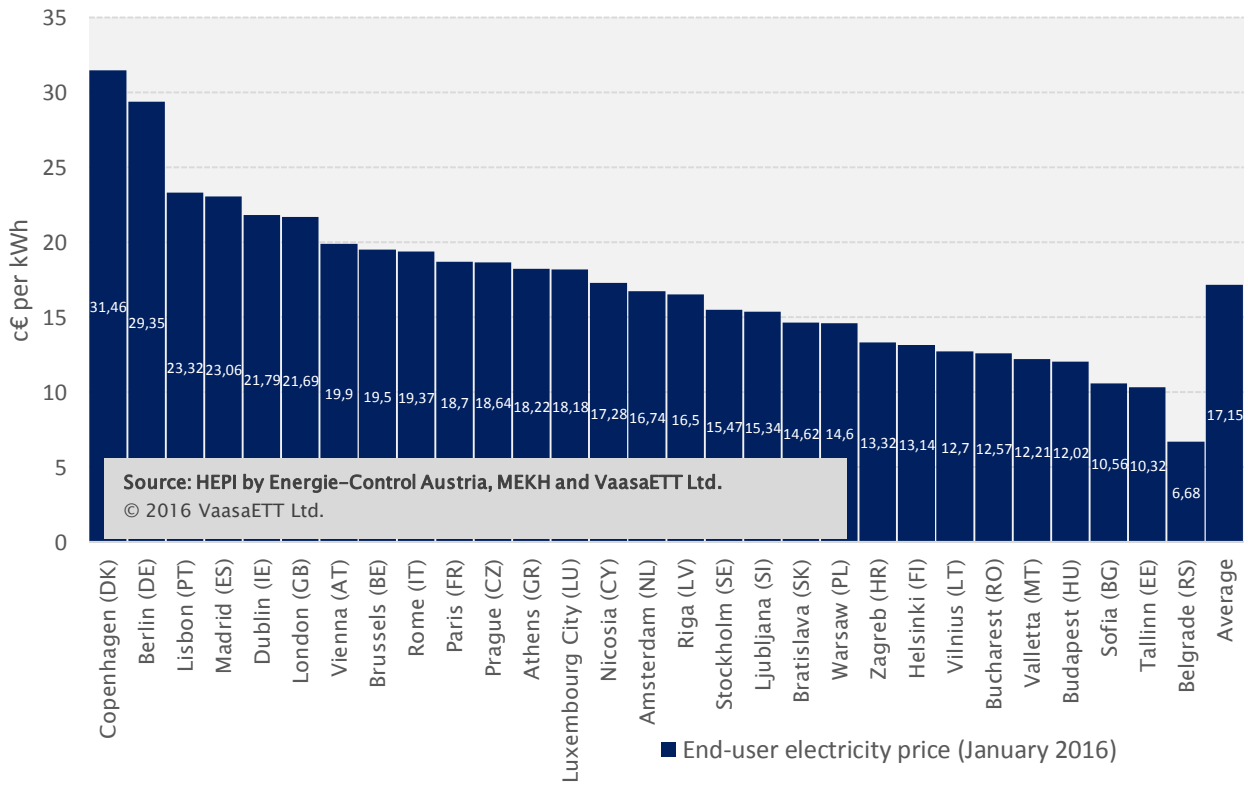
Figure 2 Evolution of residential energy and distribution prices excluding taxes in the EU-28



Residential electricity prices

Figure 3 shows the end-user price of electricity in 29 European capital cities as of January 1st 2016. It shows that depending on where a customer lives in the EU, the price that a customer has to pay per kWh of electricity can vary by as much as 205%. If we include Belgrade, the price varies by a staggering ratio of 4.7. Household customers in Copenhagen and (since January 2013) Berlin pay by far the highest prices in Europe (though the price of energy represents only a small portion of the total price, the lion's share being tax, in fact), while inhabitants of Belgrade pay the least followed by inhabitants of Tallinn and Sofia. In nominal terms, prices in the capital cities of Central and Eastern Europe (CEE) tend to be lower than average; Prague is the only capital city among the CEE countries in which the price of electricity is above European average.

Figure 3 Residential electricity prices including taxes (January 2016)



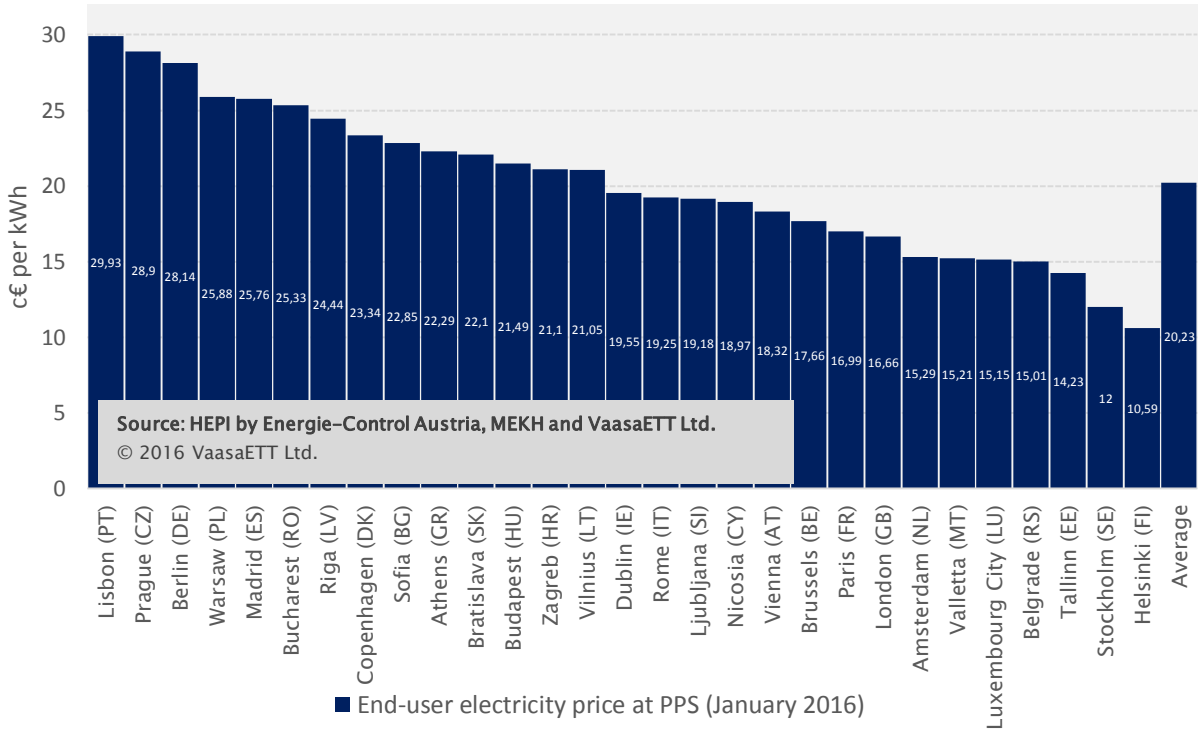
Source: HEPI by Energie-Control Austria, MEKH and VaasaETT Ltd.

Many changes took place in the electricity market this month; the most significant ones were:

- A 14% price decrease in Amsterdam and a 6% decrease in Madrid, due to the decrease in both energy and distribution component.
- A 5% decrease in Bucharest, due to the decrease of VAT starting from January 2016.
- A 4% decrease in Luxembourg due to the decrease in energy component and energy taxes.
- A 3.5% increase in Vienna and Copenhagen.
- A 2% decrease in Brussels, Prague and Tallinn.
- A 2% increase in Paris.

When adjusted to purchasing power in each country[1], the picture changes dramatically. Indeed, most CEE countries end up with prices which are above the European average (Figure 4). This month, Lisbon is the most expensive electricity followed by Prague and Berlin. On the other end of the spectrum, Helsinki has the cheapest electricity at PPS followed by Stockholm, Tallinn and Belgrade.

Figure 4 Residential electricity prices including taxes at PPS (January 2016)



Source: HEPI by Energie-Control Austria, MEKH and VaasaETT Ltd.

[1]PPS is an artificial common reference currency unit that eliminates price level differences between countries. One PPS thus buys the same given volume of goods and services in all countries. It is developed by Eurostat to accurately compare prices across Europe.

Residential gas prices

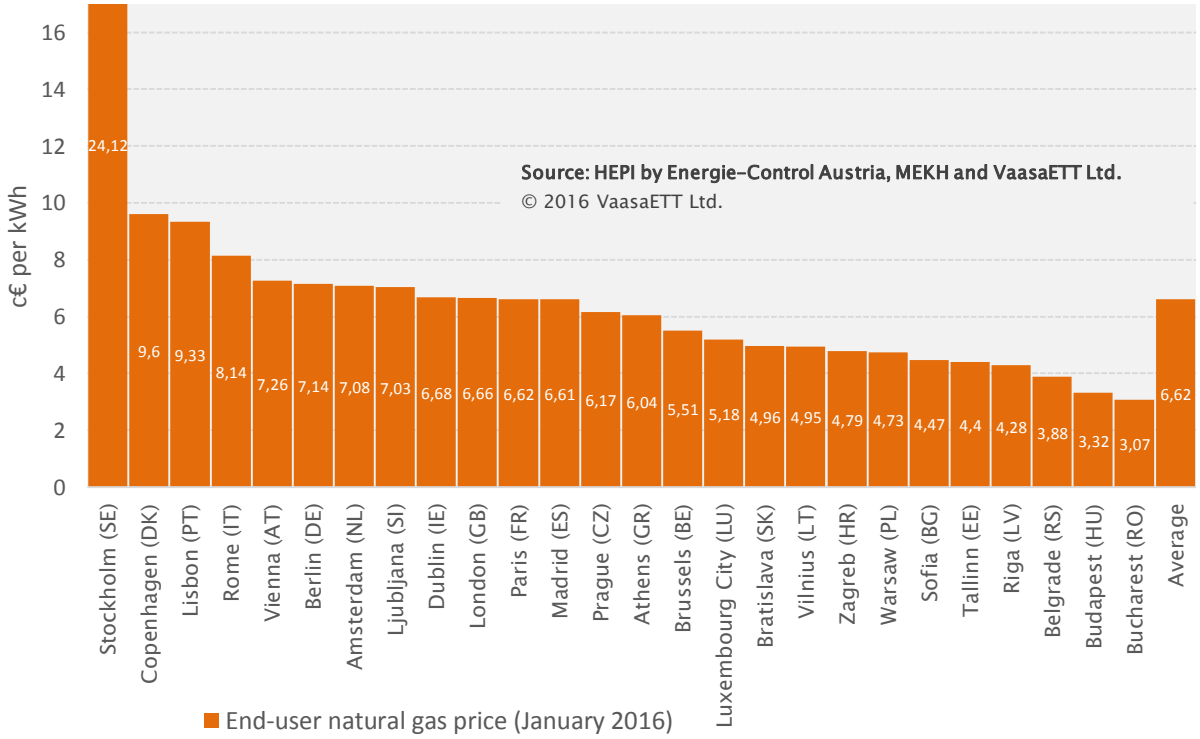
Figure 5 shows the end-user price of natural gas in 26 European capital cities as of January 1st 2016[2]. The highest price by very far is paid by inhabitants of Stockholm (nearly twice as much as the second most expensive city for gas). This can be explained by the small size of the market; there are only 33,000 household gas customers in the whole of Sweden[3]. Not accounting for Stockholm, Copenhagen becomes the most expensive city for gas where prices are 3.1 times as high as in Bucharest, the cheapest city for gas. Even more clearly than for electricity, household natural gas is cheapest in the CEE countries.

This month included a lot of changes for gas prices as well; the most significant ones are summarised below:

- 16% increase in Stockholm, due the increase in Gas Operations charge that is included in the energy component.
- 8.5% increase in Amsterdam, due to the increase in energy taxes.
- 7% decrease in Tallinn due to the decrease of the energy component.
- 7% increase in Prague, due to the increase in both energy and distribution component.
- 5% decrease in Zagreb, due to the decrease in distribution component.
- 4% decrease in Riga, due to the decrease of the energy component.
- 3.5%-4% decrease in Brussels, Warsaw, Bucharest and Bratislava.

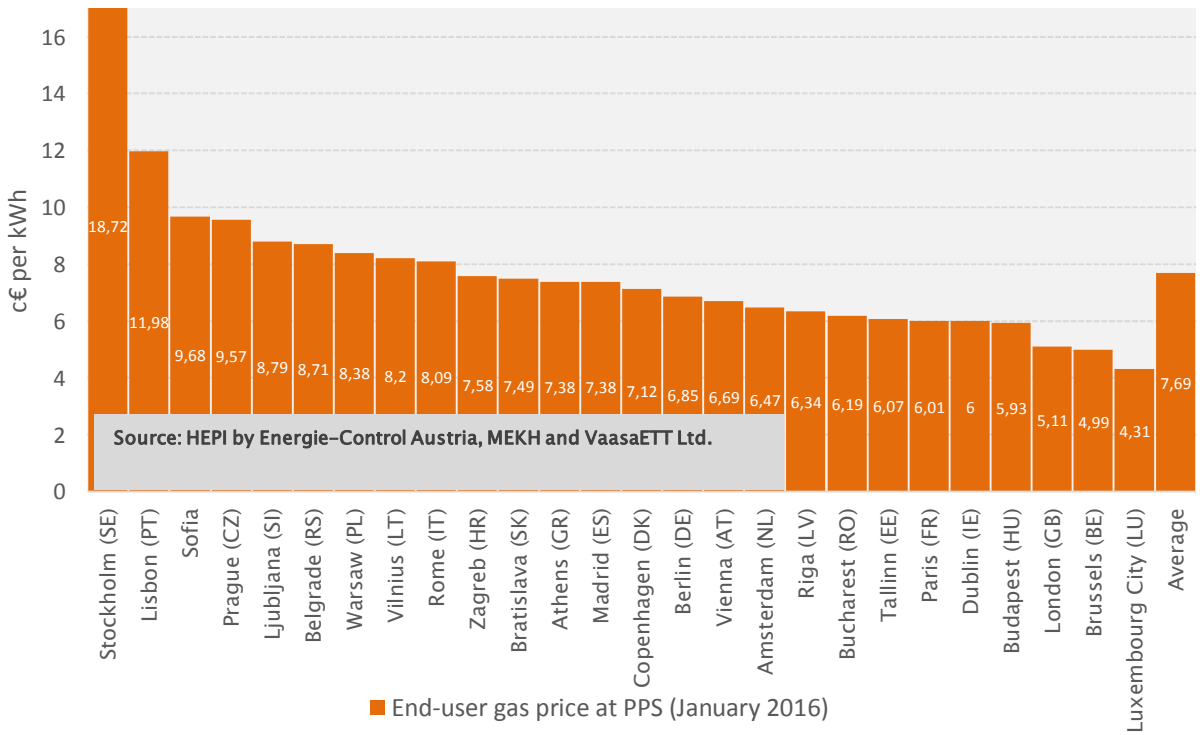
[2] Please note that Helsinki, Nicosia, and Valletta have been left out of this analysis on gas prices as there is virtually no residential gas market in these cities.
[3] The Swedish electricity and natural gas markets 2013 (2014: 51).

Figure 5 Residential gas prices including taxes (January 2016)



Prices at PPS offer a very different outcome. Stockholm has the highest adjusted price followed by Lisbon and Sofia, while Luxembourg, London and Brussels have Europe's lowest adjusted prices for gas. Generally speaking, the CEE countries no longer exhibit Europe's lowest gas prices when adjusted to PPS. (Figure 6)

Figure 6 Residential gas prices including taxes at PPS (January 2016)



Energy price breakdown

The breakdown of end-user energy prices into four components (energy, distribution, energy taxes and VAT) also shows major variations (Figures 7 and 8). Our survey shows that on average, the energy price component (including retail margins) represents about 40% of the end-user price of electricity, distribution 31%, energy taxes 12% and VAT 16%, while energy (including retail margins) represents 50% of the end-user price of natural gas, distribution 26%, energy taxes 7% and VAT 16%.

Copenhagen is a very unusual case; the cost of energy as a commodity represents just 10% of the end-user electricity price, by far the lowest of all surveyed cities, whereas the energy taxes represent an astonishing 49% (over three times Europe's average) and 69% if we include VAT. A similar (albeit to a lesser extent) case is Berlin where since the introduction of the *Energiewende*, the energy tax component represents 30% of the end-user price of electricity.

Overall, the results show that market forces represent only about half of the end-user price (both for electricity and gas) whereas national fiscal and regulatory elements are responsible for the other half through distribution tariffs, energy taxes and VAT. In places where the energy component (the competitive part of the price) is lower, so is the incentive for customers to look for more competitive offers[4].

[4]You may download the latest version of VaasaETT's survey of utility customer switching at http://www.utilitycustomerswitching.com.

Figure 7 Residential electricity price breakdown (January 2016)

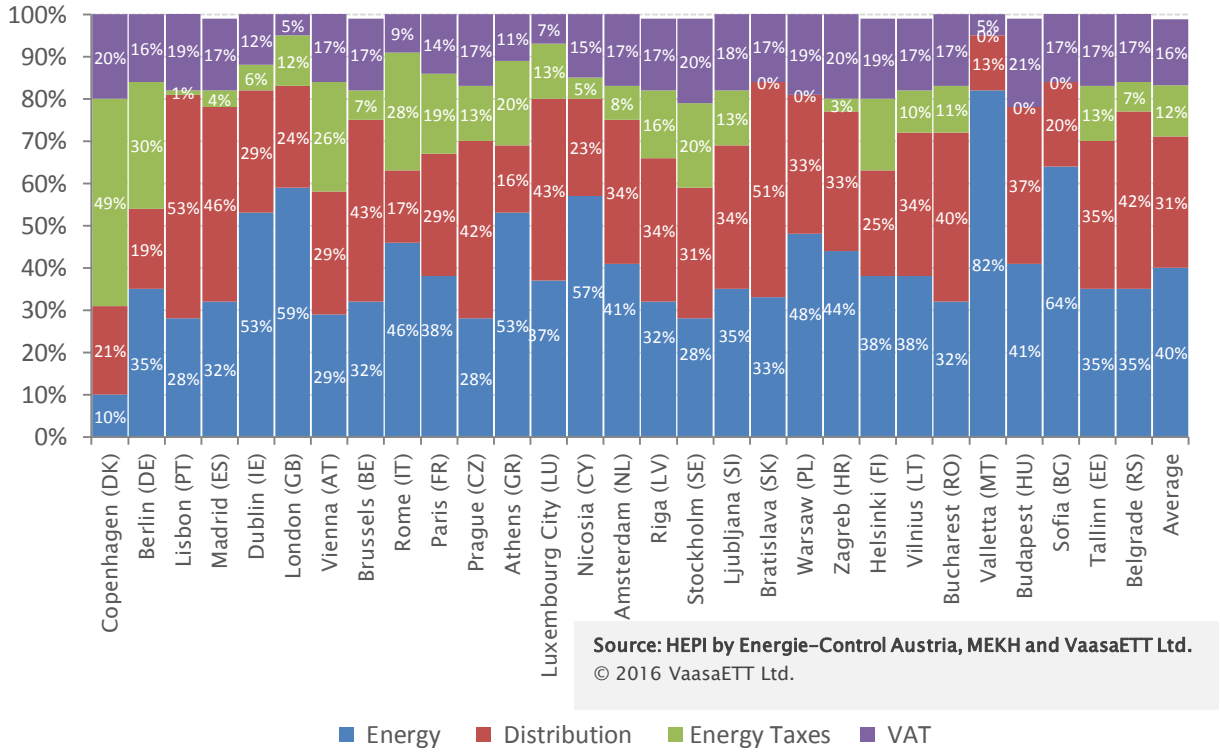
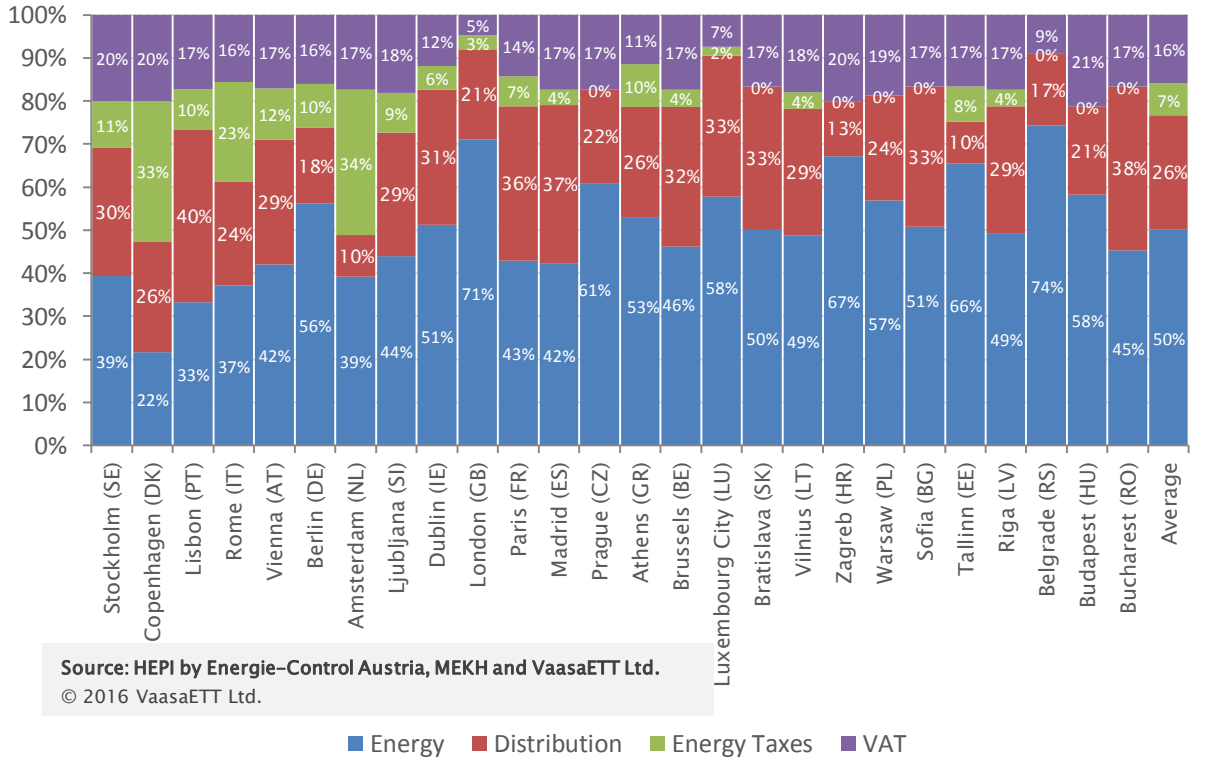


Figure 8 Residential gas price breakdown (January 2016)



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Energie-Control Austria

Energie-ControlAustria was set up by the legislator on the basis of the new Energy Liberalisation Act and commencedoperationon 1 March 2001. Energie-Control is headed by Mr. Walter Boltz and Mr. Martin Graf as managing directors and is entrusted with monitoring, supporting and, where necessary, regulating the implementation of the liberalisation of the Austrian electricity and natural gas markets. **More at: www.e-control.at**

The Hungarian Energy and Public Utility Regulatory Authority

The main responsibilities of the Hungarian Energy and Public Utility Regulatory Authority are consumer protection, providing regulated access to networks and systems, carrying out regulatory competencies in order to maintain security of supply and fostering competition. The scope of the infrastructures, which have to be overseen by the Hungarian Energy and Public Utility Regulatory Authority has been extended in 2011 with the complete regulation of district heating and in 2012 with the water public utilities. As market progresses are becoming more widespread, we put emphasis on our market monitoring task and we pay specific attention to regional market integration both in electricity and natural gas. **More at: www.mekh.hu**

VaasaETT Global Energy Think Tank

VaasaETT is a research and advisory consultancy dedicated to customer related issues in the energy industry. VaasaETT advises its clients based on empirical evidence brought about from extensive research in the area of customer behavior and competitive market behavior (including smart energy offerings, demand response, energy efficiency, smart home, smart grid). VaasaETT's unique collaborative approach enables it to draw on an extensive network of several thousand energy practitioners around the world who can contribute to its research activities or take part in industry events it organizes allowing VaasaETT to integrate global knowledge and global best practice into its areas of expertise. VaasaETT's truly global focus is reflected by research and strategic support having been provided to a diverse array of organizations on 5 continents including for instance 28 of the Fortune Global 500 companies, the European Commission, Government and public research bodies in Europe, Japan, the UAE, the Middle East and Australia. **More at: www.vaasaett.com**