

UNIVERSIDAD PONTIFICIA COMILLAS  
ESCUELA TÉCNICA SUPERIOR DE INGENIERÍA (ICAI)

OFFICIAL MASTER'S DEGREE IN THE  
ELECTRIC POWER INDUSTRY

Master's Thesis

**COMPARATIVE ANALYSIS OF FINAL ELECTRICITY  
PRICES FOR INDUSTRIAL END-USERS IN EUROPE**

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**Madrid, July 2015**

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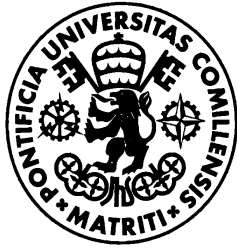
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## **Abstract**

This master's thesis presents a detailed analysis of the definition of electricity prices for energy-intensive industries across Europe. The objective is to determine the suitability of the current methodologies for the collection and dissemination of electricity prices for these large industrial consumers.

In particular, this work addresses some of the concerns associated with the current statistics published by the statistical office of the European Union (Eurostat) and the International Energy Agency (IEA).

Finally, the interaction between the incomes associated with the interruptible capacity service and the final electricity prices that are published is introduced as a possible future research direction to solve the problems addressed in this work.

## **Resumen**

Este Trabajo Fin de Máster está enfocado hacia el análisis los parámetros que definen el precio de la energía eléctrica para grande consumidores intensivos en electricidad en Europa. El objetivo es la determinación de la idoneidad de las metodologías actuales para la recopilación y publicación de los precios de la energía eléctrica para estos grandes consumidores industriales.

En particular, este trabajo aborda algunas de las preocupaciones asociadas con las estadísticas publicadas por la oficina estadística de la Unión Europea (Eurostat) y la Agencia Internacional de la Energía (IEA).

Finalmente, en este trabajo se presenta como mejora que a la hora de confección de los precios de energía eléctrica, se deben tener en consideración los pagos asociados al servicio de interrumpibilidad que actualmente reciben los grandes consumidores eléctricos.

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# Chapter 1

## Introduction

### 1.1 Background and motivation

Europe's power industry is facing significant challenges due to the progressive integration of wholesale energy markets and growing environmental concerns associated with greenhouse gas emission reductions and the role of alternative energy sources. The impact of these issues has become central for EU Member States as electricity prices are of particular importance for international competitiveness. For instance, for energy-intensive industries (e.g. chemicals, cement, glass, paper, aluminium, iron and steel), insofar as they present large consumption levels per year, electricity usually represents a significant proportion of operating costs.

While market coupling theoretically increases the level of competition and therefore delivers efficient and cheaper electricity, issues such as state intervention (for example, taxation, subsidy or any policy support) can have a significant impact on the potential savings.

In order to compare electricity prices between countries and to understand which components drive these prices (energy and supply costs, network costs, and taxes and levies), the development of standards to define the way in which electricity price statistics are to be collected and disseminated is indispensable.

“The transparency of energy prices is guaranteed within the EU through the obligation for EU Member States to send Eurostat information relating to prices for different categories of industrial and business users (prices for the household sector are provided on a voluntary basis), as well as data relating to market shares, conditions of sale, and pricing systems” [1].

From 2007 onwards Eurostat has been publishing statistics on final electricity prices according to a new methodology [2] which meant a step forward in prices transparency and the homogenization in the comparison by grouping users by their annual electricity consumption. However, the current statistical methodology presents several limitations that do not guarantee neither a homogeneous comparison of the prices for energy-intensive industries nor a proper breakdown of the main components that are affecting these prices.

In order to tackle this broad problem, this master's thesis is intended to analyse the definition of electricity prices for energy-intensive industries across Europe and, based on this study, investigate different alternatives to improve the present statistics.

## **1.2 Objectives of the thesis**

Following the previous section, this work provides a new focus to cover the analysis of prices for energy-intensive industries.

The two main objectives of this master's thesis are summarized below:

- Provide comprehensive information about the breakdown of the main components that are affecting prices paid by energy-intensive industries.
- Contribute to set the basis for the further development of a robust alternative methodology to achieve EU-wide comparability and advance towards standardisation.

## **1.3 Thesis outline**

The rest of this thesis is organized as follows to cover the previously established objectives. Chapter 2 focuses on finding all the information relative to prices for energy-intensive industries to better understand the current pricing scenario. Accordingly, electricity price components (energy and supply costs, network costs, and taxes and levies) have been gathered together from six different countries: Spain, Portugal, Italy, France, Germany and United Kingdom. Chapter 3 highlights the main assumptions underlying some of the current methodologies to collect and compare electricity prices and discusses the suitability of each methodology to the energy-intensive industries. Chapter 4 presents other efforts towards the electricity price information harmonization process. Chapter 5 presents some conclusions regarding a possible alternative that delivers reliable electricity price information.



## **Chapter 2**

# **Analysis of the current electricity prices for industrial end-users in Europe**

### **2.1 Price components and different electricity users**

The price of electricity depends on a whole range of factors which include the technology mix, network costs, level of interconnection, environmental protection costs, level of taxation, etc. Electricity prices are mainly defined according to the type of consumers that they apply to and vary from one country to another. Traditionally, electricity consumers have been classified in two main groups, small and large consumers, according to their electricity consumption and the voltage level to which they are connected. The first group comprises households and small business, with low consumption levels per year, while the later group corresponds to large commercial and industrial electricity users, with large consumption levels per year.

Given that the issue of electricity prices is not equally important for all type of users, this master's thesis, as mentioned in the previous chapter, is particularly focused on energy-intensive industries.

A 2003 European directive extended and established a definition for large energy-intensive industry consumers, as follows. The Council Directive 2003/96/EC [3] in its Article 17 defines an energy-intensive business as a business entity where either the purchases of energy products and electricity amount to at least 3.0 % of the production value or the national energy tax payable amounts to at least 0.5 % of the added value. Considering this definition Member States may apply more restrictive concepts, including sales value, process and sector definitions to determine energy-intensive industries not only following their level of electricity consumption.

Companies which frequently qualify as energy-intensive according to this EU directive's definition include those operating in sectors such as chemicals, cement, glass, paper, aluminium, iron and steel.

In order to achieve the previously established objectives, the initial step has been to develop an international comparison to explore possible price drivers across

Europe. This effort is a necessary building block for the success of any proposed scheme for the electricity price information harmonization process.

Accordingly, electricity price components in six different Member States (Spain, Portugal, Italy, France, Germany and United Kingdom) have been examined based on existing legislation and policies at the time this thesis was written. A full set of references is provided at the end of this document.

The analysis is built around three main aspects: **energy and supply costs**, **network costs**, and **taxes and levies**, following up the breakdown of prices by component reported on the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Energy prices and costs in Europe [4].

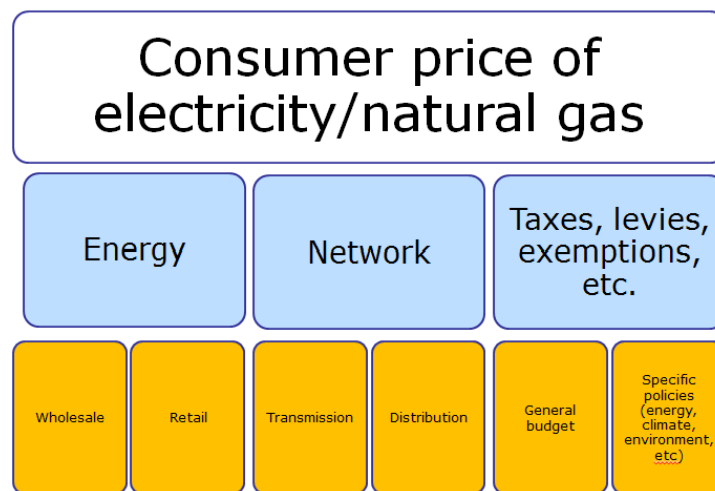


Figure 1: Schematic breakdown of the basic elements of the final electricity and natural gas prices

Source: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Energy prices and costs in Europe [4]

The starting point is a detailed description of the different elements that are included in each of the three aforementioned price components in the concerned countries, including the role of governments and markets in the price formation. Then, other elements that have an impact on the price of electricity for energy-intensive industries are discussed in Section 2.2. The final part of this chapter determines the common features, as well as particular characteristics of each individual system.

### 2.1.1 Energy and supply cost component

The energy and supply component primarily covers the costs incurred in generation, trading and selling of electricity to end-users.

On the markets upstream and downstream of the network (generation and supply of electricity) there has been a worldwide tendency, developed progressively over the years, to enhance competition between agents to place pressure on them to act more efficiently. Therefore, this part of the electricity price should reflect prices set by market forces.

Regarding the wholesale market side, the cost of electricity, which is often a major component of the final price, is determined in each of the different timescales in which electricity is traded: long-term, day-ahead and intraday markets. Some electricity is bought on the day for the delivery the next day, but a large amount can be bought well in advance to hedge against uncertain future prices. It is up to suppliers/consumers to balance their risk trying to make the best choices they can.

It is clear that the cost of electricity is a common element to all systems but it is worth mentioning that the particular characteristics of the generation mix and the competitive structure of the generation market existing in each country are key drivers of the electricity price.

In addition, in some countries (e.g. Spain, Portugal and Italy), the cost of electricity entails the cost of balancing services (mechanisms used by the system operator to ensure that demand and generation are kept in balance, e.g. upward and downward reserves). In order just to mention an extra couple of examples, financing related to the interruptible load programme is included in this part of the price in Spain and Italy and also the capacity payment mechanism in Spain. Special attention is given to the case of United Kingdom where government programmes to save energy and tackle climate change are covered by an uplift in the price suppliers charge for electricity. According to the Department of Energy and Climate Change (DECC) [5] the average impact of energy and climate change policies on electricity bills paid by energy-intensive industries (160 GWh of electricity consumption) ranges between 15 % and 23 % depending on whether or not they benefit from compensations and exemptions.

Suppliers, who act as intermediaries between generators and consumers, incur costs from billing, marketing, sales, customer service and all the other activities that make up a retail business. There are different costs associated with the sale of electricity to different types of final customers. Suppliers take into consideration all the costs, identify and manage the associated risks, review the pricing process, and then compete for customers in the market. Therefore, the charge to pay for these services is no longer subject to regulation.

In this context of liberalization, an additional feature is that consumers can choose to buy electricity either from a supplier or directly from an electricity generator.

Thus, this part of the electricity price differs from supplier to supplier and from customer to customer.

### 2.1.2 Network cost component

The network component can be roughly broken down into **transmission costs**, **distribution costs** and **other regulatory charges**.

Transmission and distribution are considered to be natural monopolies and therefore remain as regulated activities. Consequently, the tariffs for access to the transmission and distribution systems are fixed to prevent them from exploiting their market power. In some countries (e.g. Spain) is the government who takes this responsibility, while in others (e.g. Portugal, France, etc.) the power to fix or approve the tariffs or their methodologies is delegated to the relevant National Regulatory Authority (NRA), complying with Directive 2009/72/EC [6] of the so called third legislative package.

The scope of this section is a qualitative comparison based on the cost items that are included in the tariffs for access to the transmission and distribution systems and the structure of the tariffs to contribute to understand the reasons for differences in prices for major industrial consumers.

#### ➤ Spain

A summary of the elements that are included in the access tariff according to '*Orden IET/2444/2014*' [7] issued by the Minister of Industry, Energy and Tourism, are presented below:

- '*Retribución de las empresas titulares de instalaciones de transporte*'
- '*Incentivo a la disponibilidad de la red de transporte*'
- '*Retribución a la actividad de distribución*'
- '*Incentivo de calidad del servicio*'
- '*Incentivo o penalización de reducción de pérdidas*'
- '*Gestión comercial realizada por empresas distribuidoras*'
- '*Anualidades del desajuste de ingresos*'
- '*Costes definidos como cuotas con destinos específicos*':

- *'Tasa de la **Comisión Nacional de los Mercados y la Competencia** (Sector eléctrico)'*
- *'Moratoria nuclear'*
- *'2.ª Parte del ciclo de combustible nuclear'*
- *'Recargo para recuperar el déficit de ingresos en la liquidación de las actividades reguladas'*
- *'Compensación del extracoste de la actividad de producción en los sistemas eléctricos en los territorios no peninsulares'*

It is worth mentioning that in 1984 Spain's government decided to immediately stop all plans for additional nuclear power stations, with this decision, a nuclear moratorium was approved. The moratorium was confirmed in 1994 [8] and the projects under construction (Lemóniz, Valdecaballeros and Trillo II) were abandoned. Companies that were involved in the process of building the power stations were recognized the right to receive compensation for the investments already made. In order to offset the losses, it was established that a percentage of the electricity tariff would be used to meet these obligations. So today, the share of the access tariff that goes to pay investment in nuclear energy plants that have never been developed amounts to 0.447% [7]. According to the same order the nuclear moratorium will apply until August 31, 2015.

Regarding the structure of the access tariff, it should be noted that it is differentiated by voltage levels and consists of a capacity (EUR/kW per year) and an energy (EUR/kWh) term [9]. Penalties based on EUR/kvarh are imposed if the reactive power consumption exceeds 33 % of the active power consumption.

Charges for connections at high voltage levels (voltages above 1 kV) vary over time considering the day (from type A to D) divided into business days and holidays of low/medium/high seasons and reflecting the time of use (for different hour intervals). Further information regarding the time differentiation can be found in Appendix A.

#### ➤ Portugal

The access tariff in Portugal (*'Tarifa de Acesso às Redes'*) is approved by the **Entidade Reguladora dos Serviços Energéticos (ERSE)**, the NRA, and is divided in three main sub-tariffs:

- Use of the System tariff (*'Tarifa de Uso Global do Sistema'*)
- Transmission Use of the System tariff (*'Tarifa de Uso da Rede de Transporte'*)
- Distribution Use of the System tariff (*'Tarifa de Uso da Rede de Distribuição'*)

According to the Portuguese Regulation No. 551/2014 [10], these tariffs are designed to recover the following costs:

- Costs of system operation (*'Custos de gestão do sistema'*)
  - *'Encargos com contratos de interruptibilidade'*
- Costs resulting from energy or environmental policies (*'Custos decorrentes de medidas de política energética, ambiental ou de interesse económico geral'*):
  - *'Custo com a convergência tarifária da Região Autónoma dos Açores'*
  - *'Custo com a convergência tarifária da Região Autónoma da Madeira'*
  - *'Diferencial de custo com a aquisição de energia elétrica aos produtores com contratos de aquisição de energia elétrica (Sobrecusto CAE)'*
  - *'Parcela associada aos terrenos afetos ao domínio público hídrico'*
  - *'Custos com a **Entidade Reguladora dos Serviços Energéticos**'*
  - *'Transferências para a Autoridade da Concorrência'*
  - *'Custos de gestão dos Planos de Promoção do Desempenho Ambiental'*
  - *'Custos com o Plano de Promoção da Eficiência no Consumo (PPEC)'*
  - *'Custos com a concessionária da Zona Piloto'*
  - *'Os custos decorrentes do mecanismo de garantia de potência'*
  - *'Diferencial de custo com a aquisição de energia elétrica a produtores em regime especial'*
  - *'Défice tarifário'*

- Costs for the Maintenance of Contractual Equilibrium (*'Custos para a Manutenção do Equilíbrio Contratual (CMEC)'*)
- Costs related to electricity transmission (*'Custos afetos à atividade de Transporte de Energia Elétrica'*)
  - *'Incentivo à manutenção em exploração do equipamento em final de vida útil'*
- Costs related to electricity distribution (*'Custos afetos à atividade de Distribuição de Energia Elétrica'*)
  - *'Custo com rendas de concessão a pagar aos municípios'*
  - *'Incentivo aos investimentos em rede inteligente por nível de tensão'*

The explanation provided in the following paragraphs clarifies the aforementioned *'Sobrecusto CAE'* and the *'CMEC'* concepts.

Regulated under Article 15 of *'Decreto-Lei 182/95'* [11], the *'contratos de aquisição de energia'*, known as *'CAE'*, are characterized by being long-term contracts whereby certain producers undertake to exclusively supply electricity to ***Redes Energéticas Nacionais (REN)***, the Portuguese system operator, who then sells the power. The difference between income and expenses incurred in the system is referred as *'Sobrecusto CAE'*.

The transition from a traditional to a competitive market regime, through the implementation of the Iberian Electricity Market (MIBEL), dictated the need to discontinue some of these long-term contracts. *'Decreto-Lei 240/2004'* [12], amended by *'Decreto-Lei 199/2007'* [13] and *'Decreto-Lei 264/2007'* [14], establishes the provisions for the *'CAE'* early termination.

The termination of each *'CAE'* gives the contracting parties the right to receive, from the date of the respective early termination, financial compensation, known as *'Custos para a Manutenção do Equilíbrio Contratual (CMEC)'*. The compensation to be paid to these producers is established by calculating the difference between the amount which they would have received during the relevant period if no cancellation had occurred and the actual revenues obtained from the market.

To finish with the cost items, it is important to mention that the last resort suppliers have the obligation to buy at a fixed price set by an administrative procedure, electricity from producers operating under the Portuguese special regime, which consists for instance of cogeneration or

renewable energy facilities. The difference between the purchase of the power consumed by the regulated customers and the sale price is referred as *'Diferencial de custo com a aquisição de energia elétrica a produtores em regime especial'*.

With respect to the structure of the access tariff, it is differentiated by voltage levels. A detailed note on this procedure is given in Appendix B. For connections at high voltage (voltages between 45 kV and 110 kV) and extra high voltage (voltages above 110 kV) the tariff consists of the following terms:

- Capacity (EUR/kW per month). There is a price for the contracted power and a different one for the requested power during peak hours.
- Active power (EUR/kWh). The price for the active power is broken down into four quarterly periods (periods I to IV) and four time horizons: peak hours (*'horas de ponta'*), full hours (*'horas cheias'*), normal valley hours (*'horas de vazio normal'*) and, super valley hours (*'horas de super vazio'*), reflecting both time of use and seasonal differences.
- Reactive power (EUR/kvarh). The price for the reactive power is different depending on whether it is produced or consumed.

➤ Italy

The access tariff for the regulatory period 2012-2015 is founded on the basis of the terms established by the regulatory authority for energy and gas, ***Autorita per l'energia elettrica il gas ed il sistema idrico (AEEGSI)***, with Resolution ARG/elt 199/11 [15]. It covers specific rules on tariffs regulation for:

- Costs related to electricity transmission
- Costs related to electricity distribution
- Costs associated with metering services (*'Servizio di misura dell'energia elettrica'*):
  - *'Installazione e manutenzione dei misuratori'*
  - *'Raccolta delle misure dell'energia elettrica'*
  - *'Validazione e registrazione delle misure dell'energia elettrica'*
- General system charges (*'Oneri generali di sistema'*):



- *‘Componente tariffaria A2, per la copertura degli oneri per il decommissioning nucleare’*

The A2 component is designed to cover the costs for decommissioning nuclear power plants.
- *‘Componente tariffaria A3, per la copertura degli incentivi alle fonti rinnovabili e assimilate’*

The A3 component covers incentives to renewable energy sources for electricity.
- *‘Componente tariffaria A4, per la copertura dei regimi tariffari speciali per la società Ferrovie dello Stato’*

To cover the costs associated with the preferential tariff for the railway sector.
- *‘Componente tariffaria A5, per la sostegno alla ricerca di sistema’*

The A5 component covers the subsidies for research activities conducted in the interest of the national power system.
- *‘Componente tariffaria As, per la copertura degli oneri per il bonus elettrico’*

To cover the costs associated with the social tariff for vulnerable consumers.
- *‘Componente tariffaria Ae, per la copertura delle agevolazioni alle industrie manifatturiere ad alto consumo di energia’*

To cover subsidies to manufacturing industries with high levels of electricity consumption. The preferential treatment corresponds to a reduction of between 15 % and 60 % on the components A2, A3, A4, A5 and As for companies with a consumption of at least 2.4 GWh per year and whose costs of electricity represents at least 2 % of turnover. It applies only to withdrawals in medium and high voltage levels.
- *‘Componente UC4, per la copertura delle compensazioni per le imprese elettriche minori’*

To cover the extra costs borne by small utilities operating on the Italian islands.

- *‘Componente UC7, per la promozione dell'efficienza energetica negli usi finali’*

The UC7 covers the costs resulting from measures and actions to promote energy efficiency among end-users.

- *‘Componente MCT, per la copertura delle compensazioni territoriali agli enti locali che ospitano impianti nucleari’*

To cover compensation to local authorities that host nuclear power plants and facilities of the nuclear fuel cycle and, in the future, the national repository of nuclear waste.

- *‘Componente UC3, per la copertura degli squilibri dei sistemi di perequazione dei costi di trasporto dell'energia elettrica sulle reti di trasmissione e di distribuzione, nonché dei meccanismi di integrazione’*

To cover the equalization mechanisms for the costs of electricity transmission, distribution and metering services.

- *‘Componente UC6, per la copertura dei costi riconosciuti derivanti da recuperi di qualità del servizio’*

To cover incentives paid to distribution and transmission companies for quality of service improvements.

The A components are identified by the Government or Parliament through a decree or law, respectively, whereas the UC components are identified by **AEEGSI**. Either way the general system charges (*‘Oneri generali di sistema’*) are set and updated periodically by **AEEGSI** and are applied according to the following aspects:

- Rates are applied in terms of euro cents per delivery point per year and in terms of ct/kWh per month, following four different GWh power intervals.
- Rates are applied in a differentiated manner according to the voltage connection level (low, medium or high voltage) and

according to the type of use (domestic consumption, street lighting or other uses) for low and medium voltage levels.

➤ France

The methodology for calculating the access tariff (*'Tarif d'Utilisation des Réseaux Publics d'Électricité (TURPE)'*), is determined by the **Commission de Régulation de l'Énergie (CRE)**, the NRA, enshrined in Article L. 341-3 of the Energy Code (*'Code de l'énergie'*) [16]. Some of the costs included in the the access tariff are presented below.

- *'Les coûts de gestion et d'exploitation des réseaux publics, y compris ceux liés à la constitution de réserves d'exploitation ainsi qu'à la mise en oeuvre des services de réglage et d'équilibrage'*
- *'Charges liées à la compensation des pertes sur les réseaux'*
- *'Les coûts liés aux comptages et à la facturation'*
- *'Les coûts de maintenance, de sécurisation, de développement et de renforcement des réseaux publics'*

There are three main elements involve in the structure of the tariff for access to the transmission and distribution networks [17]:

- A fixed term (euros per year) based on the voltage level of the consumer connection point to reflect customer service costs (*'composante annuelle de gestion (CG)'*). This component is charged according to the type of contract: Consumers can have an access to the network contract separate from the supply contract or a single contract with the supplier (including the access to the network). For the latter, the costs borne by the system are reduced because a large part of the services are provided by the suppliers who then pass on these costs in the energy price they charge consumers.
- A fixed term to cover the costs related to the rental and maintenance of meters (*'composante annuelle de comptage (CC)'*). All users are charged this component but the amount is different depending on who owns the meter.
- One capacity and one energy term to cover the network-related operation and infrastructure costs (*'composante annuelle de*

*soutirage (CS)*). Depending on the voltage level, users can choose from several pricing options. Some of these options have differentiated tariffs according to the season (e.g. winter/summer) or time of use (e.g. peak/off-peak).

For consumers connected to the grid at high voltage levels (voltages above 1 kV) the elements presented below are also considered.

- '*Composante mensuelle des dépassements de puissance souscrite (CMDPS)*'
- '*Composante annuelle de l'énergie réactive (CER)*'
- '*Composante annuelle des alimentations complémentaires et de Secours (CACS)*'
- '*Composante de regroupement (CR)*'
- '*Composante annuelle des dépassements ponctuels programmés (CDPP)*'

In its decision of 7 May 2014 [18], the **Commission de Régulation de l'Énergie (CRE)** decided to grant a special allowance of 50 % discount on bills paid by energy-intensive companies in the industrial sector for the period 1 August 2014 to 31 July 2015.

#### ➤ Germany

“Network tariffs are not the same across Germany. They depend on network area costs and electricity sales within the area, and so can vary from one network area to the next” [19].

In accordance with the Incentive Regulation Act (German abbreviation: '*ARegV*') once the German **Federal Network Agency (*Bundesnetzagentur*)** has determined the maximum revenues each company is allowed to earn, network companies are able to calculate their grid charges. Charges include the following services:

- Usage of grid infrastructure
- Provision of system services (e. g. frequency control, voltage control, etc.) to ensure secure and reliable system operation
- Coverage of losses
- Invoicing and metering

In addition to these charges, additional costs for exceeding the contractually agreed limit values for reactive power can be imposed.

It is important to comment that regulation '*Verordnung zur Änderung von Verordnungen auf dem Gebiet des Energiewirtschaftsrechts*' introduces discounts for companies with an annual electricity consumption above 10 GWh [20]. These reduced charges vary according to the grid usage: Companies with a load scenario of at least 8,000 hours pay 10 % of the tariff, for 7,500 hours use or above 15 % of the tariff are due and for 7,000 hours or above 20%.

➤ United Kingdom

There are three types of charges defined for the UK customers, as follows:

- Transmission Network Use of System (TNUoS) charges  
TNUoS charges reflect the cost of installing, operating and maintaining the transmission assets. These charges vary by location, reflecting the costs that users impose on the transmission network to transport their electricity.  
It is National Grid's responsibility as the system operator to devise transmission charges. Then, the **Office of Gas and Electricity Markets (Ofgem)**, as the energy regulator, decides whether to approve these proposals.
- Balancing Services Use of System (BSUoS) charges  
BSUoS charges reflect the cost of the day to day operations to keep electrical system balanced, assuring security and quality levels for the supply.
  - Total Balancing Services Contract costs  
Energy Balancing Contracts are agreements for services that are procured for the purpose of energy balancing. Energy balancing contracts are primarily required as a result of plant losses and shortfalls.
  - Payments/Receipts from National Grid incentive schemes
  - Internal costs of operating the System
  - Costs invoiced associated with Manifest Errors and Special Provisions.

- Distribution Use of System (DUoS) charges  
The Distribution Network Operators (DNOs) developed common approaches to DUoS charging and **Ofgem** makes the final decision.

### 2.1.3 Taxes and levies

This section includes different taxes and levies linked with the energy sector (taxation on consumption of electricity is usually in force in many countries) and other surcharges that are imposed by governmental decisions.

A good understanding of the taxation scheme existing in each Member State is essential to allow price comparison. This task can be very complex due to the diversity of taxes, the application of exceptions and exemptions and legislative changes.

There is often pressure to avoid increasing the tax burden from some sectors that believe their situation calls for special consideration. This means that taxes are frequently applied unevenly across sectors. Such variations apply for instance for energy-intensive industries and the obvious reason is the loss of competitiveness when compared to countries implementing those measures.

Although the general framework for taxation of energy products and electricity has been standardized in the European Union through the Council Directive 2003/96/EC [3], there is no homogenization for instance regarding tax rates and procedures.

The taxes and levies identified for each of the studied countries are detailed next. It is important to note that VAT and other recoverable taxes are not included in the present analysis as they are refunded to industries and therefore they are not considered to be a cost for this type of consumers.

#### ➤ Spain

The consumption of electricity is subject to the tax '*Impuesto Especial sobre la Electricidad*'. This tax was established under '*Ley 38/1992*' [21], last amended by '*Ley 28/2014*' [22].

In order to prevent Spanish companies from being placed at a competitive disadvantage with respect to their foreign competitors, an 85 % discount on the taxable basis is awarded for the electricity used in chemical reduction; in electrolytic, metallurgical and mineralogical processes; for irrigation in the agricultural sector and for businesses where either the

purchases of electricity amount to at least 5 % of the production value or the electricity consumption represents more than 50 % of the cost of a product.

In any event, the tax liability should at least result in an amount equal to 0.5 EUR/MWh when the electricity is used for industrial purposes (for the supply of electricity at high voltage levels or at low voltages for irrigation purposes) or 1 EUR/MWh otherwise, complying with the minimum levels of taxation applicable to electricity established by the already mentioned Council Directive 2003/96/EC [3].

➤ Portugal

The following taxes are identified:

- *‘Imposto Especial sobre o Consumo de Electricidade’*  
With effect from 1 January 2012 and according to the procedures set out in *‘Portaria 320-D/2011’* [23], Portugal introduced a tax on electricity consumption. The tax rate is 1 EUR/MWh and there are neither exemptions nor exceptions for energy-intensive industries.
- *‘Taxa de Exploração das Instalações Eléctricas’*  
According to *‘Portaria 311/2002’* [24] this tax is due by electricity users and its monthly value is 0.07 euros for domestic consumption, and 0.35 euros for all other uses.
- *‘Contribuição para o Audiovisual’*  
The financing of broadcasting and television public services is ensured by collecting the so called *‘Contribuição para o Audiovisual’* which was set out in *‘Lei 30/2003’* [25] and last updated by *‘Decreto-Lei 107/2010’* [26]. This tax has been designed to be borne by electricity consumers, both households and industries, and the monthly contribution in 2015 is equal to 2.65 euros.

➤ Italy

In Italy, the tax on electricity consumption is defined by the *‘Imposta Nazionale Erariale di Consumo’*.

Two decrees of the Ministry of Economy and Finance published in December 2011 (*DECRETO 11A16869* [27] and *DECRETO 11A16870* [28])

increased the rate of the excise tax on electricity to maintain the same revenue from taxes after suppressing the municipal and provincial surtax.

The main rates for uses other than domestic consumption and street lighting are presented below [29]:

- For the consumption up to 1,200,000 kWh per month:
  - i) The first 200,000 kWh are taxed at a rate of 0.0125 EUR/kWh
  - ii) The consumption exceeding the first 200,000 kWh is taxed at a rate of 0.0075 EUR/kWh
- For the consumption over 1,200,000 kWh per month:
  - i) The first 200,000 kWh are taxed at a rate of 0.0125 EUR/kWh
  - ii) The consumption exceeding the first 200,000 kWh is taxed at a fixed amount equal to 4,820 euros

'Decreto Legislativo 2 febbraio 2007, No. 26' [30] stipulates a tax exemption for the electricity used in chemical reduction, in electrolytic, metallurgical and mineralogical processes and the cases where electricity consumption represents more than 50 % of the cost of a product. This special regime was foreseen by Council Directive 2003/96/EC [3].

#### ➤ France

The following taxes are identified:

- '*Taxes sur la Consommation Finale d'Electricité (TCFE)*'

There are three different taxes on electricity consumption [31]:

- The '*Taxe Communale sur la Consommation Finale d'Électricité*' and the '*Taxe Départementale sur la Consommation Finale d'Électricité*', that apply to sites whose contracted power is less or equal to 250 kVA.
- The '*Taxe Intérieure sur la Consommation Finale d'Électricité (TICFE)*', that applies to other sites.

This latter tax was introduced under '*Article 266 quinquies C du Code des douanes*' [32]. The regular rate is set at 0.50 EUR/MWh but a tax exemption is awarded for the electricity used in chemical reduction; in electrolytic, metallurgical and mineralogical processes and for businesses where electricity consumption represents more than 50 % of the cost of a product.



- *'Contribution au Service Public de l'Électricité (CSPE)'*  
Established by 'Loi No. 2003-8' [33], the contribution to the public service of electricity is a tax collected from households and industries, which compensates electricity producers and suppliers for the cost incurred as a result of public service obligations: extra costs related to electricity produced out of renewable energy sources, equalization of tariff in areas not interconnected with the continental network (Corse, départements d'outre-mer, Mayotte, Saint-Pierre et Miquelon, îles bretonnes), social tariffs, etc.  
The contribution for 2015 is 19.5 EUR/MWh and the amount of the contribution due by consumption site is capped, since 1 January 2015, to 627,783 euros [34].  
Article L.121-21 of the Energy Code [16] provides industrial companies consuming more than 7 GWh per year with a cap on the 'CSPE'. This ceiling is 0.5 % of the gross added value of the company.
- *'Contribution Tarifaire d'Acheminement (CTA)'*  
This tax is a tax on energy use, charged on electricity and gas, set out under Article 18 of 'Loi No. 2004-803' [35] and intended to finance retirement for electricity and gas employees.  
The 'CTA' amount is equal to 10.14 % of the access tariff fixed part (all components except for the energy term) for consumers connected to the public electricity transmission or distribution system at a voltage level greater or equal to 50 kV. For other consumers connected to the distribution grid, this percentage is 27.04 %.

➤ Germany

The following taxes and levies are currently applicable:

- *'Stromsteuer'* (tax levied on consumption of electricity)  
The regular rate according to the Electricity Taxation Act (*'StromStG'*) [36] equals 20.5 EUR/MWh.  
Under Article 9a, manufacturing industries can request a tax exemption for the electricity used principally for the purposes of

chemical reduction and in electrolytic and metallurgical processes.

A tax relief amounting 5.13 EUR/MWh is awarded for companies that operate in the agricultural and forestry sectors if the savings amount to 250 euros per calendar year.

- *'EEG-Umlage'* (EEG surcharge)

The Renewable Energies Act ('EEG') promotes electricity generation from renewable energy sources by giving producers a fixed tariff for every kWh of renewable power that they feed into the grid over a 20-year period. This tariff is initially paid by a transmission system operator<sup>1</sup> (TSO), who in turn sells the power on a power exchange. The difference between income and expenses is referred as the EEG surcharge.

According to the reform of the Renewable Energies Act [37], the EEG surcharge for energy-intensive industries is limited to 15 % of the full EEG surcharge for the consumption above 1 GWh with a cap at:

- 0.5 % of the gross added value as long as the electro-intensity (electricity costs divided by the gross added value) amounts to at least 20 %
- 4 % of the gross added value if the electro-intensity amounts to less than 20 %

The reduction of the EEG surcharge resulting from these caps for the electricity above 1 GWh may not result in an amount that is lower than 1 EUR/MWh or lower than 0.5 EUR/MWh for the sectors of aluminium, zinc and copper.

- *'KWK-Aufschlag'* (Combined heat and power surcharge)

The Combined heat and power (CHP) surcharge was introduced by the Combined Heat and Power Act ('KWK-G'), which intends to increase the share of electricity produced by this technology. Certain CHP plant operators can qualify to receive premiums for their power. TSOs are initially responsible for paying these premiums. If a TSO ends up with net costs, it can add them to the access tariff.

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<sup>1</sup> At present, there are four transmission system operators in Germany: Amprion, TransnetBW, TenneT TSO GmbH and 50Hertz Transmission.

CHP surcharge 2015		
Category A	Category B	Category C
0.254 ct/kWh	0.051 ct/kWh	0.025 ct/kWh

Table 1: CHP surcharge 2015

- Consumer Category A:

Electricity consumption of end-users of up to 100,000 kWh/year.

- Consumer Category B:

Electricity consumption above 100,000 kWh/year of end-users that do not belong to consumer category C.

- Consumer Category C:

Electricity consumption above 100,000 kWh/year of end-users belonging to the manufacturing industry, rail-bound traffic or railway infrastructure with annual consumptions leading to electricity expenses of more than 4 % of the total turnover in the previous calendar year.

- ‘§ 19 Abs.2 StromNEV-Umlage’ (Section 19 subsection 2 StromNEV surcharge)

Introduced in 2012, this levy finances network tariffs' reductions for final customers which get a diminished fee or do not pay network tariffs.

§ 19 Strom-NEV levy 2015		
Category A	Category B	Category C
0.237 ct/kWh	0.050 ct/kWh	0.025 ct/kWh

Table 2: Section 19 subsection 2 StromNEV surcharge

- Consumer Category A:

Electricity consumption of end-users of up to 1,000,000 kWh/year.

- Consumer Category B:

Electricity consumption above 1,000,000 kWh/year of end-users that do not belong to consumer category C.

- Consumer Category C:

Electricity consumption above 1,000,000 kWh/year of end-users belonging to the manufacturing industry, rail-bound traffic or railway infrastructure with annual consumptions leading to electricity expenses of more than 4 % of the total turnover in the previous calendar year.

- ‘Offshore-Umlage nach § 17f EnWG’ (Offshore surcharge under Section 17f EnWG)

“The offshore surcharge was introduced in 2013 in order to create a predictable environment for the expansion of offshore wind energy” [38].

Offshore liability levy 2015		
Category A	Category B	Category C
-0.051 ct/kWh	0.050 ct/kWh	0.025 ct/kWh

Table 3: Offshore liability levy 2015

- Consumption category A:

Electricity consumption of end-users of up to 1,000,000 kWh/year.

- Consumption category B:

Electricity consumption above 1,000,000 kWh/year of end-users, that do not belong to consumer category C.

- Consumption category C:

Electricity consumption above 1,000,000 kWh/year of end-users belonging to the manufacturing industry with electricity expenses of more than 4 % of their total turnover in the previous calendar year.

- ‘§ 18 AbLaV-Umlage’ (Section 18 AbLaV surcharge)

The surcharge for interruptible loads as defined in the Ordinance on Interruptible Loads (‘AbLaV’), covers the costs of interruptible loads used to maintain grid and system reliability.

The surcharge that final consumers have to pay in 2015 for costs incurred by the TSOs relating to contracts on interruptible loads is 0.006 ct/kWh

For certain end consumer groups, Categories B and C in accordance with the Combined Heat and Power Act (*'KWKG'*), the surcharge is not applicable.

- *'Konzessionsabgabe'* (Concession fee)

“Concession fees are paid by grid operators to municipalities in exchange for using public rights of way. Fee amounts vary depending on the easement contract between the grid operator and the municipality, but are capped by the Concession Fee Regulation (*'KAV'*)” [38].

In principle, the higher the population the higher the fee can be set.

In some case industrial consumers do not need to pay any concession fee at all.

➤ United Kingdom

In the United Kingdom, the Climate Change Levy (CCL) is the main tax on energy use, is charged on electricity, gas, liquid petroleum gas and solid fuels to business in the industrial, commercial, agricultural and public service sectors. The main rates charged on electricity are presented below:

Rate from 1 April 2015	Rate from 1 April 2016
0.541 pence per kilowatt hour	0.559 pence per kilowatt hour

Table 4: Climate Change Levy

From 1 April 2014, mineralogical or metallurgical processes such as manufacture of ceramics, and iron and steel, for example, are exempt from the CCL [39].

Energy-intensive industries can get a discount on the CCL if they have entered into a climate change agreement (CCA), a voluntary agreement to reduce energy use and carbon dioxide emissions, with the Environment Agency. The CCL will be reduced by 90 % on electricity bills. Energy-intensive users are those for instance whose predicted energy costs amount to 10 % or more of their production value, or whose predicted energy costs amount to between 3 % and 10 % of their production value and who also experience an import penetration ratio of at least 50 %.

## 2.2 Other components

This section introduces other elements that are considered to have an impact on the price of electricity for industrial consumers and are not covered in the previous sections.

Energy-intensive industries can operate under special regimes and given the lack of transparency in this respect, the resulting price for these electricity consumers cannot be precisely determined.

In light of the above, the work presented in this section primarily intends to provide a comprehensive evaluation on **interruptible load programme**, which is an emergency mechanism, intended to provide flexible and rapid response to the needs of the electricity system operator to cope with situations of imbalance between supply and demand in real time.

When faced with such situations, large electricity consumers in response to a power reduction instruction from the system operator, reduce their consumption so that the rest of consumers do not lack electricity. These large electricity consumers receive financial reward in return for providing this service.

To finish with this section it is important to mention that there are other aspects that make energy-intensive industries operate under special regulations.

For instance, Germany and United Kingdom compensate businesses most at risk of carbon leakage due to the costs relating to emission trading scheme (ETS) existing in the European Union. “Carbon leakage is the term often used to describe the situation that may occur if, for reasons of costs related to climate policies, businesses were to transfer production to other countries which have laxer constraints on greenhouse gas emissions” [40].

The ETS has an impact on electricity prices (i.e. carbon costs priced in on the electricity market); therefore measures are implemented in these two countries to help energy-intensive industries to offset the impact of energy and climate change policy costs. As at the end of October 2014, 53 companies in UK had been paid over 44 million pounds sterling, mitigating around 65% of these costs [5].

### ➤ Spain

According to the regulation governing the interruptible load programme (*‘Orden IET/2013/2013’* [41] and *‘Orden IET/1752/2014’* [42]), **Red Eléctrica de España (REE)**, as the Spanish system operator, under the supervision of the **Comisión Nacional de los Mercados y la Competencia (CNMC)**, is in charge of

organizing and managing the new auction mechanism that is to be used to allocate this service in a competitive and efficient manner.

With the new regulation in force, this service can be activated not only for technical reasons, but also for economic reasons that may result if the cost of interrupting the supply to consumers that are providers of this service is lower than the cost of applying system adjustment services, thus enabling a lower cost to the whole system.

Two different types of interruptible capacity products are auctioned:

- 5 MW product (blocks of demand reduction of 5 MW)
- 90 MW product (blocks of demand reduction of 90 MW with high availability)

For each one of the products, there are three different options:

- Instantaneous execution (A). No previous warning is required
- Quick execution (B). Minimum pre-warning period of 15 minutes
- Hourly execution (C). Minimum pre-warning period of 2 hours

The execution of a power reduction order has a maximum duration equal to 1 hour and a maximum of two consecutive executions is established for each of the products. In addition, the number of annual hours is limited to the following values:

- 240 hours per year with a maximum of 40 hours per month for the 5 MW product
- 360 hours per year with a maximum of 60 hours per month for the 90 MW product

The remuneration of the service consists of two terms:

- one fixed term associated with the available capacity
- one variable term associated with the effective execution of a power reduction order

The average prices in EUR/MW for each of the products and for the first auction held are presented in Table 5.

Product type: 5 MW		Product type: 90 MW	
Price (EUR/MW per year)	Capacity offered (MW)	Price (EUR/MW per year)	Capacity offered (MW)
95,654	1,190	294,875	810

Table 5: Average prices in EUR/MW for each of the types of interruptible capacity products in Spain

These prices refer to the first of the two forms of payment, the fixed term, which is paid to the service providers once per month.

The total aggregated costs accounted for 352,677,010 euros.

➤ Portugal

The interruptible load programme was first established under '*Portaria 592/2010*' [43].

There are two different types of interruptible capacity products which differ in the number of hours of interruptions.

- '*Modalidade a*'. This category includes:
  - Type 3 characterized by a maximum duration equal to 3 hours and a minimum notice of 1 hours
  - Type 4 characterized by a maximum duration equal to 2 hours and a minimum notice of 5 minutes
  - Type 5 characterized by a maximum duration equal to 1 hour and no previous warning
- '*Modalidade b*'. This category includes:
  - Type 1 characterized by a maximum duration equal to 12 hours and a minimum notice of 2 hours
  - Type 2 characterized by a maximum duration equal to 8 hours and a minimum notice of 2 hours

The total number of annual hours is limited to the following values:

- 120 hours per year for the sum of the hours of type 1 and 2
- 120 hours per year for the sum of the hours of type 3, 4 and 5

Interruptible loads refer to electricity consumers (defined by a single site) that are connected to the network at medium, high and extra high voltage levels and whose interruptible capacity is not less than 40 MW.

The remuneration of the service consists of two terms, associated with the available capacity and the power reduction.

In 2014 the remuneration for the interruptible service accounted for 101,900,000 euros. The interruptible power represented a total of 705.2 MW regarding the '*Modalidade a*' and 687.5 MW to the '*Modalidade b*' [44], as shown in Table 6.



Capacity offered (MW)	
Modalidade a	Modalidade b
705.2	687.5

Table 6: Interruptible capacity in MW for each of the types of products in Portugal

➤ France

Decree of 27 March 2014 [45] adopted pursuant to Article L. 321-19 of the Code of energy [16] establishes provisions governing the interruptible load programme.

The interruptible capacity should be greater than 60 MW and can not exceed 300 MW and should be activated for a minimum of fifteen minutes and maximum of one hour.

Interruptible loads refer to consumers which are connected to the transmission network and whose contracted power is equal or greater than 40 MW.

The service providers receive compensation for each day of availability of interruptible capacity. This compensation is paid annually by the operator of the public transport network.

For each site with instant interruption profile, this compensation is equal to the amount requested and indicated to the transmission system operator when asking for qualification. This compensation can not exceed 82 EUR/MW of interruptible capacity per day of availability.

➤ Italy

The Italian system operator, **Terna - Rete Elettrica Nazionale**, according to resolution 301/2014/R/EEL [46] of the **Autorita per l'energia elettrica il gas ed il sistema idrico (AEEGSI)**, subsequently amended by resolution 566/2014/R/EEL [47], dictated provisions governing the interruptible load programme for the period 2015-2017 [48].

The service is managed through a descending auction mechanism where the capacity is allocated to the users which accept the lowest remuneration.

The maximum amount of interruptible reserve has been established at 3,300 MW per year. The threshold of interruptible capacity is set at 1 MW.

There are two types of services of interruptible loads:

- Instantaneous interruptions (*'risorse interrompibili istantaneamente'*). 200 ms response time
- Emergency interruptions (*'interrompibilità di emergenza'*). 5 ms response time

The remuneration of the interruption service consists of a fixed annual amount based on the power reduction. The price, fixed by AEEGSI, is equal to 105,000 EUR/MW per year and 60,000 EUR/MW per year for the instantaneous and emergency interruptions, respectively.

#### ➤ Germany

A tendering procedure of interruptible loads exists in Germany.

By means of the Ordinance on Interruptible Loads (*'AbLaV'*) the German transmission system operators are responsible for organizing a monthly tender for an aggregated capacity of maximum 3,000 MW [49].

Two different types of interruptible capacity products are auctioned:

- Immediately interruptible loads (*'SOL'*)
- Quick interruptible loads (*'SNL'*). Activation remotely controlled within 15 minutes by the transmission system operator

There are three different offer options:

- at least 15 minutes at any given time, several times a day at different intervals for a duration of up to one hour per day, at least four times a week
- continuously for at least four hours at any given time, once every seven days
- continuously for at least eight hours at any given time, once every 14 days

Interruptible loads refer to major consumption units in industrial operations which are connected to the network at high and extra high voltage levels. The minimum interruptible capacity is set at 50 MW and the maximum quantity a 200 MW.

According to Article 4 of the Ordinance on Interruptible Loads (*'AbLaV'*), interruptible loads receive remuneration for providing interruptible capacity during the agreed period, and also for each power reduction order. Thus, the final compensation is separated into a capacity price of 2,500 EUR/MW per month and an energy price ranging from 100 to 400 EUR/MWh for the effective interrupted power.

The average energy prices in EUR/MWh for each of the products and for the period 01.07.2015 - 31.07.2015 (when the last tender was held at the time this thesis was written) are presented in Table 7 [49].

Product type: SOL		Product type: SNL	
Energy price (EUR/MWh)	Capacity offered (MW)	Energy price (EUR/MWh)	Capacity offered (MW)
395.00	456	398.48	492

Table 7: Average prices in EUR/MWh for each of the types of interruptible capacity products in Germany

➤ United Kingdom

On the one hand, “Fast Reserve provides the rapid and reliable delivery of active power through an increased output from generation or a reduction in consumption from demand sources, following receipt of an electronic despatch instruction from National Grid” [50].

Fast Reserve is procured by means of a monthly tender process.

The service provider should be capable of commencing delivery within 2 minutes of the despatch instruction at a delivery rate in excess of 25 MW/minute, and the reserve energy should be sustainable for a minimum of 15 minutes. A minimum volume of 50 MW is required.

There are three types of tenders:

- Single Month. To provide the service for a single calendar month.
- Multiple Month. To provide for between two and 23 calendar months.
- Long Term. To provide for between 24 calendar months and ten years.

There are a number of payments that can be made as part of the Fast Reserve Service (availability payment, utilisation payment, etc.)

On the other hand, “Short Term Operating Reserve (STOR) is a service for the provision of additional active power from generation and/or demand reduction” [50].

STOR is procured via by means of a competitive tender with three tender rounds per year.

The service provider should offer a minimum of 3 MW or more of demand reduction (this can be from more than one site), and should be capable

of delivering within 240 minutes or less from receiving instructions for up to 2 hours.

There remuneration consists of two forms of payment:

- Availability Payments (£/MW/h): service providers are paid to make their unit/site available for the STOR service within a specific time frame.
- Utilisation Payments (£/MWh): service providers are paid for the energy delivered as instructed by National Grid. This payment will be effected through the Balancing Mechanism.

As it can be observed there is substantial diversity among countries regarding the interruptible load programme and therefore among the compensation that large consumers will receive in return and the way in which these payments are made. Just to illustrate this issue, in Spain the amount expressed in EUR/MW that a service provider would receive in a month as a compensation for the costs associated with making its capacity available is ten times higher when compared to Germany whereas the remuneration of a power reduction expressed in EUR/MWh is higher in Germany.

### **2.3 Results of the benchmarking**

Some general observations can be extracted from the previous sections.

A wide variety of policy support costs are in place. On the one hand, some measures are intended to deliver on the 20-20-20 targets on climate change and energy sustainability: i) a 20% reduction in EU greenhouse gas emissions from 1990 levels, ii) raising the share of EU energy consumption produced from renewable resources to 20% and iii) a 20% improvement in the EU's energy efficiency [51]. Some examples can be found for instance in Portugal, Italy and Germany, etc.

On the other hand, additional policies are designed in order to protect certain vulnerable consumer groups (through the application of the so called social tariff), guarantee the provision of affordable electricity to remote or isolated areas, (mainly islands), or to cover cost related to nuclear decommissioning, tariff deficit annuities, research and development, security of supply and several other items. The nature and existence of these policies is very country-specific, although in recent years for instance electricity tariff deficits emerged in Spain, Portugal and in some other Member States.

It should be noted that in the countries in the scope of the study financing related to these policy support measures is done through taxes or levies (i.e. Germany and France), incorporated in the access to the network tariff (i.e. Spain, Portugal and Italy) or included in the energy component (i.e. United Kingdom) considering it as a production cost. As it can be observed, different policy support instruments are covered under different price components depending on country under consideration. Table 8 illustrates in which component the concerned countries include their policy support costs.

Policy support costs		
Energy component	Network component	Taxes and levies
UK	Spain Portugal Italy	France Germany

Table 8: Financing of policy support measures

Apart from the fact that policy support measures are often incorporated in the tariffs for access to the transmission and distribution systems and regarding other elements included access tariffs, it should be remarked that the costs of losses and balancing services are sometimes included in this particular component of the final price. However, when these costs are not included in the access tariff, they are recovered through different mechanisms, typically via a surcharge or uplift in the cost of electricity.

- In Spain, Portugal, Italy and United Kingdom the electricity to cover network losses is included in the electricity price and not in the access tariffs.
- System services costs are included in the access tariffs charged in France, Germany and United Kingdom whereas in Spain, Portugal and Italy they are included in the electricity price.

On the other hand, we can highlight national regulation in France and Germany allowing energy-intensive industries to access preferential tariffs.

All this information regarding the access tariffs has been summarized in Table 9.

System Services		Losses		Reduced charges	
Included in the access tariff	Included in the energy price	Included in the access tariff	Included in the energy price	Yes	No
France	Spain	France	Spain	France	Spain
Germany	Portugal	Germany	Portugal	Germany	Portugal
UK	Italy		Italy		Italy
			UK		UK

Table 9: Relevant access tariffs information

The taxation component varies significantly by Member State. A detailed explanation for the countries in the scope of the study can be found in Section 2.1.3. The most common tax among these countries is the excise tax on electricity. It exists in every country with the exception of United Kingdom. Despite the EU general framework for energy products and electricity taxation [3] there is no homogenization regarding tax rates as presented in Table 10.

Excise tax on electricity					
Spain	Portugal	Italy	France	Germany	UK
5.11269632 % over the tax base	1.00 EUR/MWh	4,820 euros per month*	0.50 EUR/MWh	20.5 EUR/MWh	Not applicable

\* The first 200,000 kWh are taxed at a rate of 1.25 EUR/MWh for the consumption over 1,200,000 kWh per month

Table 10: Excise tax on electricity

In several countries taxes are subject to certain exemptions or lower tax rates trying to address concerns about the risk of a loss of competitiveness, particularly in relation to industries that are exposed to global competition.

If we take into account all the applicable exceptions and exemptions in order to perform a quantitative analysis to evaluate the different systems, it can be observed that the different level of taxation throughout the countries entails great differences in prices.

Let us consider a steel producer with a base load profile of 1,000 GWh per year connected to the grid at the high voltage level. The results of the comparison of the excise tax on electricity calculated for Spain, Portugal, Italy, France, Germany and United Kingdom according to existing regulation are presented in Table 11.

Excise tax on electricity					
Spain	Portugal	Italy	France	Germany	UK
495,420.27 €	1,000,000.00 €	0.00 €	0.00 €	0.00 €	Not applicable

Table 11: Comparison of excise tax on electricity for large industrial consumers

The cost of the energy and supply and the network components, extracted from Eurostat for the second semester of 2014 (Band IG: Consumption above 150,000 MWh), have functioned as the tax base, needed to calculate the tax to be paid by the Spanish steel producer.

Keeping in mind that in United Kingdom the consumption of electricity is not subject to this particular tax, in three out of six countries, steel producers would benefit from a tax exemption. Spain and Portugal are the only countries where this tax is due on electricity used in metallurgical processes.

In order perform the same comparison but taking into account all taxes and levies, the calculations presented in Table 12 have been carried out.

Taxes and levies					
Spain	Portugal	Italy	France	Germany	UK
495,420.27 €	1,000,036.00 €	0.00 €	663,273.00 €	1,250,000.00 €	0.00 €

Table 12: Comparison of taxes and levies for large industrial consumers

In Italy the only tax is the excise tax and as it was mentioned before, an exemption is awarded to the electricity used in metallurgical processes. In United Kingdom the existing levy, the Climate Change Levy, is not borne by steel producers.

For the sake of simplicity, for the calculation of the contribution to the public service obligations in France ('CSPE'), rather than the 0.5% of the added value, the 627,783 euros cap has been considered. For the same reason and so as to determine the amount of the EEG surcharge, the minimum level of taxation applicable in Germany has been considered.

If other elements are neglected from the comparison we can conclude that Germany is the country with the higher taxation in place but we can not forget for instance that in Spain, Portugal or Italy the costs of the policies that are charged in Germany via surcharges are included in the energy and supply component or in the network component. Thus, in cases where countries include their government programmes either in the energy and supply component or in the network component, the corresponding taxes and levies are smaller providing a distorted picture.

In light of the above, the amount that goes to pay the general system charges (*'oneri generali di sistema'*) in Italy has been determined, taken into consideration the same example, a steel producer with a base load profile of 1,000 GWh per year connected to the grid at the high voltage level. The results are shown in Table 13. Further information regarding the general system charges can be found in Appendix C.

<b>General system charges (<i>'oneri generali di sistema'</i>)</b>						
<b>A2</b>	<b>A3</b>	<b>A5</b>	<b>UC3</b>	<b>UC4</b>	<b>UC7</b>	<b>MCT</b>
371.85€	15,099.74€	366.68€	820,000.00€	100,000.00€	710,000.00€	182,000.00€

Table 13: Comparison of taxes and levies for large industrial consumers

The total amount is equal to 1,827,838.27 euros which is more than the amount of taxes and levies to be paid in Germany. Keep in mind that neither Italy nor Germany charges the excise tax to this type of consumer.

The lesson to be learnt from this chapter is that direct comparison of final prices should be done with caution due to differences between countries.



## Chapter 3

### Electricity price statistics

This chapter synthesizes the statistics which are collected and disseminated by the statistical office of the European Union (Eurostat) and the International Energy Agency (IEA). Although these publications gather information on electricity prices, the methodology for this data collection is different from one to another.

#### 3.1 Work by the European statistical office

Eurostat is the statistical office of the European Union. Its task is to provide statistics at pan-European level to enable comparisons between countries and regions.

“Eurostat has collected electricity and natural gas prices for over two decades. With the progress of energy market liberalisation, fully completed by mid-2007, the methodology for the collection of energy prices had to be adapted. So a new methodology for energy prices collection was agreed by European Union Member States in 2006” [1].

Current statistics on electricity prices for industrial end-users are collected and compiled according to the methodology laid down in Directive 2008/92/EC of the European Parliament and of the Council of 22 October 2008 concerning a Community procedure to improve the transparency of gas and electricity prices charged to industrial end-users [2].

Under the current framework for data collection on retail prices for electricity:

- Undertakings supplying electricity to industrial end-users communicate to Eurostat the prices and terms of sale of electricity to industrial end-users.
- In Member States where one company covers all the industrial sales, the information may be communicated by that company. In Member States where more than one company operates, the information should be communicated by an independent statistical body.
- Prices are recorded based on a system of standard consumption bands defined by a range of annual electricity consumption. There are in total seven different types of industrial end-users as presented in Table 14.

Categories of industrial end-users		
Industrial end-user	Annual electricity consumption (MWh)	
	Lowest	Highest
Band IA		< 20
Band IB	20	500
Band IC	500	2,000
Band ID	2,000	20,000
Band IE	20,000	70,000
Band IF	70,000	150,000
Band IG <sup>2</sup>	> 150,000	

Table 14: Categories of industrial end-users

- Prices are collected twice per year, at the beginning of each six-month period (January and July) and refer to the average prices paid by the industrial end-user for electricity over the previous six months.
- Prices represent weighted average prices, using the market share of the electricity supply undertakings surveyed as weighting factors.
  - Market shares should be based on the quantity of electricity invoiced by electricity supply undertakings to industrial end-users. If possible, the market shares will be calculated separately for each band.
- Regarding taxation, three levels of prices are to be provided:
  - prices excluding taxes and levies
  - prices excluding VAT and other recoverable taxes
  - prices including all taxes, levies and VAT

In order to analyze the evolution of electricity prices for energy-intensive industries the focus is on the Band IG, which considers users consuming more than 150,000 MWh per year. However, due to the fact that it is not compulsory to report data regarding these clients, not all Member States have statistics for users in this band. Statistics for industrial end-users in Band IG are available only for Spain, Italy and United Kingdom and are presented in Tables 20, 21, 35, 36, 55 and 56. In order to provide more clarity on these values, we also include the electricity prices for

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<sup>2</sup> Reported on a voluntary basis

consumers in Band IF (consumption between 70,000 MWh and 150,000 MWh) for all the studied countries in Tables 15, 16, 25, 26, 30, 31, 40, 41, 45, 46, 50 and 51.

Electricity prices for these industrial end-users are expressed in EUR/kWh and are presented as bi-annual data from 2007 onwards. The first series corresponds to electricity prices excluding all types of taxes and levies whereas the second one shows electricity prices including non-recoverable taxes and levies therefore excluding VAT and other recoverable taxes and levies as they are refunded to industries and not considered to be a cost for this type of consumers.

To provide further information, a break down of the price of electricity for the two types of industrial end-users (Band IG and Band IF) is presented in Tables 22, 23, 24, 37, 38, 39, 57, 58 and 59 and in Tables 17, 18, 19, 27, 28, 29, 32, 33, 34, 42, 43, 44, 47, 48, 49, 52, 53 and 54 respectively.

➤ Spain

<b>Band IF: Consumption between 70,000 MWh and 150,000 MWh</b>														
<b>Prices excluding taxes and levies (EUR/kWh)</b>														
<b>2007-S2</b>	<b>2008-S1</b>	<b>2008-S2</b>	<b>2009-S1</b>	<b>2009-S2</b>	<b>2010-S1</b>	<b>2010-S2</b>	<b>2011-S1</b>	<b>2011-S2</b>	<b>2012-S1</b>	<b>2012-S2</b>	<b>2013-S1</b>	<b>2013-S2</b>	<b>2014-S1</b>	<b>2014-S2</b>
0.0528	0.0568	0.0690	0.0692	0.0675	0.0643	0.0638	0.0677	0.0693	0.0721	0.0733	0.0663	0.0722	0.0681	0.0736

Table 15: Band IF. Prices excluding taxes and levies in Spain

<b>Band IF: Consumption between 70,000 MWh and 150,000 MWh</b>														
<b>Prices excluding VAT and other recoverable taxes and levies (EUR/kWh)</b>														
<b>2007-S2</b>	<b>2008-S1</b>	<b>2008-S2</b>	<b>2009-S1</b>	<b>2009-S2</b>	<b>2010-S1</b>	<b>2010-S2</b>	<b>2011-S1</b>	<b>2011-S2</b>	<b>2012-S1</b>	<b>2012-S2</b>	<b>2013-S1</b>	<b>2013-S2</b>	<b>2014-S1</b>	<b>2014-S2</b>
0.0553	0.0595	0.0725	0.0728	0.0709	0.0676	0.0671	0.0712	0.0729	0.0758	0.0770	0.0696	0.0759	0.0716	0.0774

Table 16: Band IF. Prices excluding VAT and other recoverable taxes and levies in Spain

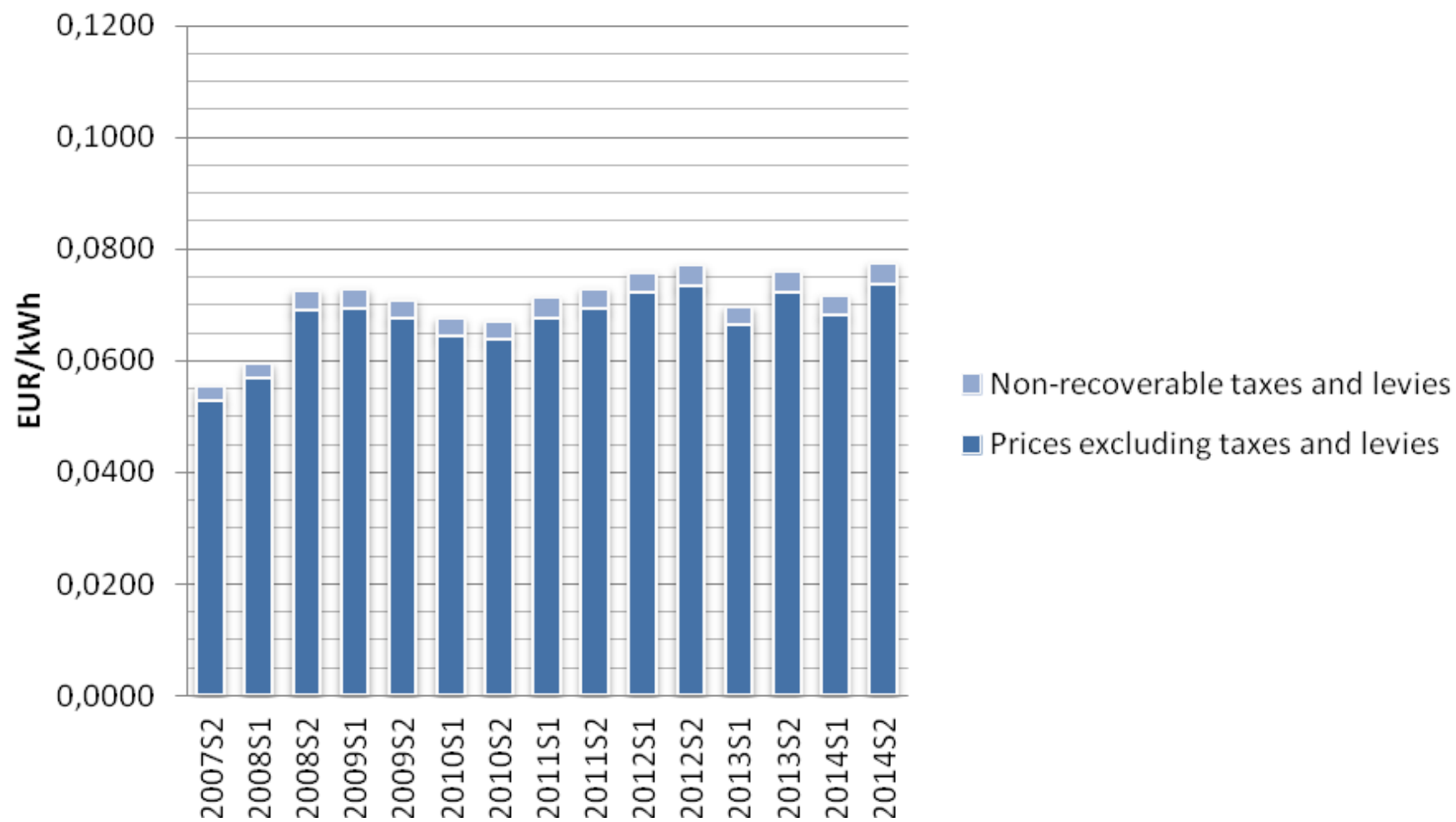


Figure 2: Band IF. Electricity prices in Spain

<b>Band IF: Consumption between 70,000 MWh and 150,000 MWh</b>						
<b>Energy and supply cost component (EUR/kWh)</b>						
<b>2008-S2</b>	<b>2009-S2</b>	<b>2010-S2</b>	<b>2011-S2</b>	<b>2012-S2</b>	<b>2013-S2</b>	<b>2014-S2</b>
0.0586	0.0574	0.0543	0.0589	0.0645	0.0686	0.0692

Table 17: Band IF. Energy and supply component in Spain

<b>Band IF: Consumption between 70,000 MWh and 150,000 MWh</b>						
<b>Network cost component (EUR/kWh)</b>						
<b>2008-S2</b>	<b>2009-S2</b>	<b>2010-S2</b>	<b>2011-S2</b>	<b>2012-S2</b>	<b>2013-S2</b>	<b>2014-S2</b>
0.0103	0.0101	0.0096	0.0104	0.0088	0.0035	0.0044

Table 18: Band IF. Network component in Spain

It can be observed that there is a break in series from the second semester of 2013 onwards. Prior to this date, Spain reported its policy support costs to Eurostat in the network component. From this date on, policy support costs are included in the energy and supply component. This issue should be taken into account in order not to have a distorted picture.

<b>Band IF: Consumption between 70,000 MWh and 150,000 MWh</b>						
<b>Taxes and levies (EUR/kWh)</b>						
<b>2008-S2</b>	<b>2009-S2</b>	<b>2010-S2</b>	<b>2011-S2</b>	<b>2012-S2</b>	<b>2013-S2</b>	<b>2014-S2</b>
0.0035	0.0034	0.0033	0.0035	0.0037	0.0037	0.0038

Table 19: Band IF. Taxes and levies in Spain

<b>Band IG: Consumption above 150,000 MWh</b>														
<b>Prices excluding taxes and levies (EUR/kWh)</b>														
<b>2007-S2</b>	<b>2008-S1</b>	<b>2008-S2</b>	<b>2009-S1</b>	<b>2009-S2</b>	<b>2010-S1</b>	<b>2010-S2</b>	<b>2011-S1</b>	<b>2011-S2</b>	<b>2012-S1</b>	<b>2012-S2</b>	<b>2013-S1</b>	<b>2013-S2</b>	<b>2014-S1</b>	<b>2014-S2</b>
0.0393	0.0422	0.0489	0.0510	0.0475	0.0487	0.0486	0.0500	0.0504	0.0532	0.0535	0.0535	0.0625	0.0514	0.0646

Table 20: Band IG. Prices excluding taxes and levies in Spain

<b>Band IG: Consumption above 150,000 MWh</b>														
<b>Prices excluding VAT and other recoverable taxes and levies (EUR/kWh)</b>														
<b>2007-S2</b>	<b>2008-S1</b>	<b>2008-S2</b>	<b>2009-S1</b>	<b>2009-S2</b>	<b>2010-S1</b>	<b>2010-S2</b>	<b>2011-S1</b>	<b>2011-S2</b>	<b>2012-S1</b>	<b>2012-S2</b>	<b>2013-S1</b>	<b>2013-S2</b>	<b>2014-S1</b>	<b>2014-S2</b>
0.0413	0.0443	0.0514	0.0536	0.0499	0.0512	0.0511	0.0525	0.0530	0.0559	0.0562	0.0562	0.0657	0.0540	0.0679

Table 21: Band IG. Prices excluding VAT and other recoverable taxes and levies in Spain

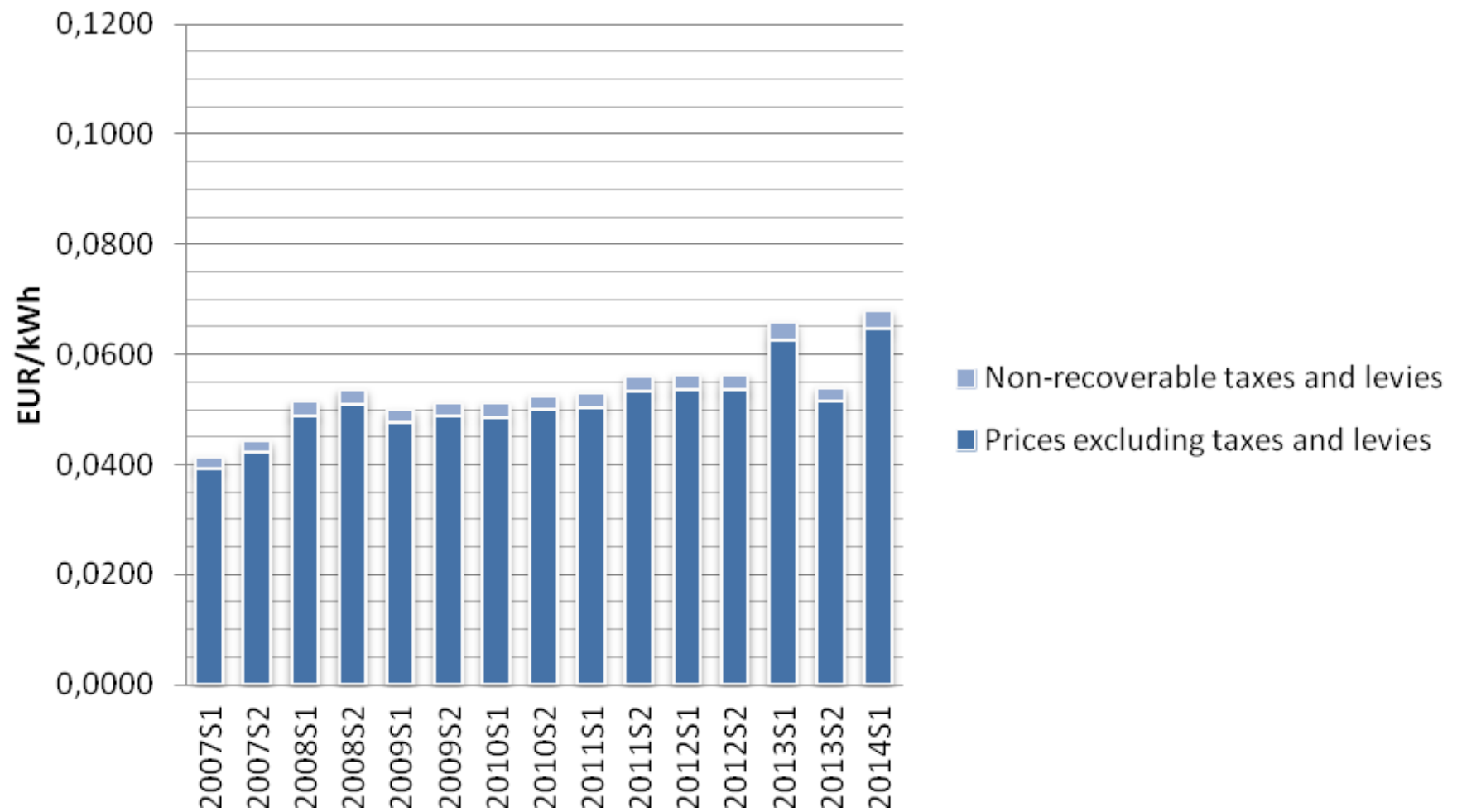


Figure 3: Band IG. Electricity prices in Spain



<b>Band IG: Consumption above 150,000 MWh</b>						
<b>Energy and supply cost component (EUR/kWh)</b>						
<b>2008-S2</b>	<b>2009-S2</b>	<b>2010-S2</b>	<b>2011-S2</b>	<b>2012-S2</b>	<b>2013-S2</b>	<b>2014-S2</b>
0.0416	0.0404	0.0413	0.0429	0.0481	0.0595	0.0607

Table 22: Band IG. Energy and supply component in Spain

<b>Band IG: Consumption above 150,000 MWh</b>						
<b>Network cost component (EUR/kWh)</b>						
<b>2008-S2</b>	<b>2009-S2</b>	<b>2010-S2</b>	<b>2011-S2</b>	<b>2012-S2</b>	<b>2013-S2</b>	<b>2014-S2</b>
0.0073	0.0071	0.0073	0.0076	0.0053	0.0031	0.0039

Table 23: Band IG. Network component in Spain

It can be observed that there is a break in series from the second semester of 2013 onwards. Prior to this date, Spain reported its policy support costs to Eurostat in the network component. From this date on, policy support costs are included in the energy and supply component. This issue should be taken into account in order not to have a distorted picture.

<b>Band IG: Consumption above 150,000 MWh</b>						
<b>Taxes and levies (EUR/kWh)</b>						
<b>2008-S2</b>	<b>2009-S2</b>	<b>2010-S2</b>	<b>2011-S2</b>	<b>2012-S2</b>	<b>2013-S2</b>	<b>2014-S2</b>
0.0025	0.0024	0.0025	0.0026	0.0027	0.0032	0.0033

Table 24: Band IG. Taxes and levies in Spain

➤ Portugal

**Band IF: Consumption between 70,000 MWh and 150,000 MWh**

<b>Prices excluding taxes and levies (EUR/kWh)</b>														
<b>2007-S2</b>	<b>2008-S1</b>	<b>2008-S2</b>	<b>2009-S1</b>	<b>2009-S2</b>	<b>2010-S1</b>	<b>2010-S2</b>	<b>2011-S1</b>	<b>2011-S2</b>	<b>2012-S1</b>	<b>2012-S2</b>	<b>2013-S1</b>	<b>2013-S2</b>	<b>2014-S1</b>	<b>2014-S2</b>
0.0497	0.0498	0.0505	0.0635	0.0516	0.0503	0.0563	0.0610	0.0601	0.0793	0.0754	0.0748	0.0773	0.0633	0.0697

Table 25: Band IF. Prices excluding taxes and levies in Portugal

<b>Prices excluding VAT and other recoverable taxes and levies (EUR/kWh)</b>														
<b>2007-S2</b>	<b>2008-S1</b>	<b>2008-S2</b>	<b>2009-S1</b>	<b>2009-S2</b>	<b>2010-S1</b>	<b>2010-S2</b>	<b>2011-S1</b>	<b>2011-S2</b>	<b>2012-S1</b>	<b>2012-S2</b>	<b>2013-S1</b>	<b>2013-S2</b>	<b>2014-S1</b>	<b>2014-S2</b>
0.0579	0.0605	0.0612	0.0642	0.0544	0.0516	0.0589	0.0698	0.0705	0.0834	0.0815	0.0816	0.0818	0.0761	0.0838

Table 26: Band IF. Prices excluding VAT and other recoverable taxes and levies in Portugal

<b>Energy and supply cost component (EUR/kWh)</b>						
<b>2008-S2</b>	<b>2009-S2</b>	<b>2010-S2</b>	<b>2011-S2</b>	<b>2012-S2</b>	<b>2013-S2</b>	<b>2014-S2</b>
0.0440	0.0483	0.0477	0.0483	0.0568	0.0557	0.0469

Table 27: Band IF. Energy and supply component in Portugal

<b>Network cost component (EUR/kWh)</b>						
<b>2008-S2</b>	<b>2009-S2</b>	<b>2010-S2</b>	<b>2011-S2</b>	<b>2012-S2</b>	<b>2013-S2</b>	<b>2014-S2</b>
0.0064	0.0059	0.0086	0.0118	0.0186	0.0216	0.0228

Table 28: Band IF. Network component in Portugal

Taxes and levies (EUR/kWh)						
2008-S2	2009-S2	2010-S2	2011-S2	2012-S2	2013-S2	2014-S2
0.0108	0.0000	0.0026	0.0104	0.0061	0.0045	0.0141

Table 29: Band IF. Taxes and levies in Portugal

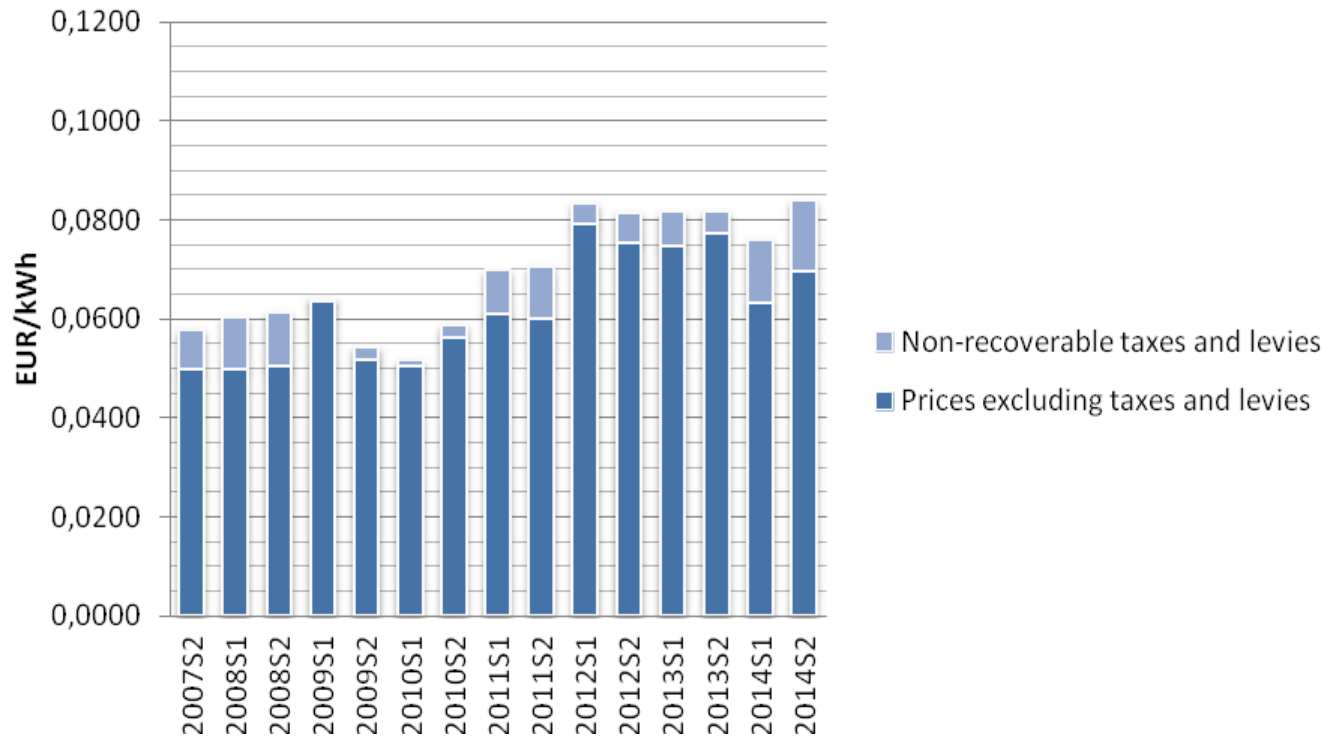


Figure 4: Band IF. Electricity prices in Portugal

➤ Italy

**Band IF: Consumption between 70,000 MWh and 150,000 MWh**

<b>Prices excluding taxes and levies (EUR/kWh)</b>								
<b>2010-S2</b>	<b>2011-S1</b>	<b>2011-S2</b>	<b>2012-S1</b>	<b>2012-S2</b>	<b>2013-S1</b>	<b>2013-S2</b>	<b>2014-S1</b>	<b>2014-S2</b>
0.0934	0.0817	0.0817	0.0881	0.0915	0.0818	0.0826	0.0711	0.0764

Table 30: Band IF. Prices excluding taxes and levies in Italy

<b>Prices excluding VAT and other recoverable taxes and levies (EUR/kWh)</b>								
<b>2010-S2</b>	<b>2011-S1</b>	<b>2011-S2</b>	<b>2012-S1</b>	<b>2012-S2</b>	<b>2013-S1</b>	<b>2013-S2</b>	<b>2014-S1</b>	<b>2014-S2</b>
0.1073	0.0982	0.1033	0.1117	0.1236	0.1136	0.1162	0.1049	0.1153

Table 31: Band IF. Prices excluding VAT and other recoverable taxes and levies in Italy

<b>Energy and supply cost component (EUR/kWh)</b>						
<b>2008-S2</b>	<b>2009-S2</b>	<b>2010-S2</b>	<b>2011-S2</b>	<b>2012-S2</b>	<b>2013-S2</b>	<b>2014-S2</b>
0.0893	0.0775	0.0802	0.0747	0.0839	0.0741	0.0684

Table 32: Band IF. Energy and supply component in Italy

<b>Network cost component (EUR/kWh)</b>						
<b>2008-S2</b>	<b>2009-S2</b>	<b>2010-S2</b>	<b>2011-S2</b>	<b>2012-S2</b>	<b>2013-S2</b>	<b>2014-S2</b>
0.0094	0.0082	0.0096	0.0070	0.0076	0.0086	0.0080

Table 33: Band IF. Network component in Italy

Taxes and levies (EUR/kWh)						
2008-S2	2009-S2	2010-S2	2011-S2	2012-S2	2013-S2	2014-S2
0.0091	0.0076	0.0131	0.0216	0.0321	0.0335	0.0388

Table 34: Band IF. Taxes and levies in Italy

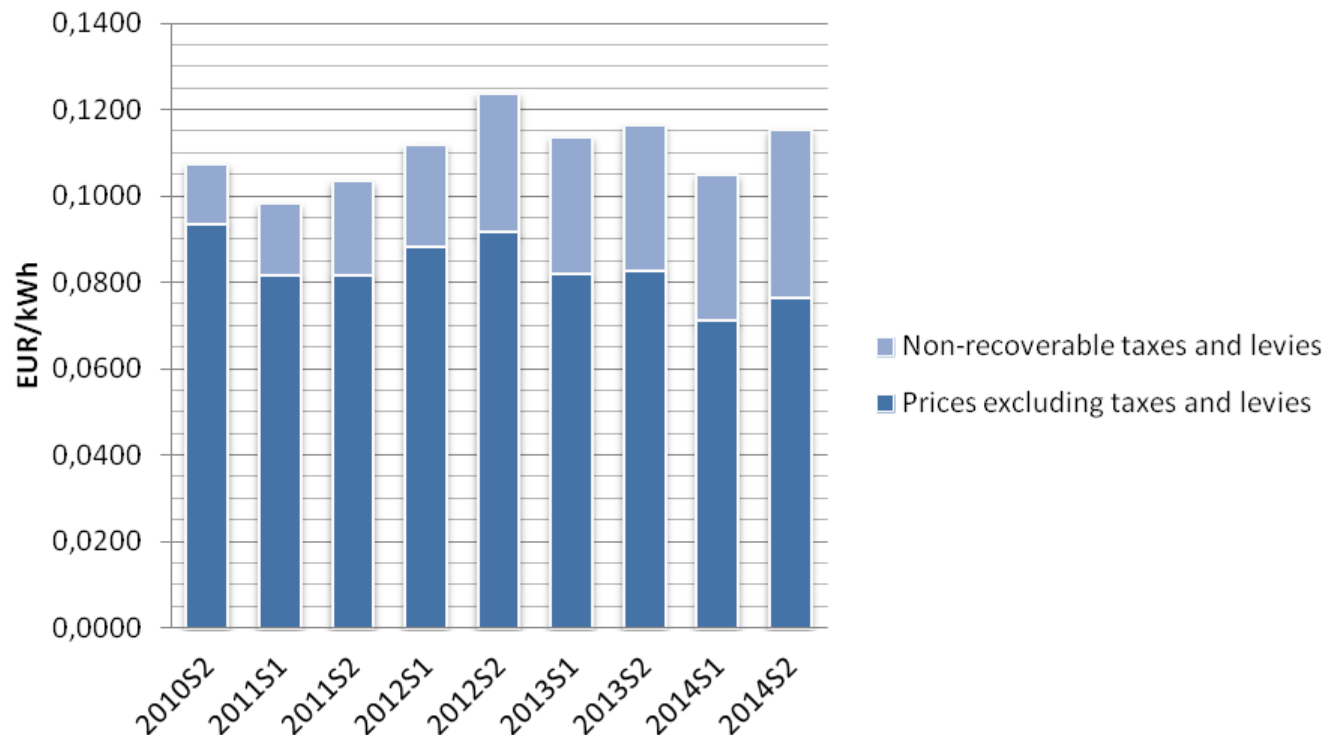


Figure 5: Band IF. Electricity prices in Italy

**Band IG: Consumption above 150,000 MWh**

<b>Prices excluding taxes and levies (EUR/kWh)</b>								
<b>2010-S2</b>	<b>2011-S1</b>	<b>2011-S2</b>	<b>2012-S1</b>	<b>2012-S2</b>	<b>2013-S1</b>	<b>2013-S2</b>	<b>2014-S1</b>	<b>2014-S2</b>
0.0989	0.0806	0.0841	0.0853	0.0901	0.0837	0.0862	0.0665	0.0694

Table 35: Band IG. Prices excluding taxes and levies in Italy

<b>Prices excluding VAT and other recoverable taxes and levies (EUR/kWh)</b>								
<b>2010-S2</b>	<b>2011-S1</b>	<b>2011-S2</b>	<b>2012-S1</b>	<b>2012-S2</b>	<b>2013-S1</b>	<b>2013-S2</b>	<b>2014-S1</b>	<b>2014-S2</b>
0.1096	0.0885	0.0932	0.0937	0.1010	0.0974	0.1061	0.0821	0.0921

Table 36: Band IG. Prices excluding VAT and other recoverable taxes and levies in Italy

<b>Energy and supply cost component (EUR/kWh)</b>						
<b>2008-S2</b>	<b>2009-S2</b>	<b>2010-S2</b>	<b>2011-S2</b>	<b>2012-S2</b>	<b>2013-S2</b>	<b>2014-S2</b>
0.0864	0.00772	0.0898	0.0769	0.0814	0.0757	0.0636

Table 37: Band IG. Energy and supply component in Italy

<b>Network cost component (EUR/kWh)</b>						
<b>2008-S2</b>	<b>2009-S2</b>	<b>2010-S2</b>	<b>2011-S2</b>	<b>2012-S2</b>	<b>2013-S2</b>	<b>2014-S2</b>
0.0068	0.0080	0.0085	0.0071	0.0087	0.0104	0.0058

Table 38: Band IG. Network component in Italy

Taxes and levies (EUR/kWh)						
2008-S2	2009-S2	2010-S2	2011-S2	2012-S2	2013-S2	2014-S2
0.0028	0.0044	0.0071	0.0091	0.0109	0.0199	0.0228

Table 39: Band IG. Taxes and levies in Italy

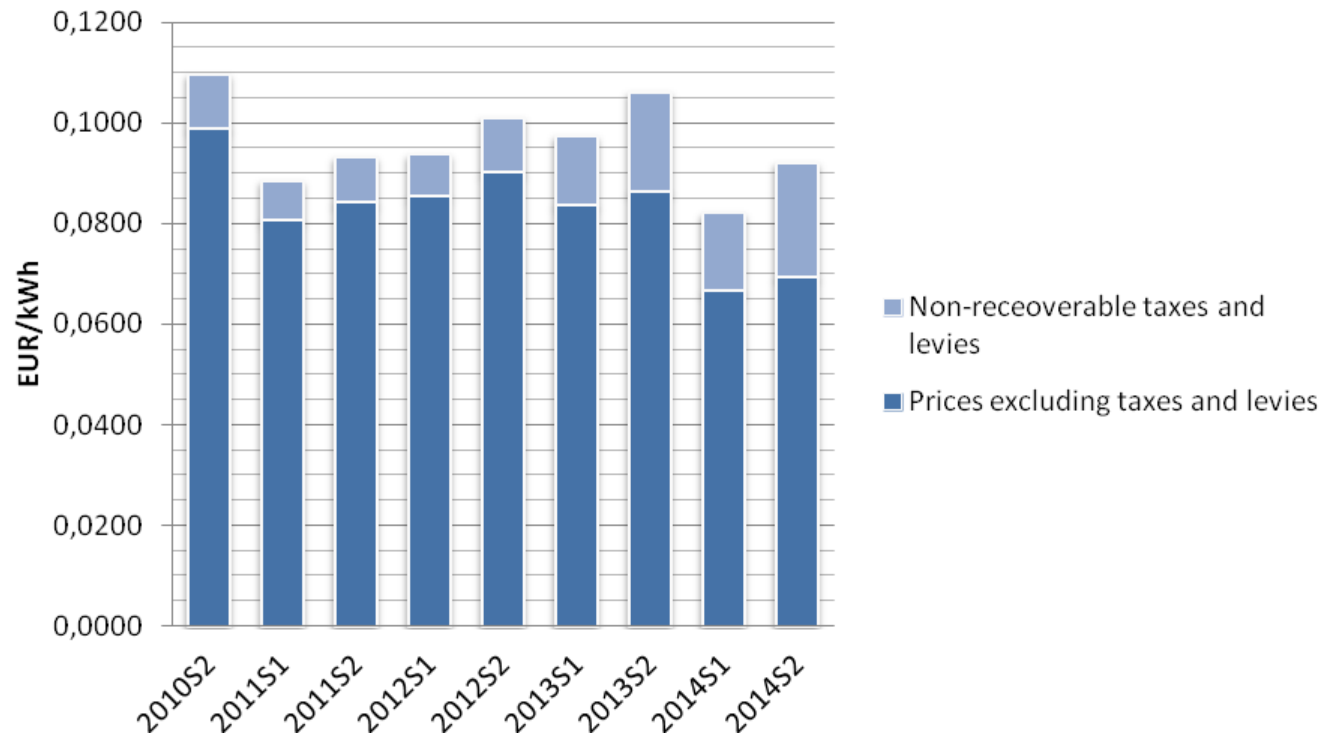


Figure 6: Band IG. Electricity prices in Italy

➤ France

**Band IF: Consumption between 70,000 MWh and 150,000 MWh**

<b>Prices excluding taxes and levies (EUR/kWh)</b>														
<b>2007-S2</b>	<b>2008-S1</b>	<b>2008-S2</b>	<b>2009-S1</b>	<b>2009-S2</b>	<b>2010-S1</b>	<b>2010-S2</b>	<b>2011-S1</b>	<b>2011-S2</b>	<b>2012-S1</b>	<b>2012-S2</b>	<b>2013-S1</b>	<b>2013-S2</b>	<b>2014-S1</b>	<b>2014-S2</b>
0.0444	0.0522	0.0465	0.0518	0.0466	0.0570	0.0502	0.0562	0.0524	0.0577	0.0547	0.0565	0.0532	0.0561	0.0521

Table 40: Band IF. Prices excluding taxes and levies in France

<b>Prices excluding VAT and other recoverable taxes and levies (EUR/kWh)</b>														
<b>2007-S2</b>	<b>2008-S1</b>	<b>2008-S2</b>	<b>2009-S1</b>	<b>2009-S2</b>	<b>2010-S1</b>	<b>2010-S2</b>	<b>2011-S1</b>	<b>2011-S2</b>	<b>2012-S1</b>	<b>2012-S2</b>	<b>2013-S1</b>	<b>2013-S2</b>	<b>2014-S1</b>	<b>2014-S2</b>
0.0516	0.0604	0.0540	0.0608	0.0537	0.0621	0.0546	0.0631	0.0560	0.0659	0.0569	0.0660	0.0549	0.0663	0.0543

Table 41: Band IF. Prices excluding VAT and other recoverable taxes and levies in France

<b>Energy and supply cost component (EUR/kWh)</b>		
<b>2012-S2</b>	<b>2013-S2</b>	<b>2014-S2</b>
0.0402	0.0442	0.0432

Table 42: Band IF. Energy and supply component in France

<b>Network cost component (EUR/kWh)</b>		
<b>2012-S2</b>	<b>2013-S2</b>	<b>2014-S2</b>
0.0145	0.0090	0.0089

Table 43: Band IF. Network component in France



Taxes and levies (EUR/kWh)		
2012-S2	2013-S2	2014-S2
0.0022	0.0017	0.0023

Table 44: Band IF. Taxes and levies in France

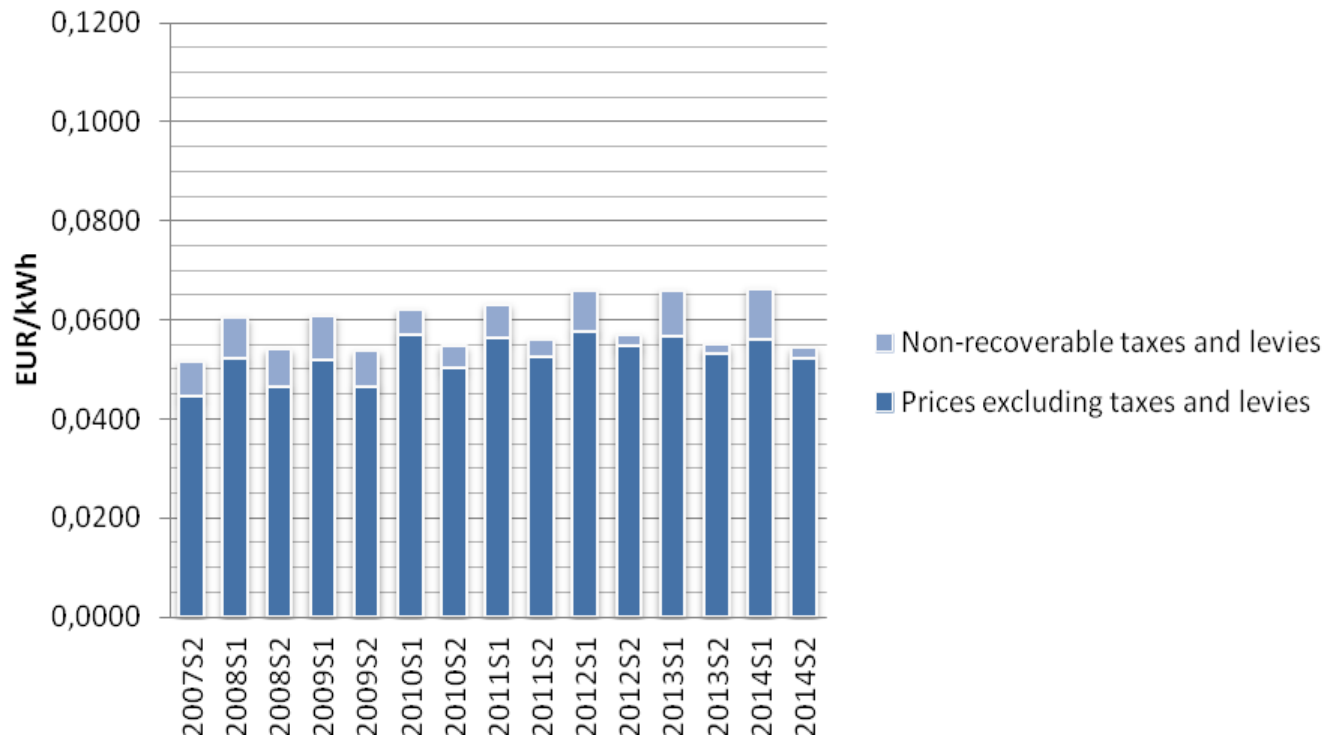


Figure 7: Electricity prices in France

➤ Germany

**Band IF: Consumption between 70,000 MWh and 150,000 MWh**

<b>Prices excluding taxes and levies (EUR/kWh)</b>														
<b>2007-S2</b>	<b>2008-S1</b>	<b>2008-S2</b>	<b>2009-S1</b>	<b>2009-S2</b>	<b>2010-S1</b>	<b>2010-S2</b>	<b>2011-S1</b>	<b>2011-S2</b>	<b>2012-S1</b>	<b>2012-S2</b>	<b>2013-S1</b>	<b>2013-S2</b>	<b>2014-S1</b>	<b>2014-S2</b>
0.0722	0.0776	0.0755	0.0779	0.0739	0.0661	0.0711	0.0716	0.0732	0.0653	0.0642	0.0636	0.0621	0.0586	0.0608

Table 45: Band IF. Prices excluding taxes and levies in Germany

<b>Prices excluding VAT and other recoverable taxes and levies (EUR/kWh)</b>														
<b>2007-S2</b>	<b>2008-S1</b>	<b>2008-S2</b>	<b>2009-S1</b>	<b>2009-S2</b>	<b>2010-S1</b>	<b>2010-S2</b>	<b>2011-S1</b>	<b>2011-S2</b>	<b>2012-S1</b>	<b>2012-S2</b>	<b>2013-S1</b>	<b>2013-S2</b>	<b>2014-S1</b>	<b>2014-S2</b>
0.0824	0.0859	0.0853	0.0877	0.0861	0.0824	0.0902	0.1013	0.1000	0.0931	0.0921	0.1064	0.0971	0.1063	0.1033

Table 46: Band IF. Prices excluding VAT and other recoverable taxes and levies in Germany

<b>Energy and supply cost component (EUR/kWh)</b>						
<b>2008-S2</b>	<b>2009-S2</b>	<b>2010-S2</b>	<b>2011-S2</b>	<b>2012-S2</b>	<b>2013-S2</b>	<b>2014-S2</b>
0.0642	0.0602	0.0574	0.0589	0.0519	0.0468	0.0445

Table 47: Band IF. Energy and supply component in Germany

<b>Network cost component (EUR/kWh)</b>						
<b>2008-S2</b>	<b>2009-S2</b>	<b>2010-S2</b>	<b>2011-S2</b>	<b>2012-S2</b>	<b>2013-S2</b>	<b>2014-S2</b>
0.0098	0.0122	0.0191	0.0268	0.0279	0.0350	0.0425

Table 48: Band IF. Network component in Germany

Taxes and levies (EUR/kWh)						
2008-S2	2009-S2	2010-S2	2011-S2	2012-S2	2013-S2	2014-S2
0.0113	0.0137	0.0137	0.0143	0.0123	0.0153	0.0163

Table 49: Band IF. Taxes and levies in Germany

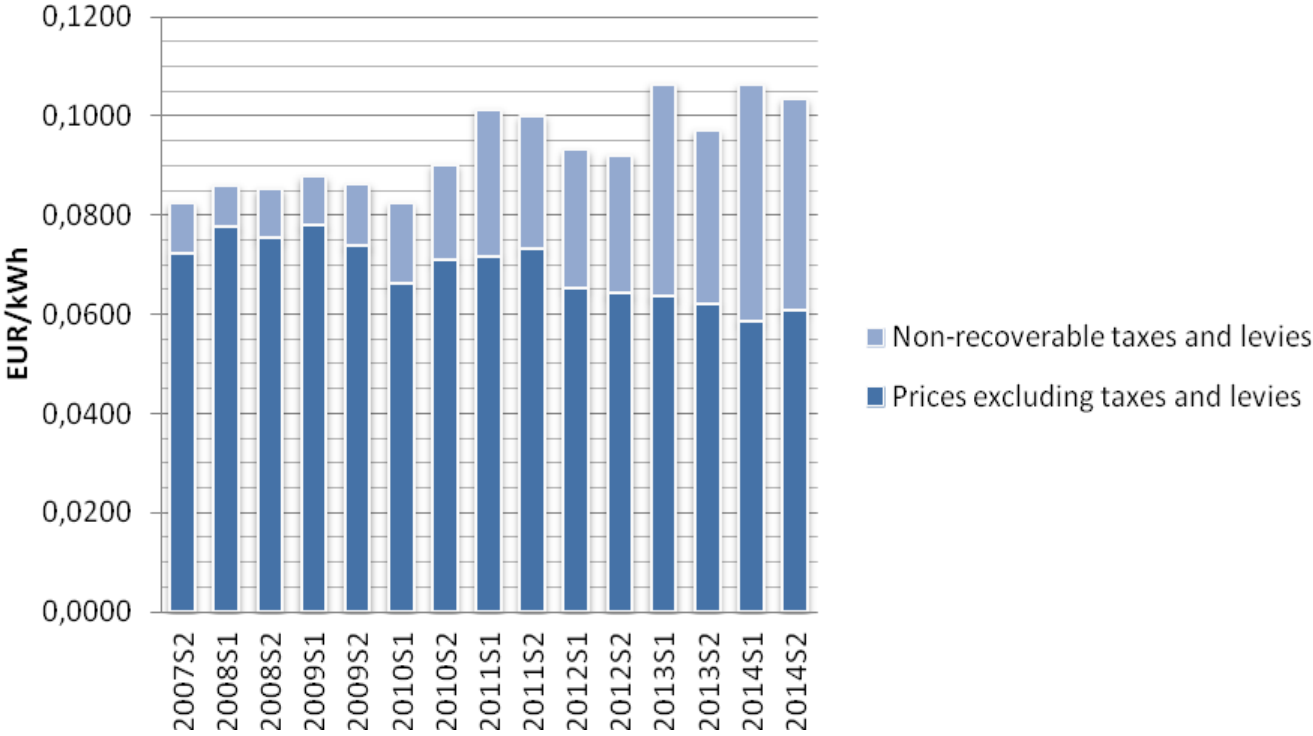


Figure 8: Band IF. Electricity prices in Germany

➤ United Kingdom

**Band IF: Consumption between 70,000 MWh and 150,000 MWh**

Prices excluding taxes and levies (EUR/kWh)														
2007-S2	2008-S1	2008-S2	2009-S1	2009-S2	2010-S1	2010-S2	2011-S1	2011-S2	2012-S1	2012-S2	2013-S1	2013-S2	2014-S1	2014-S2
0.0846	0.0857	0.0967	0.0952	0.0841	0.0785	0.0768	0.0808	0.0793	0.0894	0.1003	0.1027	0.1016	0.1108	0.1149

Table 50: Band IF. Prices excluding taxes and levies in UK

Prices excluding VAT and other recoverable taxes and levies (EUR/kWh)														
2007-S2	2008-S1	2008-S2	2009-S1	2009-S2	2010-S1	2010-S2	2011-S1	2011-S2	2012-S1	2012-S2	2013-S1	2013-S2	2014-S1	2014-S2
0.0846	0.0880	0.0994	0.0978	0.0869	0.0811	0.0791	0.0834	0.0819	0.0922	0.1033	0.1053	0.1035	0.1131	0.1173

Table 51: Band IF. Prices excluding VAT and other recoverable taxes and levies in UK

Energy and supply cost component (EUR/kWh)						
2008-S2	2009-S2	2010-S2	2011-S2	2012-S2	2013-S2	2014-S2
0.0744	0.0647	0.0591	0.0634	0.0803	0.0754	0.0835

Table 52: Band IF. Energy and supply component in UK

Network cost component (EUR/kWh)						
2008-S2	2009-S2	2010-S2	2011-S2	2012-S2	2013-S2	2014-S2
0.0223	0.0194	0.0176	0.0159	0.0200	0.0262	0.0313

Table 53: Band IF. Network component in UK

Taxes and levies (EUR/kWh)						
2008-S2	2009-S2	2010-S2	2011-S2	2012-S2	2013-S2	2014-S2
0.0027	0.0027	0.0022	0.0025	0.0030	0.0020	0.0024

Table 54: Band IF. Taxes and levies in UK

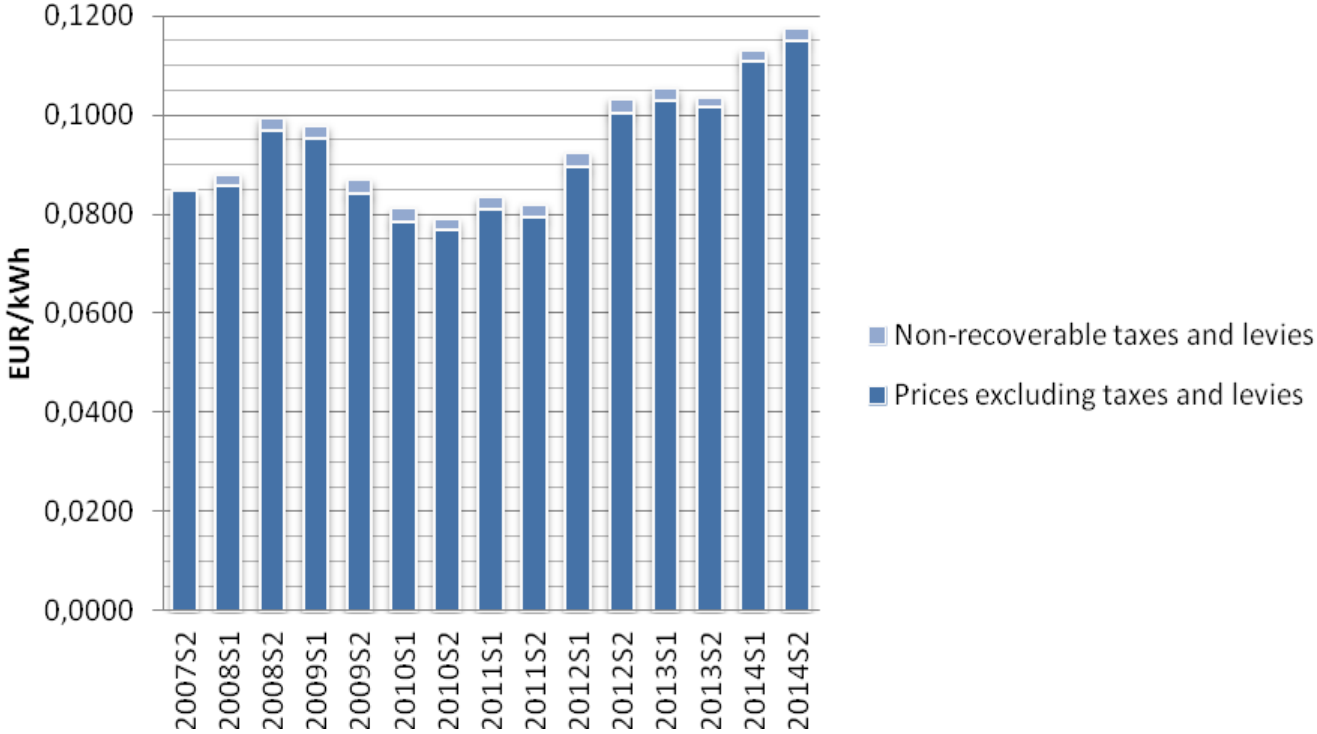


Figure 9: Band IF. Electricity prices in UK

**Band IG: Consumption above 150,000 MWh**

<b>Prices excluding taxes and levies (EUR/kWh)</b>														
<b>2007-S2</b>	<b>2008-S1</b>	<b>2008-S2</b>	<b>2009-S1</b>	<b>2009-S2</b>	<b>2010-S1</b>	<b>2010-S2</b>	<b>2011-S1</b>	<b>2011-S2</b>	<b>2012-S1</b>	<b>2012-S2</b>	<b>2013-S1</b>	<b>2013-S2</b>	<b>2014-S1</b>	<b>2014-S2</b>
0.0712	0.0759	0.0848	0.0818	0.0769	0.0817	0.0769	0.0781	0.0821	0.0949	0.1011	0.0966	0.1013	0.1082	0.1126

Table 55: Band IG. Prices excluding taxes and levies in UK

<b>Prices excluding VAT and other recoverable taxes and levies (EUR/kWh)</b>														
<b>2007-S2</b>	<b>2008-S1</b>	<b>2008-S2</b>	<b>2009-S1</b>	<b>2009-S2</b>	<b>2010-S1</b>	<b>2010-S2</b>	<b>2011-S1</b>	<b>2011-S2</b>	<b>2012-S1</b>	<b>2012-S2</b>	<b>2013-S1</b>	<b>2013-S2</b>	<b>2014-S1</b>	<b>2014-S2</b>
0.0712	0.0774	0.0862	0.0831	0.0781	0.0832	0.0778	0.0791	0.0836	0.0967	0.1027	0.0980	0.1028	0.1098	0.1143

Table 56: Band IG. Prices excluding VAT and other recoverable taxes and levies in UK

<b>Energy and supply cost component (EUR/kWh)</b>						
<b>2008-S2</b>	<b>2009-S2</b>	<b>2010-S2</b>	<b>2011-S2</b>	<b>2012-S2</b>	<b>2013-S2</b>	<b>2014-S2</b>
0.0654	0.0647	0.0679	0.0657	0.0808	0.0752	0.0819

Table 57: Band IG. Energy and supply component in UK

<b>Network cost component (EUR/kWh)</b>						
<b>2008-S2</b>	<b>2009-S2</b>	<b>2010-S2</b>	<b>2011-S2</b>	<b>2012-S2</b>	<b>2013-S2</b>	<b>2014-S2</b>
0.0195	0.0122	0.0090	0.0164	0.0203	0.0262	0.0307

Table 58: Band IG. Network component in UK

Taxes and levies (EUR/kWh)						
2008-S2	2009-S2	2010-S2	2011-S2	2012-S2	2013-S2	2014-S2
0.0013	0.0012	0.0008	0.0015	0.0016	0.0015	0.0018

Table 59: Band IG. Taxes and levies in UK

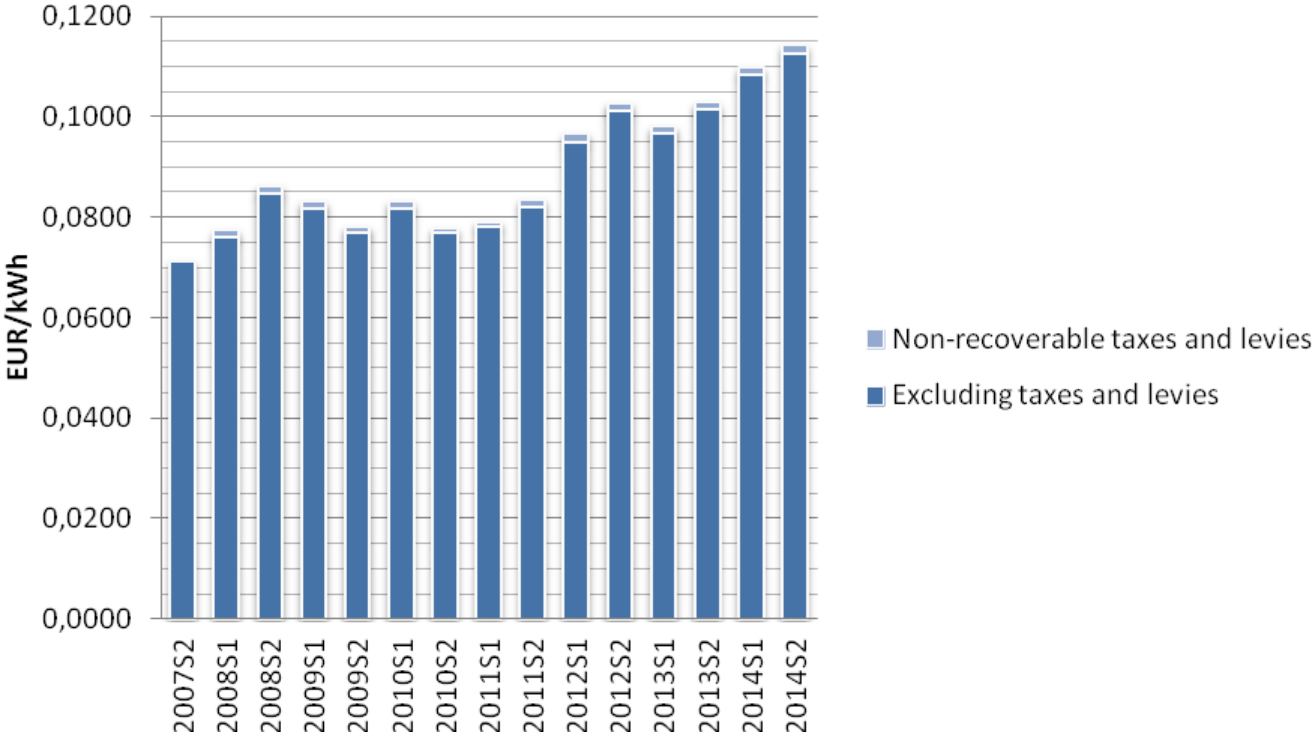


Figure 10: Band IG. Electricity prices in UK

In order to perform a comparative analysis between the countries in the scope of the study, an overview of the average electricity prices expressed in EUR/kWh for the consumption band IF (consumption between 70,000 MWh and 150,000 MWh) for the second semester of 2014 is given in Tables 60 and 61.

<b>Band IF: Consumption between 70,000 MWh and 150,000 MWh</b>					
<b>Prices excluding taxes and levies (EUR/kWh)</b>					
<b>Spain</b>	<b>Portugal</b>	<b>Italy</b>	<b>France</b>	<b>Germany</b>	<b>UK</b>
0.0736	0.0697	0.0764	0.0521	0.0608	0.1149

Table 60: Band IF. Prices excluding taxes and levies across Europe

<b>Band IF: Consumption between 70,000 MWh and 150,000 MWh</b>					
<b>Prices excluding VAT and other recoverable taxes and levies (EUR/kWh)</b>					
<b>Spain</b>	<b>Portugal</b>	<b>Italy</b>	<b>France</b>	<b>Germany</b>	<b>UK</b>
0.0774	0.0838	0.1153	0.0543	0.1033	0.1173

Table 61: Band IF. Prices excluding VAT and other recoverable taxes and levies across Europe

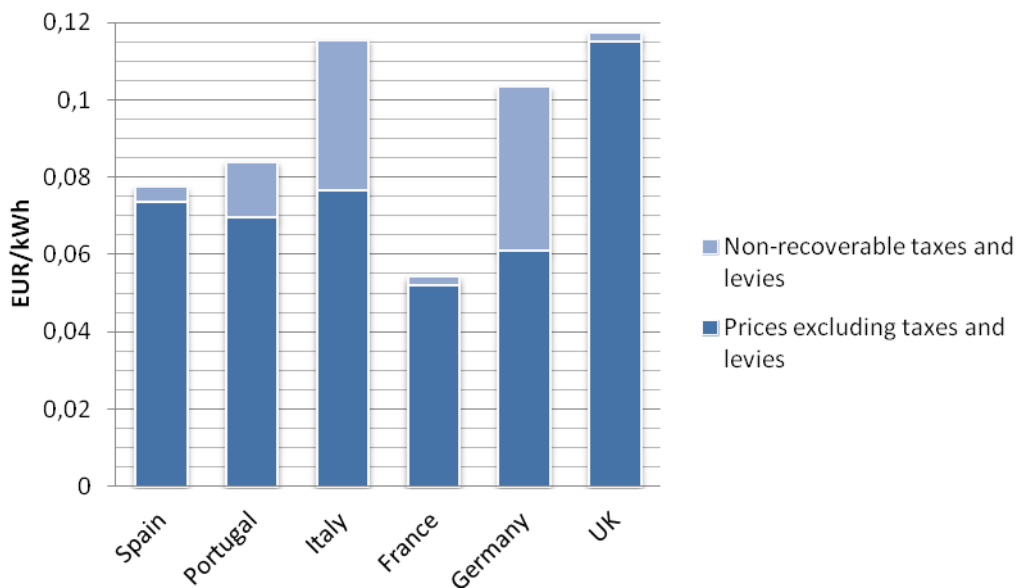


Figure 11: Band IF. Electricity prices across Europe

As it can be observe, the lowest electricity prices (both prices excluding all types of taxes and levies and prices including non-recoverable taxes and levies) during the second semester of 2014 are found in France. In this country, the price of



electricity for this type of consumers is around 30 % less when compared to UK or Italy, which are the country with the highest electricity prices.

Figure 12 provides a review of trends in Band IF electricity prices data since 2008. Prices are presented as bi-annual data and exclude VAT and other recoverable taxes and levies.

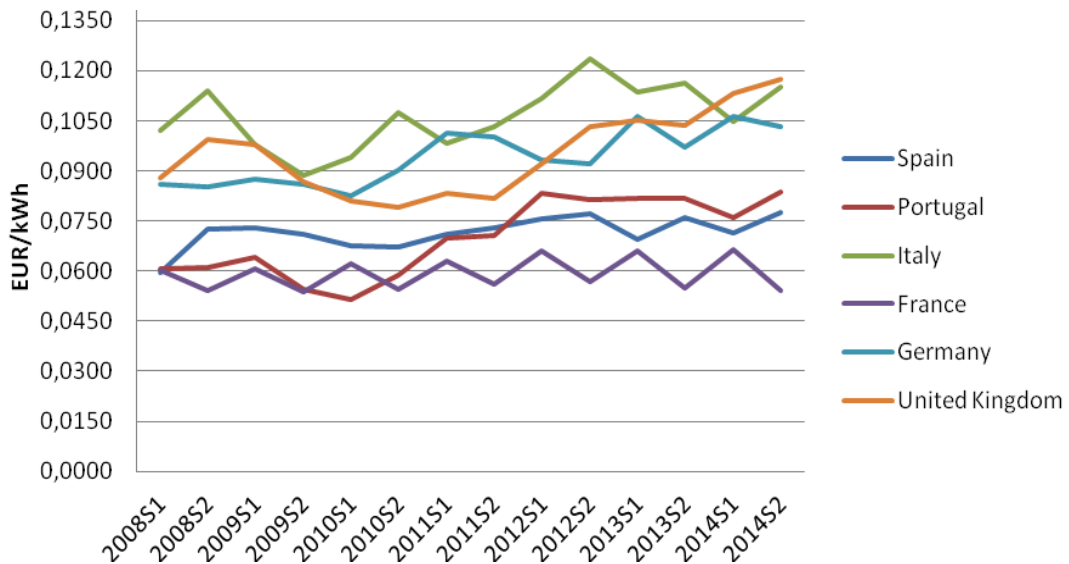


Figure 12: Band IF. Electricity price trends excluding VAT and other recoverable taxes

There are significant price differences between the most expensive countries (UK, Italy and Germany) and the cheapest ones (Portugal, Spain and France).

To shed light on this issue, the contribution of the energy and supply component and the network component to the price excluding taxes and levies are presented next.

Band IF: Consumption between 70,000 MWh and 150,000 MWh					
Energy and supply cost component (EUR/kWh)					
Spain	Portugal	Italy	France	Germany	UK
0.0692	0.0469	0.0684	0.0432	0.0445	0.0835

Table 62: Band IF. Energy and supply components across Europe

Band IF: Consumption between 70,000 MWh and 150,000 MWh					
Network cost component (EUR/kWh)					
Spain	Portugal	Italy	France	Germany	UK
0.0044	0.0228	0.0080	0.0089	0.0163	0.0313

Table 63: Band IF. Network component across Europe

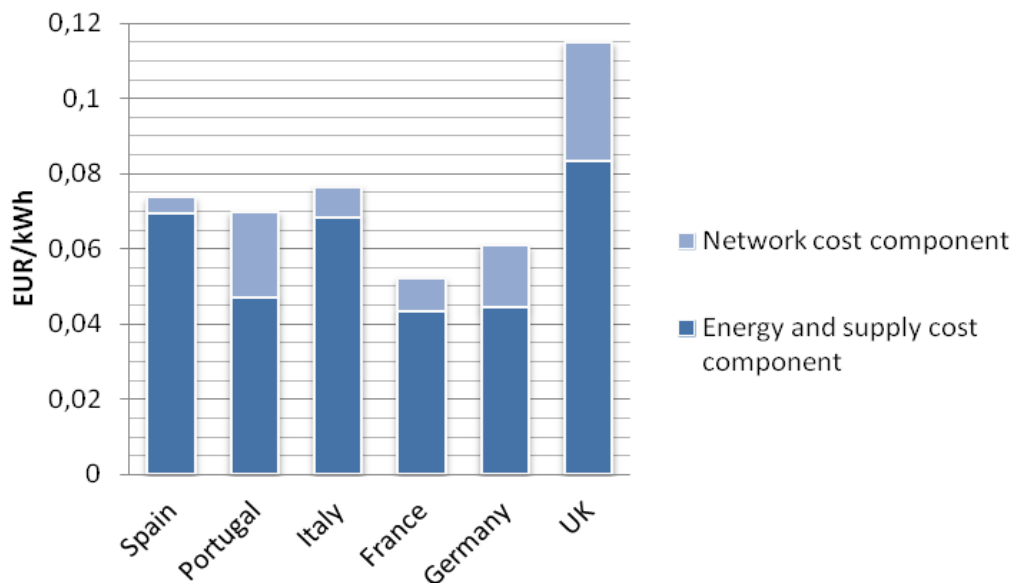


Figure 13: Band IF. Breakdown of electricity prices across Europe

United Kingdom presents the highest energy and supply and network costs. Although it is one of the countries where the lowest taxes are charged (keep in mind that government programmes are recovered through the energy component), the data displayed in tables 62 and 63 strengthen the fact that it is the country with the highest electricity prices. It should be said that the level of interconnection does not allow cheap electricity to be transported from Europe (for instance, from nuclear power plants in France) to United Kingdom.

The highest absolute contribution of non-recoverable taxes to the electricity price for these industrial end-users is observed in Germany and in Italy.

It is important to mention that Italy reports its policy support costs to Eurostat in the taxes and levies component (although they are recovered through the access tariff). This is the reason why the amount of taxes, according to Eurostat, is comparable in Germany and in Italy. Note that under the same assumption (policy support costs included in the tax component in Italy) was performed the quantitative analysis explained in Section 2.3.

The results of the analysis cannot be compared with those for Band IG because statistics for industrial end-users in Band IG are available only for Spain, Italy and United Kingdom, as noted elsewhere in this work.

An overview of the average electricity prices expressed in EUR/kWh for the consumption band IG (consumption above 150,000 MWh) for the second semester of 2014 is given in Tables 64 and 65.

<b>Band IG: Consumption above 150,000 MWh</b>		
<b>Prices excluding taxes and levies (EUR/kWh)</b>		
<b>Spain</b>	<b>Italy</b>	<b>UK</b>
0.0646	0.0694	0.1126

Table 64: Band IG. Prices excluding taxes and levies across Europe

<b>Band IG: Consumption above 150,000 MWh</b>		
<b>Prices excluding VAT and other recoverable taxes and levies (EUR/kWh)</b>		
<b>Spain</b>	<b>Italy</b>	<b>UK</b>
0.0679	0.0921	0.1143

Table 65: Band IG. Prices excluding VAT and other recoverable taxes and levies across Europe

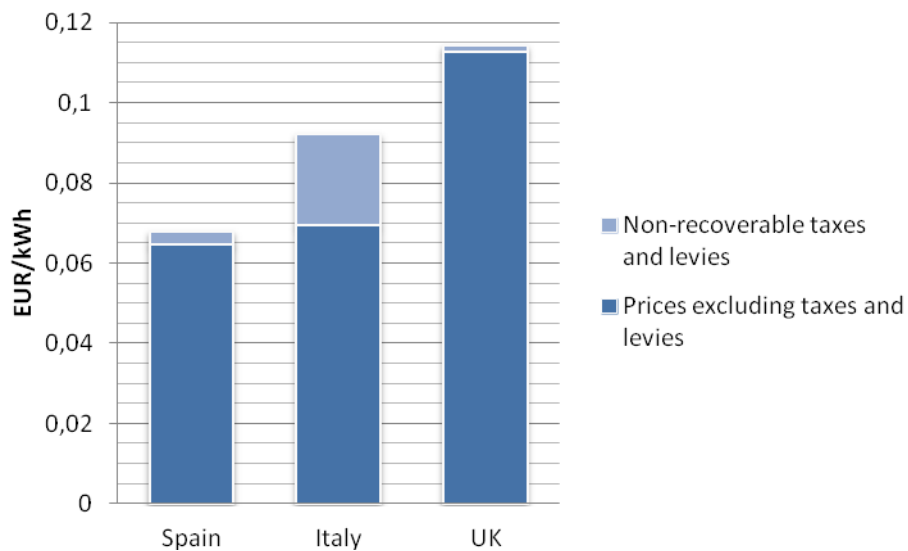


Figure 14: Band IG. Electricity prices across Europe

The highest electricity prices (both prices excluding all types of taxes and levies and prices including non-recoverable taxes and levies) during the second semester of 2014 are found in United Kingdom.

Figure 15 provides a review of trends in Band IG electricity prices data since 2008. Prices are presented as bi-annual data and exclude VAT and other recoverable taxes and levies.

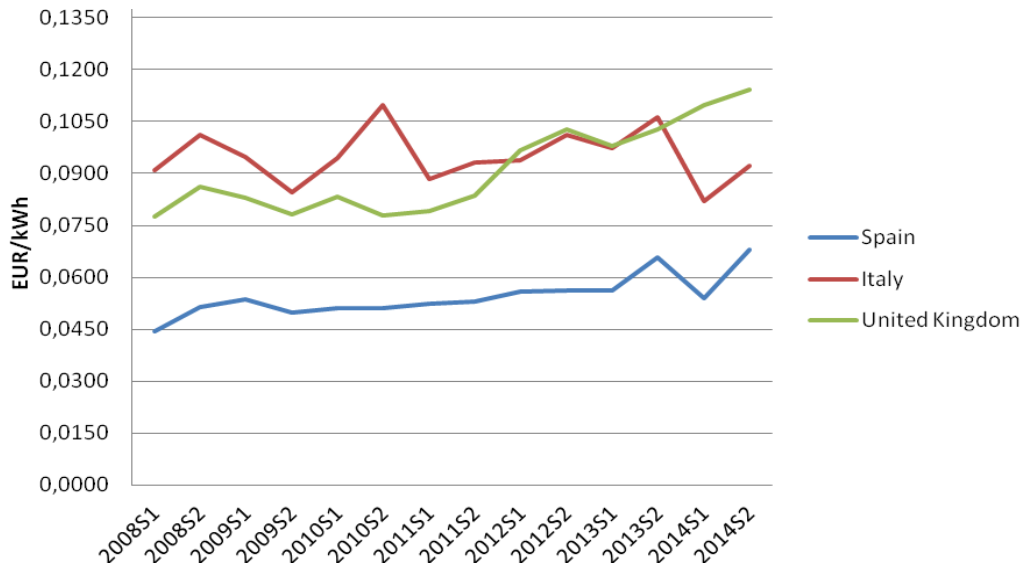


Figure 15: Band IG. Electricity price trends excluding VAT and other recoverable taxes

Price differences are found between UK and Italy and Spain.

The proportion of the energy and supply component and the network component in the final price are presented in Tables 66 and 67.

Energy and supply cost component (EUR/kWh)		
Spain	Italy	UK
0.0607	0.0636	0.0819

Table 66: Band IG. Energy and supply components across Europe

Network cost component (EUR/kWh)		
Spain	Italy	UK
0.0039	0.0058	0.0307

Table 67: Band IG. Network component across Europe

United Kingdom presents the highest energy and supply and network costs, followed by far by Italy and then Spain.

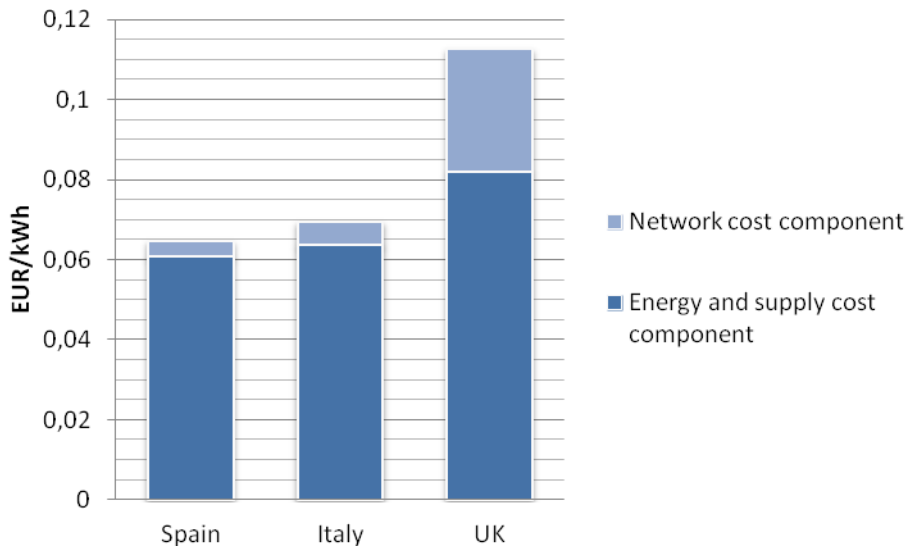


Figure 16: Band IG. Breakdown of electricity prices across Europe

### 3.2 Work by the International Energy Agency

“The IEA is an autonomous organisation which works to ensure reliable, affordable and clean energy for its 29 member countries and beyond” [52]. This Agency provides an international compilation of energy prices of OECD countries.

It provides information about electricity prices for households and industries but there is no such a specific category for energy-intensive industries. This is the main drawback of this statistics when compared to Eurostat.

It is also important to mention that the IEA follows a different approach regarding the collection of electricity prices from one country to another.

For instance, regarding the source of information from which the IEA gathers together data, it ranges from electricity undertakings (e.g. Italy) to Ministries (e.g. Spain). In addition, prices are not comparable due to the fact that they are expressed in different ways or there is no information in this aspect. As an example, on the one hand in Italy and UK prices refer to annual average revenues received by electricity undertakings from industrial sectors, whereas in Germany “prices refer to average prices for industrial consumers” but there is no explanation regarding neither the calculation of the average prices nor the definition of industrial consumers.

This non-homogeneous approach leads to different data and therefore it is hard to establish a comparison process with meaningful sense.

Information from IEA –average prices and taxes in EUR/MWh – has been included next. In the following tables and figures the terms “Ex-tax price” and “Excise tax” refer to the prices excluding taxes and after taxes (VAT not included), respectively.

➤ Spain

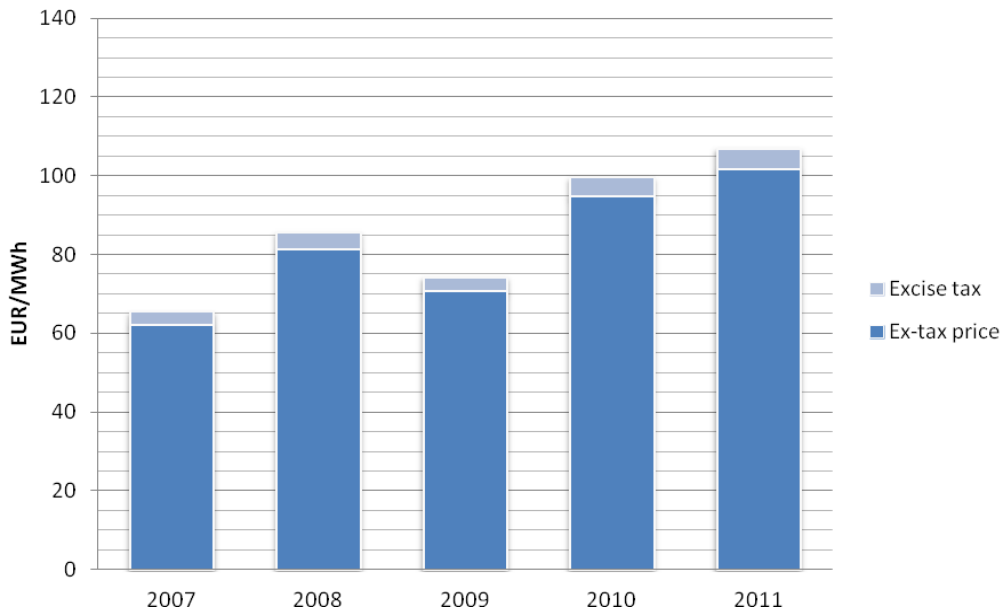


Figure 17: Electricity prices and taxes in Spain - IEA Statistics

➤ Portugal

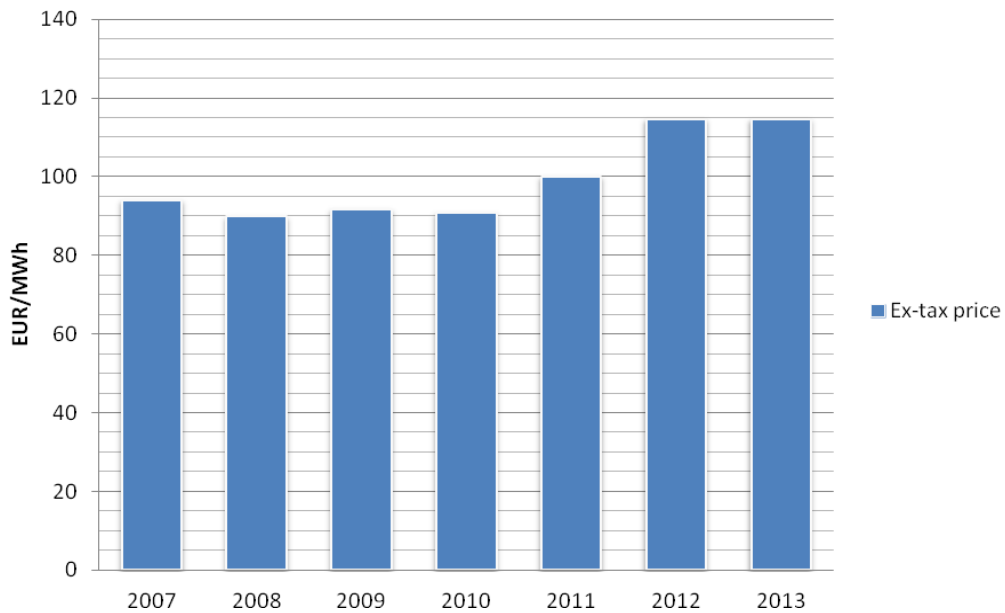


Figure 18: Electricity prices and taxes in Portugal - IEA Statistics

It is important to mention that this prices are the same as the ones reported by Eurostat. Prices exclude VAT and other recoverable taxes and levies and refer to the

consumption band IC (consumption between 500 MWh and 2,000 MWh), which is not the type of consumer that we are interested in.

➤ Italy

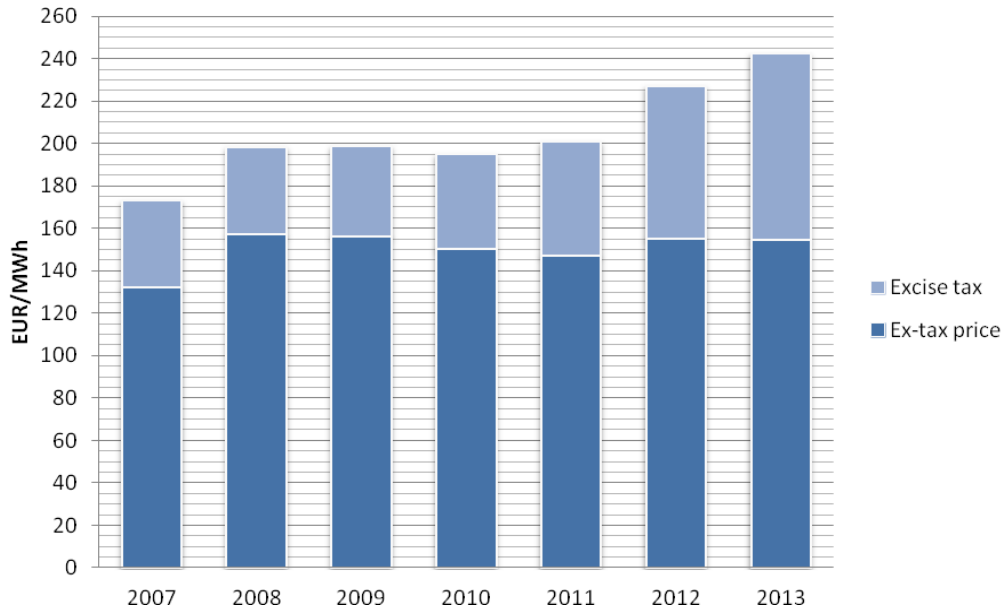


Figure 19: Electricity prices and taxes in Italy - IEA Statistics

➤ France

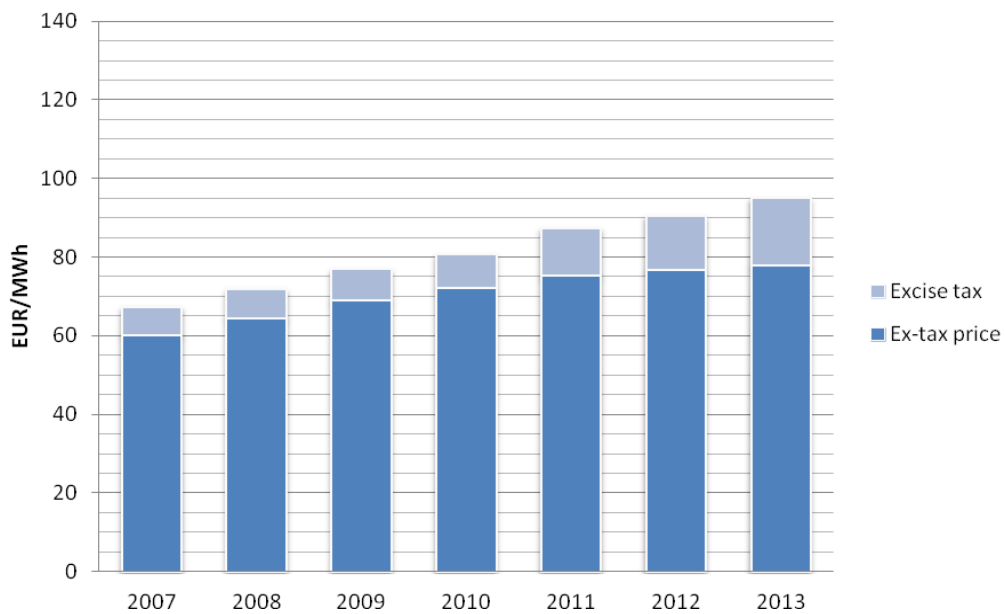


Figure 20: Electricity prices and taxes in France - IEA Statistics

➤ Germany

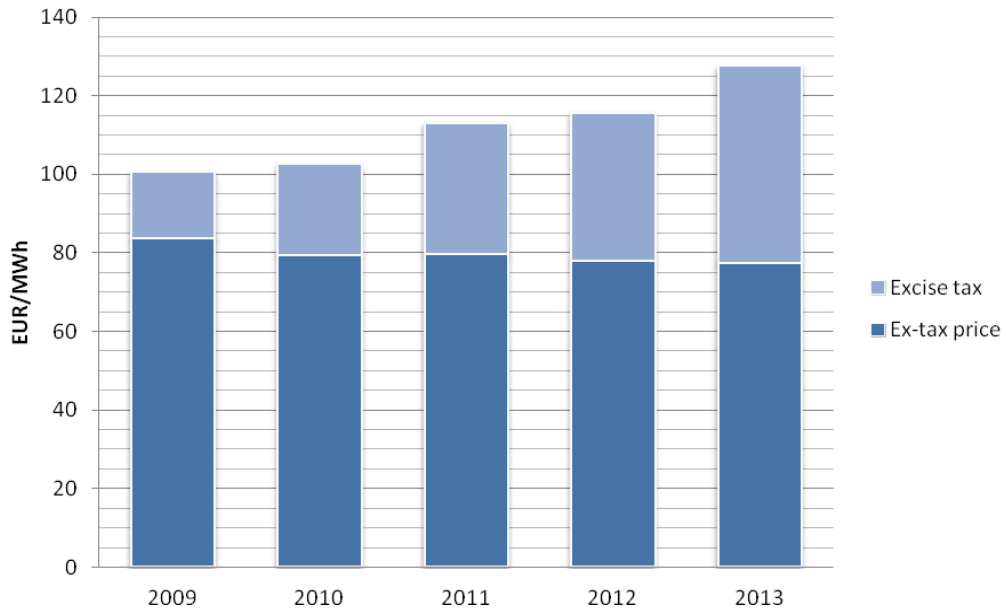


Figure 21: Electricity prices and taxes in Germany - IEA Statistics

➤ United Kingdom

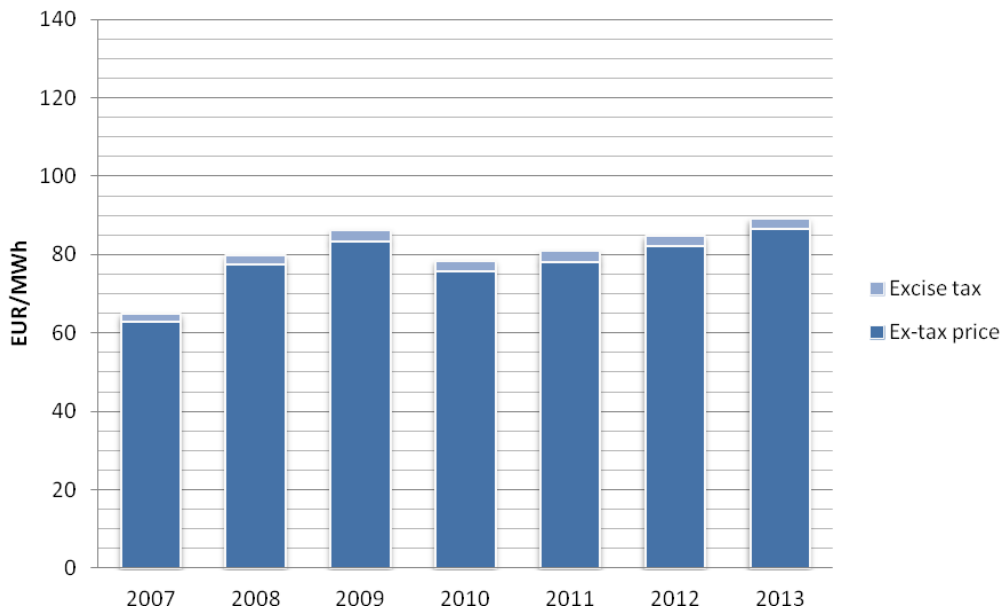


Figure 22: Electricity prices and taxes in UK - IEA Statistics

Figure 23 provides a review of trends in Band IG electricity prices using IEA data from 2007 to 2013. Prices are presented after taxes (VAT not included).



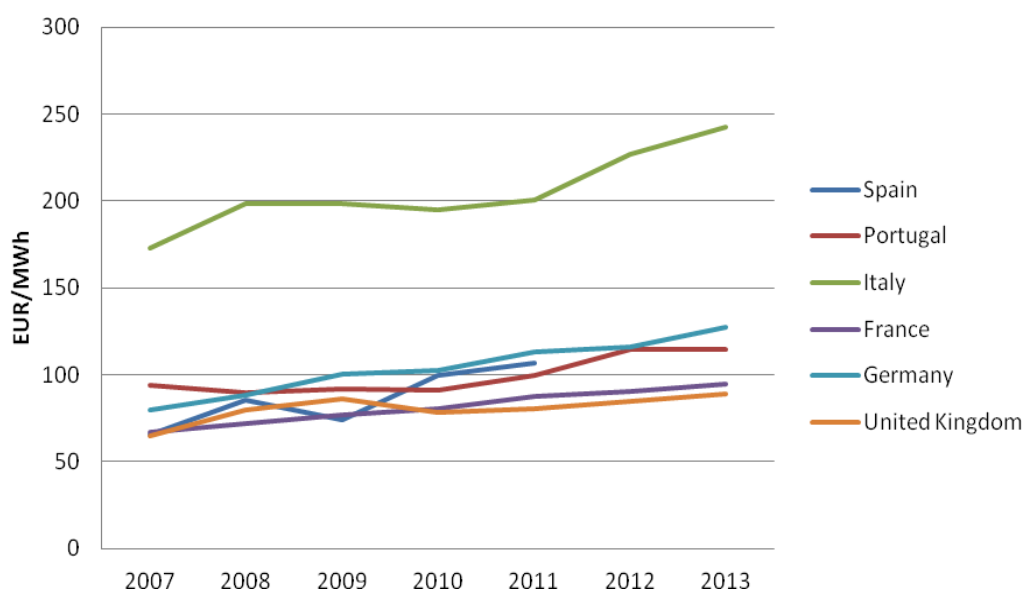


Figure 23: Electricity price trends - IEA Statistics

It can be observed that there are significant differences between Italy (which is way above the average) and the rest of the countries of the study. Since there is no much information regarding IEA methodology for the collection and dissemination of electricity prices it is not known whether these prices are comparable or not.

### 3.3 Problems associated with the current methodologies

From the previous sections, it can be observed that, the current statistical methodologies developed by Eurostat and the IEA for the collection of electricity prices presents several limitations. The IEA problems have been summarized in Section 3.2 so the next points focus on Eurostat methodology.

It has to be pointed out that the statistics published by Eurostat on electricity prices for industrial end-users do not allow a homogeneous price comparison for energy-intensive industry consumers.

This is because not all the consumers are represented in the statistics, since Member States are not obliged to provide data for clients consuming more than 150 GWh per year. Since there is no obligation to report prices for consumers in the largest consumption band (Band IG), data from all countries is not available. This means a lack of availability of price information for energy-intensive industries.

Moreover, there is a lack of awareness of the percentage that each type of consumption band represents over the total number of consumers in each country.

Because of this, it is not known whether the different types of consumption bands are representative for comparison purposes.

Another main problem that needs to be mentioned is that these price statistics do not take into account a number of basic conditions for the energy-intensive industries.

These conditions include the special regimes which apply to energy-intensive industries mentioned in Section 2.2. This is the case for instance of Spain. The recorded electricity prices do not allow considering possible incomes for consumers when offering services such as interruptible capacity due to the fact that these incomes are not reflected in the electricity bill.

In addition, electricity prices for consumers buying in the wholesale market are not covered due to the fact that prices are gathered together from undertakings which supply electricity.

It has to be mentioned, that the statistics published by Eurostat do not present a detailed breakdown of the energy and supply cost component, network cost component and taxes, levies and other surcharges.

In other words, it does not exist a binding framework at pan-European level that allows for a detailed breakdown of the price cost components (energy and supply, network and taxation) and therefore ensuring the fully harmonisation of the reporting obligation.

Furthermore, there is no harmonized methodology specifying under which category Member States should attribute costs related to specific government programmes. As a consequence, any country can report to Eurostat any policy support measure in any of the three components and therefore, comparing a certain component means that only the name of the components is identical, while their composition is highly divergent.

## Chapter 4

### Other efforts towards standardisation

The subject matter and scope of this chapter consists in explaining the efforts of the European Commission to improve the methodology applied for the collection of natural gas and electricity prices charged to end-users.

#### 4.1 Draft proposal for a new regulation on natural gas and electricity prices

The European Commission has developed a draft proposal for a new regulation on natural gas and electricity price statistics to reach EU-wide comparability and advance towards standardisation:

“Proposal for a Regulation of the European Parliament and of the Council on natural gas and electricity price statistics repealing Directive 2008/92/EC of the Parliament and of the Council concerning a Community procedure to improve the transparency of gas and electricity prices charged to industrial end-users” [53].

This draft proposal, dated on January the 22<sup>nd</sup> of 2015, begins with an analysis of the current situation (only the main items are remarked):

.....

- *At this date, Directive 2008/92/EC established a common framework for producing, transmitting and disseminating comparable electricity and natural gas price statistics in the Union.*

.....

- *Policy-making in the Union and monitoring of the energy prices markets of the Member States require comparable, up-to-date, reliable and harmonized information on natural gas and electricity end-user prices.*

.....

- *The Commission observed that rising of end-user prices in a number of Member States has been driven notably by increases in network costs and taxes and levies and that wide difference between Member States' policies*

*on costs, fees, levies and charges may reflect specific national circumstances and policy choices.*

.....

- *For distribution costs a much larger number of data compilers are involved and to obtain data for most Member States is considered as challenging. Given the importance of distribution level costs and the lack of transparency in this respect, a harmonized data collection based on sound methodology has to be carried out.*

.....

- *The system of consumption bands used by the Commission (Eurostat) in its price publications should ensure the transparency of the market and equally the broad dissemination of non-confidential price data and the calculation of European Aggregates.*

.....

- *Analysis on prices can only be carried out if high-quality official statistical data is available from Member States for the different components and sub-components of natural gas and electricity. The Commission has therefore defined a set of additional variables that are deemed to be necessary to be collected to allow for analysis of the impacts of different policies on prices.*

.....

- *Detailed data on the breakdown of consumption bands and their respective market shares are an essential part of natural gas and electricity price statistics.*

.....

- *The Commission (Eurostat) may grant derogations to Member States from those aspects of the energy price data collection that would lead to an excessive burden on respondents. Derogations should be granted only upon request of a proper justification which specifies the present situation and the excessive burden transparently. The period for which they remain in force should be limited to the shortest time necessary.*

.....

- *With a view to maintaining the high quality of the data transmitted by the Member States, the power to adopt acts in accordance with Article 290 of the Treaty should be delegated to the Commission, with a view to adapting the definitions, transmission modalities, frequencies and reference periods*

*of reporting and the contents of the Annexes, and to specifying the information to be supplied.*

.....

The draft proposal establishes a common framework for the production, transmission, evaluation and dissemination of comparable natural gas and electricity price statistics for non-household and household end-users in the European Union.

Within the context of the proposed Regulation, the Commission states a set of new terms and their corresponding definitions [53], which are listed below.

3. *Non-household includes the sectors as defined in Annex A of Energy Statistics Regulation, as amended by Commission Regulation (EU) No 431/2014s;*
4. *The definitions as laid down in Article 2 of the Directive 2009/72/EC and in Article 2 of the Directive 2009/73/EC shall apply.*
  - a) *The term end-user shall be used instead customer;*
  - b) *"Household end-user" means a customer purchasing natural gas or electricity for his own household consumption. Commercial or professional activities are excluded;*
  - c) *"Non-household end-user" means a natural or a legal person purchasing natural gas or electricity which is not for their own household use, excluding producers;*
  - d) *"distribution of electricity" means the transport of electricity on high-voltage, medium-voltage and low-voltage distribution systems with a view to its delivery to customers within the national territory of a country, excluding supply;*
  - e) *"transmission of electricity" means the transport of electricity on the extra high-voltage and high-voltage interconnected system with a view to its delivery to final customers or to distributors, within the national territory of a country, excluding supply;*

5. *The network component consists of two sub-components: distribution and transmission component;*
6. *"supply' means the sale, including resale, of electricity to end-users or the sale, including resale, of natural gas to end-users;*
7. *"supply undertaking" means any natural or legal person who carries out the function of supply;*
8. *The Commission shall be empowered to adopt delegated acts in accordance with Article 9 to establish with a view to adapting the definitions.*

Once the definitions have been established, the next step is the description of the collection and compilation of statistical data on electricity prices for non-households and household end-users.

The transmission format of price data must be conformed to an appropriate interchange standard specified by the Commission (Eurostat).

Even more, the Commission specify that Member States shall compile all data specified in the Annexes (Natural gas prices and Electricity prices) of this Regulation from the beginning of the calendar year following the adoption of this Regulation and shall transmit to the Commission (Eurostat) twice a year within 3 months after the end of reference period.

The electricity prices are collected for eight different categories, as presented in Table 68. Following categories shall apply for non-household end-users:

<b>Categories of non-household end-users</b>		
<b>Consumer bands</b>	<b>Annual electricity consumption (MWh)</b>	
	<b>Lowest</b>	<b>Highest</b>
Band IA		< 20
Band IB	20	500
Band IC	500	2,000
Band ID	2,000	20,000
Band IE	20,000	70,000
Band IF	70,000	150,000
Band IG	150,000	300,000
Band IH	> 300,000	

Table 68: Categories of non-household end-users

Member States shall transmit information on quantities of electricity in MWh for each band that has been invoiced to end-users.

Prices are to be provided broken down into three main components and into individual sub-components: energy and supply component, network component (transmission and distribution) and taxes, levies, fees and charges component.

The requirements stated by the Commission for the collection of electricity prices are detailed next. Data shall be provided in two ways. The first one relates to the level of detail on components and sub/components, and the second one deals with the level of detail based on taxation:

*a) Level of detail based on components and sub-components.*

The end-user price for electricity per consumption band is the sum of the three main components: energy and supply component, network component (transmission and distribution) and taxes, levies, fees and charges component. The components and sub-components are included in Table 69.

<b>Level of detail based on components and sub-components</b>	
<b>Component &amp; Sub-component</b>	<b>Content and Definition</b>
<b>energy and supply</b>	This component includes the following costs: generation, aggregation, balancing energy, supplied energy costs, customer services after sales management, metering, and other supply costs.
<b>network component</b>	This component is to be split into following sub-components: transmission and distribution network cost. Network" price shall include the following costs: transmission and distribution tariffs, transmission and distribution losses, network costs after-sale services, system service costs and meter rental.
Sub-component	Transmission costs
	Distribution costs
<b>taxes, fees, levies and charges</b>	This component is constructed by the following sub-components that will be reported as individual items.
Sub-component	harmonised energy taxes refer to excise duties or equivalent taxes fulfilling the legal requirements
	value added tax as defined by Council Directive 2006/112/EC on the common system of value added tax

	concession fees refer usually to licenses and fees for the occupation of land and public or private property by networks or other electricity devices
	taxes, fees, levies or charges for the promotion of renewable energy sources
	taxes, fees, levies or charges for the promotion of energy efficiency and combined heat and power generation
	taxes, fees, levies or charges related to the nuclear sector, including nuclear decommissioning, inspections and fees for nuclear installations
	taxes, fees, levies or charges related to capacity payments, energy security and generation adequacy
	taxes, fees, levies or charges related to air quality and environmental purposes and not included elsewhere
	taxes, fees, levies or charges related to CO2 or other greenhouse gas emissions
	other taxes, fees, levies or charges linked to the energy sector and not covered by any of the above categories: stranded costs, levies on financing energy regulatory authorities or market operators, taxes on electricity distribution, contributions to pensions of electricity and gas industry retirees, coal industry restructuring, support for district heating, island compensation, etc.
	other taxes, fees, levies or charges not linked to the energy sector and not covered by any of the above categories: national, local or regional fiscal taxes, etc.

Table 69: Level of detail based on components and sub-components

Source: Proposal for a Regulation of the European Parliament and of the Council on natural gas and electricity price statistics repealing Directive 2008/92/EC of the Parliament and of the Council concerning a Community procedure to improve the transparency of gas and electricity prices charged to industrial end-users [53]

*b) Level of detail based on taxation.*

In this case, data flows correspond to the three-level breakdown prices on the basis of taxation.

The three-level breakdown prices and their definition are included in Table 70.

Level of detail based on taxation	
Breakdown	Content and Definition
<b>prices excluding taxes and levies</b>	this price level includes the energy and supply component and the network component.
<b>prices excluding Value Added Tax (VAT) and</b>	this price level includes the energy component, the network component and taxes and levies considered as non-recoverable for



<b>other recoverable taxes</b>	non-household users. For household end-users this price level includes the energy component and the network component as well as all levies, taxes and charges, but excludes VAT.
<b>prices including all taxes</b>	this price level includes the energy component, the network component, as well as all recoverable and non-recoverable taxes and levies and VAT.

Table 70: Level of detail based on taxation

Source: Proposal for a Regulation of the European Parliament and of the Council on natural gas and electricity price statistics repealing Directive 2008/92/EC of the Parliament and of the Council concerning a Community procedure to improve the transparency of gas and electricity prices charged to industrial end-users [53]

## Chapter 5

### Conclusions

It has been established in the previous chapters that there are concerns among EU Member States regarding the suitability of each of the current methodologies for the collection and dissemination of electricity prices for energy-intensive industries.

To overcome this issue, this master's thesis has presented a detailed comparison of electricity price statistics for energy-intensive industries. In order to reach the established objectives, two main price compiling analysis have been conducted. The first part of this thesis focused on the definition of electricity prices for energy-intensive industries across Europe to better understand the current pricing scenario. The second part synthesized the statistics which are collected and disseminated by the statistical office of the European Union (Eurostat) and the International Energy Agency (IEA).

Finally, the contribution of this last chapter is to set the basis for the further development of a robust alternative methodology that can appropriately address the issues identified in previous chapters.

After this introduction, the main conclusions for each one of the chapters are presented below.

Regarding the breakdown of the main components that are affecting prices paid by energy-intensive industries that have been explored in this master's thesis:

- A wide variety of policy support costs are in place although the nature and existence of these policies is very country-specific.
- Different policy support instruments are covered under different price components depending on the country under consideration.
  - In the countries in the scope of the study financing related to these policy support measures is done through taxes or levies (i.e. Germany and France), incorporated in the access to the network tariff (i.e. Spain, Portugal and Italy) or included in the energy component (i.e. United Kingdom).

- It is important to note here that even though these measures are recovered under a specific component, they can be reported to Eurostat in any other component.
  - This issue also arises for instance regarding the system services costs and the electricity to cover network losses.
- National regulation in France and Germany allows energy-intensive industries to obtain preferential tariffs.
- The taxation component varies significantly by Member State. Although the most common tax among these countries is the excise tax on electricity there is no homogenization regarding tax rates to be applied.
- In several countries taxes are subject to certain exemptions or lower tax rates trying to address concerns about the risk of a loss of competitiveness, particularly in relation to industries that are exposed to global competition (e.g. chemicals, cement, glass, paper, aluminium, iron and steel).
- Energy-intensive industries can operate under special regimes.
  - Compensation for the indirect costs of the EU emissions trading scheme.
  - Incomes for consumers when offering interruptible capacity services, etc.

.....

Regarding the main assumptions underlying the statistics published by Eurostat and the IEA on electricity prices for industrial end-users, it has to be remarked that Eurostat overcomes the problems of the IEA although the former one does not allow a fully homogeneous price comparison for energy-intensive industries. This is due to the following issues:

- Not all the consumers are represented in the statistics, since there is no obligation for Member States to report prices for clients consuming more than 150 GWh per year. In addition, electricity prices for consumers buying in the wholesale market are not covered.
  - This means a lack of availability of price information for energy-intensive industries.

- There is a lack of awareness of the percentage that each consumption band represents over the total number of consumers in each country.
  - Because of this, it is not known whether the different types of consumption bands are representative for comparison purposes.
- These price statistics do not take into account a number of basic conditions (e.g. compensation payments) applicable to the energy-intensive industries.

With respect to the statistics published by Eurostat on electricity prices, it is also important to note that they do not allow a homogeneous comparison of the breakdown of the electricity prices as their composition is highly divergent.

- It does not exist a binding framework at pan-European level that allows for a detailed breakdown of the price cost components (energy and supply, network and taxation), and therefore ensuring the fully harmonised reporting obligation of price components.
  - EU Member States interpret the legislation in different ways. As a result, any country can report to Eurostat any element in any of the aforementioned components.

In order to achieve EU-wide comparability and advance towards standardisation, the European Commission has developed a draft proposal for a new regulation on natural gas and electricity price statistics. The following changes when compared to the current methodology have been proposed:

- The definition of consumption bands includes two categories for big industrial users.
- Collection of disaggregated electricity prices by means of different components and sub-components.
  - The energy and supply component covers the following costs: generation, aggregation, balancing energy, supplied energy costs, customer services after sales management, metering, and other supply costs.
  - The network component includes the following costs: transmission and distribution tariffs, transmission and distribution losses, network costs after-sale services, system service costs and meter rental.

- Taxes, fees, levies and charges will be reported as individual items.

Here we mention some of the areas in which the proposal can be improved to overcome the remaining problems.

- A possible extension of the draft proposal is to add the incomes for large consumers when offering interruptible capacity services as it entails differences in prices.
- To ensure that price transparency is not an obstacle to confidentiality, the mentioned proposal should include a provision excluding from the mandate to publish a price in a given consumption category if the number of customers is below a certain threshold.

The compromise between price transparency and confidentiality is a challenge from an implementation point of view since as mentioned before, the consumption bands should be representative for comparison purposes and the confidentiality rules should be respected.

- In order to achieve a more homogeneous comparison it is advisable to establish a new sub-component to reflect the tariff deficit annuities that merged in Spain, Portugal and in some other Member States in recent years.

The research directions discussed below are suggested as a possible way to continue the problems addressed in this master's thesis.

- In the presented work, we have tested the effectiveness of some of the current methodologies to collect and compare electricity prices. A possible research direction would be to assess the impact of the adoption of the Proposal for a Regulation of the European Parliament and of the Council on natural gas and electricity price statistics in the principles of maintaining a reduced burden on respondents and of administrative simplification.
  - The reporting obligation is currently borne by electricity undertakings. A new context will emerge if the proposal enters into force as it states that Member States shall compile data from different sources (producers/traders, distributors and transporters, operators, etc).

## Bibliography

[1] Eurostat. Statistics Explained

[http://ec.europa.eu/eurostat/statistics-explained/index.php/Energy\\_price\\_statistics\\_-\\_background](http://ec.europa.eu/eurostat/statistics-explained/index.php/Energy_price_statistics_-_background)

[2] Directive 2008/92/EC of the European Parliament and of the Council of 22 October 2008 concerning a Community procedure to improve the transparency of gas and electricity prices charged to industrial end-users. Available:

<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008L0092&from=EN>

[3] Council Directive 2003/96/EC of 28 October 2003 restructuring the Community framework for the taxation of energy products and electricity. Available:

<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32003L0096&from=EN>

[4] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Energy prices and costs in Europe. Available: [http://ec.europa.eu/energy/sites/ener/files/documents/20140122\\_sw\\_d\\_prices.pdf](http://ec.europa.eu/energy/sites/ener/files/documents/20140122_sw_d_prices.pdf)

[5] Department of Energy & Climate Change - GOV.UK. Estimated impacts of energy and climate change policies on energy prices and bills. Available:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/384404/Prices\\_Bills\\_report\\_2014.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/384404/Prices_Bills_report_2014.pdf)

[6] Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC. Available:

<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009L0072&from=EN>

[7] Orden IET/2444/2014, de 19 de diciembre, por la que se determinan los peajes de acceso de energía eléctrica para 2015

[8] Ley de Ordenación del Sistema Eléctrico, (Ley 40/1994), de 30 de diciembre

[9] REAL DECRETO 1164/2001, de 26 de octubre, por el que se establecen tarifas de acceso a las redes de transporte y distribución de energía eléctrica

[10] Regulamento n.º 551/2014 Aprovação do Regulamento Tarifário do setor elétrico

Diário da República, 2.ª série – N.º 241 – 15 de dezembro de 2014

[11] Decreto-Lei 182/95, de 27 de julho

Diário da República, – 1.ª série A – N.º 172 – 27.07.1995

[12] Decreto-Lei 240/2004, de 27 de Dezembro

Diário da República, 1.ª série A – N.º 301 - 27.12.2004

[13] Decreto-Lei 199/2007, de 18 de maio

Diário da República, – 1.ª série – N.º 96 – 18.05.2007

[14] Decreto-Lei 264/2007, de 24 de julho

Diário da República, – 1.ª série – N.º 141 – 24.07.2007

[15] Deliberazione 29 dicembre 2011 – ARG/elt 199/11

Disposizioni dell’Autorità per l’energia elettrica e il gas per l’erogazione dei servizi di trasmissione, distribuzione e misura dell’energia elettrica per il periodo di regolazione 2012-2015 e disposizioni in materia di condizioni economiche per l’erogazione del servizio di connessione. Available: <http://www.autorita.energia.it/allegati/docs/11/199-11arg.pdf>

[16] Code de l’énergie

[17] Commission de Régulation de l’Energie (CRE). Tarifs d’accès au réseau et prestations annexes

<http://www.cre.fr/reseaux/reseaux-publics-d-electricite/tarifs-d-acces-et-prestations-annexes>

[18] Délibération de la Commission de régulation de l’énergie du 7 mai 2014 portant décision sur l’évolution au 1er août 2014 des tarifs d’utilisation d’un réseau public d’électricité dans le domaine de tension HTB. Available : <http://www.cre.fr/documents/deliberations/decision/turpe-htb>

[19] Federal Ministry for Economic Affairs and Energy (Bundesministerium für Wirtschaft und Energie). Electricity price components

<http://www.bmwi.de/EN/Topics/Energy/Consumer-and-energy-market-information/prices.html>

[20] Federal Ministry for Economic Affairs and Energy (Bundesministerium für Wirtschaft und Energie).

<http://www.bmwi.de/DE/Presse/pressemitteilungen,did=587264.html>

[21] Ley 38/1992, de 28 de diciembre, de Impuestos Especiales

[22] Ley 28/2014, de 27 de noviembre, por la que se modifican la Ley 37/1992, de 28 de diciembre, del Impuesto sobre el Valor Añadido, la Ley 20/1991, de 7 de junio, de modificación de los aspectos fiscales del Régimen Económico Fiscal de Canarias, la Ley 38/1992, de 28 de diciembre, de Impuestos Especiales, y la Ley 16/2013, de 29 de octubre, por la que se establecen determinadas medidas en materia de fiscalidad medioambiental y se adoptan otras medidas tributarias y financieras

[23] Portaria 320-D/2011, de 30 de Dezembro

Diário da República, – 1.ª série – N.º 250-3º supl – 30.12.2011

[24] Portaria 311/2002, de 22 de Março

Diário da República, – 1.ª série B – N.º 69 – 22.03.2002

- [25] Lei n.º 30/2003, de 22 de Agosto  
Diário da República, – 1.ª série A – N.º 193 – 22.08.2003
- [26] Decreto-Lei 107/2010, de 13 de Outubro  
Diário da República, – 1.ª série – N.º 199 – 13.10.2010
- [27] Decreto 30 dicembre 2011 Aumento dell'accisa sull'energia elettrica a seguito della cessazione dell'applicazione dell'addizionale comunale all'accisa sull'energia elettrica nelle regioni a statuto ordinario. (11A16869)
- [28] Decreto 30 dicembre 2011 Aumento dell'accisa sull'energia elettrica a seguito della soppressione dell'addizionale provinciale all'accisa sull'energia elettrica. (11A16870)
- [29] Decreto-Legge 2 marzo 2012, n. 16  
Disposizioni urgenti in materia di semplificazioni tributarie, di efficientamento e potenziamento delle procedure di accertamento. (12G0036)
- [30] Decreto Legislativo 2 febbraio 2007, n. 26  
Attuazione della direttiva 2003/96/CE che ristruttura il quadro comunitario per la tassazione dei prodotti energetici e dell'elettricità
- [31] Ministère de l'Ecologie, du Développement durable et de l'Energie. La fiscalité de l'énergie.  
Available:  
[http://www.developpement-durable.gouv.fr/IMG/pdf/32 - La fiscalit de l nergie - Def.pdf](http://www.developpement-durable.gouv.fr/IMG/pdf/32_-_La_fiscalit_de_l_nergie_-_Def.pdf)
- [32] Code des douanes
- [33] Loi n° 2003-8 du 3 janvier 2003 relative aux marchés du gaz et de l'électricité et au service public de l'énergie
- [34] Délibération de la CRE du 15 octobre 2014 portant proposition relative aux charges de service public de l'électricité et à la contribution unitaire pour 2015
- [35] Loi n°2004-803 du 9 août 2004 relative au service public de l'électricité et du gaz et aux entreprises électriques et gazières
- [36] Bundesministerium der Justiz und für Verbraucherschutz. Stromsteuergesetz (StromStG)
- [37] Act on the Development of Renewable Energy Sources (Renewable Energy Sources Act - RES Act 2014). Available: <http://www.bmwi.de/EN/Topics/Energy/Renewable-Energy/2014-renewable-energy-sources-act.html>
- [38] Federal Ministry for Economic Affairs and Energy (Bundesministerium für Wirtschaft und Energie). State-introduced components of the electricity price



<http://www.bmwi.de/EN/Topics/Energy/Consumer-and-energy-market-information/prices,did=688314.html>

[39] Department of Energy & Climate Change - GOV.UK. Excise Notice CCL1/3: Climate Change Levy - reliefs and special treatments for taxable commodities Published 1 June 2014. Available:

<https://www.gov.uk/government/publications/excise-notice-ccl13-climate-change-levy-reliefs-and-special-treatments-for-taxable-commodities/excise-notice-ccl13-climate-change-levy-reliefs-and-special-treatments-for-taxable-commodities#supplies-exempt-from-the-main-rates-of-ccl>

[40] European Commission. Climate Action > EU Action > Emissions Trading System > Cap > Carbon leakage

[http://ec.europa.eu/clima/policies/ets/cap/leakage/index\\_en.htm](http://ec.europa.eu/clima/policies/ets/cap/leakage/index_en.htm)

[41] Orden IET/2013/2013, de 31 de octubre, por la que se regula el mecanismo competitivo de asignación del servicio de gestión de la demanda de interrumpibilidad

[42] Orden IET/1752/2014, de 26 de septiembre, por la que se establece el calendario correspondiente a la temporada eléctrica y se modifican en consecuencia determinados aspectos relativos al servicio de gestión de la demanda de interrumpibilidad

[43] Portaria n.º 592/2010, de 29 de Julho  
Diário da República, – 1.ª série A – N.º 146 – 29.07.2010

[44] REN – Sistema de Informação de Mercados de Energia. Relatório Anual Prestação do Serviço de Interruptibilidade 2014. Available:

<http://www.mercado.ren.pt/PT/Electr/ActServ/Interruptibilidade/BibRelAnual/RelatoriInterruptibilidade2014.pdf>

[45] Arrêté du 27 mars 2014 pris en application de l'article L. 321-19 du code de l'énergie

[46] Delibera 20 giugno 2014 301/2014/R/eel  
Disciplina delle procedure per l'approvvigionamento a termine delle risorse elettriche interrompibili e proroga semestrale dei contratti vigenti

[47] Delibera 20 novembre 2014 578/2014/R/eel  
Approvazione del regolamento delle procedure di approvvigionamento a termine dei servizi di interrompibilità e del contratto standard per l'erogazione dei medesimi servizi

[48] REGOLAMENTO PER L'APPROVVIGIONAMENTO A TERMINE DELLE RISORSE INTERRUPIBILI ISTANTANEAMENTE E DI EMERGENZA NEL TRIENNIO 2015-2017

[49] The Internet platform for control reserve tendering of the German transmission system operators  
<https://www.regelleistung.net/ip/action/static/ausschreibungAbLa>

[50] National Grid. Balancing services > Reserve services

<http://www2.nationalgrid.com/UK/Services/Balancing-services/Reserve-services/>

[51] European Commission. Climate Action > EU Action > The EU climate and energy package

[http://ec.europa.eu/clima/policies/package/index\\_en.htm](http://ec.europa.eu/clima/policies/package/index_en.htm)

[52] International Energy Agency

<http://www.iea.org/aboutus/>

[53] Proposal for a Regulation of the European Parliament and of the Council on natural gas and electricity price statistics repealing Directive 2008/92/EC of the Parliament and of the Council concerning a Community procedure to improve the transparency of gas and electricity prices charged to industrial end-users

## **APPENDIX A**

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### **Access tariff in Spain:**

**Real Decreto 1164/2001, de 26 de octubre,  
por el que se establecen tarifas de acceso  
a las redes de transporte y distribución  
de energía eléctrica**

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## A.1 Artículo 7 - Real Decreto 1164/2001

This Article deals with the definitions of access tariff.

1.ª) Si la potencia máxima demandada y registrada en el período de facturación estuviera entre el valor de PMI y el 85 por 100 de la potencia contratada Pci, Pdi será la potencia registrada correspondiente. Será expresada en kW.

2.º Que en algún período tarifario i la potencia realmente demandada y registrada en cualquiera de los períodos tarifarios i sea superior a la potencia máxima que puede llegar a absorber de la red según contrato PMI. En este caso, para el cálculo de la potencia a facturar, se aplicará la fórmula establecida con carácter general en el artículo 9, apartado 1.2, del presente Real Decreto.

### Artículo 7. Definición de las tarifas de acceso.

Las tarifas de acceso de aplicación general, sin más condiciones que las que las derivadas de la tensión a que se haga la acometida y las que se establecen para cada una de ellas, son las siguientes:

#### a) Tarifas de baja tensión:

Se aplicarán a los suministros efectuados a tensiones no superiores a 1 kV y son las siguientes:

Tarifa 2.0A: tarifa simple para baja tensión.  
Tarifa 3.0A: tarifa general para baja tensión.

#### b) Tarifas de alta tensión:

Se aplicarán a los suministros efectuados a tensiones superiores a 1 kV y son las siguientes:

Tarifa 3.1A: tarifa específica de tres períodos para tensiones de 1 a 36 kV.  
Tarifa 6: tarifas generales para alta tensión.

Para cada una de estas tarifas sus condiciones de aplicación son las siguientes:

1. Tarifa 2.0A: tarifa simple para baja tensión.—Se podrá aplicar a cualquier suministro en baja tensión, con potencia contratada no superior a 15 kW.

A esta tarifa sólo le es de aplicación la facturación de energía reactiva si se mediera un consumo de energía reactiva durante el período de facturación superior al 50 por 100 de la energía activa consumida durante el mismo, en las condiciones fijadas en el artículo 9.3.

Los suministros acogidos a esta tarifa podrán optar por la modalidad de tarifa de acceso nocturna (2.0NA). En esta modalidad se aplican precios diferenciados para la energía consumida en las horas diurnas (punta-llano) de la consumida en las horas nocturnas (valle). La potencia contratada será la correspondiente a las horas diurnas. El límite de la potencia en las horas nocturnas será el admisible técnicamente en la instalación y, además, quienes se acojan a esta tarifa deberán comunicar a la empresa distribuidora las potencias máximas de demanda en horas nocturnas y diurnas.

2. Tarifa 3.0A: tarifa general para baja tensión.—Se podrá aplicar a cualquier suministro de baja tensión.

A esta tarifa le es de aplicación la facturación por energía reactiva en las condiciones fijadas en el artículo 9.3.

3. Tarifa 3.1A: tarifa de tres períodos para tensiones de 1 a 36 kV.—Será de aplicación a los suministros en tensiones comprendidas entre 1 y 36 kV con potencia contratada en todos los períodos tarifarios igual o inferior a 450 kW.

A esta tarifa le es de aplicación la facturación por energía reactiva en las condiciones fijadas en el artículo 9.3.

Las potencias contratadas en los diferentes períodos serán tales que la potencia contratada en un período

tarifario (Pn+1) sea siempre mayor o igual que la potencia contratada en el período tarifario anterior (Pn).

4. Tarifas 6: tarifas generales para alta tensión.—Serán de aplicación a cualquier suministro en tensiones comprendidas entre 1 y 36 kV con potencia contratada en alguno de los períodos tarifarios superior a 450 kW y a cualquier suministro en tensiones superiores a 36 kV, en el escalón de tensión que corresponda en cada caso, excepto la tarifa de conexiones internacionales que se aplicará a las exportaciones de energía, incluidas las de agentes externos, a los tránsitos de energía no contemplados en el artículo 1.3 del presente Real Decreto y en los casos previstos en el artículo 10 del presente Real Decreto.

Estas tarifas se diferencian por niveles de tensión y están basadas en seis períodos tarifarios en que se divide la totalidad de las horas anuales.

A estas tarifas les son de aplicación la facturación por energía reactiva, en las condiciones fijadas en el artículo 9.3.

Las potencias contratadas en los diferentes períodos serán tales que la potencia contratada en un período tarifario (Pn+1) sea siempre mayor o igual que la potencia contratada en el período tarifario anterior (Pn).

Sus modalidades, en función de la tensión de servicio, son:

Nivel de tensión	Tarifa
≥ 1 kV y < 36 kV .....	6.1
≥ 36 kV y < 72,5 kV .....	6.2
≥ 72,5 kV y < 145 kV .....	6.3
≥ 145 kV .....	6.4
Conexiones internacionales .....	6.5

### Artículo 8. Períodos tarifarios.

Los períodos tarifarios para cada una de las modalidades de tarifa establecidas son los siguientes:

1. Modalidad de dos períodos: tarifa de acceso nocturna en baja tensión 2.0NA. Será de aplicación a la tarifa 2.0NA para baja tensión cuando se haya contratado esta modalidad de consumo. La duración de cada período será la que se detalla a continuación:

Período horario	Duración — horas/día
Punta y llano .....	16
Valle .....	8

Se considerarán como horas punta y llano y horas valle en todas las zonas en horario de invierno y horario de verano las siguientes:

Período horario			Duración — horas/día
7-23	23-24 0-7	8-24	16-8

Los cambios de horario de invierno a verano o viceversa coincidirán con la fecha del cambio oficial de hora.

## A.2 Artículo 8 - Real Decreto 1164/2001

This Article deals with the time differentiation of the access tariff.

b) Si la potencia máxima demandada y registrada en el período de facturación estuviera entre el valor de PMI y el 85 por 100 de la potencia contratada  $P_n$ ,  $P_{n+1}$  será la potencia registrada correspondiente. Será expresada en kW.

2.º Que en algún período tarifario  $i$  la potencia realmente demandada y registrada en cualquiera de los períodos tarifarios  $i$  sea superior a la potencia máxima que puede llegar a absorber de la red según contrato PMI. En este caso, para el cálculo de la potencia a facturar, se aplicará la fórmula establecida con carácter general en el artículo 9, apartado 1.2, del presente Real Decreto.

### Artículo 7. Definición de las tarifas de acceso.

Las tarifas de acceso de aplicación general, sin más condiciones que las que las derivadas de la tensión a que se haga la acometida y las que se establecen para cada una de ellas, son las siguientes:

#### a) Tarifas de baja tensión:

Se aplicarán a los suministros efectuados a tensiones superiores a 1 kV y son las siguientes:

Tarifa 2.0A: tarifa simple para baja tensión.  
Tarifa 3.0A: tarifa general para baja tensión.

#### b) Tarifas de alta tensión:

Se aplicarán a los suministros efectuados a tensiones superiores a 1 kV y son las siguientes:

Tarifa 3.1A: tarifa específica de tres períodos para tensiones de 1 a 36 kV.  
Tarifa 6: tarifas generales para alta tensión.

Para cada una de estas tarifas sus condiciones de aplicación son las siguientes:

1. Tarifa 2.0A: tarifa simple para baja tensión.—Se podrá aplicar a cualquier suministro en baja tensión, con potencia contratada no superior a 15 kW.

A esta tarifa sólo le es de aplicación la facturación de energía reactiva si se midiera un consumo de energía reactiva durante el período de facturación superior al 50 por 100 de la energía activa consumida durante el mismo, en las condiciones fijadas en el artículo 9.3.

Los suministros acogidos a esta tarifa podrán optar por la modalidad de tarifa de acceso nocturna (2.0NA). En esta modalidad se aplican precios diferenciados para la energía consumida en las horas diurnas (punta-llano) de la consumida en las horas nocturnas (valle). La potencia contratada será la correspondiente a las horas diurnas. El límite de la potencia en las horas nocturnas será el admisible técnicamente en la instalación y, además, quienes se ajoin a esta tarifa deberán comunicar a la empresa distribuidora las potencias máximas de demanda en horas nocturnas y diurnas.

2. Tarifa 3.0A: tarifa general para baja tensión.—Se podrá aplicar a cualquier suministro de baja tensión.

A esta tarifa le es de aplicación la facturación por energía reactiva en las condiciones fijadas en el artículo 9.3.

3. Tarifa 3.1A: tarifa de tres períodos para tensiones de 1 a 36 kV.—Será de aplicación a los suministros en tensiones comprendidas entre 1 y 36 kV con potencia contratada en todos los períodos tarifarios igual o inferior a 450 kW.

A esta tarifa le es de aplicación la facturación por energía reactiva en las condiciones fijadas en el artículo 9.3.

Las potencias contratadas en los diferentes períodos serán tales que la potencia contratada en un período

tarifario ( $P_{n+1}$ ) sea siempre mayor o igual que la potencia contratada en el período tarifario anterior ( $P_n$ ).

4. Tarifas 6: tarifas generales para alta tensión.—Serán de aplicación a cualquier suministro en tensiones comprendidas entre 1 y 36 kV con potencia contratada en alguno de los períodos tarifarios superior a 450 kW o a cualquier suministro en tensiones superiores a 36 kV en el escalón de tensión que corresponda en cada caso, excepto la tarifa de conexiones internacionales que se aplicará a las exportaciones de energía, incluidas las de agentes externos, a los transitos de energía no contemplados en el artículo 1.3 del presente Real Decreto y en los casos previstos en el artículo 10 del presente Real Decreto.

Estas tarifas se diferencian por niveles de tensión y están basadas en seis períodos tarifarios en que se dividen la totalidad de las horas anuales.

A estas tarifas les son de aplicación la facturación por energía reactiva, en las condiciones fijadas en el artículo 9.3.

Las potencias contratadas en los diferentes períodos serán tales que la potencia contratada en un período tarifario ( $P_{n+1}$ ) sea siempre mayor o igual que la potencia contratada en el período tarifario anterior ( $P_n$ ).

Sus modalidades, en función de la tensión de servicio, son:

Nivel de tensión	Tarifa
$\geq 1$ kV y $< 36$ kV .....	6
$\geq 36$ kV y $< 72,5$ kV .....	6.2
$\geq 72,5$ kV y $< 145$ kV .....	6.3
$\geq 145$ kV .....	6.4
Conexiones internacionales .....	6.5

### Artículo 8. Períodos tarifarios.

Los períodos tarifarios para cada una de las modalidades de tarifa establecidas son los siguientes:

1. Modalidad de dos períodos: tarifa de acceso nocturna en baja tensión 2.0NA. Será de aplicación a la tarifa 2.0NA para baja tensión cuando se haya contratado esta modalidad de consumo. La duración de cada período será la que se detalla a continuación:

Período horario	Duración — horas/día
Punta y llano .....	16
Valle .....	8

Se considerarán como horas punta y llano y horas valle en todas las zonas en horario de invierno y horario de verano las siguientes:

Período horario			Duración — horas/día
7-23	23-24 0-7	8-24	0-8

Los cambios de horario de invierno a verano o viceversa coincidirán con la fecha del cambio oficial de hora.

2. Modalidad de tres períodos. Será de aplicación a la tarifa 3.0A para baja tensión y a la tarifa 3.1A de alta tensión. La duración de cada período será la que se detalla a continuación:

Período horario	Duración horas/día
Punta .....	4
Llano .....	12
Valle .....	8

Se consideran horas punta, llano y valle, en cada una de las zonas, las siguientes:

Zona	Invierno			Verano		
	Punta	Llano	Valle	Punta	Llano	Valle
1	18-22	8-18 22-24	0-8	9-13	8-9 13-24	0-8
2	18-22	8-18 22-24	0-8	19-23	0-1 9-19 23-24	1-9
3	18-22	8-18 22-24	0-8	19-23	0-1 9-19 23-24	1-9
4	19-23	8-19 23-24	0-8	20-24	0-1 9-20	1-9

A estos efectos las zonas en que se divide el mercado eléctrico nacional serán las relacionadas a continuación e incluyen las Comunidades Autónomas que se indican:

Zona 1: Galicia, Asturias, Cantabria, País Vasco, Castilla y León, La Rioja, Navarra, Aragón, Cataluña, Madrid, Castilla-La Mancha, Extremadura, Valencia, Murcia y Andalucía.

Zona 2: Baleares.

Zona 3: Canarias.

Zona 4: Ceuta y Melilla.

Los cambios de horario de invierno a verano o viceversa coincidirán con la fecha del cambio oficial de hora.

3. Modalidad de seis períodos. Será de aplicación a las tarifas generales de alta tensión. Para esta modalidad los tipos de días, períodos tarifarios y horarios concretos a aplicar son los que se definen a continuación:

1. Tipos de días.

Para la aplicación de estas tarifas, se divide el año eléctrico en los tipos de días siguientes:

Tipo A: de lunes a viernes no festivos de temporada alta.

Tipo B: de lunes a viernes no festivos de temporada media.

Tipo C: de lunes a viernes no festivos de temporada baja, excepto agosto en el Sistema Peninsular y el mes correspondiente de mínima demanda en cada uno de los sistemas aislados extrapeninsulares e insulares. Dicho mes se fijará por la Dirección General de Política Energética y Minas.

Tipo D: sábados, domingos y festivos y agosto en el Sistema Peninsular y el mes de menor demanda para los sistemas aislados insulares y extrapeninsulares (que se fijará por la Dirección General de Política Energética y Minas).

Las temporadas alta, media y baja serán las siguientes:

a) Para península:

1.<sup>a</sup> Temporada alta: noviembre, diciembre, enero y febrero.

2.<sup>a</sup> Temporada media: marzo, abril, julio y octubre.

3.<sup>a</sup> Temporada baja: mayo, junio, agosto y septiembre.

b) Para Baleares, Ceuta y Melilla:

1.<sup>a</sup> Temporada alta: junio, julio, agosto y septiembre.

2.<sup>a</sup> Temporada media: enero, febrero, octubre y diciembre.

3.<sup>a</sup> Temporada baja: marzo, abril, mayo y noviembre.

c) Para las islas Canarias:

1.<sup>a</sup> Temporada alta: diciembre, enero, febrero y marzo.

2.<sup>a</sup> Temporada media: abril, septiembre, octubre y noviembre.

3.<sup>a</sup> Temporada baja: mayo, junio, julio y agosto.

Se considerarán, a estos efectos, como días festivos los de ámbito nacional definidos como tales en el calendario oficial del año correspondiente, con inclusión de aquellos que puedan ser sustituidos a iniciativa de cada Comunidad Autónoma.

2. Períodos tarifarios. La composición de los seis períodos tarifarios es la siguiente:

Período 1: comprende seis horas diarias de los días tipo A.

Período 2: comprende diez horas diarias de los días tipo A.

Período 3: comprende seis horas diarias de los días tipo B.

Período 4: comprende diez horas diarias de los días tipo B.

Período 5: comprende dieciséis horas diarias de los días tipo C.

Período 6: resto de horas no incluidas en los anteriores y que comprende las siguientes:

1.<sup>a</sup> Ocho horas de los días tipo A.

2.<sup>a</sup> Ocho horas de los días tipo B.

3.<sup>a</sup> Ocho horas de los días tipo C.

4.<sup>a</sup> Veinticuatro horas de los días tipo D.

Las horas de este período, a efectos de acometida, serán las correspondientes a horas valle.

3. Horarios a aplicar en cada período tarifario. Los horarios a aplicar en cada uno de los períodos tarifarios serán los siguientes:

Período tarifario	Tipo de día			
	Tipo A	Tipo B	Tipo C	Tipo D
1	De 16 a 22	—	—	—
2	De 8 a 16 De 22 a 24	—	—	—
3	—	De 9 a 15	—	—
4	—	De 8 a 9 De 15 a 24	—	—
5	—	—	De 8 a 24	—
6	De 0 a 8	De 0 a 8	De 0 a 8	De 0 a 24

## **APPENDIX B**

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**Access tariff in Portugal:**

**Regulamento tarifário  
do sector eléctrico,  
Dezembro 2014**

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## B.1 Artigo 28 - Regulamento tarifário do setor elétrico/2014

This Article deals with the time differentiation of the access tariff.

### REGULAMENTO TARIFÁRIO DO SETOR ELÉTRICO

<del>UGS</del>	<del>Tarifa de Uso Global do Sistema a aplicar nos operadores das redes de distribuição</del>
<del>URT<sub>MAT</sub></del>	<del>Tarifa de Uso da Rede de Transporte em MAT</del>
<del>URT<sub>AT</sub></del>	<del>Tarifa de Uso da Rede de Transporte em AT</del>
<del>URD<sub>AT</sub></del>	<del>Tarifa de Uso da Rede de Distribuição em AT</del>
<del>URD<sub>MT</sub></del>	<del>Tarifa de Uso da Rede de Distribuição em MT</del>
<del>URD<sub>BT</sub></del>	<del>Tarifa de Uso da Rede de Distribuição em BT</del>

#### Artigo 28.º

##### Períodos tarifários

- 1 - Para efeitos do presente Regulamento consideram-se os seguintes períodos tarifários:
  - a) Períodos trimestrais.
  - b) Períodos horários.
- 2 - Consideram-se os seguintes períodos trimestrais de entrega de energia elétrica:
  - a) Período I .....de 1 de janeiro a 31 de março.
  - b) Período II .....de 1 de abril a 30 de junho.
  - c) Período III .....de 1 de julho a 30 de setembro.
  - d) Período IV .....de 1 de outubro a 31 de dezembro.
- 3 - Consideram-se os seguintes períodos horários de entrega de energia elétrica:
  - a) Horas de ponta.
  - b) Horas cheias.
  - c) Horas de vazio normal.
  - d) Horas de super vazio.
- 4 - O período horário de vazio aplicável nas tarifas com dois e três períodos horários engloba os períodos horários de vazio normal e de super vazio.
- 5 - O período horário de fora de vazio aplicável nas tarifas com dois períodos horários engloba os períodos horários de ponta e cheias.
- 6 - A duração dos períodos horários estabelecidos no n.º 3 - é diferenciada de acordo com o ciclo semanal e com o ciclo diário, definidos nos Quadros 7.1 e 7.2.
- 7 - Para os clientes em MT, AT e MAT com ciclo semanal consideram-se os feriados nacionais como períodos de vazio.



QUADRO 7 - DURAÇÃO DOS PERÍODOS HORÁRIOS

Quadro 7.1 - Ciclo semanal:

Hora legal de inverno	Hora legal de verão
<b>Segunda a Sexta-feira</b>	<b>Segunda a Sexta-feira</b>
Ponta: 5 h / dia	Ponta: 3 h / dia
Cheias: 12 h / dia	Cheias: 14 h / dia
Vazio normal: 3 h / dia	Vazio normal: 3 h / dia
Super vazio: 4 h / dia	Super vazio: 4 h / dia
<b>Sábados</b>	<b>Sábados</b>
Cheias: 7 h / dia	Cheias: 7 h / dia
Vazio normal: 13 h / dia	Vazio normal: 13 h / dia
Super vazio: 4 h / dia	Super vazio: 4 h / dia
<b>Domingos</b>	<b>Domingos</b>
Vazio normal: 20 h / dia	Vazio normal: 20 h / dia
Super vazio: 4 h / dia	Super vazio: 4 h / dia

Quadro 7.2 - Ciclo diário:

Hora legal de inverno	Hora legal de verão
Ponta: 4 h / dia	Ponta: 4 h / dia
Cheias: 10 h / dia	Cheias: 10 h / dia
Vazio normal: 6 h / dia	Vazio normal: 6 h / dia
Super vazio: 4 h / dia	Super vazio: 4 h / dia

## B.2 Tarifas de acesso às redes

The following tables include the prices of the tariff for the access to the transmission and distribution networks that have been fixed for 2015.



### TARIFAS DE ACESSO ÀS REDES

As tarifas de Acesso às Redes a aplicar pelo operador da rede de distribuição em MT e AT, pelos operadores das redes de distribuição em BT, pela concessionária do transporte e distribuição da RAA e pela concessionária do transporte e distribuidor vinculado da RAM às entregas a clientes, resultantes da adição das tarifas de Uso Global do Sistema, Uso da Rede de Transporte e Uso da Rede de Distribuição são as seguintes:

TARIFA DE ACESSO ÀS REDES EM MAT		PREÇOS	
<b>Potência</b>		<b>(EUR/kW.mês)</b>	<b>(EUR/kW.dia)</b>
	Horas de ponta	1,365	0,0449
	Contratada	0,571	0,0188
<b>Energia activa</b>		<b>(EUR/kWh)</b>	
Períodos I, IV	Horas de ponta	0,0264	
	Horas cheias	0,0230	
	Horas de vazio normal	0,0160	
	Horas de super vazio	0,0159	
Períodos II, III	Horas de ponta	0,0264	
	Horas cheias	0,0230	
	Horas de vazio normal	0,0160	
	Horas de super vazio	0,0159	
<b>Energia reactiva</b>		<b>(EUR/kvarh)</b>	
	Fornecida	0,0237	
	Recebida	0,0177	

TARIFA DE ACESSO ÀS REDES EM AT		PREÇOS	
<b>Potência</b>		<b>(EUR/kW.mês)</b>	<b>(EUR/kW.dia)</b>
	Horas de ponta	3,694	0,1214
	Contratada	0,477	0,0157
<b>Energia activa</b>		<b>(EUR/kWh)</b>	
Períodos I, IV	Horas de ponta	0,0306	
	Horas cheias	0,0265	
	Horas de vazio normal	0,0175	
	Horas de super vazio	0,0170	
Períodos II, III	Horas de ponta	0,0304	
	Horas cheias	0,0265	
	Horas de vazio normal	0,0175	
	Horas de super vazio	0,0172	
<b>Energia reactiva</b>		<b>(EUR/kvarh)</b>	
	Fornecida	0,0241	
	Recebida	0,0181	

TARIFA DE ACESSO ÀS REDES EM MT		PREÇOS	
<b>Potência</b>		<b>(EUR/kW.mês)</b>	<b>(EUR/kW.dia)</b>
	Horas de ponta	7,109	0,2337
	Contratada	0,950	0,0312
<b>Energia activa</b>		<b>(EUR/kWh)</b>	
Períodos I, IV	Horas de ponta	0,0432	
	Horas cheias	0,0374	
	Horas de vazio normal	0,0206	
	Horas de super vazio	0,0198	
Períodos II, III	Horas de ponta	0,0429	
	Horas cheias	0,0371	
	Horas de vazio normal	0,0205	
	Horas de super vazio	0,0200	
<b>Energia reactiva</b>		<b>(EUR/kvarh)</b>	
	Fornecida	0,0263	
	Recebida	0,0197	

TARIFA DE ACESSO ÀS REDES EM BT		PREÇOS	
<b>Potência</b>		<b>(EUR/kW.mês)</b>	<b>(EUR/kW.dia)</b>
	Horas de ponta	17,289	0,5684
	Contratada	1,088	0,0358
<b>Energia activa</b>		<b>(EUR/kWh)</b>	
	Horas de ponta	0,0619	
	Horas cheias	0,0534	
	Horas de vazio	0,0000	
	Horas de vazio normal	0,0279	
	Horas de super vazio	0,0253	
<b>Energia reactiva</b>		<b>(EUR/kvarh)</b>	
	Fornecida	0,0313	
	Recebida	0,0239	

TARIFA DE ACESSO ÀS REDES EM BT (> 20,7 kVA)		PREÇOS	
<b>Potência</b>		<b>(EUR/mês)</b>	<b>(EUR/dia)</b>
	27,6	30,03	0,9672
	34,5	37,34	1,2341
	41,4	45,04	1,4809
<b>Energia activa</b>		<b>(EUR/kWh)</b>	
	Horas de ponta	0,2084	
	Horas cheias	0,0685	
	Horas de vazio	0,0171	

## **APPENDIX C**

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**Access tariff in Italy:**

**DELIBERAZIONE - 302/2015/R/COM, 25 GIUGNO 2015**

**Y**

**DELIBERAZIONE - 129/2015/R/COM, 26 MARZO 2015**

**AGGIORNAMENTO DELLE COMPONENTI TARIFFARIE  
DESTINATE ALLA COPERTURA DEGLI ONERI  
GENERALI E DI ULTERIORI COMPONENTI  
DEL SETTORE ELETTRICO E  
DEL SETTORE GAS**

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## C.1 Articolo 2 - D-302/2015 /R/COM, 25 GIUGNO 2015

This Articles is related to the “A2, A3, A4, A5, A<sub>S</sub> and A<sub>E</sub>” components of the access to the transmission and distribution network tariff.

### Articolo 2

#### *Componenti tariffarie relative al settore elettrico*

- 2.1 I valori delle componenti tariffarie A2, A3, A4, A5, A<sub>S</sub> e A<sub>E</sub>, in vigore a decorrere dal 1 luglio 2015, per le utenze in bassa tensione e per le utenze in media, alta e altissima tensione che non sono nella titolarità di imprese a forte consumo di energia elettrica, sono fissati come indicato nella Tabella 1 allegata al presente provvedimento.
- 2.2 I valori delle componenti tariffarie A2, A3, A4, A5, A<sub>S</sub> e A<sub>E</sub>, in vigore a decorrere dal 1 luglio 2015, per le utenze in media, alta e altissima tensione nella titolarità di imprese a forte consumo di energia elettrica, sono fissati come indicato nella Tabella 2 allegata al presente provvedimento.
- 2.3 I valori della componente tariffaria A6, in vigore a decorrere dal 1 aprile 2015, di cui alla Tabella 3 della deliberazione 129/2015/R/com, sono confermati.
- 2.4 I valori delle componenti tariffarie UC e MCT, in vigore a decorrere dal 1 aprile 2015, per le utenze in bassa tensione e per le utenze in media, alta e altissima tensione che non sono nella titolarità di imprese a forte consumo di energia elettrica, di cui alla Tabella 4 della deliberazione 129/2015/R/com, sono confermati.
- 2.5 I valori delle componenti tariffarie UC e MCT, in vigore a decorrere dal 1 aprile 2015 per le utenze in media, alta e altissima tensione nella titolarità di imprese a forte consumo di energia elettrica, di cui alla Tabella 5 della deliberazione 129/2015/R/com, sono confermati.
- 2.6 I valori delle componenti tariffarie A2, A3, A4, A5, A6, A<sub>S</sub>, A<sub>E</sub>, UC e MCT, in vigore a decorrere dal 1 luglio 2015, per i soggetti di cui al comma 71.1 del TIT, sono fissati come indicato nella Tabella 3 allegata al presente provvedimento.
- 2.7 I valori degli oneri generali e delle ulteriori componenti da applicare alle attuali e potenziali controparti dei contratti di cui al comma 3.1, della deliberazione ARG/elt 242/10, in vigore a decorrere dal 1 luglio 2015, sono fissati come indicato nella Tabella 4 allegata al presente provvedimento.
- 2.8 Il corrispettivo  $TS_{max}$ , di cui al comma 15.2 della deliberazione ARG/elt 242/10 in vigore a decorrere dal 1 luglio 2015, è fissato come indicato nella Tabella 5 allegata al presente provvedimento.

### Articolo 3

#### *Componenti tariffarie relative al settore gas*

- 3.1 I valori delle componenti tariffarie GS, RE, RS e UG<sub>T</sub>, in vigore a decorrere dal 1 aprile 2015, di cui alla Tabella 9 della deliberazione 129/2015/R/com, sono confermati.
- 3.2 I valori delle componenti tariffarie GS<sub>T</sub> e RE<sub>T</sub>, in vigore a decorrere dal 1 aprile 2015, di cui alla Tabella 10 della deliberazione 129/2015/R/com, sono confermati.
- 3.3 Il valore della componente  $CV^{FG}$ , in vigore a decorrere dal 1 aprile 2015, di cui al comma 2.3 della deliberazione 129/2015/R/com, è confermato.

**Tabella 2: Componenti tariffarie A2, A3, A4, A5, AS e AE per le utenze in media, alta e altissima tensione nella titolarità di imprese a forte consumo di energia elettrica**

		<b>A2</b>			
		<i>centesimi di euro/punto di prelievo per anno</i>	<i>per consumi mensili nei limiti di 4 GWh</i>	<i>per consumi mensili in eccesso a 4 GWh e nei limiti di 8 GWh</i>	<i>per consumi mensili in eccesso a 8 GWh e nei limiti di 12 GWh</i>
Tipologie di contratto di cui comma 2.2 del TIT					
lett. g)	Altre utenze in media tensione	371.85	0.208	0.208	-
lett. h)	Utenze in alta tensione	371.85	0.223	0.111	-
lett. i)	Utenze in altissima tensione, inferiore a 380 kV	371.85	0.223	0.111	-
lett. j)	Utenze in altissima tensione, uguale o superiore a 380 kV	371.85	0.223	0.111	-

		<b>A3</b>			
		<i>centesimi di euro/punto di prelievo per anno</i>	<i>per consumi mensili nei limiti di 4 GWh</i>	<i>per consumi mensili in eccesso a 4 GWh e nei limiti di 8 GWh</i>	<i>per consumi mensili in eccesso a 8 GWh e nei limiti di 12 GWh</i>
Tipologie di contratto di cui comma 2.2 del TIT					
lett. g)	Altre utenze in media tensione	11 972.97	5.363	5.363	-
lett. h)	Utenze in alta tensione	15 099.74	5.400	2.700	-
lett. i)	Utenze in altissima tensione, inferiore a 380 kV	15 099.74	5.400	2.700	-
lett. j)	Utenze in altissima tensione, uguale o superiore a 380 kV	15 099.74	5.400	2.700	-

<b>A3</b>		
<i>per consumi mensili nei limiti di 4 GWh</i>	<i>per consumi mensili in eccesso a 4 GWh e nei limiti di 8 GWh</i>	
<i>per consumi mensili in eccesso a 8 GWh e nei limiti di 12 GWh</i>	<i>per consumi mensili in eccesso a 12 GWh</i>	
<i>Quota parte di cui al comma 49.7 del TIT</i>		
lett. g) Altre utenze in media tensione	5.060	-
lett. h) Utenze in alta tensione	5.095	2.547
lett. i) Utenze in altissima tensione, inferiore a 380 kV	5.095	2.547
lett. j) Utenze in altissima tensione, uguale o superiore a 380 kV	5.095	2.547

<b>A4</b>				
<i>centesimi di euro/punto di prelievo per anno</i>	<i>per consumi mensili nei limiti di 4 GWh</i>	<i>per consumi mensili in eccesso a 4 GWh e nei limiti di 8 GWh</i>	<i>per consumi mensili in eccesso a 8 GWh e nei limiti di 12 GWh</i>	<i>per consumi mensili in eccesso a 12 GWh</i>
lett. g) Altre utenze in media tensione	-	0.152	0.152	-
lett. h) Utenze in alta tensione	-	0.167	0.084	0.084
lett. i) Utenze in altissima tensione, inferiore a 380 kV	-	0.167	0.084	0.084
lett. j) Utenze in altissima tensione, uguale o superiore a 380 kV	-	0.167	0.084	0.084

		<b>A5</b>				
		<i>centesimi di euro/punto di prelievo per anno</i>	<i>per consumi mensili nei limiti di 4 GWh</i>	<i>per consumi mensili in eccesso a 4 GWh e nei limiti di 8 GWh</i>	<i>per consumi mensili in eccesso a 8 GWh e nei limiti di 12 GWh</i>	<i>per consumi mensili in eccesso a 12 GWh</i>
Tipologie di contratto di cui comma 2.2 del TIT						
lett. g)	Altre utenze in media tensione	366.68	0.008	0.008	-	-
lett. h)	Utenze in alta tensione	366.68	0.009	0.005	0.005	-
lett. i)	Utenze in altissima tensione, inferiore a 380 kV	366.68	0.009	0.005	0.005	-
lett. j)	Utenze in altissima tensione, uguale o superiore a 380 kV	366.68	0.009	0.005	0.005	-

		<b>AS</b>				
		<i>centesimi di euro/punto di prelievo per anno</i>	<i>per consumi mensili nei limiti di 4 GWh</i>	<i>per consumi mensili in eccesso a 4 GWh e nei limiti di 8 GWh</i>	<i>per consumi mensili in eccesso a 8 GWh e nei limiti di 12 GWh</i>	<i>per consumi mensili in eccesso a 12 GWh</i>
Tipologie di contratto di cui comma 2.2 del TIT						
lett. g)	Altre utenze in media tensione	-	0.007	0.007	-	-
lett. h)	Utenze in alta tensione	-	0.008	0.004	0.004	-
lett. i)	Utenze in altissima tensione, inferiore a 380 kV	-	0.008	0.004	0.004	-
lett. j)	Utenze in altissima tensione, uguale o superiore a 380 kV	-	0.008	0.004	0.004	-



		<b>AE</b>				
Tipologie di contratto di cui comma 2.2 del TIT		<i>centesimi di euro/punto di prelievo per anno</i>	<i>per consumi mensili nei limiti di 4 GWh</i>	<i>per consumi mensili in eccesso a 4 GWh e nei limiti di 8 GWh</i>	<i>per consumi mensili in eccesso a 8 GWh e nei limiti di 12 GWh</i>	<i>per consumi mensili in eccesso a 12 GWh</i>
lett. g)	Altre utenze in media tensione	-	-	-	-	-
lett. h)	Utenze in alta tensione	-	-	-	-	-
lett. i)	Utenze in altissima tensione, inferiore a 380 kV	-	-	-	-	-
lett. j)	Utenze in altissima tensione, uguale o superiore a 380 kV	-	-	-	-	-

## C.2 Articolo 1 - Deliberazione 29/2015/R/COM, 26 MARZO 2015

This Article is related to "A6, UC and MCT" components for the access to the transmission and distribution network.

### CONSIDERATO CHE:

- l'impatto economico dell'aggiornamento delle componenti/voci della presente deliberazione si riflette sulla stima della variazione della spesa finale complessiva del cliente domestico tipo di cui alla determinazione del Direttore della Direzione Mercati, come pubblicata sul sito dell'Autorità a conclusione del processo di aggiornamento trimestrale delle condizioni economiche di (maggior) tutela.

### RITENUTO OPPORTUNO:

in relazione al settore elettrico:

- adeguare in aumento la componente tariffaria A2
- adeguare in aumento la componente tariffaria A3;
- adeguare in diminuzione la componente tariffaria A<sub>E</sub>;
- adeguare in aumento la componente tariffaria UC7;
- adeguare in aumento la componente tariffaria UC6;
- aggiornare la Tabella 2, allegata alla deliberazione ARG/elt 242/10, relativamente al corrispettivo  $TS_{max}$ , tenuto conto anche di quanto disposto dalla deliberazione 610/2014/R/eel.

### RITENUTO OPPORTUNO:

in relazione al settore del gas:

- adeguare in aumento le componenti tariffarie RE e RET;
- confermare tutti i valori delle altre componenti tariffarie destinate alla copertura degli oneri generali e delle ulteriori componenti del settore elettrico e gas

## DELIBERA

### Articolo 1

#### *Componenti tariffarie relative al settore elettrico*

- ~~1.1 I valori delle componenti tariffarie A2, A3, A4, A5, A<sub>s</sub> e A<sub>E</sub> in vigore a decorrere dal 1 aprile 2015, per le utenze in bassa tensione e per le utenze in media, alta e altissima tensione che non sono nella titolarità di imprese a forte consumo di energia elettrica sono fissati come indicate nella Tabella 1, allegata al presente provvedimento.~~
- ~~1.2 I valori delle componenti tariffarie A2, A3, A4, A5, A<sub>s</sub> e A<sub>E</sub> in vigore a decorrere dal 1 aprile 2015, per le utenze in media, alta e altissima tensione nella titolarità di imprese a forte consumo di energia elettrica, sono fissati come indicate nella Tabella 2, allegata al presente provvedimento.~~

- 1.3 I valori della componente tariffaria A6 in vigore a decorrere dal 1 aprile 2015 sono fissati come indicato nella Tabella 3, allegata al presente provvedimento.
- 1.4 I valori delle componenti tariffarie UC e MCT in vigore a decorrere dal 1 aprile 2015, per le utenze in bassa tensione e per le utenze in media, alta e altissima tensione che non sono nella titolarità di imprese a forte consumo di energia elettrica sono fissati come indicato nella Tabella 4, allegata al presente provvedimento.
- 1.5 I valori delle componenti tariffarie UC e MCT in vigore a decorrere dal 1 aprile 2015 per le utenze in media, alta e altissima tensione nella titolarità di imprese a forte consumo di energia elettrica sono fissati come indicato nella Tabella 5, allegata al presente provvedimento.
- 1.6 I valori delle componenti tariffarie A2, A3, A4, A5, A6, As, A<sub>E</sub>, UC e MCT in vigore a decorrere dal 1 aprile 2015, per i soggetti di cui al comma 71.1 del TIT, sono fissati come indicato nella Tabella 6, allegata al presente provvedimento.
- 1.7 I valori degli oneri generali e delle ulteriori componenti da applicare alle attuali e potenziali controparti dei contratti di cui al comma 3.1, della deliberazione ARG/elt 242/10, in vigore a decorrere dal 1 aprile 2015, sono fissati come indicato nella Tabella 7, allegata al presente provvedimento.
- 1.8 Il corrispettivo  $TS_{max}$ , di cui al comma 15.2, della deliberazione ARG/elt 242/10, a decorrere dal 1 aprile 2015, è fissato come indicato nella Tabella 8, allegata al presente provvedimento.

## **Articolo 2**

### *Componenti tariffarie relative al settore gas*

- 2.1 I valori delle componenti tariffarie GS, RE, RS e UG<sub>1</sub> in vigore a decorrere dal 1 aprile 2015 sono fissati come indicato nella Tabella 9, allegata al presente provvedimento.
- 2.2 I valori delle componenti tariffarie GS<sub>T</sub> e RE<sub>T</sub>, in vigore a decorrere dal 1 aprile 2015 sono fissati come indicato nella Tabella 10, allegata al presente provvedimento.
- 2.3 Il valore della componente  $CV^{FG}$ , in vigore a decorrere dal 1 aprile 2015, è posto pari a 0,1749 centesimi di euro/smc, in coerenza con quanto disposto dal comma 5.3 della deliberazione 675/2014/R/com.

## **Articolo 3**

### *Disposizioni transitorie e finali*

- 3.1 Il presente provvedimento è pubblicato sul sito internet dell'Autorità [www.autorita.energia.it](http://www.autorita.energia.it).

26 marzo 2015

IL PRESIDENTE  
Guido Bortoni

**Tabella 3: Componente tariffaria A6**

Tipologie di contratto di cui comma 2.2 del TIT		centesimi di euro per punto di prelievo /mese	centesimi di euro/kW/mese	centesimi di euro/kWh
lettera a)	Utenza domestica in bassa tensione	-	0.000	-
lettera b)	Utenze in bassa tensione di illuminazione pubblica	-	-	0.000
lettera d)	Altre utenze in bassa tensione con potenza disponibile fino a 16, 5 kW con potenza impegnata non superiore a 1,5 kW con potenza impegnata superiore a 1,5 kW	0.000	-	-
lettera e)	Altre utenze in bassa tensione con potenza disponibile superiore a 16, 5 kW	0.000	0.000	0.000
lettera g)	Utenze in media tensione di illuminazione pubblica	-	-	0.000
	Altre utenze in media tensione	0.000	-	-
	di cui: con potenza impegnata non superiore a 100 kW	-	-	-
	di cui: con potenza impegnata superiore a 100 kW	0.000	0.000	-
lettera h)	Utenze in alta tensione	0.000	-	-
	di cui: con potenza impegnata non superiore a 1.000 kW	-	-	-
	di cui: con potenza impegnata superiore a 1.000 kW e non superiore a 5.000 kW	-	0.000	0.000
	di cui: con potenza impegnata superiore a 5.000 kW e non superiore a 10.000 kW	-	0.000	0.000
	di cui: con potenza impegnata superiore a 10.000 kW	-	0.000	0.000
lettera i)	Utenze in altissima tensione, inferiore a 380 kV	0.000	-	-
	di cui: con potenza impegnata non superiore a 1.000 kW	-	-	-
	di cui: con potenza impegnata superiore a 1.000 kW e non superiore a 5.000 kW	-	0.000	0.000
	di cui: con potenza impegnata superiore a 5.000 kW e non superiore a 10.000 kW	-	0.000	0.000
	di cui: con potenza impegnata superiore a 10.000 kW	-	0.000	0.000
lettera j)	Utenze in altissima tensione, uguale o superiore a 380 kV	0.000	-	-
	di cui: con potenza impegnata non superiore a 1.000 kW	-	-	-
	di cui: con potenza impegnata superiore a 1.000 kW e non superiore a 5.000 kW	-	0.000	0.000
	di cui: con potenza impegnata superiore a 5.000 kW e non superiore a 10.000 kW	-	0.000	0.000
	di cui: con potenza impegnata superiore a 10.000 kW	-	0.000	0.000

**Tabella 5: Componenti tariffarie UC3, UC4, UC6, UC7 e MCT per le utenze in media, alta e altissima tensione nella titolarità di imprese a forte consumo di energia elettrica**

lettera g) lettera h) lettera i) lettera j)	Tipologie di contratto di cui comma 2.2 del TIT	UC3		UC4	
		centesimi di euro/punto di	centesimi di euro/kWh	centesimi di euro/punto di	centesimi di euro/kWh
	Altre utenze in media tensione	-	0.164	-	0.020
	Utenze in alta tensione	-	0.082	-	0.010
	Utenze in altissima tensione, inferiore a 380 kV	-	0.082	-	0.010
	Utenze in altissima tensione, uguale o superiore a 380 kV	-	0.082	-	0.010

lettera g) lettera h) lettera i) lettera j)	Tipologie di contratto di cui comma 2.2 del TIT	UC6	
		centesimi di euro/punto di	centesimi di euro / euro/kWh
	Altre utenze in media tensione	20 380.28	-
	Utenze in alta tensione	-	-
	Utenze in altissima tensione, inferiore a 380 kV	-	-
	Utenze in altissima tensione, uguale o superiore a 380 kV	-	-

lettera g) lettera h) lettera i) lettera j)	Tipologie di contratto di cui comma 2.2 del TIT	UC7		MCT	
		centesimi di euro/punto di	centesimi di euro/kWh	centesimi di euro/punto di	centesimi di euro/kWh
	Altre utenze in media tensione	-	0.071	-	0.0182
	Utenze in alta tensione	-	0.071	-	0.0182
	Utenze in altissima tensione, inferiore a 380 kV	-	0.071	-	0.0182
	Utenze in altissima tensione, uguale o superiore a 380 kV	-	0.071	-	0.0182