

Drivers of Electricity Bills: Supporting graphs, methodology and country notes

A EURELECTRIC methodology note

February 2016

EURELECTRIC is the voice of the electricity industry in Europe.

We speak for more than 3,500 companies in power generation, distribution, and supply.

We Stand For:

Carbon-neutral electricity by 2050

We have committed to making Europe's electricity cleaner. To deliver, we need to make use of **all low-carbon technologies**: more renewables, but also clean coal and gas, and nuclear. Efficient electric technologies in **transport and buildings**, combined with the development of smart grids and a major push in **energy efficiency** play a key role in reducing fossil fuel consumption and making our electricity more sustainable.

Competitive electricity for our customers

We support well-functioning, distortion-free **energy and carbon markets** as the best way to produce electricity and reduce emissions cost-efficiently. Integrated EU-wide electricity and gas markets are also crucial to offer our customers the **full benefits of liberalisation**: they ensure the best use of generation resources, improve **security of supply**, allow full EU-wide competition, and increase **customer choice**.

Continent-wide electricity through a coherent European approach

Europe's energy and climate challenges can only be solved by **European – or even global – policies**, not incoherent national measures. Such policies should complement, not contradict each other: coherent and integrated approaches reduce costs. This will encourage **effective investment** to ensure a sustainable and reliable electricity supply for Europe's businesses and consumers.

EURELECTRIC. Electricity for Europe.

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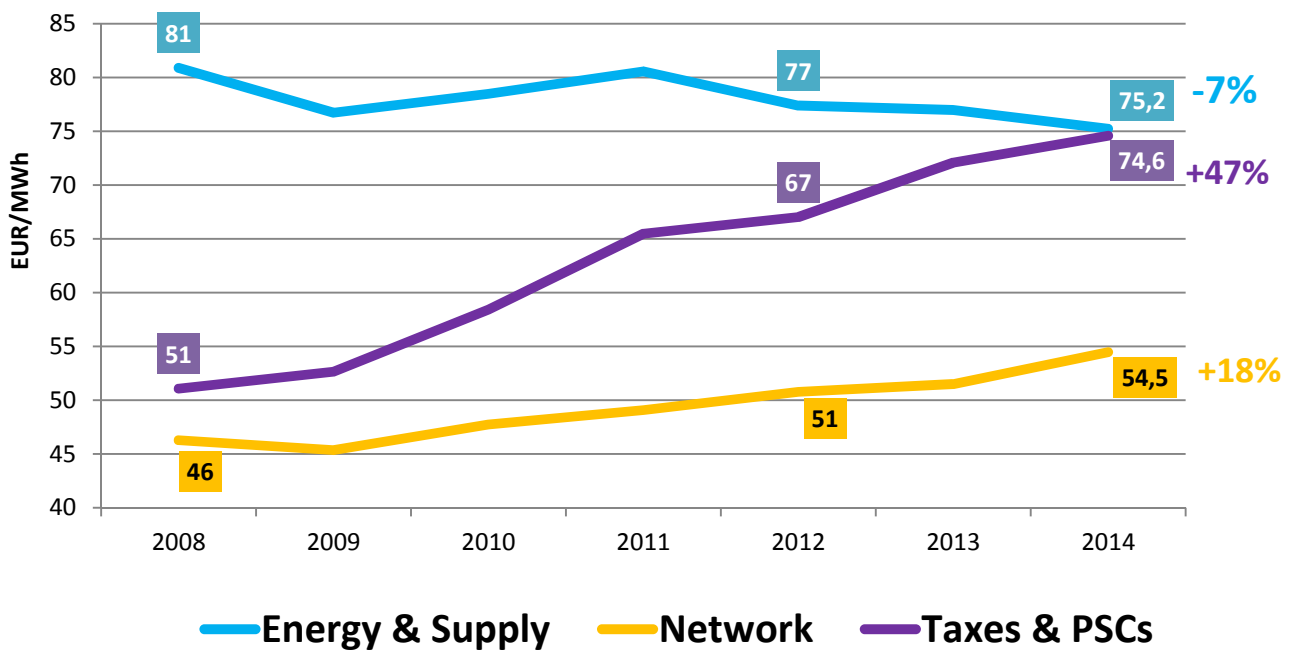
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Supporting Graphs

Taxes and policy support costs (PSCs) are still pushing electricity prices up for end users. In fact, between 2008 and 2014, policy support costs (Levies) have increased on average by 170% for households. In 2014, the weight of the taxes & PSCs component almost equates the energy & supply component for the average residential consumer. A breakdown of the taxes and PSCs component shows that taxes (i.e. VAT & excise taxes) still account on average for the largest part of “non-contestable” charges of the bill.

European Averages¹

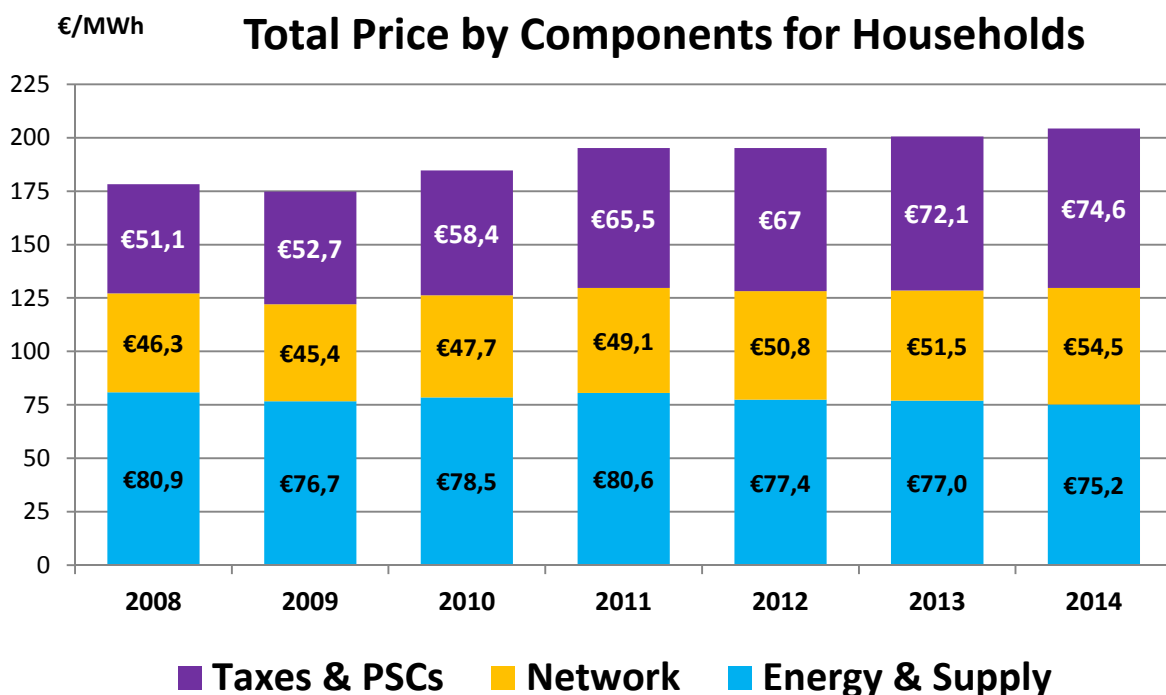
Evolution of Household Price Components



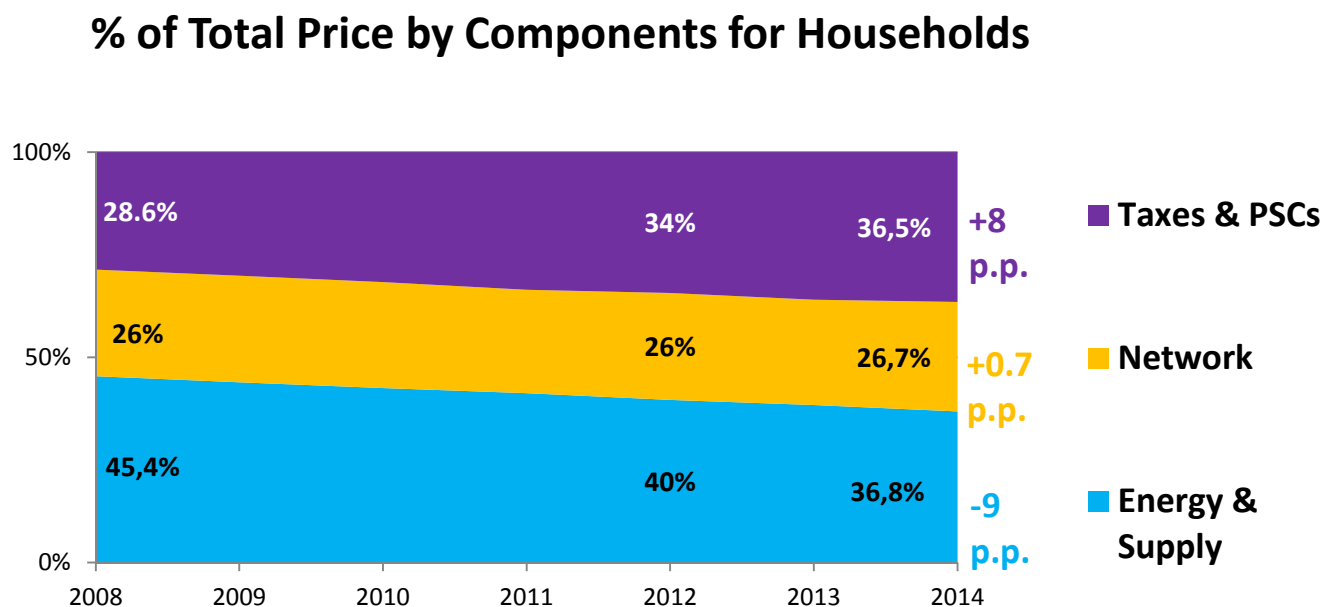
Graph1

¹ European Averages include EU28+Norway, averages are weighted by consumption of the respective sector

The energy & supply component has decreased 7% between 2008 and 2014, while the value related to taxes and policy support cost experienced a continuous increase over the years (47%), representing in 2014 36.5% of the total electricity bill on average in Europe.

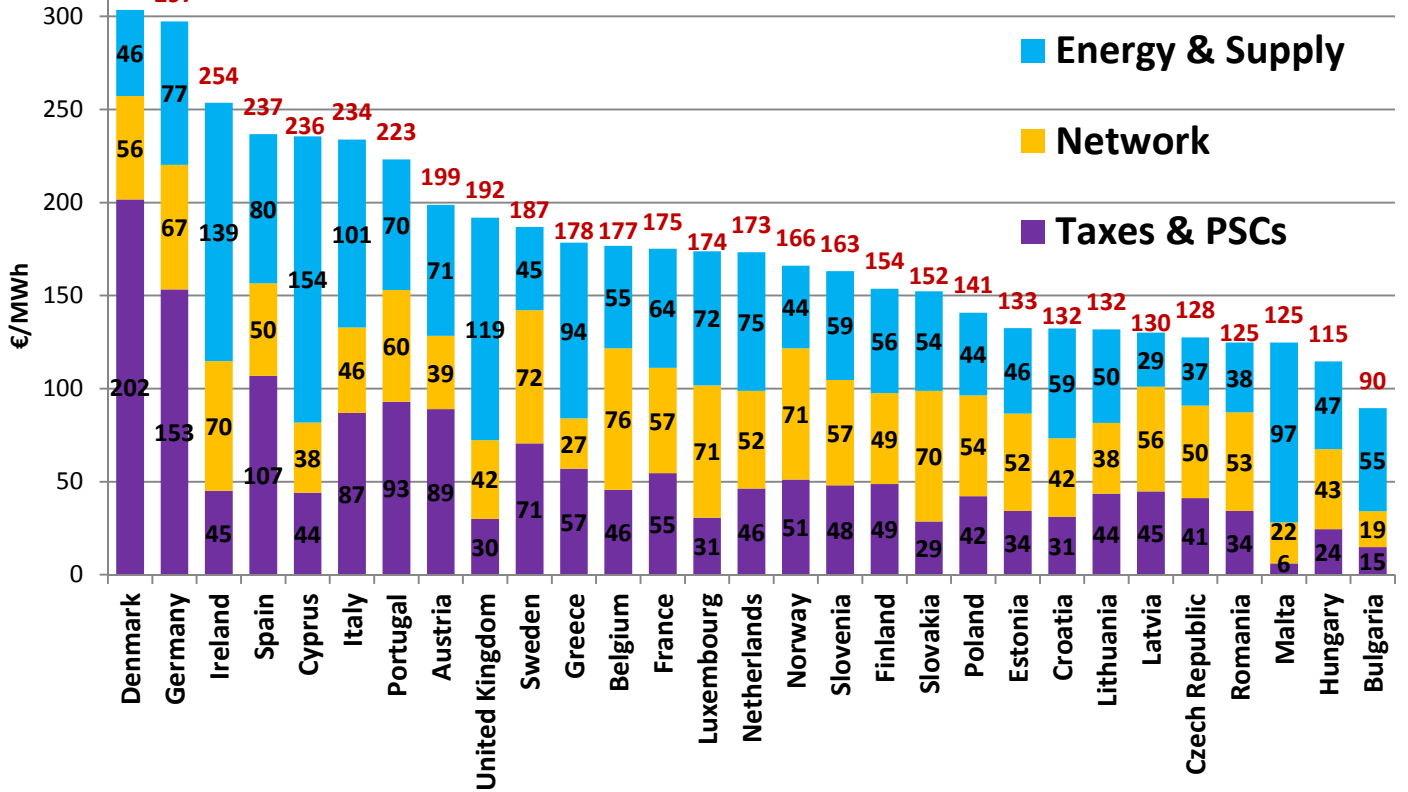


Graph2



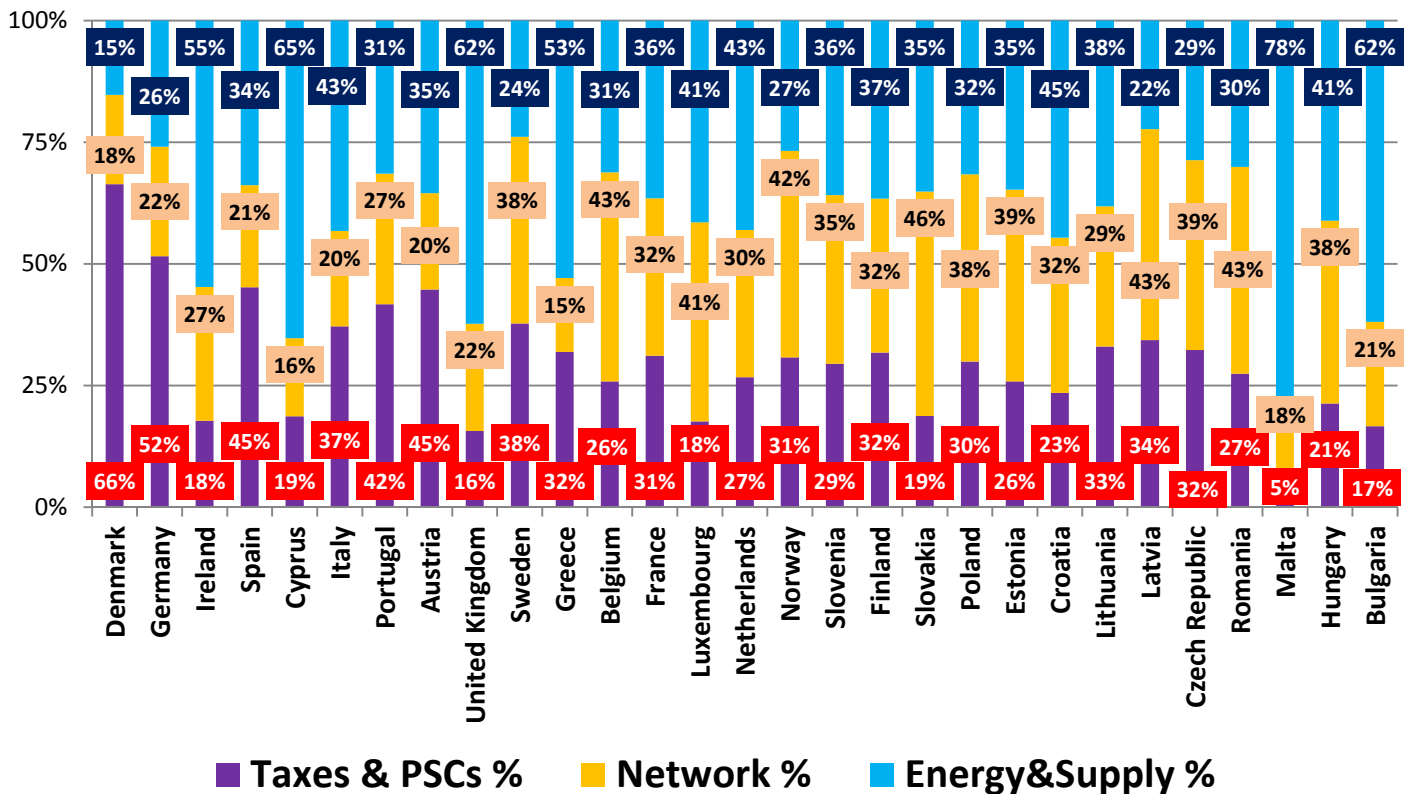
Graph3

Breakdown of Total Household Price in 2014



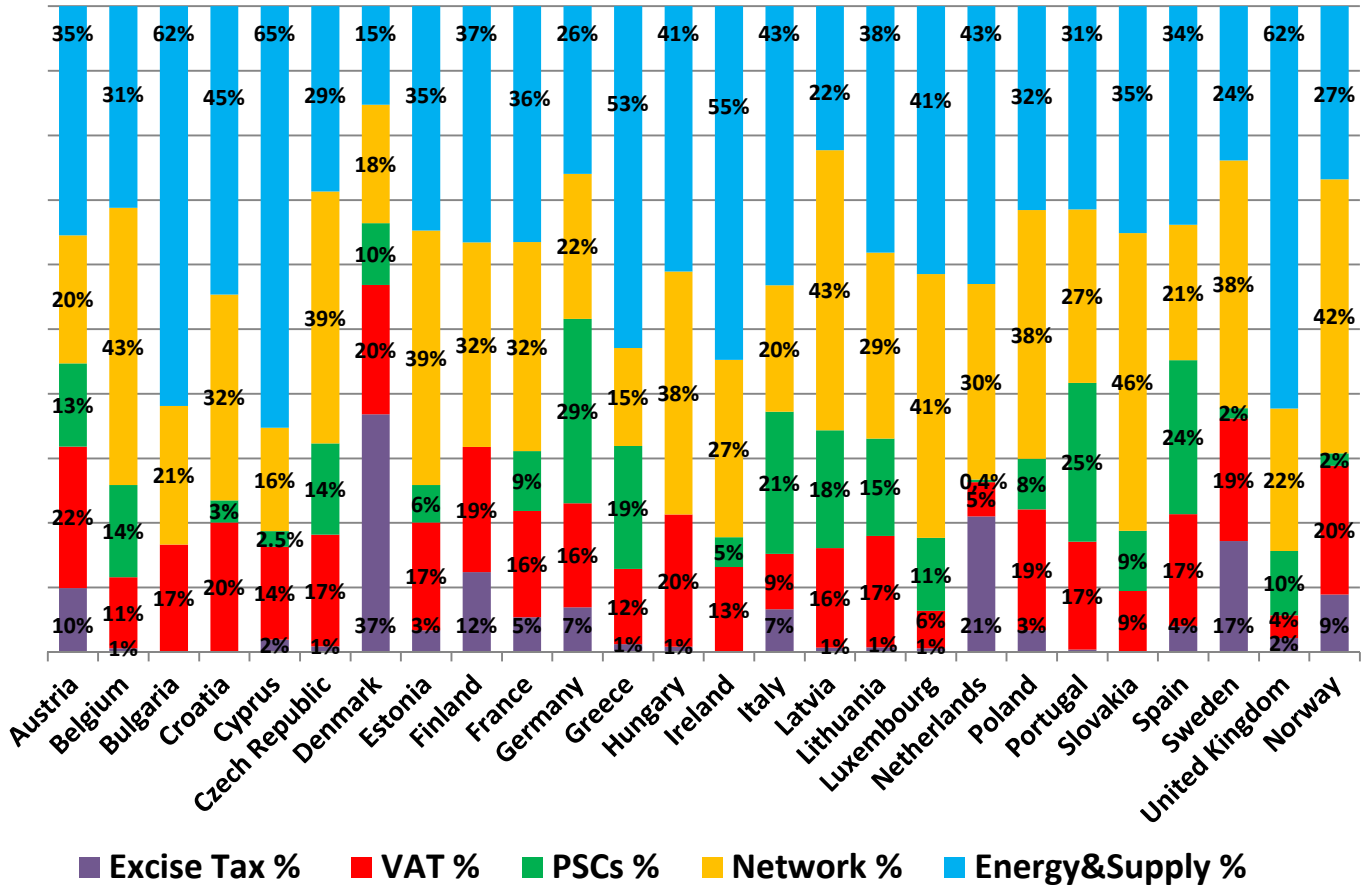
Graph4

Breakdown in % of Total Household Price in 2014



Graph5

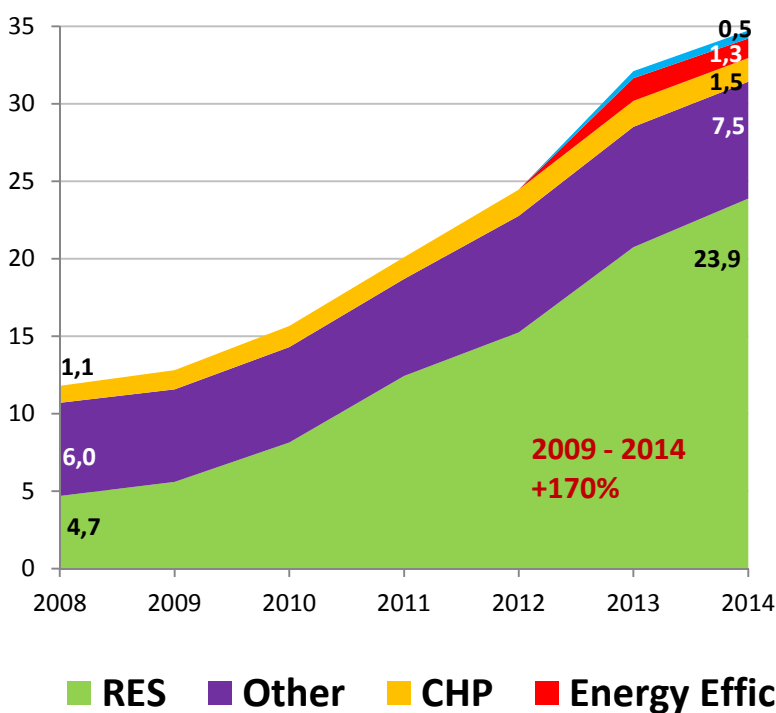
Breakdown % of total price in 2014 for Households



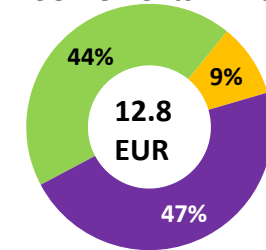
Graph 6

Evolution of PSCs elements for Households

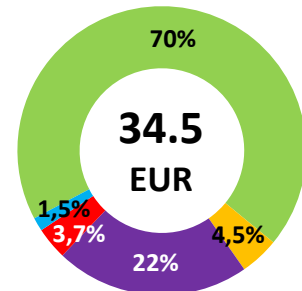
€/MWh



PSC Elements in 2009



PSC Elements in 2014



Graph 7- Weighted by country consumption 2014: EURELECTRIC calculation based on EURELECTRIC's Members data and EUROSTAT consumption data.

Annex 1 Data Sources & Methodology

EURELECTRIC surveyed its members for a detailed breakdown of policy support costs (PSC). Source for total prices and price components (including total price and EC price components) was EUROSTAT.²

EURELECTRIC price components are based on EUROSTAT data. For the EUROSTAT price component data used in the study please consult the [EUROSTAT Data Base](#):

- Industrial electricity price components: nrg_pc_205_c
- Household electricity price components: nrg_pc_204_c

Total annual prices are computed as a sum of the three components. It is to be noted that total prices based on the bi-annual EUROSTAT data (nrg_pc_204 and nrg_pc_205) differ from total prices calculated as a sum of the components.

All values refer to the industrial consumption band IC (500-2000 MWh annual consumption) and to the household consumption band DC³ (2500-5000 kWh annual consumption). For further information please consult [EUROSTAT](#).

Aggregated average values computed for the responding countries are weighted averages. For EUROSTAT consumption data used in the study please consult the [EUROSTAT Data Base](#):

- Final electricity consumption: nrg_105a
- Industrial code: B_101800
- Residential code: B_102010

No consumption data for the specific bands is available.

The reference year of the study is 2014.

The basic source of information for VAT and excise tax is the document “*Excise Duty Tables Part II – Energy Products and Electricity*” (REF.1041 July 2014 & REF.1038 July 2013) from [DG TAXUD](#) amended according to our members indications (ES, FR, DK, NO)

Methodology

In the current legal framework, different Member States (MS) do not necessarily report to EUROSTAT all taxes and policy support costs (levies) items in the relevant category. That is, some MS report to EUROSTAT part or all PSCs in either the energy and supply or the network component. EURELECTRIC harmonised the data from EUROSTAT, while making sure that all taxes ,excise duties and levies are correctly reported in the appropriate category.

² BE & UK : total prices differ from EUROSTAT's as additional data of misallocated PSCs have been gathered during the research and used in the harmonisation process. Final prices for households resulted lower in both cases.

³ For further information on the representative validity of the chosen consumption band in certain countries, please consult country comments.

Data processing

-) The underlying data for the research for residential customers are EUROSTAT price components (dataset nrg_pc_204_c - “Supply, transformation and consumption of electricity - annual data s2 nrg_105a code B_102010” energy & supply - network – taxes & levies) corrected according to what our EURELECTRIC members have reported with regards to whether some or all PSCs had been reported to EUROSTAT in the energy & supply or network components.
-) If a EURELECTRIC member stated that its country reports all taxes and PSCs into the appropriate component (i.e. taxes & levies) to EUROSTAT, then the calculation relies on EUROSTAT data.
-) Conversely, if a EURELECTRIC member stated that the MS it represents reports all/some taxes or levies in the inaccurate component (i.e. energy & supply or network) to EUROSTAT, then the value is reallocated to the taxes & levies component, thus harmonising EUROSTAT data.

All aggregated values computed for the relevant countries are weighted by consumption of the corresponding national sector.

Policy Support Costs

EUROSTAT definitions include Taxes and Levies in one single category. For the purpose of this study, EURELECTRIC uses the term policy support costs (PSCs) as an alternative term to levies. PSCs can be energy and non-energy related in their nature; however, the majority of the accounted PSCs are energy related.

Definition:

RES: Renewable Energy Sources - costs included in the electricity price (taxes, fees, levies or charges) aimed at the promotion of renewable energy sources.

EE: Energy Efficiency - costs included in the electricity price (taxes, fees, levies or charges) aimed at **(i)** financing any form of support to reduction of energy consumption or **(ii)** implementing measures to promote energy efficiency in end energy uses.

CHP: Combined Heat and Power – Cogeneration (producing heating and electricity simultaneously from one energy source). Costs included in the electricity price (taxes, fees, levies or charges) aimed at directly financing any form of support to the deployment of CHP technologies and implementation of policies favourable to CHP development (if the value for direct support of CHP was not available as stand-alone value it was included in RES).

Vulnerable Cust : Vulnerable customer - costs included in the electricity price (taxes, fees, levies or charges) aimed at **(i)** financing any form of support to protected customer categories or **(ii)** subsidising specific exemptions or lower electricity tariff to protected customer categories.

Other: All other unaccounted policy support costs. Can include nuclear decommissioning, island systems compensation, tariff deficit annuities, stranded cost and compensation fees, support to energy intensive industry, compensation for railways or specific sectors, research funding, coal decommissioning, pension funds, other items.

Annex 2 Country Notes

Austria

In July 2012, Austria changed the national accounting of policy supports costs from the energy and supply to the network component. The consumption band for residential customers refers to 3.500 kWh. The consumption band for industrial customers refers to 55.000 MWh as the requested data is not available for the reference consumption band. For Austria in fact the reference band for industrial customers is far from national average.

Belgium

Belgium reports its policy support costs in all three components. According to EURELECTRIC's harmonised analysis, the price breakdown for residential customers is as follows: energy (31%) network (43%) taxes and levies (26%). In the views of Belgian EURELECTRIC member however, network costs may be higher. According to its analysis, the split of PSCs between the three components for the electricity price of residential customers might likely be as follows: energy (31%) network (49%) taxes and levies (20%).

The overall PSCs for Belgium are divided in three main categories:

-) Green Support (RES & CHP) : Quota Certificats Verts, Quota Wkk, OSP Raccordement Parcs Offshore, OSP Financement CV (fédéral), OSP Financement des mesures de soutien aux énergies renouvelables et cogen (Flandre), OSP opkoopverplichting GSC en WKK van de DNB's (Flandre), OSP Financement Soutien Energie Renouvelable (Wallonie)
-) OSP Financement Promotion URE (Flandre)
-) Policy Support: Federal Contribution, Energy Contribution, Strategic Reserve, Connexion Contribution (Walloon Region), Public Domain (Walloon Region), PSO (Brussels), Public Domaine (Brussels), "Ongemakkentaks" Tax (Flanders), "Retirement Tax"

Bulgaria

Data source is EUROSTAT since data for Households PSCs are missing for the reference year 2014. Bulgaria includes policy supports costs in the energy and supply component since August 2013 in its national accounting.

The policy support costs are part of the energy and supply component for the customers on the regulated market (households and small voltage customers).

Czech Republic

In Czech Republic, policy support costs are partially covered by the state budget. The fee for the RES, CHP & secondary sources support is set separately from network or energy charges; however, customers pay this price on the basis of the electricity transmission/distribution agreement.

Cyprus

The main drivers for the high energy and supply component on island Member States are high dependency on liquid hydrocarbons and the isolation faced by these countries, which have to manage the island's cyclic demand by relying solely on their own power systems. This results in their less efficient operation.

Denmark

The Danish industrial excise tax rate was lowered to the EU minimum level of €0.5/MWh as of 2013. The Danish excise tax includes a CO₂ element.

For Band IC, reference consumption of an industrial consumer using 1000 MWh/year. For Band DC, reference consumption of a domestic consumer using 4000 kWh/year

By 2013, the composition of the power bill was changed, with the policy cost for Energy efficiency now integrated into the general payment to the distribution system operator (DSO). Therefore, energy efficiency is included in the overall RES support. In 2012, with the Danish Energy Agreement for 2020, it was agreed to reduce taxes on electricity used for production to the legal EU-minimum.

In 2013, as a part of a stimulus package, this exemption for businesses was introduced. In effect, it reduced the excise tax paid by businesses to the minimum.

Estonia

In Estonia subsidies are set in § 59 of the Electricity Market Act in order to promote the use of renewable energy sources. Policy support costs (CHP support is included in RES support) are levied on the electricity bills of all consumers as 'renewable energy fee'. The electricity bill also includes a network services fee, electricity excise and VAT.

Water, wind, solar, wave, tidal, geothermal, landfill gas, sewage treatment plant gas, biogas and biomass are considered to be renewable energy sources. Biomass also covers agriculture, including plant and animal material, forestry and products of related industries, the biodegradable part of waste, the biodegradable part of industrial and municipal waste

Starting from 2016 the Renewable Energy Charge is as follows:

Renewable Energy Charge	0.96 Euro cents/kWh
VAT	20 %
Tot	1.15 Euro cents/kWh

Finland

In Finland, policy support costs are financed directly from the state budget and are not levied on the electricity bill for 2013 and 2014. Data for Finland is thus coming from EUROSTAT.

Germany

As of 2013, Germany introduced an offshore-wind farm levy to handle the risks related to incoherent completion of the park itself and its connection to the grid (Offshore-Haftungsumlage). As of 2014, Germany introduced a levy to co-finance payments for suppliers of demand side management measures (Umlage für abschaltbare Lasten). The electricity tax (Stromsteuer) has been considered a tax, not a policy cost.

Greece

PSCs actually refer to island systems compensation. CHP support is included in RES support. However, in Greece, CHP is much less developed compared to some other European countries. So, CHP generation is a very small proportion of RES generation (and so is support). It is possibly lower than 10%.

Until 2012, PSC were allocated to the network component, from 2013 they have been allocated to the tax & levies component.

Hungary

PSC data for residential customer were not available for Hungary. Residential customers in Hungary pay only energy price, system usage fee and VAT. For industrial customers in other PSC is included the support for the restructuring of the coal industry ("coal cent") as well as the support for the price discount of electricity purchases of pensioners and employees of the electricity industry.

Ireland

High Efficiency and Biomass CHP are included in the RES support. Energy efficiency is supported (i) via a Supplier Obligation which is incorporated in Supplier costs and (ii) by grants from central government funds. Competition in the delivery of energy efficiency obligations means cost data is not available, however it is generally understood delivery of the target is less than €1/MWh.

Italy

The analysis considers: a) domestic consumers, connected to low voltage grid, resident and up to 3 kW connected load (with D2 tariff); b) domestic consumers, connected to low voltage grid, not resident and up to 3 kW connected load (with D3 tariff); c) domestic consumers, connected to low voltage grid, not resident (with D3 tariff). Reference figures of the specific band of consumption are calculated as average, weighted for actual consumptions of each class of consumer.

Assumption in providing Policy Support Costs:

- J Policy Support Costs of domestic consumer with D2 tariff (e.g. domestic consumers connected to low voltage grid who are resident and up to 3 kW connected load) for different levels of consumption from 2500 kWh until 5000 kWh are calculated, taking into account a granularity of 100 kWh (Policy Support Costs levels within D2 tariff depend on the level of consumption). Then, the arithmetic averages of these values have been calculated.
- J Policy Support Costs of a generic domestic consumer with D3 tariff (e.g. domestic consumers connected to low voltage grid, who are not residents and resident domestic consumers connected to low voltage grid of more than 3 kW) have been calculated. These are independent from the level of consumption.
- J Policy Support Costs of band 2500-5000 kWh have been calculated as average of Policy Support Costs of consumer with D2 and D3 tariff, weighted by electricity sales to these consumers within this band of consumption.

In Italy, RES support is financed by a part of component A3 of Electricity Tariff. This component finances not only RES sources, but also assimilated energy sources, mainly cogeneration, municipal not biodegradable waste and process or residual fuels, such as those from refinery or steel production. Consequently, an estimation has been made on the share of A3 component assigned to RES ("Photovoltaic" and "other RES") and the share of A3 component assigned to "Other sources not RES" on the basis of Italian NRA data. As NRA data used for the splitting are subject to continuous updates also of past data. As a consequence the weight of total costs allocated of "photovoltaic", "other RES" and "other sources not RES" may vary slightly over time despite the aggregated value for A3 component does not vary in time.

The Italian EURELECTRIC member pointed out that the wording "Domestic Customers" is more appropriate to define households' consumers rather than "Residential Customer". In fact, in Italy the electricity price for Domestic Customers is different if the consumer is living in the dwelling (resident vs non-resident). According to the Italian member, the words "Residential consumer" could be misleading, suggesting it being referred only to domestic customers residents. (For the

purpose of this study the term “household’ is usually used when referring to residential/domestic customer)

Latvia

According to the Electricity Market Law (44): The support for low-income family (person) is determined as follows: the first 100 kWh of electricity consumption and – only for large family (3 children or more) – the first 300 kWh of electricity consumption is by fixed price 13.1 euro/MWh. Until 2015 the price differential was covered by the energy suppliers.

Malta

Due to lack of reliable values for taxes and PSCs, data for Malta are solely coming from EUROSTAT.

Netherlands

Until 2012, in the Netherlands policy support costs were solely financed directly from the state budget. The Netherlands has introduced a sustainable energy levy as of 2013 to support RES. The Opslag Duurzame Energie (ODE) is in place since January 2013. That represents the only “burden” on consumer electricity bill, since ODE is part of the tariff paid by household and commercial customers. The SDE (2008-2012) and SDE+ (from 2012) finance the feed-in tariff but they are funded via state budget and not via electricity tariff component (not on the consumer bill).

Norway

As the annual consumption of the average Norwegian household is around 20,000 MWh the consumption band DC (2 500 – 5 000 kWh) may not be representative.

Poland

The amount of support is different for each customer group and voltage level and is called “transitional fee”. Its components depend on ordered power for each customer and tariff group. Values used refer to a simple method of calculation: aggregated transitional fees revenues divided by total volume of energy for grid users (tariff A,B,C2,C1). Transitional fee is a charge for sharing service of network assets.

From 01-01-2014 until 29-04-2014 the amount of CHP support includes only CHP which uses methane, from 30-04-2014 amount of CHP support include CHP which use natural gas, methane and hard coal Amount of Energy Efficiency support based on substitution fees

Portugal

In Portugal, the benefit given to Vulnerable Consumers is supported by conventional generators. Therefore, it is not supported by consumers. For the Portuguese EURELECTRIC member it is worthwhile mentioning that higher values for RES support can be the consequence of lower pool prices that were induced by RES.

Romania

Due to lack of reliable values for taxes and PSCs, data for Romania are solely coming from EUROSTAT.

Slovenia

Due to lack of reliable values for taxes and PSCs, data for Slovenia are solely coming from EUROSTAT.

Spain

Before 2012 Spain reported its PSCs in the network component. Starting from 2013 these policy support costs have been reported to EUROSTAT in the energy and supply component.

Sweden

As the annual consumption of the average Swedish household is around 8000 MWh the consumption band DC (2 500 – 5 000 kWh) may not be representative.

United Kingdom

The United Kingdom supposedly reports its policy support costs to EUROSTAT in the tax and levies components. However, our analysis found the EUROSTAT value much lower than what it is in reality covered by policy support costs. As such values for tax and levies for the UK has been modified and harmonised.

Please note that VAT values expressed in this analysis (4% of total) may be under-representative as the full VAT value on electricity is 5% in the UK. The UK Carbon Price Floor has been considered as an environmental excise tax and so accounted in taxes not in policy costs. The PSCs for the UK include costs related to: Renewable Obligation, EU ETS, Feed in Tariff, Energy Company Obligation, Warm Home Discount and Smart Meters.

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EURELECTRIC pursues in all its activities the application of the following sustainable development values:

Economic Development

▶ Growth, added-value, efficiency

Environmental Leadership

▶ Commitment, innovation, pro-activeness

Social Responsibility

▶ Transparency, ethics, accountability



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