

# PRICES AND COSTS OF EU ENERGY

## Annex 1: Country descriptions



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# Austria

## Electricity

### Households

The average price for electricity for households in Austria increased from 2008 to 2010 and remained stable from then to 2015. The energy component reached a peak price in 2012 before decreasing to the 2008 level in 2015. The network component peaked in 2010 and also decreased to its 2008 level in 2015. Other price components for households include the RES and CHP levy, the VAT and excise taxes. Their value rose steadily from €5.1 ct/kWh in 2008 to €7.4 ct/kWh in 2015. In 2015, about 37% of the electricity price was taxes and levies.

The RES and CHP levy are main drivers for electricity retail prices in Austria. Until 2012, the levy was designed as a metering point lump sum of €15 per household. Vulnerable households were exempted. Since July 2012, the RES and CHP levy has been comprised of four components, a fixed component and three variable components. All components are adjusted on a yearly basis. The first variable component is linked to the peak consumption capacity. This component plays a minor role for households, given that non-measured consumers pay a fixed amount of less than 5€ per year. The second variable component is proportional to the end consumer's electricity consumption. The third variable component is linked to the evolution of network costs.

Vulnerable households are exempted from all three variable components of the RES and CHP support. The fixed component remains to be paid, amounting to €33 per year for average households and €20 for vulnerable households in 2015.

In February 2015, the Austrian government introduced a dedicated levy to finance support to CHP. Its fixed rate was set at €1.25 /year for all households. The excise tax on electricity is paid by all households and has remained constant since 2008 at €1.7 ct/kWh. All households must also pay a VAT of 20% on their electricity consumption. While the rate has remained constant throughout the period from 2008 to 2015, its absolute value increased from €3 ct/kWh in 2008 to €3.3 ct/kWh in 2012, remaining at this level until 2015. There is no exemption for vulnerable households for these taxes and levies.

### Industry

For average industrial consumers, the total price for electricity increased from 2008 to 2012. In 2015, it fell back to about the 2008 level (in average about €90/MWh). For industrial consumers with higher consumption (Band IF, yearly consumption between 70 GWh and 150 GWh), the overall price decreased between from €89/MWh in 2008 to €69/MWh in 2015. The energy component decreased

for all consumption categories. The network component increased significantly for average industrial consumers, from €12/MWh in 2008 to €18/MWh in 2015, accounting for 20% of the total price.

Until June 2012, industrial consumers had paid a fixed sum for RES and CHP support. The amount paid was dependent on the voltage level to which they were connected; this amount was up to €15,000 for companies connected to a voltage level exceeding 36kV. Since July 2012, the levy for RES and CHP has comprised of four components: one fixed component, of up to €10,444 for all voltage level connections above 36 kV, and three variable components. Similar to households, the first variable component is linked to their peak consumption capacity and the second variable component is proportional to the yearly consumption. However, in both cases, rates decrease with the level of voltage connection: for instance in 2015 industries with connection to grid voltage higher than 111 kV paid €1.231/kW for capacity, as compared to €11.005/kW for consumers with connection to voltage between 0.4 and 34 kV. The last variable component is linked to network costs; this amounted to €0.12/MWh for consumers with voltage connections higher than 111 kV.

The excise tax rate has been the same for all consumption classes and voltage connection, at €15/MWh, remaining constant from 2008 to 2015. Companies focussing on the production of commodities can receive a joint refund for all energy taxes paid per year (electricity, natural gas, diesel, fuel oil, coal). The refund is granted to companies with total energy tax expenditure that exceeds 0.5% of their net production value. However, the following are not refundable: a retained amount of €400/year and a minimum rate for each energy carrier, amounting to €0.5 /MWh for electricity.

Until the end of 2011, companies exempted from paying energy taxes could additionally apply for a reimbursement of the RES-Support payments exceeding 0.5% of their net production value. The EU had set a maximum reimbursement amount of €500,000 for the total period 01.01.2008 to 31.12.2010. This reimbursement scheme ended in December 2011.

## Natural Gas

### Households

The average natural gas price for households rose from €6 ct/kWh in 2008 to €7.6 ct/kWh in 2012, before decreasing to €7.3 ct/kWh in 2015. The energy component accounted for around half of the total price in 2015, at €3.6 ct/kWh, the other half being almost equally split between the network component (€1.8 ct/kWh in 2015, up from €1.5 ct/kWh in 2008) and taxes and levies (€1.9 ct/kWh, up from €1.6 ct/kWh in 2008).

There are no exemptions for households with low income. The excise tax on natural gas remained stable from 2008 to 2015, at €0.6 ct/kWh. Also, the payments to ensure system operation have remained constant at €0.1 ct/kWh since 2012. The VAT has been charged at a rate of 20% since

2008. As the price of other components rose overall, the value of the VAT also increased from €1 ct/kWh in 2008 to €1.2 ct/kWh in 2015.

## **Industry**

The industrial natural gas price rose from €40 /MWh in 2010 to €44 /MWh in 2012 and decreased back to €40 /MWh in 2015 for the I3 consumption band (yearly consumption between 10,000 GJ and 100,000 GJ). The energy component (€26 /MWh) accounted for two thirds of the total price in 2015, while the network component (€5 /MWh) was low in comparison. The taxes and levies accounted for less than a quarter of the total cost (€9 /MWh).

The excise tax on natural gas is a single rate for all industries, independent of their consumption level. It amounted to €6 /MWh from 2010 to 2015. Eligibility for reimbursement is identical for natural gas and electricity: companies focussing on the production of commodities can receive a joint refund for all energy taxes paid per year (electricity, natural gas, diesel, fuel oil, coal). The refund is granted to companies with total energy tax expenditure that exceeds 0.5% of their net production value. However, the following are not refundable: a retained amount of €400/year and a minimum rate for each energy carrier, amounting to €0.00598 /m<sup>3</sup> for natural gas. The contribution for system operation rose from €2 /MWh in 2012 to €3 /MWh in 2015 for the consumption band I3.

## **Oil products**

### **Automotive fuels**

Retail prices for automotive diesel was €1122 /1000l in 2015, €123 /1000l lower than in 2008. For gasoline, consumers paid €1202/1000l in 2015, which is €14/1000l lower than in 2008. Excise taxes on gasoline and diesel increased in 2011. Since that year consumers pay €482 /1000l for gasoline (+€40 /1000l) and €397 /1000l for diesel (+€50 /1000l). The final payments per litre depend on the sulphur content and the biofuel blend. The VAT on motor fuels was 20% in 2015.

### **Heating oil**

Values for the energy component in heating oil decreased by €133 /1000l between 2008 and 2015. In 2015, the level was €486 /1000l. The rate for excise taxes on heating oil in Austria stayed constant for the whole period from 2008 to 2015 at €98 /1000l. There is no difference in rates for business and non-business users. Rates applied to diesel in industrial use are the same as the rates for automotive diesel: €397 /1000l since 2011, before it was €347 /1000l.

# Belgium

## Electricity

### Households

The average electricity price for households in Belgium has fluctuated since 2008: it decreased from 2008 to 2010, then rose over 2010 to 2012 and fell from 2012 to 2014. Overall, prices fell from €21.5 ct/kWh in 2008 to €19.4 ct/kWh in 2014. It rose in 2015 again. Over the same period, the network component increased steadily from €6.5 ct/kWh in 2008 to €9.1 ct/kWh in 2015. Taxes and levies amounted to €6.2ct/kWh in 2015, starting at €5.4 ct/kWh in 2008. They include levies for RES and CHP support, funding for social tariffs, nuclear safety, system operations and other, mainly regional, taxes. In 2015, taxes and levies accounted for about 26% of the electricity price.

There are two categories of taxes and levies that apply to Belgian households: federal and regional. The regional taxes are established, and their rates set, by the respective regional governments in Flanders, Wallonia and Brussels. Data from the statistical office for Belgium therefore shows the average values for the three regions.

There are several national taxes and levies in Belgium. The electricity excise tax, also called contribution on electricity, has remained stable over 2008 to 2015 at €0.19 ct/kWh. The VAT rate on electricity was fixed at 21% from 2008 to March 2014, and fell to 6% from April 2014 to August 2015. From August 2015 onwards, the VAT rate increased back to the previous rate of 21%. In 2015, the average VAT charged in the electricity price was €2.9 ct/kWh. Households are also obliged to pay a federal contribution divided in several components. The component for the financing the federal regulator is negligible, at around €0.02 ct/kWh in 2015. The component for nuclear decommissioning is also relatively low, at €0.1 ct/kWh in 2015. The component to finance social tariffs remained stable over 2008–2015 at €0.3 ct/kWh. Several federal levies are also applied to finance RES and CHP support, such as the surcharge for offshore grid connection or TSO support. Combined with the regional elements to finance RES and CHP, they averaged around €1 ct/kWh in 2015, up from €0.2 ct/kWh in 2012. Other taxes and levies, mostly at regional level, amounted to €0.6 ct/kWh in 2014. These regional taxes are used to fund various schemes including compensation for municipalities (for lost revenues due to liberalisation of the energy sector), support for energy efficiency, and the regional budget for actions in the energy field.

Certain households are exempt from the excise tax, the VAT, and federal and regional levies for renewable energy where they meet the following criteria:

- Welfare payments as main source of revenue, or
- Recipient of social assistance due to handicap of more than 65%, or



- Living on the minimum pension, or
- Living in social housing.

## **Industry**

For industry with a consumption from 2 to 20 GWh (Band ID), the total price for electricity has increased from €96 /MWh in 2008 to €97 /MWh in 2015 with a dip at €94 /MWh in 2010. For industries with higher consumption (Band IF, yearly consumption between 70 GWh and 150 GWh), the overall price decreased from €76 /MWh in 2008 down to €64 /MWh in 2015. The energy component has decreased for all consumption categories. For the ID band, the energy component dropped from €67 /MWh in 2008 to €47 /MWh in 2015. The network component has increased for average industrial consumers, from €16 /MWh in 2008 to €23 /MWh in 2015.

Industries in Belgium have to pay the same taxes and levies as households, which amount to €27 /MWh for the ID consumption band or about 28% of the total price in 2015. Most taxes and levies have a regressive rate, which means that more energy intensive industries pay a lower tax rate.

The taxes and levies component includes an excise tax of €1.9 /MWh, from which energy intensive industries and industries with a grid connection level over 1 kV are exempted. Industries with voluntary energy efficiency agreements benefit from discounted rates. Industries also contribute to the financing of nuclear decommissioning and social tariffs through the federal contribution. The average industrial consumers paid €3 /MWh for the social tariff levies and €1 /MWh for nuclear decommissioning in 2015.

Several federal levies are also applied to finance RES and CHP support schemes, such as the surcharge for offshore grid connection or TSO support. Combined with regional taxes, all RES and CHP payments averaged around €9 /MWh in 2015, up from €0.3 /MWh in 2008.

## **Natural gas**

### **Households**

The average natural gas price for households fell from €7.3 ct/kWh in 2008 to €6.2 ct/kWh in 2015. The energy component decreased from €4.1 ct/kWh in 2008 to €3.3 ct/kWh in 2015. The network component also decreased, from €1.7 ct/kWh to €1.5 ct/kWh. Together, they accounted for about 77% of the natural gas price in 2015. Taxes and levies have remained almost unchanged over the study period, fluctuating between €1.3 ct/kWh and €1.5 ct/kWh from 2008 to 2015. The largest contributor to the taxes and levies is the VAT, which contributed to 21% or €1.1 ct/kWh of total natural gas price in 2015. Taxes to finance the social tariff added €0.2 ct/kWh. Other taxes, at the federal and regional levels, accounted for €0.1 ct/kWh in 2015, up from €0.1 ct/kWh in 2010. They

include federal taxes to finance the regulator, social tariffs and other measures, as well as regional taxes for grid connection and social measures taken by the regions. Vulnerable households, defined using the same definition as for electricity, are not exempt from the taxes and levies on natural gas, but pay lower network tariffs and benefit from a 'tariff cap'. This tariff cap sets a maximum price (including all taxes and network tariffs) that vulnerable households have to pay for their natural gas consumption (per kWh).

### **Industry**

Prices for natural gas fell from €38 /MWh in 2008 to €29 /MWh in 2015 for the I3 consumption band (yearly consumption between 10,000 GJ and 100,000 GJ). Together, the energy and network component amounted to €26 /MWh in 2015, down from €38 /MWh in 2008. The taxes and levies component of the industrial natural gas price is relatively small, contributing €1 /MWh to the total price in 2008 and €2 /MWh or 8% of the total price in 2015. Taxes include a federal contribution to finance the regulator, tariffs to finance support to vulnerable consumers and other social measures. For all federal taxes, rates are regressive.

## **Oil products**

### **Automotive fuels**

Retail prices for automotive diesel was €1158 /1000l in 2015, €50 /1000l lower than in 2008. For gasoline, consumers paid €1366/1000l in 2015, which is €52/1000l lower than in 2008. Diesel excise tax rates increased from €318 /1000l in 2008 to €335 /1000l in 2009 and a second time in 2011 to €433 /1000l before it was reduced to €428 /1000l in 2012 and stayed on this level until 2015. The excise tax rate for gasoline increased in 2009, from €597 /1000l to €614 /1000l for the remaining years until 2015. The rates depend on octane and sulphur content, fuels with more than 98 octane and high sulphur content consumers paid about €15 /1000l more for excise duties in 2015. The duties are slightly lower, if the consumed fuel is blended with ethanol or biodiesel. The VAT rate was 21% for all motor fuels.

### **Heating oil**

Values for the energy component in heating oil decreased by €160 /1000l between 2008 and 2015. In 2015, the level was €462 /1000l. Excise duties on heating oil are identical for business and non-business users. The rate is extraordinarily low, at €17.1/ 1000l. For industrial usage of diesel, the minimum tax rate of 21 /1000l is applied in Belgium. Energy intensive industries are exempted from excise duties on heating oil and industrial diesel if they meet requirements from environmental objectives agreements.

# Bulgaria

## Electricity

### Households

On average, the total electricity price for households in Bulgaria increased over the period 2008-2015 from €8.2 ct/kWh to €9.4 ct/kWh, respectively. Bulgaria's total electricity price is consistently at the lowest level of all European countries that were considered in this report. The largest component of the electricity price is the energy component. However, the energy component has not changed significantly over this period, ending at €4.3 ct/kWh in 2015, €0.2 ct/kWh above the 2008 level. Network costs showed similar behaviour as the energy component, ending slightly lower in 2015 at €2.2 ct/kWh, compared to €2.8 ct/kWh in 2008. The main reason for the increase in the total electricity price is the total taxes and levies component, which more than doubled from €1.4 ct/kWh in 2008 to €2.9 ct/kWh in 2015. In 2015, taxes and levies contributed to 31% of the total household electricity price.

In 2009, Bulgaria started to charge a levy for the costs of purchasing renewable energy at preferential prices through the public service obligation (PSO). Initially set at €0.1 ct/kWh, the PSO-tariff gradually increased to €0.6 ct/kWh in 2013, making it the highest levy in Bulgaria over this period. A year later, an additional levy was introduced that reflects the costs of promoting high efficiency standards of CHP according to European Directive 2004/08/EC. The cost of this levy has remained relatively stable, averaging €0.15 ct/kWh over the study period. For a period of a year, starting from mid-2012, Bulgaria introduced a levy that covers the stranded costs related to long-term contracts for the purchase of energy from two power plants. After 2013, a supplement replaced the former 'green', 'brown' and 'stranded costs' levies. It is mainly based on the difference between the market price for electricity and the prices at which the National Electricity Company (NEK) is obliged by law to buy more expensive power. This levy increased in mid-2015 from a negligible level to €2 ct/kWh. VAT remained at 20% over the 2008-2015 period and amounted to €1.6 ct/kWh in 2015.

All residential consumers in Bulgaria are part of a regulated market where prices are effectively set by the state. These prices are lower than the prices that industry pays. There is no specific tariff for households with low income.

### Industry

Total electricity prices for the industry sector remained relatively stable over the period 2008-2015. Total prices increased from €59 /MWh in 2008 and peaked in 2012 at €70 /MWh, before falling to €62 /MWh in 2015. The energy component increased from the 2008 level of €44 /MWh to €51 /MWh

in 2014, before dropping to €42 /MWh in 2015. The network component more than halved over the same period from €14 /MWh to €5 /MWh and the total taxes and levies increased from zero in 2009 to €15 /MWh in 2015.

Businesses are subjected to the same levies as households, and no distinction is made between households and industry with respect to the size of the levy. However, industries pay an additional excise rate of about €1 /MWh (2015). Although there are no specific exemptions for energy intensive industries, consumers in the IE Band (20 – 70 GWh) and higher pay significantly less for their electricity due to lower energy and network costs.

## Natural gas

### Households

Total prices for natural gas fluctuated over the period 2008-2015. The price over this period increased from €3.9 ct/kWh to €4.8 ct/kWh, peaking at €5.6 ct/kWh in 2012. This increase can partially be attributed to an increase of the energy component over that same period, which rose from €2.4 ct/kWh in 2008 to €3.78 ct/kWh in 2012. In 2015 the energy component returned to €2.8 ct/kWh. Network costs increased by €0.4 ct/kWh to €1.2 ct/kWh over 2008 to 2015. Taxes and levies remained relatively stable at about €0.2 ct/kWh over the study period.

As of 2012, an excise duty of 0.1 BGN/GJ was introduced, which corresponds with a rate of €0.16 ct/kWh. However, in 2016 this was increased to €0.96 ct/kWh. Residential consumers in Bulgaria have been part of a regulated market where prices are effectively set by the state. There is no specific tariff for low income households.

### Industry

Total average electricity prices for the industry sector (Band I3) increased by €5 /MWh over the period 2008-2015, from €27 /MWh to €32 /MWh. Prices peaked in 2012 at a level of €40 /MWh. This increase can be attributed to changes in the energy component, which rose from €23 /MWh to €27 /MWh over the same period. Total network costs increased from €3.4 /MWh to €4.3 /MWh.

The taxes and levies component only includes the excise duty introduced in 2012. The introductory tax rate was about 9 times lower than the rate for households and therefore negligible. As of 2014, the tax rate increased significantly to €1.1 /MWh. There are no specific exemptions for energy intensive industries.

## Oil products

### **Automotive fuels**

Retail prices for automotive diesel was €1126 /1000l in 2015, €32 /1000l higher than in 2008. For gasoline, consumers paid €1103/1000l in 2015, the lowest price in Europe. It was €81/1000l higher than in 2008. Bulgarian excise taxes on gasoline increased one time between 2008 and 2015, by about €13 /1000l in 2011. Since then, a rate of €363 /1000l is paid by the consumers. Excise duties on diesel increased three times, in 2011, 2012 and 2013. They started at €307 /1000l and are currently at a rate of €330 /1000l. The VAT on motor fuels was 20% in 2015.

### **Heating oil**

Values for the energy component in heating oil decreased by €82 /1000l between 2008 and 2015. In 2015, the level was €505 /1000l. Business and non-business consumers paid the same excise duty of €25.6 /1000l for the whole period from 2008 to 2015. Industrial diesel is taxed according to the rates of automotive diesel.

# Croatia

## Electricity

### Households

The average household electricity price in Croatia increased from 2008 (€11.8 ct/kWh) to peak in 2012 (€13.8 ct/kWh). After reaching this peak, the price slightly decreased to 2015 (€13.2 ct/kWh). The energy component reached a peak value in 2012 (€6.6 ct/kWh) before falling back to its 2008 level in 2015 (€5.7-5.9 ct/kWh). The network component has increased from €3.8-3.9 ct/kWh in 2008-2010 to €4.2-4.3 ct/kWh in more recent years. Additional price components for Croatia include the RES and CHP levy as well as the VAT. The total value of these components rose from €2.2 ct/kWh in 2008 to €3.1 ct/kWh in 2014 and 2015. In 2015, taxes and levies constituted approximately 33% of the electricity price. Households paid VAT of 25% on the total electricity price including taxes and levies in 2015. The VAT rate increased from 22% in 2008 to 23% in 2010 and then further increased to 25% in 2012.

For households, there are two taxes and levies on the electricity price: a RES levy and a solidarity fee. The RES levy funds RES and cogeneration schemes and has been in place since 2008. The tariff was set at a low rate for households until 2012, but then increased significantly in 2013 and 2014. A solidarity fee was set up in order to provide support for vulnerable consumers. The fee was recently introduced in October 2015 and is only paid by households. Until the end of 2015, the solidarity fee was set to zero as electricity suppliers have committed to covering those expenses by giving up on equivalent share of their profit.

Households do not pay excise taxes on electricity. Since October 2015, households receiving social state aid and handicapped consumers have the right to 200 HRK vouchers per month for their electricity bills.

### Industry

The total price for electricity in the industry sector has remained relatively stable between 2008 and 2015 with levels ranging from €78 /MWh to €80 /MWh. For industries with higher consumption (Band IF) the overall price increased from €54 /MWh in 2008 to €59 /MWh in 2015. For Band ID, the energy component slightly increased from €47 /MWh in 2008 to €50 /MWh in 2010 before falling back to its 2008 level in 2015. The network component decreased slightly from €32 /MWh in 2008 to €29 /MWh in 2015. In 2015, the network component accounted for about 37% of the total price. Taxes and levies remained low at €1 /MWh from 2008 to 2012. In 2014 it increased to €5 /MWh mainly due to a rise in the RES levy.

For industry, there are two taxes and levies on the electricity price: a RES levy and an excise tax. The RES levy had been low until 2012, but then increased significantly in 2013 and 2014. However, differentiation was also added for buyers who are under the EU ETS scheme, which continued to pay a lower fee for RES. Since 2013, industry has been charged the excise tax. Industries do not pay for the solidarity fee.

## Natural gas

### Households

The average natural gas price for households in Croatia has increased significantly from €2.8 ct/kWh in 2008 to €4.7 ct/kWh in 2015. The main reason for this is the increase in the energy component from €1.6 ct/kWh to €2.9 ct/kWh in 2015. The energy component accounted for 62% of the total price in 2015. The network component and the taxes and levies each contributed to 19% of the total price in 2015. The network component increased slightly from €0.7 ct/kWh in 2008 to €0.9 ct/kWh in 2015. The taxes and levies component also increased during the same time period from €0.5 ct/kWh to €0.9 ct/kWh. Households paid VAT of 25% on the total gas price including taxes and levies in 2015. The VAT increased from 22% in 2008 to 23% in 2010 and then further rose to 25% in 2012.

There are no other taxes and levies for households as they are exempt from the excise tax. There are no support schemes for vulnerable households for natural gas.

### Industry

The natural gas price for industry rose from €23 /MWh in 2008 to €44 /MWh in 2012 and fell back to €39 /MWh in 2015. The reason for this was the energy component, which grew from €16 /MWh in 2008 to €37 /MWh in 2012 and fell back to €29 /MWh in 2015. The energy component accounted for 76% of the total price in 2015. The network component accounted for the majority of the remaining costs, contributing to €9 /MWh in 2015. There is only one tax on the natural gas price for industry: since 2013, a small excise tax on natural gas has been charged.

## Oil products

### Automotive fuels

Retail prices for automotive diesel was €1164 /1000l in 2015, €140 /1000l lower than in 2014. For gasoline, consumers paid €1259 /1000l in 2015, which is €123/1000l lower than in 2014. Since Croatia joined the European Union in 2013, the tax rates for gasoline and diesel have been increasing yearly. Starting at €424 /1000l in 2013, the rates for gasoline have reached €505 /1000l in 2015.

Duties for diesel started at €333 /1000l and reached €400 /1000l in 2015. The VAT on motor fuels was 25% in 2015.

### **Heating oil**

Values for the energy component in heating oil decreased by €160 /1000l between 2014 and 2015. In 2015, the level was €471 /1000l. There is no difference in excise duty rates for heating oil used for business or non-business purposes. The rate was €46 /1000l in 2013 and €55 /1000l in 2015.



# Cyprus

## Electricity

### Households

The average price for electricity for households in Cyprus increased significantly from 2008 to 2012, before decreasing to slightly below its 2008 level in 2015. The energy component peaked in 2012, at a level of €20.4 ct/kWh, by far the highest in Europe in that year. The largest reason for the strong increase in electricity price between 2010 and 2012 was an extra surcharge that was incorporated in the energy component due to damage to one of Cyprus' major power stations (Vasilikos) in 2011. This surcharge was applied as a percentage of the final electricity charge (excluding VAT). The network component has only increased marginally by €0.2 ct/kWh from €3,6 ct/kWh in 2010 to €3.8 ct/kWh in 2015 and the total taxes and levies component mainly followed the trend of the energy component. Within the taxes and levies component, the VAT rate on electricity increased from 15% in 2008 to 19% in 2015. Other taxes include RES and CHP taxes, environmental taxes, an excise tax and a social tariff, of which the latter two are at negligible levels.

In 2008, a levy was introduced to adjust the electricity price to respond to changes in fuel prices, especially oil prices, as Cyprus is dependent on oil for electricity production. This levy has peaked in 2008 at €8.03 ct/kWh. It then subsequently decreased but rose in 2012 to €7.14ct/kWh. The levy was at its lowest level in 2015, amounting to €0.78 ct/kWh. In 2003, Cyprus introduced a fund to promote renewable energy sources and energy efficiency. Since 2008, the levy to finance this fund has steadily increased from €0.13 ct/kWh to €0.65 ct/kWh 2015. There is no excise duty on electricity in Cyprus.

In 2010, a reduced electricity charge of €21 ct/kWh was put into place for families with more than four children and low-income families. In 2013, this tariff was changed to a three stage tariff: €11.26 ct/kWh for up to 1000 kWh consumption, €12.60 ct/kWh for consumption between 1001-2000 kWh, and €15.01 ct/kWh for consumption above 2001 kWh. The criteria for the policy were expanded in 2013 and again in 2015, to include families with 3 children, families on benefits as well as disabled people. This resulted in a levy that is uniformly applied to all electricity tariffs. This levy was set at a negligible rate in 2010 but has grown gradually to €0.13 ct/kWh in 2015. In 2010, the Energy Authority of Cyprus also introduced a levy that recovers the costs associated with the deficits of greenhouse gas emissions rights. Cyprus experienced such deficits in the period of 2008-2012.

### Industry

The average total industrial electricity price for the ID band (Consumption of 2 to 20 GWh) followed a trend similar to households, although the industrial price has decreased considerably more over

2008-2015. The total tariff for electricity rose from €162 /MWh in 2010 to its peak of €228 /MWh in 2012, before gradually dropping again to €126 /MWh in 2015. The relative price decrease in the IF band (Consumption of 70 to 150 GWh) was stronger over the same period, from €148 /MWh in 2010 to €113 /MWh in 2015. In the ID consumption band, the differences in the total electricity price can predominantly be attributed to changes in the energy component. The network component and the total taxes and levies component have remained relatively stable over 2010 to 2015, with only a slight increase in the RES and CHP component of €3 /MWh.

The levy for fuel price adjustments, social tariffs and renewable energy operates applies to industry in the same manner as for households. On average, the surcharge due to the damage to the power station in 2011 was €1.5 /MWh lower for businesses than for households. This surcharge was applied to consumers as a percentage of the final electricity charge, and therefore the difference between the industry and household surcharge is attributed to the different electricity prices paid by these two consumer groups.

## Oil products

### **Automotive fuels**

The average retail price for automotive diesel was €1226 /1000l in 2015, €134 /1000l higher than in 2008. For gasoline, consumers paid €1229/1000l in 2015, which is €194/1000l higher than in 2008. Excise duties on gasoline increased from €299 /1000l to €479 /1000l over the course of the study period 2008-2015. Diesel excise duties increased from €245 /1000l in 2008 to €450 /1000l in 2015. The VAT on motor fuels was 19% in 2015.

### **Heating oil**

Values for the energy component in heating oil decreased by €115 /1000l between 2008 and 2015. In 2015, the level was €554 /1000l. The excise duty rate for heating oil stayed constant at €125 /1000l from 2008 to 2015. There is no difference for business or non-business users. Industrial use of diesel is taxed in the same way as automotive diesel.

# Czech Republic

## Electricity

### Households

The average electricity price for households in the Czech Republic gradually increased from 2008, reaching a peak of €15 ct/kWh in 2012, after which the price fell back to its 2008 level of €13 ct/kWh in 2014 and 2015. The network component and the energy component have the highest share in the total price. In 2008 the share of taxes and levies in the electricity price was 18%, but this rose to 33% in 2015, mainly due to an increase in the RES and CHP component.

In 2005 a RES support levy was introduced to provide support to electricity from renewable sources and cogeneration of electricity and heat. This levy caused the electricity price to increase from €0.2 ct/kWh to €1.8 ct/kWh over 2008 to 2015. An environmental tax on electricity increased by about 2% in nominal prices. The decrease in European currency is due to the exchange rates in Czech koruna. The Czech VAT rate on electricity started at 19% in 2008, then rose to 20% in 2010 and further rose to 21% in 2013. Additionally, there is a charge for the market operator, which increased little from €0.02 ct/kWh in 2008 to €0.03 ct/kWh in 2015.

The Czech energy regulatory office ERO regulates end-user prices for electricity. Households with low income may receive housing allowance from the government in case the living costs (rent, electricity, gas, waste, water, heating) exceed 30% (35% in Prague) of the households' net income. The allowance does not affect electricity prices.

### Industry

The industrial electricity price in the Czech Republic was stable at around €95 /MWh over 2008 to 2012 but decreased to €78 /MWh in 2014 and further to €72 /MWh in 2015. The main reason for this is a drop in the energy component, which fell from €67 /MWh in 2008 to €36 /MWh in 2015. On the other hand, the share of taxes and levies has considerably increased in this period. In 2008, the taxes and levies were only €3 /MWh or 3% of the total electricity price. However, this has increased to €19 /MWh or 27% of the total price in 2015.

Industrial consumers pay the full environmental tax, and there is no exemption in RES and CHP support. Similar to households, the reason for the increase in taxes and levies was mainly due to the introduction of a RES support in 2005.

## Natural gas

### Households

Over 2008–2015, the household natural gas price has fluctuated between €4.9 ct/kWh and €6.6 ct/kWh, peaking in 2012. The main reason for this trend was the changes in the energy component. The tax and levy component, contributing about 16-18% of the total price level, has remained relatively constant over the period.

The main component in tax can be attributed to the VAT. Its rate has slightly increased from 19% to 21% over 2008 to 2015. Additionally, there is an environmental tax on natural gas that adds about €0.1 ct/kWh to the retail price. The charge for the market operator amounts to about €0.008 ct/kWh in 2015. It started in 2010 at about €0.004 ct/kWh.

### Industry

The industrial natural gas price decreased from €36 /MWh in 2008 to €30 /MWh in 2015, following the same pattern as the energy component. The contribution of the energy component to the total natural gas price was in each year above 74% and below 79%. The network component variation is negligible and the total taxes and levies component adds up to about €1 /MWh. The only tax applicable is an excise duty on energy products. Additionally, there is a charge for the market operator.

## Oil products

### Automotive fuels

The average retail price for automotive diesel was €1149 /1000l in 2015, €141 /1000l lower than in 2008. For gasoline, consumers paid €1153/1000l in 2015, which was €78 /1000l lower than in 2008. Excise taxes for gasoline and diesel peaked in 2011 and then declined until 2015. Gasoline excise duties peaked at €526 /1000l and then declined to a level of €467 /1000l in 2015. The highest value for diesel was €448 /1000l, in 2015 it was at €398 /1000l. Fluctuations in the exchange rate have a large influence on the nominal value in Euro. A minimum share of 4.1% (2015) biofuel was required. The VAT on motor fuels is 21%.

### Heating oil

Values for the energy component in heating oil decreased by €123 /1000l between 2008 and 2015. In 2015, the level was €473 /1000l. Heating oil is taxed at the same rate as automotive fuels, but if the consumer proves that it was used for heating purposes, more than 90% of the excise duty is refunded. Biofuels are exempted from excise taxes.

# Denmark

## Electricity

### Households

The average household electricity price in Denmark increased over 2008 (€26.2 ct/kWh) to 2012 and has been stable thereafter at around €30.5 ct/kWh. The energy component of the electricity prices has fallen from €7.3 ct/kWh in 2008 to €4.1 ct/kWh in 2015. The network component increased slightly from €4.7 ct/kWh in 2008 to €5.6 ct/kWh in 2015. The main reason for the rise in household electricity prices was the taxes and levies, which for average households increased from €15.1 ct/kWh in 2008 to €20.9 ct/kWh in 2015. Households pay a VAT rate of 25% on the total energy price including taxes and levies.

Apart from the VAT, the taxes and levies on electricity consist of two main components: an energy tax for electricity and a PSO obligation. The energy tax for electricity combines excise tax and several contributions for specific purposes, such as the electricity saving contribution and the electricity distribution contribution. Until 2014, they had been accounted for individually. There is a lower tariff for the energy tax for households that use more than 4,000 kWh/year.

Similarly, the PSO tariff finances a variety of activities, including activities relating to security of supply, R&D and measures promoting renewable energy and CHP. Electricity consumers who produce the electricity which they consume themselves (prosumers) are exempted from the part of the PSO tariff that finances small-scale CHP and renewable electricity.

There are no tariff reductions for households with low incomes as these households are supported through the social security system. There are general safeguards to protect consumers, such as requirements for disconnection, price of connection and payment conditions.

### Industry

Industrial electricity prices were fairly constant over 2008 to 2015. For industries with higher consumption (Band IF, yearly consumption between 70 GWh and 150 GWh) total energy prices were between €77 /MWh (lowest point in 2015) and €87 /MWh (highest point in 2008). The energy component has steadily decreased from €59 /MWh in 2008 to €31 /MWh in 2015. At the same time, taxes and levies increased from €15 /MWh in 2008 to €29-30 /MWh for 2012-2015. Network costs have remained relatively stable at around €13-16 /MWh over the period of this study.

Taxes and levies on electricity consist of two main components: an energy tax for electricity and a PSO obligation for different purposes. There is a partial exemption from the energy tax for VAT

registered businesses when electricity is used in processes that produce the output for which they are liable for VAT. Only a small base tariff needs to be paid, so that the exemption complies with the minimum taxes in the European Energy Tax Directive. In addition, VAT registered businesses can have part of their electricity tax for hot water and space heating/cooling refunded. The exemptions do not apply to certain professions, such as architects and lawyers.

The PSO tariff has financed a variety of activities, including activities relating to security of supply, Research and Development and measures promoting renewable energy and CHP. There was an exemption until September 2015 for the share of consumption exceeding 100 GWh for the part of the PSO tariff financing renewable energy. This scheme was replaced by a targeted aid scheme as part of a growth plan by the Danish government with the purpose of reducing the operation costs for Danish companies in order to remedy the economic crisis. This targeted aid scheme will partially compensate the PSO charges on renewable energy for all sectors listed in Annex 3 of the Guidelines on State aid for environmental protection and energy 2014-2020 (about 68 NACE codes) starting from September 2015.

## Natural gas

### Households

The average gas prices for households in Denmark were constant from 2008-2012 (around €9.4 - €9.7 ct/kWh) and fell in more recent years to €7.8 ct/kWh in 2015. The energy and network components of the energy prices also followed a similar pattern. The energy component decreased from €3.9 ct/kWh in 2008 to €2.3 ct/kWh in 2015, while the network component fell from €1.3 ct/kWh in 2008 to €1.1 ct/kWh in 2015. The taxes and levies component remained between €4.4 ct/kWh and €5.4 ct/kWh over the study period, with some fluctuations. Households pay a VAT rate of 25% on the total energy price including taxes and levies.

Other natural gas taxes and levies consist of a natural gas tax, a carbon tax and a few specific environmental taxes (NO<sub>x</sub>-tax, sulphur tax, methane tax). The natural gas tax has one rate for natural gas used in motors and a lower rate for natural gas not used in motors. The natural gas tax for non-motor use rose for five years, but was reduced significantly in 2014. The environmental NO<sub>x</sub> tax is also levied on natural gas with a lower tariff for natural gas for non-motor use. There was a public service obligation to finance the energy transition in the gas sector, mainly supporting biogas. Numbers for this PSO are only available for 2014, and they have been very low (~0.02 ct/kWh).

There are no exemptions or refund schemes for households with low incomes, as these households are supported through the social security system. There are general safeguards to protect consumers, such as requirements for disconnection, price of connection and payment conditions.

## **Industry**

Industrial gas prices have remained fairly stable in recent years. For industries with higher consumption (Band I3 - yearly consumption between 10,000 GJ and 100,000 GJ), total prices for natural gas increased from €33 /MWh in 2008 to €42 /MWh in 2012, then decreased to €37 /MWh in 2015. The main reason for this peak in 2012 was the energy component that rose from €21 /MWh in 2008 to €28 /MWh in 2012 and then decreased to €24 /MWh in 2015. The network component decreased from €6 /MWh in 2008 to €4 /MWh in 2015. Taxes and levies steadily rose from €7 /MWh to €10 /MWh in 2014. In 2015 it was reduced to €9 /MWh.

Natural gas taxes and levies consist of a natural gas tax, a carbon tax and a few specific environmental taxes (NOx-tax, sulphur tax, methane tax). Industries can receive refunds for the carbon tax if they are participating in a voluntary agreement scheme to increase their energy efficiency. Certain industries have a complete exemption for the natural gas tax, if they use natural gas for chemical reduction or for electrolysis. Refunds for natural gas tax are granted for VAT registered businesses for the energy use in VAT liable activities. Companies from the agricultural sector can also get almost the entire sum of the natural gas tax refunded.

## **Oil products**

### **Automotive fuels**

The average retail price for automotive diesel was €1276 /1000l in 2015, €10 /1000l lower than in 2008. For gasoline, consumers paid €1502/1000l in 2015, which is €115/1000l higher than in 2008. Excise duties on automotive fuels in Denmark increased by more than 10% within the period 2008 to 2015. Gasoline prices have been taxed at €547 /1000l in 2008, in 2015 car owners had to pay €608 /1000l for excise duties. Diesel rates increased from €365 /1000l in 2008 to €414 /1000l in 2015. The excise duty includes a carbon tax. The VAT on motor fuels is 25%.

### **Heating oil**

Values for the energy component in heating oil decreased by €10 /1000l between 2008 and 2015. In 2015, the level was €663 /1000l, the highest level in Europe. Excise duties on heating oil are not differentiated for business and non-business consumers. Industrial diesel is taxed at automotive diesel rates.

# Estonia

## Electricity

### Households

The average household electricity price in Estonia increased from €8.5 ct/kWh in 2008 to €12.3 t/kWh in 2015. All components of the energy price increased. The energy component remained stable between 2008 and 2010 with €3.1 ct/kWh. After the implementation of competitive electricity supply for all consumers in 2013, the average value for the energy component increased. In 2015, it was €3.7 ct/kWh for households. The network component steadily increased from €3.6 ct/kWh in 2008 to €5.2 ct/kWh in 2015. Further price components for households include the RES and CHP levy, the environmental and excise taxes as well as the VAT. In total, they accounted for 28% of the electricity price in 2015. Their total price steadily increased from €1.8 ct/kWh in 2008 to €3.4 ct/kWh in 2015. Households paid VAT of 20% on the total electricity price including taxes and levies in 2015. The VAT rose from the previous rate of 18% to 20% in 2009.

For households, there are two taxes and levies on the electricity price: a RES and CHP levy and an excise tax. The RES/CHP levy is a fee through which electricity consumers finance subsidies for renewable energy and CHP. The RES levy increased significantly from 2008 to 2010 and has since fluctuated to some extent. It is the same for all consumer categories. The excise tax was increased in 2010 and has remained constant since then. There are no special tariffs for households with low income. However under the Social Welfare Act, the local municipalities may aid persons or families with an income below the subsistence level with a subsistence benefit, which takes into account the expenses connected with the dwelling (electricity, household gas, heating, etc.).

### Industry

Industrial electricity prices increased from €60 /MWh in 2008 to €82 /MWh in 2012 and then decreased to €76 /MWh in 2015. All the components of the electricity price follow a similar path. The energy component increased from €29 /MWh in 2008 to €34 /MWh in 2012 and went down to €33 /MWh in 2015. The network component increased from €26 /MWh in 2008 to €34 /MWh in 2012 and decreased in 2015 to €29 /MWh. Taxes and levies increased from €5 /MWh in 2008 to €14 /MWh in 2012 and then decreased slightly to €13 /MWh in 2015. The network component and the taxes together accounted for 56% of the total price.

For industry, two taxes and levies apply: a RES and CHP levy and an excise tax. The RES/CHP levy is the same for all consumer categories and is described above. The excise tax also has a constant rate for all consumer categories. However, there are exemptions for energy intensive industries, such as



electricity use in chemical reduction and in electrolytic and metallurgical processes as well as manufacture of other non-metallic mineral products.

## Natural gas

### Households

The average natural gas price for households rose from €3.7 ct/kWh in 2008 to €5.2 ct/kWh in 2012, before decreasing to €4.8 ct/kWh in 2015. The energy component accounted for 69% of the total price in 2015 at €3.3 ct/kWh and the network component accounted for 9% in 2015. The network component increased from €0.2 ct/kWh in 2008 to €0.4 ct/kWh in 2015 with a peak of €0.6 ct/kWh in 2010. The taxes and levies component increased from €0.7 ct/kWh in 2008 to €1.1 ct/kWh in 2015. Households paid VAT at a rate of 20% on the total gas price including taxes and levies in 2015. The VAT increased from the previous rate of 18% to the current 20% rate in 2009. There is only one other tax on natural gas prices: an excise tax. The excise tax increased in 2010 and has remained constant since then until 2015, when it was increased further. There are no exemptions for vulnerable households. However under the Social Welfare Act, the local municipalities may aid persons or families with an income below the subsistence level with a subsistence benefit, which takes into account the expenses connected with the dwelling (electricity, household gas, heating, etc.).

### Industry

Prices for natural gas rose slightly from €32 /MWh in 2008 to €36 /MWh in 2015 for the I3 consumption band. The main reason for this is the slight increase in both the network as well as the taxes and levies components. The network component increased from €2 /MWh in 2008 to €4 /MWh in 2015 and the taxes and levies increased from €1 /MWh to €3 /MWh during the same period. The energy component remained approximately the same, but accounted for the majority of the total price with 81% or €29 /MWh in 2015.

For industry, the only applicable tax is the excise tax. This has a constant rate for all consumer categories. However, there are exemptions for some industries, such as natural gas used for the manufacture of other non-metallic mineral products and for electricity production.

## Oil products

### Automotive fuels

The average retail price for automotive diesel was €1082 /1000l in 2015, €71 /1000l lower than in 2008. In comparison to the other European Member States, this level was low. For gasoline,

consumers paid €1108/1000l in 2015, which is €59/1000l higher than in 2008. Estonian excise taxes on automotive fuels have been constant at €423 /1000l for gasoline and at the minimum level of €393 /1000l for diesel since 2010. Two years before they started at €359 /1000l for gasoline and €330 /1000l for diesel. The VAT on motor fuels was 20% in 2015.

### **Heating oil**

Values for the energy component in heating oil decreased by € 84/1000l between 2008 and 2015. In 2015, the level was €540 /1000l. Excise duties on heating oil nearly doubled between 2008 and 2010, then stayed at a constant rate of €111 /1000l until 2015. There is no difference for business and non-business users.

# Finland

## Electricity

### Households

The average household electricity price in Finland increased from 2008 to 2012 and since remained relatively stable from then to 2015. The energy component reached a peak price in 2012 before decreasing back to its 2008 level in 2015. The network component increased until 2012 and remained relatively stable from then to 2015. Other price components for households include the VAT and excise taxes, which in total accounted for 34% of the total electricity price in 2015. Their total contribution to the electricity price rose from €3.3 ct/kWh in 2008 to €5.3 ct/kWh in 2015.

The excise tax is divided into two classes: Class 1 is applicable for household, offices and services, while Class 2 is applicable for industrial use and professional green houses. Since April 2014, large data centres (>5MW) are considered to be Class 2 instead of Class 1 consumers. In Class 1, the size of the excise tax was stable from 2008 to 2011 at €0.87 ct/kWh and then increased to €1.69 ct/kWh in 2011, with a further increase to €2.24 ct/kWh in 2015. For the whole period from 2008 to 2015, electricity consumers paid a strategic stockpile fee of €0.013 ct/kWh. It is collected to cover costs of storage of imported fuels for energy production for crisis periods. VAT rates have been 22% in 2008, rising to 23% in July 2010 and then further increased to 24% in January 2014.

There is no special rate for households with low income. In Finland, energy costs of district heating are part of housing rents, and for housing rents vulnerable customers get support. Average household spending statistics report cost of housing and energy as one single spending figure.

### Industry

The average industrial electricity price increased from €54 /MWh in 2008 to €59 /MWh in 2012 and then decreased to €51 /MWh in 2015, slightly below the 2008 price. The energy component peaked in 2010 at €52 /MWh and decreased to €39 /MWh in 2015. The network tariff increased slightly from €5 /MWh over 2008 to 2010 to €6 /MWh from 2010 to 2015. The other price components is the excise tax, which (for Class 2) more than doubled in 2012 from the previous rate of €2.5 /MWh to €6.9 /MWh and the strategic stockpile fee of €0.13 /MWh.

In Finland energy intensive industry is entitled to a tax refund, if a company has paid fuel and electricity consumption taxes of more than 0.5% of its annual value added. It can apply for an 85% refund on the share of paid taxes which exceeds 0.5%. In addition the refund will be paid only on the share which exceeds 50 000€ and it excludes excise taxes on motor fuels.

## Natural gas

### Households

In Finland it is uncommon for households to use natural gas. There are only 4000 households using natural gas for heating and about 770 “block” houses with several apartments. The Finnish system is designed for the use of district heating. The heat for these systems is supplied by combined heat and power plants. Finland is exempted from market opening since there is only one supplier for the time being: Russia. Additionally, natural gas pipelines only supply southern parts of the country. Individual suppliers provide tariff information for the delivery of natural gas, but there is no statistical price information available.

### Industry

The average retail price for industrial users of natural gas increased from €32 /MWh in 2008 and 2010 to €48 /MWh in 2012 and decreased slightly to €46 /MWh in 2015. The energy component reached a peak in 2012 at €31 /MWh but fell to the 2008 level of €22 /MWh in 2015. The network component increased steadily from €7 /MWh in 2008 to €10 /MWh in 2015. Other price components include excise tax, strategic stockpile fee, energy content tax and carbon tax. The excise tax remained steady at €2.02 /MWh from 2008 to 2010, when it was replaced by an energy tax, and a carbon tax. The energy tax level has more than doubled from €3 /MWh in 2011 to €6.65 /MWh in 2015. The carbon tax rate has increased from €5.94 /MWh in 2011 to €8.71 /MWh in 2015. The strategic stockpile fee covers the storage costs of imported natural gas for energy production in crisis periods. This remained stable at €0.84 /MWh.

In Finland energy intensive industry is entitled to a tax refund, if a company has paid energy taxes of more than 0.5% of its annual value added. It can apply for an 85% refund on the share of paid taxes which exceeds 0.5%. The refund will be paid only on the share which exceeds 50 000€ and it excludes excise taxes on motor fuels.

## Oil products

### Automotive fuels

The average retail price for automotive diesel was €1309 /1000l in 2015, €47 /1000l higher than in 2008. For gasoline, consumers paid €1468 /1000l in 2015, which is €22/ 1000l higher than in 2008. Finnish excise taxes on automotive fuels have been stable at €627 /1000l for gasoline and €364 /1000l for diesel for the years 2008 until 2011, then they increased two times to €681 /1000l for gasoline and €506 /1000l for diesel. Excise duty rates are based on energy content, CO<sub>2</sub> emissions and local emissions of a product. Therefore excise duty rates per litre of biofuels are lower.

The excise duty rates on gasoline and diesel include a carbon tax and a strategic stockpile fee. The VAT on motor fuels was 24% in 2015.

### **Heating oil**

Values for the energy component in heating oil decreased by €90 /1000l between 2008 and 2015. In 2015, the level was €521 /1000l. Business and non-business users of heating oil are paying the same excise duty in Finland. From 2008 to 2010, the rate was €87 /1000l, then it nearly doubled to €161 /1000l. In 2015, consumers of heating oil paid €187 /1000l for excise duties.

# France

## Electricity

### Households

The average household electricity price for households in France steadily increased from €12.1 ct/kWh in 2008 to €16.2 ct/kWh in 2015. In this timeframe, the energy component rose from €4.8 ct/kWh to €6.1 ct/kWh and the network component increased slightly, from €4.1 ct/kWh to €4.6 ct/kWh. The taxes and levies component rose sharply, from €3.2 ct/kWh to €5.5 ct/kWh over the study period. The taxes and levies component includes VAT, taxes for social tariffs and support to RES and CHP. In 2015, the energy component accounted for 38% of the total price, the network component for 28% and taxes and levies for 34%.

Households must pay several taxes and levies. They pay the CTA fee, which is a fixed part of the grid fee (27% in 2015) used to cover part of the retirement payments to employees in the electricity and gas industry. The CSPE (about €1.3 ct/kWh for average households) is a public service obligation that finances the support of renewable energies and cogeneration, subsidies for social tariffs, and subsidies for electricity prices in overseas territories. Until the end of 2010, the TLE, an excise tax, applied to all consumers, with a higher rate for consumers with a peak load lower than 36 kVA and was a source of finance for municipal and local authorities. It was replaced in 2011 by three separate taxes, one for municipalities (TCCFE), one for local authorities (TDCFE) and one on electric consumption by businesses. The TLE finances actions in several sectors and cannot be assigned to a specific policy. These environmental and excise taxes amount to €0.9 ct/kWh in 2015.

The VAT has a reduced rate of 5.5% on the 'fixed part' of the bill for consumers with a capacity connection below 36 kVA, which is the case for households. However, this represents only a small part of the bill. For the variable part (kWh consumed, network costs and other taxes), the regular rate of 20% applies. VAT amounted to €2.4 ct/kWh for average households in 2015.

Certain households can benefit from a yearly rebate of €70 to €140 on their energy bill.<sup>1</sup> These households are defined as a household that 'encounters significant difficulties to have enough energy to satisfy its elementary needs because of insufficient financial resources or housing conditions'. Concrete criteria are used to identify these households such as households benefitting from the welfare programme for public health.

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<sup>1</sup> <http://www.developpement-durable.gouv.fr/Electricite-le-tarif-de-premiere.html>

## **Industry**

For industry, the total price for electricity increased from 2008 to 2015 for all consumption classes. It increased from €59 /MWh in 2008 to €90 /MWh in 2015 for companies with a consumption from 2 to 20 GWh (Band ID). For industries with higher consumption (Band IF, yearly consumption between 70 GWh and 150 GWh), the overall price increased from €59 /MWh in 2008 to €66 /MWh in 2015. The energy component increased for all consumption categories; for the ID band, it rose from €38 /MWh in 2008 to €51 /MWh in 2015, accounting for 56% of the total price. The network component increased slightly for average industrial consumers, from €15 /MWh in 2008 to €17 /MWh in 2015 or 19% of the total price. Industries in France are subject to the same taxes and levies as households. For the ID consumption band, these taxes and levies amounted to €22 /MWh in 2015 — around 25% of the total price.

Industries are subject to the CSPE but may benefit from discounts. Two limits can apply: a cap (since 2011) on the amount to be paid, which was €550,000 in 2011 and €627,783 in 2015; or a variable limit, which is defined by 0.5% of value added, but applies only for self-consumption greater than 7 GWh/a. In addition, industries with a peak load over 250 MW benefit from an exemption from the municipalities and local authorities taxes (TCCFE and TDCFE). Exemptions from the tax on electric consumption by businesses are granted to EEIs – however this tax is rather low, at €0.5 /MWh. EEIs are defined as industries that have an electricity consumption over 2.5 kWh per euro added value. The former tax (TLE which was replaced in 2011 by the TCCFE, the TDCFE and the tax on electric consumption by businesses) had discounted rates for companies according to the level of their installed capacity. Regarding the CTA fee – covering retirement costs – industries with a level of grid connection over 40 kV benefit from a reduced rate of 10% instead of 27%. As a result, for a firm in Band ID, environmental taxes amounted to €0.5 /MWh in 2015. The support payments to finance social purposes were as high as €7 /MWh in 2015, up from €3 /MWh in 2008. Also, the share of RES and CHP support payments in the CSPE amounted to €14 /MWh in 2015, which is a significant increase from the 2008 level of €2 /MWh.

## **Natural gas**

### **Households**

The average natural gas price for households has rose from €5.5 ct/kWh in 2008 to €7 ct/kWh in 2015. All cost components increased in this timeframe, albeit at a different rhythm. Over 2008–2015, the energy component rose slightly, from €3.2 ct/kWh to €3.4 ct/kWh, while the network component increased by 50%, from €1.4 ct/kWh to €2.1 ct/kWh. Taxes and levies grew even faster, from €0.9 ct/kWh to €1.5 ct/kWh over the same period. In 2015, the energy component accounted for almost 50% of total price, the network component for 30% and taxes and levies for around 20%.

The taxes and levies include the CTA and the contribution to social tariffs. Similar to the CTA on electricity, the CTA on natural gas started in 2013 and finances the retirement of employees of the

energy sector. It is set at 20.8% of the grid fee. Social taxes amounted to €0.2 ct/kWh in 2015, up from €0.1 ct/kWh in 2008. The tax on consumption of natural gas (excise tax) amounted to €0.3 ct/kWh in 2015. The VAT has two rates: one at 5.5% is applied to the fixed costs of the connection and another VAT rate of 20% which is applied to variable costs. On average, it amounted to around 15% of the total price in 2015 or €1 ct/kWh.

## **Industry**

Prices for natural gas increased from €36 /MWh in 2008 to €40 /MWh in 2012 for the I3 consumption band (yearly consumption between 10,000 GJ and 100,000 GJ), before decreasing to €37 /MWh in 2015. For larger consumers, the total price decreased over the study period.

The energy component of the I3 consumption band fell sharply, from €35 /MWh in 2008 to €26 /MWh in 2015, while the network component rose substantially in the same time period, from €1 /MWh to €8 /MWh. Taxes and levies amounted to €3 /MWh in 2015, up from €0 /MWh in 2008 and €1 /MWh in 2010. In 2015, the energy component accounted for 70% of the total price, the network component for 22% and taxes and levies for 8%.

Industries are subject to the same taxes as households but can benefit from exemptions and discounts. For the CTA, industries that are connected to the gas transmission network benefit from a reduced rate of 4%. As a result, social taxes for firms in the I3 band were about €0.2 /MWh in 2015. Industries had been exempted from the excise tax until April 2014. Since then, they are subject to the same rate as households. Nonetheless, industries using natural gas as feedstock, production of mineral products or as a propellant are exempted from the tax. For the I3 band, the average excise tax is about €2 /MWh in 2015.

## **Oil products**

### **Automotive fuels**

The average retail price for automotive diesel was €1155 /1000l in 2015, €124 /1000l lower than in 2008. For gasoline, consumers paid €1356/1000l in 2015, which is €9/1000l lower than in 2008. Excise duty rates on automotive fuels in France have been stable at €607 /1000l for gasoline and €428 /1000l for diesel. In 2015, they have been raised to €624 /1000l and €468 /1000l. There are regional differences in excise duties for automotive fuels, the quoted number shows the highest rate. For gasoline, the spread was about 17 /1000l in all years, for diesel, the rate difference increased with the total increased rate from €12 /1000l to 40 /1000l in 2015. All automotive fuels are blended with a minimum share of biofuels: 7% in gasoline and 7.7% in diesel. An additional duty is applied to gasoline for sale in Corse to finance projects of sustainable, railway or river navigation substructure. The VAT on motor fuels was 20% in 2015.



## **Heating oil**

Values for the energy component in heating oil decreased by €134 /1000l between 2008 and 2015. In 2015, the level was €516 /1000l. Heating oil was taxed at €57 /1000l from 2008 to 2015, then it increased both for business and non-business users to €76 /1000l in 2015. Industrial diesel was taxed at the same rates as heating oil until 2011, then the rate was increased to €72 /1000l. In 2015, it further increased to €108 /1000l.

# Germany

## Electricity

### Households

Between 2008 and 2014, the household price for electricity in Germany increased gradually from €21.7 ct/kWh to €29.8 ct/kWh and remained almost on the same level in 2015, at €29.5 ct/kWh. The energy component increased from €7.3 ct/kWh in 2008 and reached its peak at €8.6 ct/kWh in 2012. Following 2012, it fell back to €7.7 ct/kWh. The network component was €5.9 ct/kWh in 2008 and remained almost constant until 2012; from 2012, the network component rose to €6.8 ct/kWh in 2015. The taxes and levies component contributed to 51% of the household electricity price in 2015. It is the main driver of the increase to the total price since 2008. It grew from €8.5 ct/kWh in 2008 to €15.2 ct/kWh in 2014 and then fell slightly to €15.0 ct/kWh in 2015.

The increase in the taxes and levies component is driven by the considerable increase to the renewable energy levy (EEG). In 2015, this element was more than five times higher than its 2008 level. However, the government started to adjust the RES support policy in 2014 to reduce its financial impact on electricity bills, especially for households. The levy remained on the same level in 2014 and 2015. The renewable energy levy amounted to €6.2 ct/kWh, contributing to 41% of the taxes and levies component or 21% of the total household price. The second highest element in taxes and levies is the excise tax which is unchanged since 2008 with a rate of €2.05 ct/kWh. Another relevant element is the concession fee, which remained at an average level of €1.7 ct/kWh from 2008 to 2015. Other elements with a limited effect on the total price are the support for combined heat and power (2015: €0.254 ct/kWh), the levy to finance reduced grid fees (2015: €0.237 ct/kWh), the levy for financing interruptible loads (2015: €0.006 ct/kWh) and the only negative price component, the levy for liability of risk at offshore wind (2015: €-0.051 ct/kWh). The VAT rate has been constant at 19% since 2007 and contributed €4.7 ct/kWh to the total electricity price in 2015. There are no exemptions for low income households with low income.

### Industry

Industrial electricity prices increased from €95 /MWh in 2008 to €132 /MWh in 2015 (excluding recoverable taxes and VAT). However, the energy component decreased substantially between 2008 and 2015, falling from €65 /MWh to €46 /MWh. The network component only contributed 17% to the total electricity price in 2015. Between 2008 and 2015, it increased from €18 /MWh to €23 /MWh. Similar to the development of household prices, the total increase in the electricity price was driven by a substantial increase in the taxes and levies component, which grew from €13 /MWh in 2008 to €63 /MWh in 2015. The taxes and levies component contributed to the largest share of the total industrial electricity price, at 48% in 2015.

Taxes and levies finance support to RES, CHP and security of supply. The largest part is the renewable energy levy (EEG) which represented more than 96% of the taxes and levies in 2015. The levy increased from €11 /MWh in 2008 to €61 /MWh in 2015. However, between 2014 and 2015, the element increased by €3 /MWh due to the policy changes described in the household section. Other subcomponents with a minor price impact are the levy to finance reduced grid fees (2015: €0.65 /MWh), the support for combined heat and power (2015: €0.52 /MWh), the concession fee (2015: €0.99 /MWh) and the levy for liability of risk at offshore wind (2015: €0.4 /MWh). Together, these elements contribute to the remaining 4% of the taxes and levies component.

Industrial consumers are exempted from the excise tax if energy is used for specified energy-intensive processes, if an energy management system is applied or, in case of small and medium enterprises, if an energy intensity reduction has been accomplished. Companies can apply for tax refunds of up to 90% if they complied or partly complied with at least 92% in comparison to their energy intensity reduction target.

## Natural gas

### Households

The natural gas price for households fell from €7 ct/kWh to €5.7 ct/kWh between 2008 and 2010, then recovered back to close to its 2008 level and remained stable at €6.8 ct/kWh in 2014 and 2015. All price components had a similar trend over 2008–2015. They fell after 2008, increased until 2014 and thereafter remained stable. The energy component decreased considerably from €4 ct/kWh in 2008 to €3.2 ct/kWh in 2010 and then increased back to €3.8 ct/kWh in 2015. The network component only fell by €0.3 ct/kWh from 2008 to 2010 and recovered back to its 2008 level in 2014 and 2015. Also, the taxes and levies decreased only slightly from €1.7 ct/kWh to €1.5 ct/kWh until 2010. In 2014 the price increased back to €1.7 ct/kWh and remained constant in 2015.

The excise tax and the concession fee on natural gas have been stable since 2008 at fixed levels of €0.55 ct/kWh and €0.45 ct/kWh, respectively. Also, the VAT rate of 19% has been constant since 2008. Households had to pay VAT of €1.1 ct/kWh in 2008, which decreased to €0.9 ct/kWh in 2010 because of the decline of all the price components. There are no exemptions from VAT, excise tax or concession fee for households.

### Industry

The industrial price for natural gas decreased considerably from €47 /MWh in 2008 to €38 /MWh in 2010 and remained relatively constant since then. The price in 2015 was €39 /MWh. A major contributor to the natural gas bill for industrial consumers is the energy component (77% in 2015). In 2008 the component contributed to €38 /MWh of the overall price. This amount decreased to €29 /MWh in 2010 and increased again to a level around €28-32 /MWh between 2010 and 2015. The

network component increased from €5 /MWh in 2008 to €6 /MWh in 2010 and remained constant until 2015. The taxes and levies component was constant for the whole period between 2008 and 2015 at a level of €4 /MWh.

The taxes and levies component for industrial consumers of the ID Band consists of the excise tax which has been constant at a level of €4.04 /MWh since 2008. There are excise tax reductions that apply for the manufacturing sector. A further decrease is possible if the natural gas is used for process heating. An exemption for the concession fee on natural gas is possible if the annual consumption exceeds 5 GWh.

## Oil products

### **Automotive fuels**

The average retail price for automotive diesel was €1180 /1000l in 2015, €149 /1000l lower than in 2008. For gasoline, consumers paid €1397/1000l in 2015, which is €4/1000l higher than in 2008. Excise tax rates for gasoline in Germany depend on the sulphur content and start at €655 /1000l. They have been constant in the whole period from 2008 to 2015. If the sulphur content exceeded the threshold of 10 mg/kg, the excise duty was €670 /1000l in 2015. Diesel excise duty rates decreased between 2008 and 2009 from €486 /1000l to €470 /1000l. For the rest of the study period, they remained constant. The VAT on motor fuel was 19% in 2015.

### **Heating oil**

Values for the energy component in heating oil decreased by €158 /1000l between 2008 and 2015. In 2015, the level was €467 /1000l. Heating oil for non-business users has been taxed higher than for business users in the whole study period. The rate for non-business user was constantly at €61 /1000l, while the rate for business users increased from €45 /1000l to €46 /1000l in 2010. Industrial diesel has been taxed by a rate of €256 /1000l in 2008 and 2009, for the other years, there is no data available.

# Greece

## Electricity

### Households

The average household electricity price in Greece increased considerably from 2010 to 2015 (no data available for 2008). The main reason for this was the increase in the energy component and in the taxes and levies. The energy component steadily increased from €6.8 ct/kWh in 2010 to €9.6 ct/kWh 2015. The network component remained constant between 2010 and 2012 at €2.8 ct/kWh and then decreased to €2.5 ct/kWh in 2015. Additional price components for Greece include the RES levy, a PSO as well as the VAT. Their total price rose from €2.3 ct/kWh in 2010 to €5.6 ct/kWh 2015. In 2015, taxes and levies constituted approximately 32% of the electricity price. Households paid VAT at a rate of 13% on the total electricity price including taxes and levies in 2015. The VAT increased from 8% to 10% and then 11% in 2010 and further increased to 13% in 2011.

For households, there are three taxes and levies on the electricity price: a RES levy, a PSO and an excise tax. The RES levy is used for covering part of the costs of the renewable energy units that provide electricity to the grid. The RES levy for households increased significantly over 2010–2015 because of the substantial deficits in the special account for renewable energy: from €0.03 ct/kWh in 2008 to €0.7 ct/kWh in 2012 to €2.4 ct/kWh in 2015.

The PSO is used for two main objectives: firstly, these charges are used for subsidizing electricity production in the island electricity system, as Greek islands are based on oil combustion units which have high production costs. Moreover, the PSO is used for financing social electricity tariffs for vulnerable customers. The PSO tariff for households depends on the consumption level, with different tariffs for five consumption classes. The tariffs are progressive; the tariff is zero for the lowest consumption class and tariffs increase for higher consumption classes. There is also a night tariff for consumers connected to the low voltage grid.

Vulnerable households (classified in KOT I, II and III as below) are not charged with renewable energy levies and public services obligations. The definitions of these vulnerable households are:

- KOT I
  - Category A: People with annual, family income up to €12,000. The upper income limit is 50% higher if the customer lives in an island with less than 3,100 inhabitants. For every child under 18 years old the income limit increases by €3,000 euros.
  - Category B: Families with three children and annual income up to €23,500.
- KOT II:
  - Category C: Unemployed people more than 6 months with annual income up to €12,000. The income limit is 50% higher if the customer lives in an island with less than 3,100 inhabitants. For children under 18 years old the limit increases by €3,000.

- Category D: People with disabilities rated over 67%. The income criteria are the same as in category C.
- Category E: People needing mechanical support to stay alive, with annual income up to €30,000.
- KOT III: People registered for common meals provided by Municipalities or the Church and their electricity connection was cut off due to delayed bills.

The excise tax was introduced in 2010 and is relatively small compared to the other taxes and levies. Households pay a lower tariff than other consumers.

## **Industry**

The total price for electricity in the industry sector increased from €87 /MWh in 2010 to €108 /MWh in 2014 and then fell to €95 /MWh in 2015. In contrast, for industries with higher consumption (Band IF) the total price decreased steadily from €71 /MWh in 2010 to €53 /MWh in 2015. For band ID, the energy component increased slightly from €61 /MWh in 2010 to €77 /MWh in 2014 before falling to €73 /MWh in 2015. The network component decreased from €14 /MWh in 2010 to €9 /MWh in 2015. In 2015, the network component accounted for about 9% of the total price. Between 2010 and 2015, the taxes and levies component increased from €12 /MWh in 2010 to €21 /MWh in 2014 before dropping to €13 /MWh for 2015.

For industry, there are three taxes and levies on the electricity price similar to households: a RES levy, a PSO and an excise tax. The RES levy has had differentiated tariffs since 2010 depending on the level of grid connection: higher voltage grid connections pay lower tariffs. In 2014, an additional distinction was made for MV grid connections between consumption above and below 13 GWh; a lower tariff is applied for firms with consumption above this threshold. The RES levy for households increased significantly for most categories in recent years since 2011 with a peak in 2014.

The purpose of the PSO levy is described above in the household section. The tariff depends on the level of grid connection: higher voltage grid connections pay lower tariffs. The excise tax was introduced in 2010, and also has a lower tariff for users connected to the high voltage grid.

## **Natural gas**

### **Households**

The average natural gas price for households in Greece decreased from €7.4 ct/kWh in 2014 to €6.9 ct/kWh in 2015. The energy component accounted for the majority of the total price in 2015 with €5.4 ct/kWh or 79%. The taxes and levies contributed to the remaining 21% of the total price in 2015 or €1.4 ct/kWh. Households paid VAT at a rate of 13% of the total gas price including taxes and levies in 2015. The VAT was increased from 8% to 10 and then 11% in 2010 and then further increased to 13% in 2011.

There are three taxes on natural gas for households: an excise tax, a security of supply fee and a customs tax. The excise tax was implemented in 2010 and has been held at a constant rate for all users since then: €0.54 ct/kWh. The security supply fee was implemented in 2014 with the same tariff for all user categories. The tariff was very small (€0.048 ct/kWh in 2015). The customs tax was also very small, around €0.03 ct/kWh in 2015. Households paid a slightly higher tariff than users from other categories. Since 2015, the tariff also depends on the natural gas usage, with lower tariffs for higher consumption categories.

### **Industry**

The industrial natural gas price decreased from €48/MWh in 2014 to €42/MWh in 2015. The energy and network component accounted for 86% of the total price in 2015 or €36 /MWh. The taxes and levies component accounted for the remaining costs (€6 /MWh) in 2015.

Similar to households, there are three taxes on natural gas for industrial consumers: an excise tax, a security of supply fee and a customs tax. The excise tax and security of supply fee are described above; they have the same tariff for all user categories. The customs tax for industries is slightly lower than for households. Since 2015, the tariff also depends on the natural gas usage, with lower tariffs generally applied for higher consumption categories.

## **Oil products**

### **Automotive fuels**

The average retail price for automotive diesel was €1177 /1000l in 2015, €46 /1000l lower than in 2008. For gasoline, consumers paid €1481 /1000l in 2015, which is €353 /1000l higher than in 2008. In Greece, excise taxes for gasoline have been rising two times, in 2008 and 2010, from €350 /1000l to €410 /1000l to €670 /1000l. Since 2010, they have been constant. Diesel excise taxes increased from €293 /1000l to 412 /1000l, but then have been reduced to the minimum rate of €330 /1000l. The VAT on motor fuels was 23% in 2015.

### **Heating oil**

Values for the energy component in heating oil increased by €53 /1000l between 2008 and 2014. In 2014, the level was €665 /1000l. Heating oil has been taxed at the same rates as automotive diesel for all years, but in the heating season from October 15 to April 30, there are reduced rates of 230 /1000l. Industrial diesel has been taxed at reduced rates of €168 /1000l in 2008 and €177 /1000l in 2009, before the excise duty has been raised to the same rate as for heating oil and automotive diesel.

# Hungary

## Electricity

### Households

The average electricity price for households in Hungary increased slightly between 2008 and 2012 and then fell substantially in 2015. The increase to €15.8 ct/kWh in 2012 was caused by €0.7 ct/kWh rise in the network component and a €0.6 ct/kWh increase in the total taxes and levies component, which is largely attributed to a rise in the VAT. However, following 2012, the latter as well as the energy component shrunk, resulting in a lower total price of €11.2 ct/kWh in 2015 (-29% compared to 2012). In 2015, the largest share of the total electricity price was the energy component, which accounted for 42%, followed by network component (37%) and the total taxes and levies component (21%).

The VAT for electricity rose from 20% in 2008 to 27% at the end of 2015. Over 2008–2012, a relatively low RES and CHP levy applied to households, with a value ranging between €0.4 – 1.3 ct/kWh over this period. Following 2012, this levy was discontinued. Until October 2013, households paid for the following four schemes: coal industry restructuring charge, preferential tariff of electricity sector employees, support to district heating and RES support. Following October 2013, all four levies applied only to industrial electricity consumers. Finally, households were exempted from the excise tax over the period from 2008 to 2015.

In Hungary, electricity retail prices for households are regulated. Prices for the first 1320 kWh/year are up to 11% lower than prices for consumption above this threshold. There is no dedicated social tariff in place. However, households with low income and disabled citizens may ask for special payment schemes (deferred payment, paying in instalments or prepaid). In individual cases, municipalities grant direct subsidies to support housing costs for a limited period of time. In these cases, municipalities may pay the bill directly to the energy supplying company.

### Industry

The average electricity price for industry in Hungary decreased 21.3% over 2008 and 2015 from €108.1 /MWh to €84.7 /MWh. The price trend was strongly driven by a €36.1 /MWh fall in the energy component and €10.7 /MWh increase in the taxes and levies component.

The RES support scheme (KÁT) grew by €5.8 /MWh over 2008–2015. Until July 2011, this support scheme also captured a CHP element. However, the size of this element gradually fell, as it was partially replaced by the CHP-support policy “support to district heating” (KET), which increased



accordingly. In 2015, the support to district heating accounted for €6.7 /MWh and the RES support for €9.8 /MWh of the total electricity price for the consumption band ID.

Two other support schemes only slightly affected the taxes and levies component between 2008 and 2015. The coal industry restructuring charge to support coal and mining industry decommissioning expenses slightly decreased from €0.75 /MWh in 2008 to €0.68 /MWh in 2015. The scheme to finance preferential tariffs for employees in the electricity sector ("C tarifa") strongly fluctuated between the years, starting at €0.6 /MWh in 2008, peaking at €0.65 /MWh in 2014 and ending at €0.42 /MWh in 2015. In addition, the excise tax tariff was adjusted in Hungarian Forint, presumably to balance exchange rate fluctuations and to stabilize the duty at the minimum tax rate of €1.0 /MWh between 2008 and 2015.

## Natural gas

### Households

The total natural gas price for households decreased from €49 /MWh in 2012 to €35 /MWh in 2015. Nevertheless, the contribution of the gas price components to the total price remain stable over 2012 and 2015. In 2015, the majority of the total natural gas price or 68% is attributed to the energy component, 11% to the network component and 21% to the total taxes and levies component.

The total taxes and levies component includes a levy to finance the safe underground storage of natural gas to increase security of supply. Until 2010, this price component applied to industry consumers only. However, in July 2010, the levy increased by €0.6 /MWh to €0.8 /MWh and was applied to household consumers as well. Over July 2010 to October 2014, the levy remained stable, influenced only by exchange rate fluctuations. In November 2014, the fee was abolished for households.

In addition, an excise duty also contributed to the taxes and levies component. However, where natural gas is used as propellant, households paid excise tax only in 2008, 2009 and 2015 (€10.3 /MWh, €9.2 /MWh and €9.6 /MWh, rates). Where natural gas was used for heating or for other industrial or commercial use, households were entirely excluded from the excise duty during 2008 to 2015. In addition, VAT was also charged on household natural gas consumption; the VAT rate applied increased from 20% in 2008 to 27% in end of 2015. Finally, an induced import correction levy contributed to the taxes and levies component applied in 2009–2011 only.

Natural gas retail prices for households are regulated in Hungary. There is no dedicated social tariff in place, but prices for the first units of natural gas are lower than prices for further consumption. The number of units at lower prices increases with the number of children in families. Households with low income and disabled citizens may ask for special payment schemes (deferred payment, paying in instalments or prepaid). In individual cases, municipalities grant direct subsidies to support housing

costs for a limited period of time. In these cases, municipalities may pay the bill directly to the energy supplying company.

## **Industry**

The total natural gas price for industry decreased from €45 /MWh in 2012 to €36 /MWh in 2015. Nevertheless, the contribution of the gas price components to the total price remain stable over 2012 and 2015. In 2015, the majority of the total natural gas price or 79% is attributed to the energy component, 17% to the network component and 5% to the total taxes and levies component.

Two security of supply measures were funded by the total taxes and levies component over 2008–2015. Firstly, as described in the household section, a levy was charged to finance the safe underground storage of natural gas. Between July 2010 and October 2014, the fee increased by €0.5 /MWh to €0.7 /MWh. Secondly, an induced import correction levy contributed to the taxes and levies component in 2009–2011 only. This levy recovered increased import prices for gas from Austria in a period of construction work on the Hungary-Ukraine gas pipeline.

Furthermore, an excise tax also contributed to the taxes and levies component. This was adjusted between 2008 and 2015, presumably to balance exchange rate fluctuations and stabilize the duty at around €1.1 /MWh when natural gas was used for heating or other industrial or commercial use and at around €9.6 /MWh when natural gas was used as propellant. Small partial reductions in the excise tax apply, e.g. reduction of environmental tax when used as propellant.

## **Oil products**

### **Automotive fuels**

The average retail price for automotive diesel was €1162 /1000l in 2015, €78 /1000l lower than in 2008. For gasoline, consumers paid €1158 /1000l in 2015, which is €21 /1000l lower than in 2008. Hungarian car drivers paid €397 /1000l for excise duty on gasoline and €366 /1000l for excise duty on diesel in 2015. The rates have been fluctuating because of exchange rates. In 2008, they started at €430 /1000l and €354 /1000l. Fees are lower if the fuel is blended with ethanol or biodiesel. The VAT on motor fuels was 27% in 2015.

### **Heating oil**

Values for the energy component in heating oil decreased by €127 /1000l between 2008 and 2015. In 2015, the level was €554 /1000l. Heating oil and industrial diesel have been taxed at the same rates as automotive diesel in all years of the study period (2008 to 2015).

# Ireland

## Electricity

### Households

Over 2008 to 2015, the household electricity price in Ireland has increased from €17.7 ct/kWh to €24.3 ct/kWh. Most of this increase took place over 2010–2014, and the electricity price over 2014–2015 was relatively stable. In 2015, the majority (54%) of the electricity price can be attributed to the energy component, 27% was due to the network component and about 19% was due to the taxes and levies.

The energy component peaked in 2014 at €13.4 ct/kWh, and fell slightly to €13.1 ct/kWh in 2015. The network component also showed a similar trend, increasing from €4.6 ct/kWh in 2008 to €6.7 ct/kWh in 2014, and then decreasing to €6.6 ct/kWh in 2015. The other components of the household electricity price include RES, CHP and security of supply levies and VAT. The total value of the tax and levies rose from €2.1 ct/kWh in 2008 to €4.6 ct/kWh in 2015. The largest component of the taxes and levies is VAT. VAT on electricity is charged at 13.5% and accounted for 63% of the taxes and levies component in 2015.

The other components of the taxes and levies are linked to the Public Service Obligation (PSO). The PSO is a levy charged to all electricity customers in Ireland that is used to fund subsidy schemes supporting renewable energy, peat and security of supply as well as a contract for difference (CfD) scheme. The value of the PSO levy is determined ex-ante each year based on estimates of relevant costs to be recovered by all relevant PSO parties that are not recovered from the market, relative to a forecasted benchmark price. In addition, the PSO levy also takes into account the difference between the ex-ante modelling of costs and the actual costs from two PSO periods before the current ex-ante estimate period. This is similar to a true-up mechanism as the value can be either positive or negative, allowing subsidy schemes or electricity consumers to recover additional costs. The levy is applied as a fixed rate per domestic consumer, independent of the actual consumption. The levy for the period 1<sup>st</sup> October 2015 to 30<sup>th</sup> September 2016 is €60.09 per domestic customer. The total PSO levy amounts to €325.3 million over this period, of which €180.9 million is for renewables support, €121.9 million is for peat support, €47.3 million is for security of supply, -€9.3 million is projected for CfDs and -€15.5 million for other costs (including administrative costs and return of funds due to over-collection of the PSO in the previous period).

The Household Benefits Package in Ireland may provide some support to certain households. The qualification criteria to receive the Household Benefits Package is:

- Aged 70 or over, or
- Receiving Carer's Allowance, or
- Carer of a person who receives the Prescribed Relative's Allowance or Constant Attendance Allowance, or
- Under the age of 70, receiving a qualifying payment (e.g. state pension, widow/widower's pension, deserted wife's benefit), and living alone or with certain excepted people (e.g. dependent children or a carer)
- Under the age of 70, satisfy a means test and live alone or with certain excepted people.

In addition, recipients must also satisfy the following conditions:

- Permanently living in the state.
- No other person in the household is receiving the allowance
- For the Electricity or Natural Gas Allowance, the recipient must be the registered consumer of electricity or gas.

Eligible households can choose to receive either an electricity or natural gas allowance, with a value of €35 /month.

## **Industry**

The industrial electricity price decreased substantially over 2008–2010, falling from €120 /MWh to €84 /MWh. Since 2010, the price has increased gradually, however the price in 2015 had not yet recovered to the 2008 level. This trend was driven by the energy component, which is the largest contributor to the electricity price, representing 75% in 2015. The energy component fell from €94 /MWh to €65 /MWh over 2008–2010. The energy component has increased since 2010, however, the value in 2015 was still below the 2008 level. The network component contributed to 18% of the total electricity price in 2015. Similar to the energy component, the network component has followed a similar trend of falling from its peak in 2008 of €26 /MWh to €18 /MWh in 2010. While the network component has increased since 2010, the network component in 2015 was below the 2008 level. The taxes and levies component of the energy price was zero in 2008–2009, however since 2010 this component rose from €1 /MWh to €8 /MWh in 2015. In 2015, taxes and levies represented 7% of the total electricity price.

The taxes and levies consist of support payments for RES, CHP and security of supply as well as an excise tax. The largest component of the taxes and levies is the RES, CHP and security of supply levies which are linked to the PSO described previously. The PSO is levied on industrial customers on the basis of their connection capacity. Small commercial customers, defined as customers with a maximum connection capacity of less than 30 kVA pay a fixed value independent on the size of their consumption or import capacity. For commercial customers with a connection capacity above this threshold, the PSO is levied at a rate per unit capacity. There are no exemptions from the PSO levy.

The other component of the taxes and levies is the Electricity Tax, which has been charged at a fixed rate of €0.5 /MWh since October 2008. Relief from the Electricity Tax is applicable where the electricity was either:

- Generated from renewable sources
- Produced from environmentally friendly heat and power and meeting efficiency requirements
- Used for chemical reduction or in electrolytic or metallurgical processes
- Used for CHP generation
- Used for, or in connection with, the production of electricity produced on board a craft.

## Natural gas

### Households

The total natural gas price for households in Ireland is not available as statistical data from the energy and network component was not available.

The taxes and levies component of the household natural gas price consists of the VAT and carbon tax. VAT is taxed at a rate of 13.5%, and in 2015 represented €0.8 ct/kWh. A carbon tax was introduced in May 2010 at a rate of €15 /tCO<sub>2</sub> which translates to a natural gas rate of €0.277 ct/kWh (gross calorific value). The carbon tax rose in May 2012 to €20 /tCO<sub>2</sub>, increasing the natural gas rate to €0.37 ct/kWh.

As described previously, certain households receive a Household Benefits Package which provides €35 /month as either an Electricity Allowance or Natural Gas Allowance.

### Industry

Information about the total natural gas price for industry in Ireland is not available as data from the energy and network component was not available.

The taxes and levies component of the industrial natural gas price consists only of the carbon tax. As described previously, the carbon tax commenced in May 2010 at a rate of €2.77 /MWh (gross calorific value). In May 2012, the carbon tax rate rose to the current level of €3.7 /MWh. Relief from the Carbon Tax applies to certain industrial consumers:

- Full relief from the carbon tax applies to natural gas which is shown to have been delivered to consumers for use:
  - Solely for the generation of electricity (excluding CHP except in limited circumstances)
  - For chemical reduction

- In electrolytic or metallurgical processes
- Natural gas used as a fuel for CHP plants is not eligible for relief except in the following circumstances:
  - Partial relief will be granted for natural gas supplied for use for environmentally friendly heat and power cogeneration (efficiency requirements apply), other than micro-cogeneration. After the relief, the net charge will be at a rate of €0.54 /MWh (gross calorific value).
- A partial relief from the Carbon Tax is granted for natural gas delivered for use in an installation that is covered by the EU ETS. After the relief, the net charge will be at a rate of €0.54 /MWh (gross calorific value).

## Oil products

### **Automotive fuels**

The average retail price for automotive diesel was €1259 /1000l in 2015, €29 /1000l lower than in 2008. For gasoline, consumers paid €1369 /1000l in 2015, which is €132 /1000l higher than in 2008. Excise duty rates on gasoline in Ireland include a CO<sub>2</sub>-charge of €46 /1000l (2015), which does not apply to biofuels. The total rates have been increasing continuously between 2008 and 2012, from €443 /1000 to 588 /1000l. Between 2012 and 2015, rates have not been changed, also for diesel. Excise taxes on diesel are about €100 /1000l lower, starting at €368 /1000l and remaining at €479 /1000l since 2012. The VAT on motor fuels was 23% in 2015.

### **Heating oil**

Values for the energy component in heating oil decreased by €261 /1000l between 2008 and 2015. In 2015, the level was €476 /1000l. Heating oil was taxed at €47 /1000l in 2008. The rate increased to €89 /1000l in 2011 and then to €102 /1000l in 2012, where it stayed until 2015. There is no difference between non-business and business users, and industrial diesel is taxed at the same rate.

# Italy

## Electricity

### Households

The average electricity prices for households in Italy decreased from 2008 (€21.2 ct/kWh) to 2010 (€19.2 ct/kWh) and then increased to €23.0 ct/kWh in 2012. The price grew further to €24.5 ct/kWh in 2015. The main reason for the fall in 2010 was the reduction in the energy component of the electricity prices from €11.1 ct/kWh in 2008 to €9.4 ct/kWh in 2010. In 2015 it was around €9.9 ct/kWh. The main reason for the increasing household electricity prices after 2010 is the taxes and levies component, which increased from €5.4 ct/kWh in 2008 to €9.4 ct/kWh in 2015 for average households. The network component fluctuated slightly, but remained between €4.2 ct/kWh and €5.2 ct/kWh over the study period. Households paid VAT at a rate of 22% on the total electricity price including taxes and levies in 2015. The VAT rate increased from 20% to 21% in 2012 and then further increased to 22% in 2014.

The taxes and levies on electricity consist of an excise tax and other components, which are categorized as 'A', 'UC' and 'MCT'. The excise tax tariff rate for households had been constant at €0.47 ct/kWh and then increased considerably to €2.27 ct/kWh in 2013. The excise tax has since remained at this level.

The 'A' components cover the general system costs. There are seven subcomponents: A2, A3, A4, A5, A6, AS and AE:

- A2: The A2 subcomponent is designed to cover the costs for the dismantling of decommissioned nuclear power plants. The tariff is subdivided into a tariff per kWh and per point of collection.
  - Tariff per kWh: Tariffs for households are generally higher than for other consumer categories. There has been a reduced tariff for households for consumption below 1,800 kWh per year and committed power below 3 kW since 2008. In 2009, a lower tariff was also introduced for households with consumption above 1,800 kWh and below 2,640 kWh per year and committed power below 3 kW. The general household tariff was €0.39 ct/kWh in 2008. This has fluctuated since then, dropping to €0.112 ct/kWh at the beginning of 2012 and peaking at €0.598 ct/kWh at the end of 2015.
  - Tariff per point of collection: the tariff is zero for households.
- A3: The A3 subcomponent is the largest of the system and finance charges and provides incentives for renewable. The tariff is subdivided into a tariff per kWh and per point of collection.

- Tariff per kWh: Tariffs for households are generally higher than for other consumer categories. The tariff is structured similar to the A2 subcomponent for households with the same exemptions for lower consumption. The general household tariff was €1.38 ct/kWh in 2008 and has steadily increased since then. At the end of 2015 it was €7.273 ct/kWh.
  - Tariff per point of collection: the tariff is zero for households.
- A4: The A4 subcomponent was created to cover the subsidy for the supply of electricity to some companies with high consumption. Over time, the subsidies were eliminated and, to date, only the Italian Railway Network pays a reduced fee for electricity and does not have to pay the costs except for the MCT. The tariff is structured similar to A2 for households with the same exemptions for lower consumption. The general household tariff was €0.14 ct/kWh in 2008 and has fluctuated since then, peaking at €0.202 ct/kWh in 2009 and going down to €0.077 ct/kWh at the beginning of 2012. It was €0.108 ct/kWh at the end of 2015.
- A5: The A5 subcomponent funds research performed in the interest of the national electric system. The tariff is subdivided into a tariff per kWh and per point of collection
  - Tariff per kWh: The tariff is structured similar to A2 for households with the same exemptions for lower consumption. The general household tariff was €0.04 ct/kWh in 2008 has fluctuated since then, peaking at €0.047 ct/kWh in 2009 and going down to €0.022 ct/kWh in 2012 and 2013. It was €0.037 ct/kWh in 2015.
  - Tariff per point of collection: the tariff is zero for households.
- A6: The A6 subcomponent covers costs incurred by electricity companies that were not recovered in the liberalized market and that were refunded to companies for a transitional period. The tariff existed in 2008 only. The tariff is subdivided into a tariff per kWh, a tariff per kW per month and a tariff per point of collection.
  - Tariff per kWh: the tariff was zero for households.
  - Tariff per kW per month: tariff is the same for all households. The tariff was €6.92 ct/kW for Jan-Mar 2008 and €3.46 ct/kW for the remainder of 2008.
  - Tariff per point of collection: the tariff was zero for households.
- AS: The subcomponent AS is intended to cover the electricity bonus for economically disadvantaged or disabled customers. A single tariff applies for all households. The tariff was introduced in October 2008 at €0.01 ct/kWh. It has fluctuated since then, peaking at €0.169 ct/kWh in 2009 and going down to €0.007 ct/kWh at the end of 2011. It has remained at this level since then.
- AE: The subcomponent AE is used to finance benefits to manufacturing companies with high consumption of electricity. There is only a tariff per kWh. The tariff is structured similar to A2 for households with the same exemptions for lower consumption. The general household tariff was introduced in 2014 at €0.506 ct/kWh and decreased to €0.387 ct/kWh in April 2015.

The 'UC' components cover additional elements of the costs of electricity (such as, for example, equalization). There are two subcomponents, UC4 and UC7:

- UC4: The UC4 is used to cover the higher costs of 12 small power companies that operate on the smaller islands. In 2009, the benefits were extended to electrical distribution companies



with fewer than 5,000 customers. There is only a tariff per kWh. The tariff is structured similar to A2 for households with the same exemptions for lower consumption. The general household tariff has remained at the same level of €0.058 ct/kWh since early 2010.

- UC7: The component UC7 is intended to cover the costs of measures and actions to promote energy efficiency among end users. There is one single tariff for all households. The tariff was set at €0.01 ct/kWh in October 2010. It has fluctuated since then, recently peaking at €0.199 ct/kWh at the end of 2015.

The component MCT finances measures for territorial compensation for sites that host nuclear power plants and nuclear fuel cycle facilities and, in the future, the national repository of nuclear waste. There is a single tariff for all households. The tariff was €0.02 ct/kWh in October 2010. It has fluctuated since then, going down to €0.0066 ct/kWh at the end of 2011. It was €0.0182 ct/kWh at the end of 2015.

There is a provision to support electricity customers with annual incomes below a certain threshold. This provision is a discount in the electricity bill each year dependent upon the use, number of people in the family and climate zone.

## **Industry**

The industrial electricity price in Italy was around €130 /MWh over 2008-2010 and increased to €168 /MWh in 2012. After 2012, the price declined to €149 /MWh in 2015. The energy component of the electricity price was €100 /MWh in 2008 and 2012 and declined to €71 /MWh in 2015. At the same time, taxes and levies rose from €19 /MWh in 2008 to €62 /MWh in 2015. Network costs remained relatively stable around €15-17 /MWh over this period.

Similar to households, the taxes and levies on electricity consist of an excise tax and other components, which are categorized as 'A', 'UC' and 'MCT'. The excise tax had been constant at €0.31 ct/kWh since 2008 but rose considerably to €1.25 ct/kWh in 2013. In 2015, the tariff was differentiated depending on consumption, with a lower tariff for consumption above 0.2 GWh per month and an even lower tariff for consumers that consume more than 14.4 GWh per year.

The purpose of the different components and subcomponents are described in the household section above. Here just the industrial tariffs will be described.

- A2 (dismantling of decommissioned nuclear power plants):
  - Tariff per kWh: Tariffs are differentiated based on the consumption per month, the level of grid connection and the committed power. Since 2014, there are exemptions for energy intensive industries above certain monthly consumption thresholds.
  - Tariff per point of collection: The tariff is zero for LV grid connections with committed power below 1.5 kW. The tariff for all other users has been constant at €3.7185 per year per point of connection since 2008.
- A3 (incentives for renewable and similar sources):

- Tariff per kWh: Tariffs are differentiated based on the consumption per month, the level of grid connection and the committed power. Since 2014, there are exemptions for energy intensive industry above certain monthly consumption thresholds
  - Tariff per point of collection: The tariff is zero for LV grid connections with committed power below 1.5 kW. There are reduced tariffs for LV grid connections with committed power above 1.5 kW (with an additional tariff distinction in 2015 based on available power) and for MV grid connections. The tariff for all users has increased. The non-reduced tariff increased from €46.8996 per year per point of connection in 2008 to €156.388 at the end of 2015.
- A4 (subsidies for supply of electricity to some companies with high consumption): Tariffs are differentiated based on the consumption per month, the level of grid connection, the committed power and the available power. Since 2014, there are exemptions for energy intensive industry above certain monthly consumption thresholds.
- A5 (research performed in the interest of the national electric system):
  - Tariff per kWh: Tariffs are differentiated based on the consumption per month, the level of grid connection and the committed power. Since 2014, there are exemptions for energy intensive industry above certain monthly consumption thresholds.
  - Tariff per point of collection: The tariff is zero for LV grid connections with committed power below 1.5 kW. The tariff for all other users has been constant at €3.6668 per year per point of connection since 2008.
- A6 (costs not recovered in the liberalized market):
  - Tariff per kWh: the tariff is zero for industries.
  - Tariff per kW per month: the tariff only existed in 2008 and was different depending on the level of grid connection and committed power.
  - Tariff per point of collection: the tariff only existed in 2008 and was different depending on the level of grid connection.
- AS (electricity bonus for disadvantaged domestic customer):
  - Tariff per kWh: Tariffs are differentiated based on the consumption per month and the level of grid connection. Since 2014, there are exemptions for energy intensive industry above certain monthly consumption thresholds.
- AE: (finance benefits to manufacturing companies with high consumption of electricity):
  - Tariff per kWh: Tariffs are differentiated based on the consumption per month, the level of grid connection and the committed power. The tariff is zero for all energy intensive industries.
- UC4 (cover costs of small power companies):
  - Tariff per kWh: Tariffs are differentiated based on the level of grid connection with higher tariffs for LV (€0.03 ct/kWh) and MV (€0.02 ct/kWh) compared to €0.01 ct/kWh for larger grid connections (HV/EHV). These tariffs have been constant since 2008, except that since 2014 there were tariff reductions for energy intensive industry.
- UC7 (cover costs to promote energy efficiency among end users)

- Tariff per kWh: the tariff is the same for all industries as for households. The tariff was set at €0.01 ct/kWh in October 2010. It has fluctuated since then, recently peaking at €0.199 ct/kWh at the end of 2015.
- MCT (territorial compensation in favour of sites that host nuclear power plants):
  - Tariff per kWh: the tariff is the same for industries and households. The tariff was €0.02 ct/kWh in October 2010. It has fluctuated since then, going down to €0.0066 ct/kWh at the end of 2011. It was €0.0182 ct/kWh at the end of 2015.

## Natural gas

### Households

The average gas price for households in Italy rose from €7.0 ct/kWh in 2010 to € 8.7 ct/kWh in 2012-2014. In 2015, the price decreased to €7.7 ct/kWh. The energy and taxes components of the gas prices have also followed a similar pattern. The energy component increased from €2.7 ct/kWh in 2010 to €3.8-3.9 ct/kWh in 2012-2014 and then dropped to €3.0 ct/kWh in 2015. The taxes and levies component increased from €2.7 ct/kWh in 2010 to €3.0 ct/kWh in 2012-2014 and then dropped to €2.7 ct/kWh in 2015. The network component increased slightly from €1.7 ct/kWh in 2010 to €2.0 ct/kWh in 2015.

Households paid VAT at a rate of 20% on the total gas price including taxes and levies in 2008. In 2009 the VAT was reduced to 10% for all gas used for heating by households. In 2012, this reduction was extended for gas consumption below 480 m<sup>3</sup> per year. For gas consumption above this threshold, the VAT rate grew to 21% in 2012 and then further increased to 22% in 2015.

The other taxes and levies on gas consist of three components: an excise tax, a RES levy and a social levy.

The excise tax has higher tariffs for households than for other users. The excise tax depends on consumption per year; the tax is progressive with higher tariffs for higher consumption. The excise tax has remained at approximately the same level since 2008.

The RES levy covers the financing of, among others, energy saving, the development of renewable sources in the natural gas sector and the deployment of district heating. The tariff was introduced in 2013 at €1.071 ct/m<sup>3</sup> and has fluctuated since then. In 2015, a distinction was made in tariffs between consumption below and above 200,000 m<sup>3</sup> per year, with higher tariffs below the threshold. The tariff was €0.69 ct/m<sup>3</sup> for the lower consumption category (relevant for households) at the end of 2015.

The social levy funds a system compensation tariff for customers facing difficulties. The tariff is structurally similar to the RES levy. The tariff was introduced in 2013 at €0.1135 ct/m<sup>3</sup> and had been constant until 2014. In 2015, a distinction was made in tariffs between consumption below and above

200,000 m<sup>3</sup> per year, with higher tariffs below the threshold. The tariff was €0.1336 ct/m<sup>3</sup> for the lower consumption category at the end of 2015.

## **Industry**

The industrial gas price in Italy rose from €30 /MWh in 2010 to €41 /MWh in 2012. The price fell to €35 /MWh in 2015. The energy and taxes components of the gas price have also followed a similar pattern. The energy component increased from €23 /MWh in 2010 to €32 /MWh in 2012 and then dropped to €27 /MWh in 2015. The taxes and levies component increased from €2 /MWh in 2010 to €4 /MWh in 2012 and then dropped to €3 /MWh in 2015. The energy component accounted for 75% of the gas price. The network component remained constant at €5 /MWh during 2010-2015.

Similar to households, the taxes and levies on gas consist of three components: an excise tax, a RES levy and a social levy. The excise tax has one tariff for all industries independent of consumption. The tariff is lower compared to households and remained at approximately the same level since 2008.

The RES levy and the social levy are the same for all user categories and are described above. However, in 2015 lower tariffs were introduced for consumption above 200,000 m<sup>3</sup> per year.

## **Oil products**

### **Automotive fuels**

The average retail price for automotive diesel was €1409 /1000l in 2015, the second highest in Europe. Between 2008 and 2015 they increased by €57 /1000l. For gasoline, consumers paid €1538 /1000l in 2015, which is €150 /1000l higher than in 2008. Italian rates for excise duties on gasoline are one of the highest in Europe. They started at €564 /1000l in 2008 and then increased several times to their peak of €731 /1000l in 2014. In 2015, they decreased by €2.4 /1000l. Also, excise duties on diesel increased, from €423 /1000l in 2008 to €620 /1000l in 2014, before they also decreased by €2.4 /1000l. There is a reduced rate for the usage of gasoline in agriculture. The VAT on motor fuels was 22% in 2015.

### **Heating oil**

Values for the energy component in heating oil decreased by €110 /1000l between 2008 and 2015. In 2015, the level was €576 /1000l. Heating oil is also taxed at comparatively high rates of €403 /1000l. The rates did not change between 2008 and 2015, and there is no differentiation in user groups. Excise tax for industrial diesel are significantly lower, at €127 /1000l in 2008 and €185 /1000l in 2015.

# Latvia

## Electricity

### Households

The household electricity price over 2008–2012 increased from €11ct/kWh to €13.6ct/kWh. The price decreased to €11.8ct/kWh in 2014, but rose in 2015 beyond the 2012 price level to €16.4ct/kWh. The share of the energy component in the electricity price has decreased from 45% in 2008 to 32% in 2015. The energy component was stable at €5ct/kWh over 2008–2010 and then fell over 2010–2014 to €3.8ct/kWh. The energy component recovered to €5.2ct/kWh in 2015. The network component of the household electricity price has grown gradually over 2008–2015, from €4.7ct/kWh to €5.6ct/kWh. However, the contribution of the network charge to the total household electricity price has decreased in relative terms, from 42% in 2008 to 34% in 2015. The final component to the household electricity price is the total taxes and levies. The level of total taxes and levies grew from €1.4ct/kWh in 2008 to €4.1ct/kWh in 2012. In 2014, the taxes and levies component fell to €3.3ct/kWh, and rose to €5.5ct/kWh in 2015. The share of the total taxes and levies in the household electricity price has grown from 13% in 2008 to 34% in 2015.

The taxes and levies comprise of levies for the procurement of CHP and renewable energy resources. The tariffs for the CHP levy are determined by the difference between the feed-in tariffs and market price for electricity. They have been at €0.75 ct/kWh in 2008 and reached a peak in 2013 at €1.89 ct/kWh. Since 2014, the levy is decreasing again. In 2015, households paid €1.67 ct/kWh. The tariffs for the RES levy are determined following the same logic as the levy for CHP. It started at a value of €0.18 ct/kWh and steadily increased to €1.01 ct/kWh. The VAT rate for electricity consumption in households was reduced until December 2010. In 2008, the value was 5%, in 2009, the percentage was doubled to 10%. Since 2011, households pay the full VAT of 22% on electricity. In July 2012, it was reduced to 21% for all consumers.

Electricity prices for households in Latvia are regulated. Additionally, a social programme supports low income families since 2009. Latvenergo, the state owned supplier, which produces the majority of the total electricity produced energy in Latvia, provides vouchers to Latvian municipalities, who then distribute them to families with many children (three and more), low income families, families with children with disabilities and families with foster children and children under guardianship. In 2015, each of these vouchers was €84.24, which covered electricity costs for 500kWh. Since 2012, there is an additional programme to support families with many children. These families have access to a reduced electricity tariff for the first 2400 kWh of electricity consumption per year. This translates into a bonus of approximately €126.

## **Industry**

The industrial electricity price grew from €81/MWh in 2008 to €102/MWh in 2010. The price dipped to €99/MWh in 2012, and then increased gradually to €108/MWh in 2015. The energy component was the major contributor to the electricity price in 2008, representing 67% of the total price or €54/MWh. However, the energy component decreased to 44% of the total industrial electricity price or €48/MWh in 2015. The network component of the industrial electricity price has doubled over 2008–2015 from €17/MWh to €34/MWh. The share of the network component has grown from 21% of the electricity price in 2008 to 31% in 2015. The taxes and levies component of the electricity price increased from €9/MWh in 2008 to €27/MWh in 2015. The taxes and levies component consists of mandatory procurement components for CHP and renewable energy resources. There are no exemptions industrial consumers, therefore the rates for the levies equal the rates for households. Industrial consumers additionally pay the minimum excise tax rate of about €1 /MWh.

## **Natural gas**

Household and industrial natural gas price data were not available for Latvia.

## **Oil products**

### **Automotive fuels**

The average retail price for automotive diesel was €1063 /1000l in 2015, €40 /1000l lower than in 2008. For gasoline, consumers paid €1129 /1000l in 2015, which is €98 /1000l higher than in 2008. Latvian excise duties on gasoline have been increasing from €324 /1000l in 2008 to €411 /1000l in 2015. In the same period, excise duties on diesel increased from €275 /1000l to 333 /1000l. There is a reduced rate for biofuels. The VAT on motor fuels was 21% in 2015.

### **Heating oil**

Values for the energy component in heating oil decreased by €159 /1000l between 2008 and 2015. In 2015, the level was €523 /1000l. Latvian excise duties on heating oil do not differentiate between business and non-business users. Also, industrial use of diesel is taxed at the same rate. The values per litre started close to the minimum tax rate of €21 /1000l, but more than doubled in 2010 to €56 /1000l. In 2015, consumers paid €57 /1000l for excise duties on heating oil.

# Lithuania

## Electricity

### Households

The electricity price for households in Lithuania increased gradually over 2008 to 2012 from €12.1 ct/kWh to €13.2 ct/kWh. The total price remained stable over 2012 to 2014, and fell to €12.3 ct/kWh in 2015. The energy component of the household electricity price doubled over 2008 to 2010, growing from €2.9 ct/kWh to €5.8 ct/kWh. Over 2010–2015, the energy component level stabilised, remaining in the range of €5.7 ct/kWh to €5.9 ct/kWh. The energy component represented 46% of the total electricity price in 2015. The network component has approximately halved over the study period from €6.7 ct/kWh in 2008 to €3.4 ct/kWh in 2015. The contribution of the network component to the electricity price decreased from 56% to 27% over this period. Taxes and levies rose from €2.5 ct/kWh in 2008 to €3.5 ct/kWh in 2014. In 2015, the taxes and levies component slightly decreased to €3.3 ct/kWh or 26% of the household electricity price.

The taxes and levies component in Lithuanian electricity prices comprise of the Public Service Obligation (PSO) and VAT. The PSO finances various schemes and projects including the production of electricity from renewable energy sources and in combined heat and power plants, the NordBalt interconnector project, stranded costs, and costs of the market operator. Residents are exempted from paying excise duties. The VAT rate on electricity is 21%, resulting in about €2.1 ct/kWh in 2015. It started at 18% in 2008 and due to the general austerity measures because of the financial crisis rose two times, to 19% in 2009 and to 21% in 2010.

Electricity prices in Lithuania are regulated. There is no special social tariff, but households with low income can be compensated for heating, hot and cold water costs via social security benefits. Moreover, a reduced VAT of 9% applies to energy used for heating and hot water.

### Industry

The industrial electricity price<sup>2</sup> in Lithuania grew by over 50% from €85 /MWh in 2008 to €132 /MWh in 2012. Since 2012, the electricity price has fallen to €99 /MWh in 2015. The key driver to these price changes is the network component, which almost doubled over 2008–2012 from €32 /MWh to €62 /MWh. Since 2012, the network component has fallen to €30 /MWh in 2015, which is lower than the 2008 level. The energy component of the electricity price increased from €47 /MWh in 2008 to

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<sup>2</sup> Industrial electricity prices for Lithuania are not available for band ID. This analysis therefore considers the electricity prices from band IB.

€56 /MWh in 2010. Over 2010–2015, the energy component has remained steady in the range of €56 /MWh to €58 /MWh. The taxes and levies component to the industrial electricity price has had a relatively minor contribution to the total electricity price. Over 2008 to 2012, the taxes and levies component has fluctuated significantly: it halved from €6/MWh to €3/MWh over 2008 to 2010, and then increased to €11/MWh in 2012. The taxes and levies component has been stable since 2012. Industrial consumers pay the full PSO tariff, there are no exemptions for energy intensive industries. The excise tax on electricity equals the minimum tax rate of €1 /MWh. Electro-intensive industries for which electricity costs exceed 50% of production costs are exempted from paying the tax.

## Natural gas

### Households

The household natural gas price increased from €3.5 ct/kWh in 2008 to €5.8 ct/kWh in 2014. In 2015, the price fell to €4.6 ct/kWh. The main driver to the natural gas price is the energy component, which accounted for 54% of the price in 2015. The energy component increased from €2.3 ct/kWh in 2008 to €3.8 ct/kWh in 2014. However, in 2015, the energy component fell to €2.5 ct/kWh when the national regulatory authority distributed the retroactive gas import price discount by the Russian gas exporter Gazprom. The network component contributed to 28% of the natural gas price in 2015. The network component has grown over 2008 – 2015, from €0.7 ct/kWh to €1.3 ct/kWh in 2015. Starting from January 2015, transmission tariffs include a security of supply component to finance the liquefaction of gas in the new LNG Terminal in Klaipėda.

The taxes and levies accounted for 17% of the natural gas price in 2015. Residents are exempted from paying excise duties on natural gas. The taxes and levies component therefore only includes VAT. The VAT rate on natural gas is 21%, resulting in about €0.8 ct/kWh in 2015.

### Industry

The industrial natural gas price trend has fluctuated over 2008 to 2015. The price fell from €30 /MWh in 2008 to €25 /MWh in 2010 and then increased to €38 /MWh in 2012. Since 2012, the natural gas price has fallen to €26 /MWh in 2015. The key driver to this price trend is the energy component, which accounted for 74% of the total price. The energy component in 2015 was €26 /MWh, which is lower than the 2008 level of €30 /MWh. The other component of the industrial natural gas price is the network component, which has increased over 2008–2015, from €6 /MWh to €10 /MWh over this period. Lithuania is exempted from applying excise taxes on natural gas because of article 15(1)(g) of Council Directive 2003/96/EC. The share of natural gas in final energy consumption was less than 15% in 2000.



## Oil products

### **Automotive fuels**

The average retail price for automotive diesel was €1075 /1000l in 2015, €28 /1000l lower than in 2008. For gasoline, consumers paid €1160 /1000l in 2015, which is €121 /1000l higher than in 2008. Excise duties on gasoline have been stable since 2009 at a rate of €434 /1000l. In 2008, the rate was below the minimum level, at €332 /1000l. Diesel rates have been below the minimum level until 2013, starting at €274 /1000l in 2008, increasing to €302 /1000l in 2011. Since 2013, the rate is at about €330 /1000l. The VAT on motor fuels was 21% in 2015.

### **Heating oil**

Values for the energy component in heating oil decreased by €147 /1000l between 2008 and 2015. In 2015, the level was €456 /1000l. Heating oil was taxed at the minimum rate of €21 /1000l for the whole period, from 2008 to 2015. Rates applied to industrial diesel are identical with the rates for automotive fuel.

# Luxembourg

## Electricity

### Households

The average price of electricity for households in Luxembourg increased slightly from 2008 to 2015. In 2015, the electricity price was 10% higher than in 2008, reaching a peak price of €17.7 ct/kWh. The main driver is the increase in total taxes and levies which increased by €2.5 ct/kWh in 2015 compared to 2008, representing an increase of 117%. The energy component price decreased by €0.4 ct/kWh in 2015 compared to 2008, equivalent to a reduction of 7%. The network component price decreased by €0.6 ct/kWh in 2015 compared to 2008, equivalent to a reduction of 7%. In 2008, 39% of the electricity price for households was covered by the energy component, 48% by the network component and 14% by taxes and levies, while in 2015, 33% of the electricity prices for households was covered by the energy component, 40% by the network component and 27% by taxes and levies.

The RES and CHP levy drove the increase in household electricity prices in Luxembourg. In 2008, household customers paid €0.9 ct/kWh to support RES and CHP, while in 2015, this element was raised to €2 ct/kWh. Other taxes and levies varied between €0.8 and 0.4 ct/kWh between 2010 and 2015. An excise duty at the minimum level of €0.1 ct/kWh has been charged since 2008. There is a reduced VAT rate on electricity. It was 6% from 2008 to 2014, in 2015, it increased to 8%.

### Industry

The average industrial electricity price in Luxembourg decreased by 30% in 2015 compared to 2010, falling to reach €58 /MWh. The peak electricity price was in 2010 at €81 /MWh. The taxes and levies component had been charged at €3.6 /MWh in 2010 but decreased to €2.9 /MWh in 2015. Within the same five years, the energy component decreased from €63 /MWh to €42 /MWh. The network component stayed relatively stable between those years (- €1 /MWh). In 2015, 73% of the electricity price for industries is attributed to energy component, 22% to the network component and 5% to taxes and levies.

Firms in consumption band ID (2 000 MWh < Consumption < 20 000 MWh) are charged a much lower levy for RES and CHP support compared to households. In 2008, they were charge 65% less than households, while in 2015 the levy was 98% lower. Other levies and taxes of €14/ MWh were charged in 2010 but this fell to €1 /MWh in 2015. Similar to households, a relatively low excise tax of €1/ MWh was charged in all years.

## Natural gas

### Households

The average price of natural gas for households in Luxembourg stayed relatively stable in 2015 compared to 2010 at a level of €4.8 ct/kWh. However, it has peaked in 2012 at €5.9 ct/kWh. The main driver of this peak was the energy component, which increased from €3.2 ct/kWh in 2010 to €4.6 ct/kWh in 2012. Following 2012, the energy component fell to €2.8 ct/kWh. The level of taxes and levies was constant over this period while the network component increased by €0.5 ct/kWh.

The only taxes charged to households for the consumption of natural gas are the excise tax and the VAT. The excise tax is a payment which is dependent on consumption. It is charged at a constant rate of €0.4 ct/kWh. The VAT added 6% to the total natural gas price until 2015, when it increased to 8%.

### Industry

The average price of natural gas for industry in Luxembourg decreased by 13% in 2015 compared to 2010, falling to €36 /MWh. It peaked in 2012 at €48 /MWh. The main driver of this peak was the increase in the energy component. In 2015, 80% of the natural gas price for industry was covered by the energy component, 19% by the network component and 1% by taxes and levies.

Over the study period, the natural gas price for industry fell, but the price for households remained stable. This is because the network charge for industry is 50% lower than the network costs to households.

An excise tax of €0.5 /MWh is charged to industries. Electricity generation companies are exempted from paying this tax.

## Oil products

### Automotive fuels

The average retail price for automotive diesel was €1024 /1000l in 2015, the lowest in Europe and €93 /1000l lower than in 2008. For gasoline, consumers paid €1177 /1000l in 2015, which is €12/1000l lower than in 2008. Luxembourg applies rates very close to the minimum level for gasoline and diesel. Rates have been stable for gasoline, €462 /1000l, while rates for diesel increased from €302 /1000l to €335 /1000l. The gasoline excise tax includes an additional climate changing tax of €20 /1000l. If the fuel includes more than 10 mg/kg sulphur, the rate is about €2.5 /1000l higher. The VAT on motor fuels was 17% in 2015.

## **Heating oil**

Values for the energy component in heating oil decreased by €152 /1000l between 2008 and 2015. In 2015, the level was €471 /1000l. Also, the excise duty rates for industrial diesel have at the minimum level of €21 /1000l for the whole period from 2008 to 2015. For heating oil, Luxembourg applies the lowest burden of all European countries, €10 /1000l. There is no difference for business or non-business users.

# Malta

## Electricity

### Households

The average total price for electricity for households has decreased significantly over the study period, by €3.7 ct/kWh from 2008, to €12.5 ct/kWh in 2015. However, over this period, the price peaked in 2010 at €16.5 ct/kWh and stayed around that level through 2012, before dropping by 26% until 2014.

These price changes can be attributed to variations in the energy component, which in 2008 contributed €13.2 ct/kWh to the electricity price, rising to €13.4 ct/kWh in 2012. In 2014, the energy component fell to €9.7 ct/kWh. Part of the energy component consists of a service meter charge. This is included in the energy bill of end-users categorized as residential (households) and non-residential (commercial and industrial) and covers part of the generation costs. This charge is levied irrespective of consumption and is determined based on whether the consumer has a single-phase meter (5-7 kW capacity: €61.90) or triple phase (>7.5 kW: €185.71). Before 2008, this charge was set at a uniform annual rate of €26.62.

The network component remained relatively stable over the study period, ranging between €2.2 ct/kWh and €2.6 ct/kWh. The network cost is set at 13% of the total energy bill for households. Part of the network costs is included in the service meter charge, which is accounted for in the energy component.

The taxes and levies component predominantly consists of the VAT, which is charged at a rate of 5%. For average households, the taxes and levies component amounted to €0.8 ct/kWh in 2008 before marginally decreasing to €0.6 ct/kWh in 2014 and 2015. This 5% VAT rate is also applied on the service meter charge. Furthermore, there is an excise duty on the electricity that is generated. However, this tariff is negligible. From 2006 to 2009, Malta also levied a fuel surcharge tax to cover a part of the increase in fuel prices on the international market, and was set at €0.5 ct/kWh. An eco-reduction on the household electricity bill is available in Malta. It is applied in the form of a reduction on the electricity consumed and is calculated based on the number of registered individuals per household and on the pro-rata annual consumption. For example, a single person household consuming less than 2,000 kWh receives a 25% reduction on the energy component of the electricity bill. Two or more person households consuming less than 1,750 kWh per person annually, benefit from a 25% discount on the first 1,000 kWh and a 15% discount on the remaining 750 kWh. A study by the Malta Resources Authority found that 24% of households were likely to be benefiting from the eco-reduction (based on a sample of circa 130,000 households, 2008).

From 2008 to 2009, unemployed individuals and those entitled to social security assistance benefited from a rebate of €9.32 on the meter charge. Furthermore, households with an average annual income of less than €8,795 receive a yearly subsidy of €65 on the meter charge and also benefit from a 30% reduction on the cost of consumption of electricity prior to the eco reduction and with a maximum subsidy of €75 per annum per person. In addition, individuals that qualify for assistance on the basis of humanitarian grounds (e.g. a medical condition) are exempt from the meter charge and benefit from an 80% electricity bill deduction prior to the eco contribution. Low income households were also exempt from the surcharge tax, which was given in the form of a voucher. 30 000 households (27% of total) benefited from this exemption.

## **Industry**

The electricity prices for industry followed a somewhat different trend than for households. Over 2008 and 2015 the electricity price increased from €132 /MWh to €135 /MWh. The electricity price peaked in 2010 at €160 /MWh and remained at that level through to 2014. Changes in the total electricity price were caused solely by variations in the energy component and thus followed a similar trend as the total electricity price over the period 2008-2015. Service meter charges, which are part of the energy component were substantially lower on a per kWh basis than for households and amounted to average of €1 ct/kWh. The service meter charge is billed at an annual rate of €120 for businesses that have meters with a capacity of 5-7 kW and €360 if they have a capacity larger than 7.5 kW. Before the re-categorization of consumer groups in 2008, this was a uniform annual charge of €55.9 for both types of meter capacities.

The network component for the industry was the same as for households on a per kWh basis and is set at 12% of the electricity bill.

As of 2009, a revised categorisation of consumer groups was introduced, consisting of the categories: Residential Consumer Tariffs, Domestic Consumers and Non-residential Consumers. This re-categorisation resulted in the old commercial and industrial categories now falling in the category 'non-residential consumers'. With the introduction of the new system, energy intensive companies exceeding a consumption of 5 MWh/year can apply to be billed at day rates that are based on regulated banded tariffs.

## **Oil products**

### **Automotive fuels**

The average retail price for automotive diesel was €1273 /1000l in 2015, €133 /1000l higher than in 2008. For gasoline, consumers paid €1358 /1000l in 2015, which is €205 /1000l higher than in 2008. Excise duties on gasoline in Malta increased from €404 /1000l in 2008 to €519 /1000l in 2015. The

excise tax on diesel started at €332 /1000l and went up to €442 /1000l in 2015. The VAT on motor fuels was 18% in 2015.

### **Heating oil**

Values for the energy component in heating oil decreased by €134 /1000l between 2008 and 2015. In 2015, the level was €650 /1000l. Heating oil was taxed at the same rate as automotive diesel for business consumers until 2015, when the rate was lowered to the level of excise taxes for non-business users. These rates started at €97 /1000l in 2008 and increased several times to €202 /1000l in 2015.

# Netherlands

## Electricity

### Households

The average electricity price for households in the Netherlands has been stable for 2008 and 2010 and varied after 2010, with peaks in 2012 and 2015 (resp. €19 ct/kWh and €19.6 ct/kWh) and a decrease in 2014 (€17.3ct/kWh). The energy component of the electricity prices has steadily decreased from €8.5 ct/kWh in 2008 to €7.3 ct/kWh in 2015. The main reason for the 2012 peak was an increase in the network component to €5.9 ct/kWh; the network component was relatively stable over the other years, remaining in a range between €4.8-5.3 ct/kWh. The main reason for the 2015 peak was an increase in the taxes and levies component to €7.0 ct/kWh; prior to 2015, the taxes and levies component was relatively stable with a value of between €4.6-€5.2 ct/kWh. In 2015, about 35% of the household electricity price is attributed to taxes and levies including VAT. Households pay VAT of 21% on the total electricity price including other taxes and levies. The VAT rate increased from 19% to its current rate in 2012.

The taxes and levies consist of two main components: an energy tax for electricity and a RES levy, the "opzlag duurzame energie". The tariff for both depends on the amount of electricity usage within four categories (0-10 MWh, 10-50 MWh, 50-10,000 MWh, more than 10,000 MWh). For the three smallest categories (under 10,000 MWh), the electricity tax has steadily risen since 2008. The tariff for the first 10 MWh is one of the highest in Europe: €11.96 ct/kWh in 2015. However, policymakers decided to lower the electricity tax rate for small consumers (0-10 MWh) to €10.07 ct/kWh in 2016. The RES levy is used to finance the SDE, a subsidy program for renewable energy by the Dutch government. It was introduced in 2013 and the tariff has steadily increased since then. The maximum tariff for the first 10 MWh increased from €0.11 ct/kWh in 2013 to €0.36 ct/kWh in 2015.

All households receive a fixed lump sum as a tax refund for the electricity tax. This sum was constant over 2009-2014 (€318.62) and fell in 2015 to €311.84. In addition, households that produce renewable energy (e.g. using a solar panel) only need to pay energy tax for the part that they consume, i.e. the consumption that remains after the production is subtracted ("net metering").

There are no specific exemptions for low income households. However, consumers who are faced with very serious health risks from termination of the transport or supply of electricity or gas receive some special protection from disconnection.



## Industry

Industrial electricity prices have remained fairly constant from 2010 to 2015. For firms with a yearly consumption between 2 GWh and 20 GWh (Band ID), total energy prices were around €82 /MWh, compared to €92 /MWh in 2008. The energy component of the electricity prices has steadily decreased from €69/MWh in 2008 to €50/MWh in 2015. At the same time, the network component has increased from €13/MWh in 2008 to €17/MWh in 2015, which balanced the decrease in the energy component after 2008. In 2015, the network component accounted for 21% of the electricity price. Taxes and levies have remained between €10-15/MWh over the study period.

Similar to households, taxes and levies for industry consist of two main components: an energy tax for electricity and a RES levy. The tariff for both depends on the amount of electricity usage within four categories. There is a reduced tariff for business users with consumption above 10 GWh. For the largest category (above 10 GWh), the electricity tax was constant at €0.5 /MWh from 2008-2015. In 2016, it will be increased to €0.53 MWh. The RES levy is used to finance the SDE, a subsidy program for renewable energy by the Dutch government. It was introduced in 2013 and the tariff has steadily increased since then, also for the largest category above 10 GWh. There is no reduced tariff for business users.

Industries also received a lump sum tax exemption for the electricity tax. This sum had been constant over 2010–2014 (€119.62) and was abolished in 2015. This tax exemption can be neglected for all practical purposes in industrial electricity prices. The tax refund for energy intensive industries is of a much more substantial value. This refund is granted if the company meets the following conditions:

- Electricity use above 10 GWh
- Company has to have an energy efficiency agreement with the government
- Cost of acquiring energy products and electricity are at least 3.0% of the production value or for whom the energy taxes and levies on mineral oils are at least 0.5% of the added value

In addition, there is a complete tax exemption for the use of electricity in chemical reduction as well as in electrolytic and metallurgic processes.

## Natural gas

### Households

The average gas price for households in the Netherlands has varied between 2008 and 2015, with the lowest point in 2010 (€6.7 ct/kWh), the highest point in 2012 (€8.4 ct/kWh) and similar values for 2008 and 2015 (€7.6 ct/kWh). The energy component of the electricity price followed a similar trend, with values of €3.5 ct/kWh for 2010 and €4.3 ct/kWh for 2012, and an overall decline over the study period from €4.2 ct/kWh in 2008 to €3.6 ct/kWh in 2015. The network component was relatively

stable between €0.6 ct/kWh and €1.0 ct/kWh during 2008-2015 with a slight overall increase. The taxes and levies increased from 2008 to 2015, with the lowest point in 2010. Households pay VAT of 21% on the total gas price including other taxes and levies. The VAT rate increased in 2012 from 19% to the current rate.

Natural gas taxes and levies consist of two main components: an energy tax for gas and a RES levy. The tariff for both depends on the amount of gas usage within four categories (0-170,000 m<sup>3</sup>, 170,001–1,000,000 m<sup>3</sup>, 1,000,000 –10,000,000 m<sup>3</sup>, more than 10,000,000 m<sup>3</sup>). Up to 2012, there was also an extra split in the lowest category between 0-5,000 m<sup>3</sup> and 5,000-170,000 m<sup>3</sup>. The tariffs for the natural gas tax increased substantially from 2008 to 2015 (e.g. 20% for the lowest use category). Like in the electricity sector, the RES levy is used to finance the SDE, a subsidy program for renewable energy by the Dutch government. It was introduced in 2013 and the tariff has also steadily increased since then.

There are no specific exemptions for low income households. However, consumers who are faced with very serious health risks from termination of the transport or supply of electricity or gas receive some special protection from disconnection.

## **Industry**

The industrial natural gas price have followed a trend similar to that of the household gas price. For industries with yearly consumption between 10,000 GJ and 100,000 GJ (Band I3), total gas prices varied between €32-33 /MWh (2010, 2014) and €37-39 /MWh (2008, 2012, 2015). The energy component of the natural gas prices has decreased slightly over the study period from €32 /MWh in 2008 to €26 /MWh in 2015. The network component was very small at €1-2 /MWh during this period. Taxes and levies had been constant at around €4-5 /MWh from 2008 until 2014, but increased to €12 /MWh in 2015. In 2015, the taxes and levies component accounted for 31% of the electricity price, compared to around 15% in the preceding years.

Similar to households, taxes and levies for industries consist of two main components: an energy tax for gas and a RES levy. The tariff for both depends on the amount of gas usage within four categories. Up to 2012, there was a special tariff for business users with consumption above 10,000,000 m<sup>3</sup>. All tariffs for the natural gas tax increased significantly over 2008 to 2015. The RES levy is used to finance the SDE, a subsidy program for renewable energy by the Dutch government. It was introduced in 2013 and the tariff also steadily increased since then.

Special tariffs were in place in 2008 for gas use in horticulture: these users pay significantly lower rates in the lower use categories (about 3–10 times lower depending on specific year and use category). In addition, there is a tax exemption for gas use in efficient CHP plants and also for some types of biogases and landfill gases. All consumers pay the same tariff for compressed natural gas; this rate has increased significantly.

## Oil products

### **Automotive fuels**

The average retail price for automotive diesel was €1237 /1000l in 2015, €65 /1000l lower than in 2008. For gasoline, consumers paid €1563 /1000l in 2015. This is the highest price of all European countries and about €21 /1000l higher than in 2008. Dutch excise duties are also increasing for automotive fuels each year. The rates for gasoline started at €689 /1000l in 2008 and reached a level of €766 /1000l in 2015, one of the highest in Europe. Excise duty rates for diesel went up from €406 /1000l in 2008 to €482 /1000l in 2015. The VAT on motor fuels was 21% in 2015.

### **Heating oil**

Values for the energy component in heating oil decreased by €232 /1000l between 2008 and 2015. In 2015, the level was €360 /1000l, one of the lowest values in Europe. Heating oil was taxed at the same level as automotive diesel between 2013 and 2015. Before, the level was about half as high, starting at €244 /1000l in 2008.

# Poland

## Electricity

### Households

The average electricity price for households in Poland increased from 2008 to 2015 by 11% to reach €15.36 ct/kWh. It peaked in 2012 at €15.78 ct/kWh. The energy and network component covered around 78% of the prices during those five years. In 2012, the energy component peaked at €6.34 ct/kWh and was responsible for 40% of the energy price; it fell back to €5.75 ct/kWh in 2015. The network component increased from €5.98 ct/kWh in 2012 to €6.23 ct/kWh in 2015. The statistical value of the taxes and levies component includes VAT and excise taxes. Household customers paid a constant excise tax 2008 to 2015. Variations in Euro are due to fluctuation in exchange rates. VAT payments increased with the price components for energy and network costs. In 2015, they have been €2.68 ct/kWh.

There are other policies affecting household retail prices for electricity in Poland: green certificates and compensation for early termination of long term energy contracts. The cost impact of green certificates was estimated by using information from a Polish Center for Information on Energy Market study that quantified the impact of renewable energy generation on the electricity price for final consumers. The impact measured was below 1% and data is available up to 2011. The compensation for early termination of long term energy contracts is a fee that is paid once a year by household customers for security of supply and contributed to less than 0.5% to the electricity price. Excise taxes have been decreasing from 2008 to 2015, from €0.6 ct/kWh to €0.5 ct/kWh. The VAT tax had been fixed at 22% of the total price from 2008 to 2010 and increased after 2011 to 23%.

### Industry

The electricity price for industries decreased from 2008 to 2015 by 5% to reach €77 /MWh. It peaked in 2010 at €87 /MWh. The energy and network component accounted for 92-94% of the total electricity price in all years under consideration. The energy component increased slightly from €51 /MWh in 2008 to €52/MWh in 2015, with a peak in 2010 at €60 /MWh. The network component peaked in 2008 at €24 /MWh and decreased to 20€/MWh in 2015. In 2015, 6.4% of the electricity price for industry is attributed to taxes and levies. Industries paid a constant excise tax of €4.6 /MWh from 2008 to 2015, contributing to 5-7% of the total energy price.

Other price components for industry include green certificates, the compensation for early termination of long term energy contracts and excise taxes. The cost impact of green certificates was estimated from a Polish Center for Information on Energy Market study that quantified the impact renewable energy generation on the electricity price for final consumers. The impact measured for

industry was below 1.5% and data is available up to 2011. The compensation for early termination of long term energy contracts is a tariff based on the power capacity of the industry and is paid to ensure that the stranded costs of utilities participating in a competitive market are recovered. For Industries in the ID band (2 000 MWh < Consumption < 20 000 MWh) it contributed to less than 0.5% to the total energy price. The excise tax decreased from €5.7 /MWh in 2008 to €4.8 /MWh in 2015.

## Natural gas

### Households

The average natural gas price for households rose from €4.5 ct/kWh in 2008 to €5.1 ct/kWh in 2012, before decreasing to €5.0 ct/kWh in 2015. The energy component accounted for around half of the total price in 2015, at €2.8 ct/kWh, the other half being split between the network component (€1.2 ct/kWh in 2015, down from €1.5 ct/kWh in 2008) and taxes and levies (€0.9 ct/kWh, up from €0.8 ct/kWh in 2008).

There are no exemptions for households with low income. Since 2008, households have been exempted from paying the excise tax on natural gas. Until 2010, VAT was the only tax on natural gas, at a rate of 22%. In 2011, it was increased to 23%. Since 2013, an excise tax accounts for less than 0.01 ct/kWh. The value even decreased in 2015. As the price of other components rose overall, the value of the VAT also increased from €0.8 ct/kWh in 2008 to €0.9 ct/kWh in 2015.

### Industry

Prices for natural gas rose from €32 /MWh in 2010 to €37 /MWh in 2014 and decreased to €36 /MWh in 2015 for the I3 consumption band (yearly consumption between 10,000 GJ and 100,000 GJ). The energy component accounted for three quarters of the total price in 2015, at €27 /MWh, while the network component was relatively low in comparison, at €8 /MWh. Industries were exempted from paying excise taxes before November 2013. Since amendment of the law, industries in the I3 consumption band have been obliged to pay a tax of €1.1 /MWh. Energy intensive industries with energy intensity of more than 5% are exempted from the excise tax. There are no other applicable levies or taxes.

## Oil products

### Automotive fuels

The average retail price for automotive diesel was €1075 /1000l in 2015, one of the lowest prices in Europe and about €152 /1000l lower than in 2008. For gasoline, consumers paid €1110 /1000l in

2015, which is €136 /1000l lower than in 2008. Nominal numbers for excise tax rates in Poland are fluctuating due to exchange rates developments. In 2008, they have been €437 /1000l, in 2015, the nominal value in Euro reached a level of €487 /1000l. Diesel excise duties climbed from €303 /1000l in 2008 to €349 /1000l in 2015. The VAT on motor fuels was 23% in 2015.

### **Heating oil**

Values for the energy component in heating oil decreased by €90 /1000l between 2008 and 2015. In 2015, the level was €516 /1000l. Rates for heating oil decreased in nominal numbers from €62 /1000l in 2008 to €55 /1000l in 2015. There is no difference in rates for business and non-business users. Industrial diesel is taxed at the same level as automotive diesel.

# Portugal

## Electricity

### Households

The average price of electricity for households in Portugal steadily increased from 2008 to 2015. In 2015, prices were 50% higher than in 2008, reaching a price of €22.8 ct/kWh. The main driver was the increase in total taxes and levies which increased by €6.2 ct/kWh in 2015 compared to 2008, representing an increase of 114%. The energy component increased by €0.3 ct/kWh in 2015 compared to 2008, equivalent to an increase of 6%. The network component increased by €1 ct/kWh in 2015 compared to 2008, equivalent to an increase of 25%. In 2008, 37% of the electricity price for households was covered by the energy component, 28% by the network component and 36% by taxes and levies, while in 2015, 26% of the electricity prices for households was covered by the energy component, 23% by the network component and 51% by taxes and levies.

The RES and CHP levy, as well as the increase in the VAT rate, drove the increase in household electricity prices in Portugal. The VAT rate increased from 5% of the electricity bill in 2008 to 23% in 2012. The RES levy is proportional to the share of renewables in the energy system in Portugal. As this share has been increasing, the RES levy has also grown. In 2008, household customers paid €1.2 ct/kWh to support RES and CHP; in 2015 this levy rose to €5.2 ct/kWh.

Other taxes and levies consist of system and market operation, security of supply and social tariffs. Social tariffs are collected to help reduce the energy bill of vulnerable customers. These vulnerable customers are defined as people receiving certain social welfare subsidies (social security system) with some contract limitations (e.g. contracted power). For example, a yearly audio-visual contribution of €32 per year is collected through the electricity bills of household customers to finance the public service of radio and television. Vulnerable households are exempted from this tax. A relatively low excise tax of €0.1 ct/kWh was introduced in 2012 for households. Vulnerable households do not receive an exemption from this tax.

### Industry

The average price of electricity for industry in Portugal increased by 26% in 2015 compared to 2008 to reach €103 /MWh. It peaked in 2012 at €104 /MWh. The main driver was the increase in the energy component; in 2015 this was 22% higher than the 2008 level, reaching €57 /MWh. The network component increased by 26% in 2015 compared to 2008, reaching €22 /MWh. Taxes and levies for industry rose from €17 /kWh in 2008 to €24 /MWh in 2015. In 2015, 56% of the electricity prices for industries is attributed to the energy component, 21% to the network component and 23% to taxes and levies.

Industries in the consumption ID (2 000 MWh < Consumption < 20 000 MWh) were charged a much lower contribution for RES and CHP support compared to households. In 2008 they were charged 70% less, while in 2015 industry was charged 80% less than households. However, industry's contribution to social tariffs was higher than households; the total payments for industry were at €4 /MWh in 2015. Industry also pay in total €5 /MWh as contribution to system and market operation and €5 /MWh for security supply. Similar to households a relatively low excise tax of €1/ MWh is charged to industry.

## Natural gas

### Households

The average price of natural gas for households in Portugal increased by 58% in 2015 compared to 2008 to reach €9.9 ct/kWh. Prices peaked in 2014 at €10.5 ct/kWh. The main driver was the increase in taxes and levies which more than quintupled from €0.4 ct/kWh in 2008 to €2.2 ct/kWh in 2015. Taxes and levies peaked in 2014 at €2.4 ct/kWh. The energy component increased by 39% in 2015 compared to 2008 to reach €3.6 ct/kWh. It peaked at €4.4 ct/kWh in 2014. The network component increased by 24% compared to 2008, peaking at €4.1 ct/kWh in 2015. In 2008, the energy and network component covered around 94% of the natural gas price for households in Portugal while in 2015 they accounted for 78%.

The increase of the VAT rate drove the increase in household natural gas prices in Portugal. The VAT increased from 5% of the natural gas bill in 2008 to 23% in 2012. In absolute terms, the contribution of VAT to the total natural gas price increased from 0.3 ct/kWh in 2008 to 1.8 ct/kWh in 2015. The second driver was the increase in system operation cost after 2014. Since 2014, households have been charged a fee of €0.35 ct/kWh.

### Industry

The average price of electricity for industry in Portugal increased by 26% in 2015 compared to 2008 to reach €42 /MWh. It peaked in 2014 at €44 /MWh. The main driver was the increase in energy component which rose by 35% in 2015 compared to 2008 to reach €30 /MWh. The network component increased by 3% in 2015 compared to 2008 to reach €11 /MWh. In 2015, 72% of the natural gas prices for industries was covered by the energy component, 27% by the network component and 2% by taxes and levies.

Industry in Portugal had been exempt from paying any taxes or levies until 2014. Since then, a system operation of €0.3 /MWh and an excise tax of € 0.42/MWh was introduced.



## Oil products

### **Automotive fuels**

The average retail price for automotive diesel was €1192 /1000l in 2015, €79 /1000l lower than in 2008. For gasoline, consumers paid €1434/1000l in 2015, which is €36 /1000l higher than in 2008. Gasoline prices in Portugal include an excise tax rate of €583 /1000l in 2008 to €618 /1000l in 2015. They include a road service contribution of €87 /1000l, and a CO2 tax of €11.56 /1000l. Diesel excise tax rates remained close to the level of 2008 at €364 /1000l before they increased by €33 /1000l in 2015. The VAT on motor fuels was 23% in 2015.

### **Heating oil**

Values for the energy component in heating oil decreased by €140 /1000l between 2008 and 2015. In 2015, the level was €528 /1000l. There are special excise duty rates for heating oil and industrial diesel. Business and non-business users paid the same rate for heating oil, which began at €176 /1000l in 2008 and increased stepwise to the 2015 level of €342 /1000l. Excise duties on industrial diesel have been stable at €78 /1000l from 2008 until 2014, before they increased by €12.6 /1000l in 2015.

# Romania

## Electricity

### Households

The total price for electricity for households in Romania increased over 2008-2015, from €10.9 ct/kWh in 2008 to €13.1 ct/kWh in 2015. However, a slight price drop to €10.6 ct/kWh occurred in 2012. The increase of the total electricity price can mainly be attributed to the energy component, which increased by roughly 20% from 2008 to 2015, and the total taxes and levies component which more than doubled from €1.8 ct/kWh to €3.8 ct/kWh over the same period. Network costs decreased slightly for households, from €5.6 ct/kWh to €5.2 ct/kWh over 2008–2015.

The taxes and levies component mainly consists of excise taxes and RES support. In late-2008 a levy was introduced to support Romania's aim to cover 38% of its electricity consumption by renewable sources in 2020. The value of this intervention can be estimated based on the number of green certificates that were issued according to the annual production from renewable energy and the average price of green certificates for each year. This policy increased household electricity bills by a negligible rate of €0.01 ct/kWh in 2008 to €0.8 ct/kWh in 2015. Additionally, a tax was introduced in Romania in 2011 that aims to promote high efficiency CHPs and to improve the quality of the existing cogeneration plants, while ensuring the profitability of existing coal fired power plants. The average rate of this tax was €0.4 ct/kWh over the 2008-2015 period. Early-2008, a tariff was set to cover for the costs related to buying capacity from producers that are qualified to maintain reserves, as well as the operational, maintenance and capital costs related to managing the system. This tariff amounted to €0.4 ct/kWh in 2008, peaked in 2010 and then gradually fell to €0.3 ct/kWh in 2015. There is also an excise duty in place, which increased from €0.05 ct/kWh in 2008 to €0.1 ct/kWh in 2015. The Finance Ministry of Romania increased the VAT rate for electricity for households in 2011 from 19% to 24%.

The market for electricity is still regulated for all households. The energy regulator provides electricity from two majority state-owned generators (nuclear and hydropower) to all households for a regulated tariff. The market for household consumers will be fully liberalised end of 2017, however, prices on the regulated market already show convergences with wholesale market prices.

Since winter 2013/2014, households that use electricity for heating may receive a monthly allowance between 48 and 240 lei (€11 - €54). The criteria for granting the allowance is based on nine income classes. For a monthly income per individual of up to 155 lei, a 240 lei allowance is granted. For a monthly income per individual between 540 and 615 lei, 48 lei are granted. On top of these allowances from the central budget, allowances can be redirected from local budgets. In the heating season 2014/2015, about RON4.5 mio (€1 mio) were granted from local budgets, about 3.5% of total

amount granted for households using electricity for heating purposes. A new law regarding vulnerable consumer is under debate beginning of 2016.

## **Industry**

On average, the total electricity price for industry in Romania increased over the period 2008-2015, from €57 /MWh to €75 /MWh. This increase can largely be attributed to a rise in the price of the total taxes and levies component, which grew from €0 /MWh in 2008 up to €12 /MWh in 2015. The energy component did not increase as much, but nevertheless fluctuated over this period. In 2008, the energy component was at a level of €32 /MWh before it increased to €53 /MWh in 2012 where it peaked and gradually decreased to €35 /MWh in 2015. The trend for the network costs was u-shaped over this period: it was at a level of €25 /MWh in 2008 and reached a minima in 2012 at €20 /MWh before rising to a level of €27 /MWh in 2015.

Industry in Romania are exempt from paying VAT charges and for a few interventions, lower taxes and levies apply compared to households, such as the levy for RES support. There, a distinction is made between households and industrial consumers. Within industrial consumers, a distinction is made between industries with an electricity cost intensity of 5-10%, 10-20% and >20%. Electricity costs intensity is calculated using the arithmetic average of electricity consumption of the preceding three years and the average gross value added of the preceding three years, and a price which bases on the latest energy regulator's annual report. This price includes the full cost of funding support of electricity from renewable sources that would be passed on to companies in the absence of the exemptions. For the most electro-intensive category of companies 85% of the green certificate obligation is exempted. In 2015, 37 industrial consumers were exempted from their RE contribution for the second half of 2015, which amounted to 3.5 TWh out of 59 TWh produced in 2015.

A special excise tax rate applies to consumers that use electricity for commercial activities and is 50% of the rate that applies to households. No differentiation is made between industrial and household consumers in other taxes and levies and Romania does not apply adjusted rates for the different consumption bands.

## **Natural gas**

### **Households**

Overall, the average energy price for natural gas in Romania remained stable at €3.1 ct/kWh in 2008 and 2015, with a dip to €2.7 ct/kWh in 2012. The natural gas price in Romania is the lowest of all European countries considered in this report. The energy component decreased over the considered period from 1.8 ct/kWh to 1.5 ct/kWh, again by far the lowest level in Europe. However, the network component increased slightly, from 0.8 ct/kWh to 1 ct/kWh, which largely compensated for the

decrease in the energy component. The total taxes and levies component did not increase significantly.

Although the VAT rate increased in 2011, from 19% to 24%, the change in absolute payments per kilowatt hour is negligible. Excise taxes on natural gas for households were also of marginal size, growing from €0.06 ct/kWh in 2008 and €0.12 ct/kWh in 2015. Romania does not impose any other consumer taxes or levies on natural gas. In 2011, the International Monetary Fund has proposed taxing the additional revenues that the gas producers will obtain from the increasing gas prices to final consumers due to the liberalisation calendar. The measure was aimed to protect the vulnerable consumers, as the amount raised to the central budget would have to be directed to financially support social policies. A tax of 60% on the supplementary revenues stemming from gas market liberalisation was imposed starting 2013 and applied by end of 2015. The revenues for 2013-2014 are estimated at about €734 mio. Households that use natural gas for heating may receive a monthly allowance of between 20 and 262 lei (€4 - €59). The size of the allowance is based on nine income classes. For a monthly income per person of up to 155 lei, a 262 lei allowance is granted. For a monthly income per individual between 540 and 615 lei, 20 lei are granted. On top of these allowances from the central budget, allowances can also be redirected from the local budgets. For households that use natural gas for heating purposes, about RON70 mio (€15.5 mio) were granted in the heating season 2014/2015 from the local budgets, about 56% of total amount granted to households.

## **Industry**

On average, the total price for natural gas for industry increased slightly in Romania, from €26 /MWh in 2008 to €30 /MWh in 2015. This change can be attributed to minor increases in the energy component (€2 /MWh) and the network component (€2 /MWh), which were at a level of €21 /MWh and €9 /MWh in 2015, respectively.

The excise tax for industry over the 2008-2015 period was on average 50% lower than for households. However, a distinction is made between the use of natural gas for heating, as a propellant or for other industrial/commercial use. On the latter two purposes a tax is applied that is 15 times higher than if it were used for heating, on average being €9 /MWh. There are no specific exemptions in place for the natural gas costs of energy intensive industries.

## **Oil products**

### **Automotive fuels**

The average retail price for automotive diesel was €1197 /1000l in 2015, €97 /1000l higher than in 2008. For gasoline, consumers paid €1201/1000l in 2015, which is €177/1000l higher than in 2008. Romanian excise duties on gasoline increased stepwise from €327 /1000l in 2008 to €462 /1000l in

2015. The values for excise duties on diesel increased from €275 /1000l to the minimum level of about €330 /1000l in 2013. It climbed further to €430 /1000l in 2015. Excise duties do not apply to biofuels. The VAT on motor fuels was 24% in 2015.

### **Heating oil**

Values for the energy component in heating oil decreased by €136 /1000l between 2008 and 2015. In 2015, the level was €378 /1000l. Retail prices for heating oil used by business and non-business users as well as retail prices for industrial diesel include the same excise duty rates as automotive diesel, €430 /1000l in 2015.

# Slovakia

## Electricity

### Households

The total price of electricity for households in Slovakia experienced a small but steady decline over the period 2008-2015, from €15.9 ct/kWh to €14.9 ct/kWh. The decline can mainly be attributed to a steady decrease in costs for the network component and a decrease in cost of the energy component in 2014 and 2015. The fall in the energy and network components were offset by an increase to the taxes and levies component, which rose from €3.8 ct/kWh to 5.7 ct/kWh from 2008 to 2015. One exception to the steady decline of the total energy price was 2012. In this year, the price peaked at €17.2 ct/kWh. This peak can be attributed to the increase in taxes and levies as well as a high energy component, which amounted to €7 ct/kWh in 2012 compared to €4.8 ct/kWh three years later.

The increase in taxes and levies can be almost fully attributed to the feed-in tariff for RES support and to a lesser degree to a feed-in tariff for CHP support, first introduced in 2007. This resulted in an increase in RES/CHP levies from zero in 2008 to €1.7 ct/kWh in 2015. Starting from 2011 a small levy was applied for the decommissioning of nuclear power plants and waste and to fund newly built nuclear facilities. This nuclear levy was stable at €0.3ct /kWh. There are two elements to support security of supply: a levy to finance the promotion of production from domestic coal and the ancillary services tariff. The levy to support coal increased from €0.16 ct/kWh in 2008 to €0.44 ct/kWh in 2015. The levy to finance the balancing and stability of the network peaked at €0.96 ct/kWh in 2010, then declined to €0.77 ct/kWh in 2015. The VAT rate increased from 19 to 20% in 2011. In 2015, the nominal value per kilowatt hour was €2.42 ct/kWh. Household retail prices for electricity are regulated.

### Industry

The total industry electricity price has decreased over the past eight years from €118 /MWh in 2008 to €104 /MWh in 2015. The drop can be attributed to a decrease in the energy component, which since 2008 more than halved to €34 /MWh in 2015. This decrease fully offsets the increase in taxes and levies from €13 /MWh in 2008 to €34 /MWh in 2015. The network component in the total energy prices remained relatively stable in the study period and contributed to €37 /MWh of the total electricity price in 2015.

The increase in taxes and levies was a direct result of the feed-in tariffs for RES support that was introduced in 2007. This intervention also implemented a feed-in tariff for CHP support, which to a smaller degree also resulted in the total increase in RES and CHP levies from €0.3 /MWh in 2008 to €17 /MWh in 2015. A nuclear levy was introduced in 2011, which slightly increased from €3 /MWh to

€3.2 /MWh. Finally, the total payments for security of supply elements have been fluctuating around €12 /MWh throughout the study period. Large energy intensive industries in Slovakia often have their own production plants, and its consumption is free of any taxation if used for own purposes. The excise tax on electricity in Slovakia is close to the minimum rate of €1 /MWh. Energy intensive industries and households are exempted from these payments. Energy intensive industries are defined as companies for which electricity costs exceed 50% of the average total production costs.

## Natural gas

### Households

The total household natural gas price steadily increased from €4.3 ct/kWh in 2008 to €5 ct/kWh in 2015. This increase can be fully attributed to an increase in the energy component from €2.3 ct/kWh in 2008 to €2.8 ct/kWh in 2015. Other components were stable over the study period: around €1.3 ct/kWh for the network component and €0.8 ct/kWh for taxes and levies. There are no levies on natural gas for households, and the only tax component is VAT at a rate of 20% in 2015.

### Industry

In 2015, the total industrial natural gas price returned to its level of 2008, to about €35 /MWh. It peaked in 2012 at €39 /MWh. Fluctuations in the total price were a result of price changes in the energy component (€26 /MWh in 2015). The network component in the total natural gas price was more or less constant at €8 /MWh. Industrial users are exempted from VAT, however they pay environmental taxes and excise tax. This amounted to a total of about €1.3 /MWh in 2015. Usage in mineralogical processes and CHP is exempted from paying excise taxes.

## Oil products

### Automotive fuels

The average retail price for automotive diesel was €1141 /1000l in 2015, €195 /1000l lower than in 2008. For gasoline, consumers paid €1291 /1000l in 2015, which is €47 /1000l higher than in 2008. Excise duty rates for gasoline increased one time in the study period, in 2009. In the year before, they had been €458 /1000l, in 2009 they reached a level of €515 /1000l. The required share of biofuel in gasoline increased steadily to 4.5 in 2015. Excise duty rates for diesel increased a second time in 2010. They started at €427 /1000l in 2008 and have been stable at €368 /1000l since 2010. The VAT on motor fuels was 20% in 2015.

## **Heating oil**

Values for the energy component in heating oil decreased by €114 /1000l between 2008 and 2010. In 2010, the level was €602 /1000l. Excise duty rates for heating oil are the same for business users, non-business users and industrial diesel. The rate in 2008 was €200 /1000l, it increased steadily to €226 /1000l in 2010 and was then adjusted to the same rates as automotive diesel.



# Slovenia

## Electricity

### Households

The average electricity prices for households in Slovenia increased from 2008 (€11.6 ct/kWh) to 2014 (€16.3 ct/kWh) and then decreased slightly to €15.9 ct/kWh in 2015. The price components follow the same trend: the energy component increased from €4.6 ct/kWh to €5.8 ct/kWh in 2014, the network component from €4.6 ct/kWh to €5.7 ct/kWh in 2014 and the taxes and levies from €2.4 ct/kWh to €4.8 ct/kWh in 2014. All the components fell slightly in 2015. Households paid VAT at a rate of 22% on the total electricity price including taxes and levies in 2015. The VAT increased from 20% to 21% in 2013 and then further increased to 22% in 2014.

The taxes and levies consist of two main components: an excise tax and a RES levy. Since 2010, the amount of the RES levy depends on the level of grid connection, the grid category (transmission/distribution) and the full load hours. Tariffs have fluctuated significantly with doubling or halving of tariffs between years. In contrast, the excise tax has been constant since 2010 at €0.305 ct/kWh.

In addition, there are a few smaller components: a levy for energy efficiency support, supplements for the operation of the Energy Agency and for the Power Market Operator, costs of preferential dispatching and the contribution for security of supply from domestic sources. The energy efficiency support was introduced in 2010 and had been constant at €0.05 ct/kWh until 2014. In 2015 it rose to €0.068 ct/kWh. The supplement for the Energy Agency has been constant at €0.017 ct/kWh since 2009 and the supplement for the Power Market Operator has been constant at €0.013 ct/kWh since 2008. The levy for preferential dispatching was abolished in 2008. The contribution for security of supply from domestic sources was only paid in 2010 and 2012. The effect on electricity prices was about €0.09 ct/kWh. For these smaller components, the tariff is the same for all consumer types.

### Industry

Industrial electricity prices increased from 2008 (€81 /MWh) to 2010 (€90 /MWh) and then declined steadily towards €72 /MWh in 2015. The main reason for the high price in 2010 were higher taxes and levies (€13 /MWh), in particular a higher RES levy. The network component remained fairly stable from 2008 to 2015 at around €15-17 /MWh. The main reason for the decrease in overall electricity prices was the declining energy component from €62 /MWh in 2010 to €48 /MWh in 2015.

The taxes and levies consist of two main components: an excise tax and a RES levy. Since 2010, there have been lower tariffs for the RES levy for business and industry. There had been a lower tariff

for business and industry for the excise tax before 2010. However, since 2010 the excise tax has been constant for all consumers at €3.1 ct/kWh. There are also additional smaller levies: these are the same for all consumer types and are described above.

## Natural gas

### Households

The average gas price for households in Slovenia was fairly stable during 2008-2015 between €6.4 ct/kWh and €7.4 ct/kWh. The energy component of the natural gas price decreased steadily from €5.7 ct/kWh in 2008 to €3.1 ct/kWh in 2015. The taxes and levies increased slightly from €1.5 ct/kWh in 2008 to €2.0 ct/kWh in 2015. The network component varied between €1.3 ct/kWh and €2.4 ct/kWh over this period. Households paid VAT at a rate of 22% on the total gas price including taxes and levies in 2015. The VAT rate increased from 20% to 21% in 2013 and then further increased to 22% in 2014.

The most important taxes on natural gas are the excise tax and the carbon tax. Both have risen in the last years, the excise tax from €0.06 ct/kWh in 2008 to €0.18 ct/kWh in 2015, and the carbon tax from €0.23 ct/kWh to €0.31 ct/kWh. In addition, there are a few smaller components, namely the energy efficiency support and the RES levy. The energy efficiency support was introduced in 2010 and had been constant at €0.05 ct/kWh until 2014. In 2015 it rose to €0.065 ct/kWh. The RES levy was implemented in 2014 with the same purpose as the RES levy for electricity. It rose from €0.05 ct/kWh to €0.09 ct/kWh in 2015. For these smaller components, the tariff is the same for all consumer types.

### Industry

Industrial gas prices decreased from around €46 /MWh in 2008 to €40 /MWh in 2015. The main reason for this was the decrease in the energy and network component from around €43 /MWh in 2008 to €35 /MWh in 2015. The taxes and levies component increased from €3 /MWh to €5 /MWh.

The most important taxes on natural gas are the excise tax and the carbon tax. Both have risen somewhat in the last years. In 2015, a lower rate was implemented for these taxes for industrial consumers. There are also additional smaller levies: these are the same for all consumer types and are described above.

## Oil products

### **Automotive fuels**

The average retail price for automotive diesel was €1182 /1000l in 2015, €44 /1000l higher than in 2008. For gasoline, consumers paid €1291/1000l in 2015, which is €211 /1000l higher than in 2008. Slovenian excise duties on gasoline increased from €359 /1000l in 2008 to €527 /1000l in 2015. Gasoline tax includes a CO<sub>2</sub>-tax of 41.47€/1000l. The excise duty rates for diesel went up from €302 /1000l to €455 /1000l. The VAT on motor fuels was 22% in 2015.

### **Heating oil**

Values for the energy component in heating oil decreased by €164 /1000l between 2008 and 2015. In 2015, the level was €452 /1000l. Excise tax rates for industrial diesel and heating oil have been strongly fluctuating. For heating oil, the rate in 2008 was €54 /1000l. It nearly tripled to 151 /1000l in 2015. The rate applies to all users. Rates for industrial diesel are higher, the 2008 value was €151 /1000l, in 2015, it reached a level of €250 /1000l.

# Spain

## Electricity

### Households

The total electricity price for households in Spain increased by almost 50% between 2008 and 2015. It reached a peak in 2014 and declined slightly in 2015. The network component increased steadily and more than tripled since 2008. However, in 2015 the component only increased by one cent compared to 2014. Most of the other price elements, such as specific compensation for renewable energy, a deficit annuity, an island compensation etc. are included in the access tariff. Additionally, there is an excise tax and the VAT. The taxes and levies component doubled between 2008 and 2015 and represented 50% of household's electricity price in 2015.

Each electricity consumer has to pay an access tariff depending on the size and voltage level of the connection. This price element combines costs for the nuclear sector, deficit annuity, capacity payments, specific compensation for renewable energy, financing for the national regulatory authority, island compensation, financing of system and market operators, energy security and generation adequacy as well as other costs. The total amount of the access tariff increased from €2.4 ct/kWh in 2008 to €6.7 ct/kWh in 2015. The increase was mainly driven by the subsidies for renewable energy; its share in the access tariffs was 16% in 2008, peaked with 46% in 2013 and declined to 37% in 2015. Also, the costs electricity distribution and the financing of the tariff deficit increased considerably and represented 27% and 16% of the access tariff in 2015, respectively. The cost of the nuclear moratorium had been paid in August 2015 and consequently is no longer part of the access tariffs. Furthermore, payments for the interruptibility service is no longer part of the access tariff as it has been included in the energy component since 2015. The financing for the national regulatory authority, the financing of system and market operators, the nuclear sector and the other costs each contribute to less than 1% to the access tariffs and are consequently of minor importance.

51% of household consumers opt for a regulated tariff which is called the voluntary price for the small consumer. The access tariff is the same as for consumers with market-based tariffs but the energy component is determined by the system operator. The average price for the regulated tariff was €1.23 ct/kWh higher than the respective market tariff.

Households with residents that are pensioners, numerous families, unemployed or if the contracted power is below 3 kW are entitled to a 25% discount on the voluntary price for the small consumer.

Households paid VAT at a rate of 21% on their electricity consumption in 2015. This rate increased twice through the period from 2008 to 2015, starting with a rate of 16%. In absolute terms,

households paid VAT of €4 ct/kWh in 2015 compared to €2.2 ct/kWh in 2008. The excise tax on electricity is paid by all households and has remained at a constant percentage of 5% since 2008.

## **Industry**

For industry, the total price for electricity increased from 2008 to 2012 for industrial consumers with lower consumption (20 MWh to 500 MWh/year; Band IB) and for medium consumption (2-20 GWh/year; Band ID). Since then, prices have remained almost at the same level for both categories (€158 /MWh and €97 /MWh respectively for IB and ID in 2015). For companies with high consumption (70-150 GWh/year), the overall price decreased from 2008 to 2010, but then increased to €76 /MWh until 2015. Electricity prices for industry are composed of the energy component, the network component, and taxes and levies. The latter includes the same subcomponents as in the case of households. The energy component decreased for the two lower consumption classes and remained almost on the same level for companies with higher consumption. The network component tripled for the lowest consumption class, doubled for the Band ID and remained constant for companies in the higher consumption class.

Similar to household consumers, industrial customers must pay access tariffs. Besides the contracted capacity, which is of minor importance for industrial consumers, the grid connection level is significant for allocation to an access tariff class. The higher the level of the grid connection, the lower the access tariff. The total amount of the access tariff doubled from €12 /MWh to €24 /MWh between 2008 and 2015 for Band ID. The breakdown of the access tariff is the same as for household consumers.

The excise tax rate is the same for all consumption classes. However, a tax reduction of 85% for certain industrial processes and for energy-intensive industries was introduced in 2015. The standard rate of 5% remained constant from 2008 to 2015.

## **Natural gas**

### **Households**

The average natural gas price for households decreased from €6.1 ct/kWh in 2008 to €5.4 ct/kWh in 2010 and then increased to €8.1 ct/kWh in 2014. The energy component and the network component were in similar ranges in the considered period. The energy component increased from €2.5 ct/kWh in 2008 to €3.4 ct/kWh in 2014, meanwhile the network component grew from €2.7 ct/kWh in 2008 to €3.1 ct/kWh in 2014. The taxes and levies component doubled since 2008 from €0.8 ct/kWh to €1.6 ct/kWh in 2014.

An excise tax on natural gas was introduced in 2013 and has been charged at a constant rate of €0.234 ct/kWh since then. The VAT had a rate of 16% in 2008, which increased to 18% in June 2010

and raised again in September 2012 to the current level of 21%. Together with the increase of the other price components, the value of the VAT element almost doubled from €0.8 ct/kWh in 2008 to €1.4 ct/kWh in 2014. There are no exemptions for households.

### **Industry**

Industrial prices for natural gas decreased from €30 /MWh in 2008 to €28 /MWh in 2010 and increased back to €37 /MWh in 2014 for the I3 consumption band (yearly consumption between 10,000 GJ and 100,000 GJ). The energy component increased slightly from €28 /MWh in 2008 to €33 /MWh in 2014. The network component doubled from €2 /MWh to €4 /MWh in the same period. The taxes and levies component was zero from 2008 to 2012, increased to €0.54 /MWh in 2013 and remained constant since then. Its only element is the hydrocarbon tax on natural gas that was introduced in 2013 with a unique rate for all industries, independent of their consumption level.

## **Oil products**

### **Automotive fuels**

The average retail price for automotive diesel was €1151 /1000l in 2015, at the same level as in 2008. For gasoline, consumers paid €1232 /1000l in 2015, which is €100/1000l higher than in 2008. Excise duty rates for gasoline in Spain have been increasing in 2010, from €396 /1000l to €425 /1000l. Until 2015, it remained at this level. The rate is higher for fuel with more than 98 octane. The excise duty for diesel increased in 2009 from €302 /1000l to €331/1000l and stayed until 2015 at this level close to the minimum level. The VAT on motor fuels was 21% in 2015.

### **Heating oil**

Values for the energy component in heating oil decreased by €159 /1000l between 2008 and 2015. In 2015, the level was €466 /1000l. Excise duty rates for industrial diesel and heating oil have been stable at €85 /1000l in all years of the study period (2008 to 2015). The rate applies to all users.

# Sweden

## Electricity

### Households

The average electricity price for households in Sweden has varied since 2008: it increased from 2008 to 2012, then decreased from 2012 to 2015. Overall, prices increased from €17.2 ct/kWh in 2008 to €18.5 ct/kWh in 2015. The energy component fell sharply in this time period, from €5.9 ct/kWh to €4.4 ct/kWh, while the network component rose by almost 50% from €5.2 ct/kWh to €7.4 ct/kWh. Taxes and levies increased moderately, from €6.1 ct/kWh to €6.7 ct/kWh over the study period. In 2015, the energy component accounted for a quarter of the total price, the network component for 40% and taxes and levies for slightly over a third of the total price. Taxes and levies included the VAT and the electricity tax (excise tax). An average household paid €3.7 ct/kWh for VAT in 2015, down from €4.1 ct/kWh in 2012. The VAT rate has remained constant since 2008, at 25%. The electricity tax is higher in Southern Sweden, and lower in Northern Sweden. On average, households paid €3 ct/kWh for the electricity tax in 2015, up from €2.7 ct/kWh in 2008.

### Industry

The total price for electricity for the industry increased from 2008 to 2010 and then decreased until 2015 for all consumption classes. For companies with a consumption from 2 to 20 GWh (Band ID), the total price rose from €65 /MWh in 2008 to €73 /MWh in 2010, before falling to €54 /MWh in 2015. For industries with a higher consumption, the total price was €41 /MWh in 2015. The energy component decreased for all consumption categories, including in the ID band, where it fell from €52 /MWh in 2008 to €36 /MWh in 2015, accounting for two third of the total price. The network component increased progressively for average industrial consumers, from €13 /MWh in 2008 to €18 /MWh in 2015, accounting for a third of the total price. Taxes and levies were marginal, at €1 /MWh from 2008 to 2015. The manufacturing industry benefits from a large discount from the excise tax, which is reduced from €31 /MWh to €0.5 /MWh.

## Natural gas

### Households

The average natural gas price for households rose from 2008 to 2012, followed by a decreasing trend to 2015. In 2008, the total price was €10 ct/kWh and increased overall to €11.3 ct/kWh in 2015. The energy component decreased slightly in this time period, from €3.8 ct/kWh to €3.6 ct/kWh. The network component increased from €1.9 ct/kWh to €2.5 ct/kWh. Similarly, taxes and levies increased

from €4.3 ct/kWh to €5.2 ct/kWh. In 2015, the energy component accounted for a third of the total price, the network component for slightly under a quarter and taxes and levies for 46% of the total price.

Households pay two taxes on their natural gas consumption. The first is the VAT, which has a set rate of 25% and amounted to €2.3 ct/kWh in 2015. The second tax is the natural gas tax which increased from €2.3 ct/kWh in 2008 to €2.9 ct/kWh in 2015.

### **Industry**

The natural gas price in the industrial sector reached a peak in 2012 and have since fallen back below their 2008 level. In 2015, total price for the I3 consumption band (yearly consumption between 10,000 GJ and 100,000 GJ) was €45 /MWh, compared with €52 /MWh in 2008 and €55 /MWh in 2012. The price for larger consumers (Band I5) followed the same evolution and was at €40 /MWh in 2015.

The energy component of the I3 consumption band has fallen sharply, from €38 /MWh in 2008 to €27 /MWh in 2015, while the network component rose slightly in the same time period, from €8 /MWh to €9 /MWh. Taxes and levies amounted to €9 /MWh in 2015, up from €7 /MWh in 2008 and down from €10 /MWh in 2012. In 2015, the energy component accounted for 60% of the total price, the network component for 20% and taxes and levies for 20%.

Industries were subject to the natural gas tax including a CO<sub>2</sub> tax. However, the manufacturing industry benefits from a discounted rate. Full reductions are granted for metallurgical processes and rail bound transport. Installations participating in the EU Emissions Trading Scheme benefit from exemptions from the carbon tax. On average, industries from the I3 consumption band paid €9 /MWh for the taxes and levies component in 2015.

## **Oil products**

### **Automotive fuels**

The average retail price for automotive diesel was €1375 /1000l in 2015, €224 /1000l higher than in 2008. For gasoline, consumers paid €1409 /1000l in 2015, which is €99 /1000l higher than in 2008. There are two classes of excise duties on Swedish gasoline prices. Rates for class 2 increased from €579 /1000l in 2008 to €645 /1000l in 2015. The rate includes a carbon tax. Diesel excise duties have been €452 /1000l at the beginning of the study period and increased to €555 /1000l in 2015. The VAT on motor fuels was 25% in 2015. The VAT on motor fuels was 20% in 2015.



## **Heating oil**

Values for the energy component in heating oil decreased by €143 /1000l between 2008 and 2015. In 2015, the level was €467 /1000l. Business user rates for heating oil and industrial diesel have been fluctuating strongly. They started at €397 /1000l in 2008 and had their lowest value €62 /1000l in 2010. They doubled the year after and then again in 2015, when they reached a level of €240 /1000l. Heating oil for non-business use started with the same excise duty rate of industrial diesel, but then steadily increased over time to a value of €461 /1000l in 2013. In 2015, the nominal value in Euro was €447 /1000l.

# United Kingdom

## Electricity

### Households

The average total electricity price for households in the UK decreased from €16.5 ct/kWh in 2008 to €14.3 ct/kWh in 2010. Since 2010, the price has risen to €21.4 ct/kWh in 2015. The main reason for this development has been the increasing energy component in the UK. In 2015, this contributed to 56% of the total electricity price. Network costs have increased from €3 ct/kWh in 2008 to €5.4 ct/kWh in 2015. According to the UK statistical office, about 80% of the network costs for households can be attributed to the transmission grid. The total taxes and levies component of the electricity price increased from €1.9 ct/kWh in 2008 to €4 ct/kWh in 2015. In 2015, taxes and levies contributed to 19% of the household electricity price.

The main contributor to the taxes and levies component is the renewables obligation scheme, which is the main support mechanism for renewable electricity projects in the UK. It places an obligation on UK electricity suppliers to source an increasing proportion of the electricity they supply from renewable sources. The effect on household electricity bills has been rising over time. Estimations about the nominal effect vary. The UK statistical office states that the impact on household electricity prices increased from €0.8 ct/kWh in 2008 to €1.3 ct/kWh in 2015. The other key factor in the taxes and levies component is VAT, which is charged at a reduced rate of 5% for household use. The VAT component has increased from €0.8 ct/kWh in 2008 to €1 ct/kWh in 2015.

Climate, energy and social policies make up the remainder of the taxes and levies component. In 2015, these included a €0.3 ct/kWh for the small-scale feed in tariff scheme and €0.2 ct/kWh due to the EU ETS. In addition, the €0.2 ct/kWh of the electricity price in 2015 is attributed to the Warm Home Discount support costs. The intervention aims to remove a significant number of households from fuel poverty by providing support through energy bills. The other intervention contributing to the taxes and levy component is the Energy Company Obligation (ECO). ECO, which commenced in January 2013, requires energy companies to support households in improving the energy efficiency of their homes. ECO contributed €0.5 ct/kWh to the household electricity price. Finally, €0.4 ct/kWh is linked to other interventions, which includes the costs of smart meter roll out in the UK.

There are no direct exemptions from the taxes and levies for low income households. However, certain households receive £140 for winter 2015 to 2016 through the Warm Home Discount Scheme as a one-off discount to the electricity bill. Eligibility for this discount is based on residency in Great Britain, the bill payer being of State Pension age and the electricity supplier's participation in the scheme.

In addition, the Cold Weather Payment disburses funds from 1 November 2015 to 31 March 2016 to eligible households where the household is located in an area where the temperature is recorded as or forecast to be 0°C or below for 7 consecutive days. For each 7 day period of cold weather, a payment of £25 is granted to eligible households. Eligible households include those with recipients of the following welfare payments: Pension Credit, Income Support, income-based Jobseeker's Allowance, income-related Employment and Support Allowance and Universal Credit.

Finally, certain households may also receive the Winter Fuel Payment. In winter 2015 to 2016, eligibility for this payment was based on residence in the UK or certain EEA countries throughout the week of 21 to 27 September 2015 and a date of birth on or before 5 January 1953. The Winter Fuel Payment disburses £100 to £300 to eligible households, depending on the claimant's age, social welfare benefit payments and living arrangements.

## **Industry**

The industrial electricity price in the UK fell from €96 /MWh in 2008 to €87 /MWh in 2010. Since 2010, the industrial electricity price has increased year on year, reaching €139 /MWh in 2015. The largest component of the electricity price is the energy component, which represented 55% of the total or €33 /MWh in 2015. However, despite being the largest component of the electricity price, the energy component has not driven the electricity price trend, as this value has fluctuated between a low of €59 /MWh (in 2010) and a high of €77 /MWh (in 2015) over the period analysed. In contrast, the network component has increased by approximately 50%, rising from €19 /MWh in 2008 to €33 /MWh in 2015. The share of the network component in the total electricity price has grown from 20% to 24% over the study period. Also, the total taxes and levies component has also grown from €9 /MWh in 2008 to €29 /MWh in 2015 – a 222% increase. The share of the taxes and levies component in the energy price rose from 9% to 21% over 2008–2015.

One component of the total taxes and levies is the Climate Change Levy (CCL) which was €4 /MWh in 2015. The CCL is applied to electricity, gas and solid fuel consumption by the industrial, commercial, agricultural and public services sector. Before 1 August 2015, the CCL did not apply to electricity generation from renewable sources. There are two CCL rates: main rates, which applies to most industrial sectors, and Carbon Price Support rates, which is a higher rate paid by owners of electricity generating stations and operators of CHP stations on gas, LPG and coal and other solid fuel consumption. Other taxes and levies contributed to €25 /MWh of the electricity price in 2015. Interventions included in this category include the Renewables Obligation, the small scale FiT scheme and the EU ETS.

A reduction on the main rates of the CCL can be obtained if a business has entered into a climate change agreement (CCA) with government (administered by the Environment Agency). A CCA is a voluntary agreement to reduce energy use and CO<sub>2</sub> emissions. CCA's can be entered into by businesses operating facilities that undertake an eligible process, for example, aluminium or cement

production. Businesses with a CCA receive a 90% reduction for electricity and a 65% reduction for the other energy carriers.

## Natural gas

### Households

The household natural gas price in the UK decreased from €4.9 ct/kWh in 2008 to €4.2 ct/kWh in 2010. Since 2010, the natural gas price has risen gradually to the 2015 level of €6.3 ct/kWh. This trend was driven by the main contributor to the natural gas price: the energy component, which represented 70% or €4.4 ct/kWh of the total natural gas price in 2015. The next largest component of the natural gas price is the network component, which represented 22% or €1.4 ct/kWh in 2008 to 2015. Over the period studied, the network component followed a similar trend to the total natural gas price and energy component, decreasing from 2008 to 2010, followed by a gradual increase to 2015. The final component of the natural gas price is the taxes and levies component, which contributed to €0.5 ct/kWh in 2015, or 8%.

Over half of the taxes and levies component (€0.3 ct/kWh in 2015) is attributable to the VAT, which is charged at a rate of 5%. The remainder of the taxes and levies component (€0.2 ct/kWh in 2015) are linked to other interventions including ECO and the smart meter rollout policy.

Low income households do not receive direct exemptions from the taxes and levies component of the natural gas price. However, as described previously, the Cold Weather Payment and Winter Fuel Payment may provide some support to eligible households.

### Industry

The trend in the industrial natural gas price in the UK over 2008 – 2015 is similar to that of the household natural gas price. Prices fell from the 2008 level of €30 /MWh in 2008 to €22 /MWh in 2010. Since 2010, prices have recovered, reaching €36 /MWh in 2015. The main contributor to this price is the energy component, which amounted to €27 /MWh in 2015, or 75%. The energy component has been the main driver to the industrial natural gas price. The network component has remained relatively stable over the study period, ranging from a minimum of €5 /MWh in 2010 to €8 /MWh in 2014. In 2015, the network component was €7 /MWh or 19% of the total price. The total taxes and levies component has a relatively small contribution to the total natural gas price, contributing €2 /MWh or 6% in 2015. The value of total taxes and levies has remained constant over the period analysed. The vast majority of the total taxes and levies originates from the CCL, which is described in detail above. Other components of the total taxes and levies contributed to €0.55 /MWh in 2015. As for the CCL applied to electricity, a partial exemption from the CCL is applicable to businesses that have entered into a CCA.

## Oil products

### **Automotive fuels**

The average retail price for automotive diesel was €1589 /1000l in 2015, €91 /1000l higher than in 2008. For gasoline, consumers paid €1536 /1000l in 2015, which is €171/1000l higher than in 2008. The UK is the only country in the European Union that applies the same excise duty rates to gasoline and diesel. The nominal value in Euro for the year 2008 was €722 /1000l. In 2015, the level was lower at €674 /1000l.

### **Heating oil**

Values for the energy component in heating oil decreased by €133 /1000l between 2008 and 2015. In 2015, the level was €447 /1000l. Also the rate for heating oil and industrial diesel is the same for all consumers. The value for 2008 was €139 /1000l, in 2015 it has been about €130 /1000l. The UK applies a reduced VAT rate of 5% on fuels. The normal rate of 20% applies to biofuels.

# Norway

## Electricity

### Households

The average household electricity price in Norway decreased slightly from €17.5 ct/kWh in 2008 to €16.8 ct/kWh in 2014. The energy component decreased from 2008 to 2012 before increasing slightly to €4.7 ct/kWh in 2014, accounting for slightly more than a quarter of the total price. Support to RES is included in the energy component. Suppliers integrate the costs of green certificates in the final price to the end consumer. The network component increased from €6.6 ct/kWh in 2008 to €8.2 ct/kWh in 2012 before decreasing to €7.2 ct/kWh in 2014, accounting for 40% of the total price. Other price components for households include taxes and levies, which accounted for almost 30% of total electricity price in 2014, at €4.8 ct/kWh and have been stable since 2008.

Taxes and levies for households are composed of the Energy Fund fee (or Enova fee, for energy efficiency), the electricity consumption tax and the VAT. No exemptions are given. The Enova fee impacts the overall price only marginally: it has accounted for €0.1 ct/kWh of the total electricity price since 2008. The electricity consumption tax for households is more significant. It rose slightly from €1.3 ct/kWh in 2008 to €1.5 ct/kWh in 2014. Households must also pay a VAT of 25% on their electricity consumption. This rate remained constant throughout the period from 2008 to 2014, and its absolute value remained stable, at €3.5 ct/kWh in 2008 and €3.4 ct/kWh in 2014.

### Industry

For Norwegian industry, data on total price was only available for the IB Band (yearly consumption between 20 MWh and 500 MWh).<sup>3</sup> The total price for electricity for this consumption class decreased from €90 /MWh in 2008 to €82 /MWh 2014. The energy component decreased sharply, from €49 /MWh in 2008 to €35 /MWh in 2014, or slightly over 40% of the total price. The network component on the other hand rose slightly, from €29 /MWh in 2008 to €32 /MWh in 2014, making up slightly less than 40% of the total price.

With regards to taxes and levies, industry consumers in the IB Band pay the electricity consumption tax and the Enova fee. The consumption tax is at the same level as households, at €15 /MWh in 2014, up from €13 /MWh in 2008. The Enova fee on the other hand is a lump sum set of €84 per metering point. However, energy intensive industries (EEIs) are exempted from the electricity

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<sup>3</sup> It can be expected that the prices for the IB Band are significantly higher than that of the ID Band that is used for comparison for other countries.

consumption tax and from the costs of green certificates in the energy component price. EElS in Norway are defined by law as industries active in chemical reduction, electrolysis, metallurgical and mineralogical industrial processes, greenhouse industry, and rail transport. In addition, while companies in manufacturing, mining, waste, district heating and data centres are not considered as EElS, they pay only a fraction of the electricity consumption tax.

## Natural gas

### **Households**

There is no information on the total price of natural gas for households in Norway, as data for the energy component and the network component is missing. The carbon tax on natural gas was at €23 /tCO<sub>2</sub> in 2014. VAT also applied, with a 25% rate. There is no exemption for specific types of households.

### **Industry**

There is no information on the total price of natural gas for industry in Norway, as data for the energy component and the network component is missing. The carbon tax on LPG and natural gas is assumed to apply to the industry, however data is not available to confirm this assumption.

# Turkey

## Electricity

### Households

The average electricity price for households in Turkey increased from €12.3 ct/kWh in 2008 to €14.5 ct/kWh in 2012 and then decreased to €12.9 ct/kWh in 2015. The network component as well as the taxes and levies component followed a similar trend. The network component grew from €1.4 ct/kWh in 2008 to €3.4 ct/kWh in 2012 and then reduced to €3.2 ct/kWh in 2015, accounting for 25% of the total price in 2015. The taxes and levies component increased from €2.6 ct/kWh in 2008 to €3.0 ct/kWh in 2012 and then dropped again to €2.6 ct/kWh in 2015, accounting for 20% of the total price in 2015. On the other hand, the energy component declined from €8.4 ct/kWh in 2008 to €8.2 ct/kWh in 2012 and €7.1 ct/kWh in 2015. The taxes and levies consist of three components: an electricity consumption tax, a Turkish radio and television fee and an energy fund. The electricity consumption tax for households has been constant since 2008 at 5% of the retail sales price excluding surcharges. In 2015, the Turkish radio and television fee was at a rate of 2% for households and the energy fund was at a rate of 1% for all consumer categories. Households pay VAT of 18% on the total electricity price including other taxes and levies.

### Industry

Electricity prices in Turkey for band ID were only available for 2015. In that year, the total electricity price was €75/MWh. The energy component constituted 75% of this price, the network component 18% and the taxes component 3%. In order to investigate the development of prices in time, the electricity prices for band IB were analysed. For this band, the electricity price increased from €88/MWh in 2008 to €99/MWh in 2012, but then fell to €83/MWh in 2015. The energy component decreased from €74/MWh in 2008 to €63/MWh in 2015. The network component increased from €10/MWh in 2008 to €23/MWh 2012, and then declined to €17/MWh in 2015, accounting for 21% of the total price. The taxes and levies remained constant at €3/MWh during 2008-2015. The taxes and levies consist of three components: an electricity consumption tax, a Turkish radio and television fee and an energy fund. The electricity consumption tax for industry has been constant since 2008 at 1% of the retail sales price excluding surcharges. In 2015, the Turkish radio and television fee was at a rate of 1% for households and the energy fund was at a rate of 1% for all consumer categories.



## Natural gas

### **Households**

The average gas price for households in Turkey decreased from €4.1 ct/kWh in 2008 to €3.3 ct/kWh in 2010, excluding the network component. Afterwards, the gas price slightly increased to €3.5 ct/kWh in 2015 excluding the network component. The energy component followed a similar trend, decreasing from €3.2 ct/kWh in 2008 to €2.7 ct/kWh in 2010, and then increasing slightly to €3.0 ct/kWh in 2015. The taxes and levies component of the gas prices decreased steadily from €0.8 ct/kWh in 2008 to €0.5 ct/kWh in 2015. This component comprises of a special consumption tax and a VAT which is charged at a rate of 18% on the total gas price including other taxes and levies.

### **Industry**

The average gas price for industry in Turkey decreased from €31/MWh in 2008 to €24/MWh in 2010, excluding the network component. Afterwards, the gas price slightly increased to €26/MWh in 2015 excluding the network component. The energy component followed a similar trend, falling from €30/MWh in 2008 to €23/MWh in 2010, and then growing slightly to €26/MWh in 2015. The taxes and levies component of the gas prices remained stable at €1/MWh during 2008-2015. This component is made up of only one tax, a special consumption tax.







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