

**ANNUAL REPORT
ON THE ELECTRICITY AND
NATURAL GAS MARKETS IN 2015
PORTUGAL**

July 2016

This document is designed for printing on both sides

Rua Dom Cristóvão da Gama n.º 1-3.º
1400-113 Lisbon
Phone: 21 303 32 00
Fax: 21 303 32 01
e-mail: erse@erse.pt
www.erse.pt

TABLE OF CONTENTS

1	FOREWORD	1
2	MAJOR DEVELOPMENTS IN THE ELECTRICITY AND NATURAL GAS SECTORS.....	3
3	ELECTRICITY MARKET	7
3.1	Network regulation	7
3.1.1	Unbundling	7
3.1.2	Technical functioning.....	8
3.1.2.1	Balancing.....	8
3.1.2.2	Technical quality of service.....	10
3.1.2.3	Electromobility Code.....	13
3.1.2.4	Connections.....	13
3.1.2.5	Safeguard measures	15
3.1.2.6	Renewable energy sources	15
3.1.3	Network tariffs for connection and access	17
3.1.4	Cross-border issues	24
3.1.5	Compliance.....	29
3.2	Promoting competition.....	30
3.2.1	Wholesale market.....	30
3.2.1.1	Monitoring the price level, transparency level and the level and effectiveness of market opening and competition.....	31
3.2.2	Retail market	47
3.2.2.1	Monitoring the price level, transparency level and the level and effectiveness of market opening and competition.....	49
3.2.2.2	Recommendations on supply prices, investigations and measures to promote effective competition	56
3.3	Security of supply.....	58
3.3.1	Monitoring the balance between supply and demand.....	58
3.3.2	Monitoring of investments in generating capacity	61
3.3.3	Measures to mitigate peaks in demand or disruptions in supply	63
4	NATURAL GAS MARKET.....	65
4.1	Network regulation	65
4.1.1	Unbundling	65
4.1.2	Technical functioning.....	65
4.1.2.1	Balancing.....	65
4.1.2.2	Access to storage infrastructure, linepack and ancillary services	66
4.1.2.3	Third-party access to storage	67
4.1.2.4	Connections.....	67
4.1.2.5	Quality of service	68
4.1.3	Network tariffs for connection and access	70
4.1.4	Cross-border issues	76
4.1.5	Compliance.....	80

4.2	Promoting competition.....	81
4.2.1	Wholesale market.....	81
4.2.1.1	Monitoring the price level, transparency level and the level and effectiveness of market opening and competition.....	81
4.2.2	Retail market	84
4.2.2.1	Monitoring the price level, transparency level and the level and effectiveness of market opening and competition.....	84
4.2.2.2	Recommendations on supply prices, investigations and measures to promote effective competition	93
4.3	Security of supply	94
4.3.1	Monitoring the balance between supply and demand.....	94
4.3.2	Expected future demand, available supplies and additional capacity.....	95
4.3.3	Measures to cover peak demand or shortfalls of suppliers.....	96
5	CONSUMER PROTECTION AND DISPUTE SETTLEMENT	97
5.1	Consumer protection	97
5.2	Dispute settlement.....	99
	ANNEXES.....	101
I.	List of abbreviations and acronyms	101
II.	List of legal diplomas.....	104
A.	National legislation	104
B.	EU legislation.....	107
III.	Indicators of technical continuity of supply.....	109

LIST OF FIGURES

Figure 3-1 – Impact of daily markets and ancillary services markets on the costs attributed to suppliers operating in Portugal, 2015	8
Figure 3-2 – Breakdown of the ancillary services market costs, 2015	9
Figure 3-3 – Evolution of imbalances, 2015	10
Figure 3-4 – Breakdown per activity of the average price of network access tariffs, 2015	20
Figure 3-5 – Structure of the average price of network access tariffs, 2015	21
Figure 3-6 – Usage of the Portugal-Spain interconnection capacity, 2007 to 2015	26
Figure 3-7 – Evolution of the average annual price in the spot market and market splitting, 2011 to 2015	32
Figure 3-8 – Volatility of spot price, 2011 to 2015	33
Figure 3-9 – <i>Spot</i> market price and market splitting time, 2014 and 2015	34
Figure 3-10 – Evolution of the average price for negotiating the annual futures contract (delivery in Portugal and in Spain), 2011 to 2015	35
Figure 3-11 – Evolution of the average price for negotiating the monthly futures contract (delivered in Portugal), 2014 and 2015	36
Figure 3-12 – Breakdown of energy supply volumes between markets, 2013 to 2015	37
Figure 3-13 – Spot market demand and total monthly consumption, 2013 to 2015	38
Figure 3-14 – Volumes in the MIBEL forward market, 2011 to 2015	38
Figure 3-15 – Communication of relevant facts, 2015	40
Figure 3-16 – Description of electricity installed power generation capacity in Portugal (by agent and installed capacity), 2011 to 2015	41
Figure 3-17 – Installed capacity shares by agents in the different technologies, 2011 to 2015	42
Figure 3-18 – Concentration in generation in terms of installed capacity, 2011 to 2015	43
Figure 3-19 – Shares of energy generated by agent, 2011 to 2015	44
Figure 3-20 – Share of energy produced by agents in the different technologies, 2011 to 2015	44
Figure 3-21 – Concentration in electricity generation, 2011 to 2015	46
Figure 3-22 – Breakdown of consumption and number of customers between the regulated and the liberalised market, 2011 to 2015	52
Figure 3-23 – Evolution of the liberalised market in Mainland Portugal, 2011 to 2015	53
Figure 3-24 – Penetration of the liberalised market by customer segment, 2011 to 2015	54
Figure 3-25 – Supply structure in the liberalised market by supplier, 2011 to 2015	55
Figure 3-26 – Supplier switching, 2012 to 2015	55
Figure 4-1 – Breakdown of the average price of Network Access Tariffs, 2015-2016 gas year	72
Figure 4-2 – Structure of the average price of network access tariffs, 2015-2016	72
Figure 4-3 – Breakdown of supply by infrastructure, 2011 to 2015	83
Figure 4-4 – Liberalised market penetration by DSO (total energy consumption, excluding electricity-generating plants), 2015	87

Figure 4-5 – Breakdown of consumption between the regulated and the liberalised markets, 2012 to 2015	88
Figure 4-6 – Evolution of the liberalised market in Mainland Portugal, 2011 to 2015.....	89
Figure 4-7 – Penetration of the liberalised market by customer segment, 2012 to 2015	90
Figure 4-8 – Supply structure in the liberalised market by supplier, 2012 to 2015	91
Figure 4-9 – Breakdown of consumption supplied by suppliers on the liberalised market and by distribution network, 2015.....	92
Figure 4-10 – Evolution in the capacity offered in the SNGN, daily average consumption and consumption peaks, 2005 to 2015.....	94
Figure 4-11– Evolution in the capacity offered in SNGN, daily average consumption and consumption peaks, 2016 to 2020.....	95

LIST OF TABLES

Table 3-1 – Continuity of supply indicators for Mainland Portugal, 2015	12
Table 3-2 – Network Access Tariff Variation 2014-2015.....	19
Table 3-3 – Evolution of the average price of Network Access Tariffs 2014-2015	19
Table 3-4 – Monthly evolution of congestion revenue, 2015.....	25
Table 3-5 – Tariff deficit, 2015.....	58
Table 3-5 – Capacity margin, 2011 to 2015	59
Table 3-6 – Consumption supply, 2014 and 2015	59
Table 3-7 – Breakdown of generation, 2011 to 2015	60
Table 3-8 – Maximum annual capacity, 2011 to 2015	60
Table 3-9 – Power Generation capacity, 2014 and 2015.....	61
Table 3-10 – Forecast for SRG generation, 2018 and 2020	62
Table 4-1 – Evolution of infrastructure access tariffs for the 2015-2016 gas year	71
Table 4-2 – Tariff evolution per activity, 2015-2016 and 2014-2015 gas years	71

1 FOREWORD

This report was prepared by the Portuguese Energy Services Regulatory Authority (ERSE) [Entidade Reguladora dos Serviços Energéticos], the body in charge of regulating the sectors of natural gas and electricity supply in Portugal, and is part of the provisions of Directives 2009/72/EC (electricity) and 2009/73/EC (natural gas) of the European Parliament and of the Council, both of 13 July 2009. These Directives dictate that regulators must annually inform national authorities, the European Commission and the Agency for the Cooperation of Energy Regulators (ACER) on their activities and on any developments observed in electricity and natural gas markets.

Portuguese legislation, specifically Decree-Law no. 215-A/2012, of 8 October, and Decree-Law no.230/2012, of October 26, also require ERSE to prepare an annual report on the functioning of the electricity and natural gas markets and on the degree of effective competition within those markets. Accordingly, ERSE must send its report to the Government member responsible for the energy sector, to the Portuguese Parliament and to the European Commission. In addition, it must publish the report.

In fact, this report, whose structure was harmonised within the framework of the Council of European Energy Regulators (CEER), presents the main developments in the electricity and natural gas markets in Portugal, including subjects like competition (both in the wholesale market and in the retail market), security of supply and consumer protection. The report also covers the regulatory measures adopted and the results obtained with regard to ERSE's annual activities.

The analysis and statistical data presented mainly cover the year 2015. The report also includes regulatory developments with an impact on future developments in the markets.

2 MAJOR DEVELOPMENTS IN THE ELECTRICITY AND NATURAL GAS SECTORS

Over the last few years, the electricity and natural gas sectors in Portugal have been characterised by an effort to consolidate the liberalisation of the retail markets and to build an internal energy market. ERSE's activities have been focused on updating and implementing key regulations, both national and European, and on monitoring and promoting consumer rights.

Liberalised electricity and natural gas markets

In the electricity sector, at the end of 2015, consumption in the liberalised market already accounted for more than 89% of total consumption. There were 16 suppliers in the market, 13 of which were operating in the domestic consumer segment. On the other hand, nearly 27% of electricity consumers switched supplier, and more than 70% of domestic consumers were in the liberalised market. Additionally, it was particularly striking that the supplier switches within the liberalised market accounted for more than 1/3 of the total changes of supplier.

In the natural gas sector, at the end of 2015, approximately 96% of consumption in the conventional segment (excluding power plants under the ordinary scheme) was supplied by suppliers from the liberalised market; with nine suppliers operating in the market, eight of which in the domestic consumer segment.

In this context, and with a view to facilitating the interaction between consumers and the liberalised market, ERSE issued a Directive on pre-contractual and contractual services to electricity consumers, requiring suppliers to provide their potential customers with pre-contractual information in a standardised contractual sheet that summarises the main aspects related to energy supply.

As regards the treatment of vulnerable customers, and following legislative changes whose purpose was to increase significantly the number of those who benefit from the social tariff, particularly in the electricity sector, ERSE took part in awareness-raising campaigns aimed at consumers. We should highlight that, at the end of 2015, there were approximately 108,000 electricity customers covered by the social tariff, more than twice as many as in 2014.

Meanwhile, suppliers in the liberalised market were included, for the first time, in the 2015 quality of support reports in the framework of the commercial quality of service regulation. This development represents an additional contribution to a balanced evolution of the retail electricity and natural gas markets and for the subsequent consolidation of the liberalisation process.

Thus, in partnership with other entities of the sector, ERSE promoted an information campaign regarding quality of service for industrial customers, aimed at raising the electricity network user's awareness of the fact that improving quality of service is a global responsibility. A campaign called "A Qualidade de Serviço Cabe a Todos" (Quality of Service Involves Everyone) was launched in this context.

Regulation of the energy sector

At the end of the first semester of 2015, ERSE issued its decision on the fulfilment of the certification requirements by the Transmission System Operator (TSO) of the National Electricity Transmission Network (RNT) and by the TSO of the National Natural Gas Transmission Network (RNTGN), recognising that the conditions imposed on 9 September 2014 had been met. Thus, the decision to certify REN - Rede Eléctrica Nacional, S.A., as an RNT operator, and REN Gasodutos, S.A., as an RNTGN operator, both under a *full ownership unbundling* scheme, became effective. The supervision of the certification conditions began once the certifications of the RNT's TSO and of the RNTGN's TSO had been issued; this activity is continuously ensured by ERSE.

At the end of 2015, ERSE approved the Electromobility Regulation, following a public consultation process that ran between June and August 2015.

With regard to the natural gas sector, ERSE launched a regulatory review procedure in December, whose result was the publication, in April 2016, of new regulations for the sector. The regulatory framework of the natural gas sector, which dated back to 2013, already incorporated a substantial part of the common rules for the internal energy market established by the European Union's Third Legislative Package, published in July 2009 and transposed into Portuguese law by Decree-Law no. 230/2012 and Decree-Law no. 231/2012, both of 26 October. However, since then, three European regulations (European network codes) - provided for in the Third Package Directives and particularly relevant within the regulatory framework of the natural gas sector - have been published. Through this regulatory review proposal, ERSE completed the full implementation of the above mentioned European network codes in the context of the national regulatory framework for the natural gas, a particularly remarkable milestone in the process for the integration of the European and Iberian markets.

Supervision of the wholesale market

With regard to the registration of market agents provided for in Regulation (EU) No 1227/2011 on wholesale energy market integrity and transparency (REMIT), ERSE worked closely with ACER in preparing the agent registration platform (CEREMP), which was developed by ACER together with the national regulatory authorities. During the year, the market agents operating in the Portuguese market registered with the CEREMP platform. According to the timetable defined in the execution acts, on 5 October 2015 the market agents began reporting detailed information on transactions and negotiation orders related to energy wholesale contracts executed in organised markets identified by ACER, as well as key data regarding electricity and natural gas, provided to ACER by the transmission system operators via the European transparency platforms of the ENTSOs (*European Network of Transmission System Operators*), set out in Regulations (EU) no. 543/2013 and no. 715/2009.

At regional level, the negotiation of natural gas products via an organised market platform (*hub*) began on 16 December 2015, following the publication, in Spain, of Law no. 8/2015 on hydrocarbons, which provides, among other aspects, for the creation of an Iberian natural gas market (MIBGAS). Portuguese law recognizes the company MIBGAS S.A. as the operator of the organised gas market. This negotiation

platform contributes to price transparency and to an increased liquidity, and is a major step towards the progressive integration of the Portuguese and the Spanish natural gas markets, as well as towards the construction of the internal natural gas market.

Evolution of installed capacity in the energy sector

In 2015, a low hydraulicity led to a decrease of the share of hydropower generation in the total national generation (minus 12 p.p.) and, by contrast, to an increase in thermal generation. Also in this year, we note the entry into service of new hydroelectric facilities (455 MW).

In the natural gas sector, we continued to witness a considerable gap between the capacity available for commercial purposes and the capacity that was used.

Network development and investment plans

As provided by law, ERSE analysed the proposals for development and investment plans in electricity and natural gas transmission and distribution networks (according to the staggered annual deadlines foreseen for transportation and distribution). As part of this, ERSE organised public consultations on the submitted proposals; the comments received contributed to the preparation of the opinions issued by ERSE with regard to the received plans. These opinions, which were provided to the minister responsible for the energy sector (who is in charge of reviewing and, as appropriate, approving the proposals), identified a series of shortcomings and recommended improvements to the plan proposals, to be reviewed by the operators. In 2015, and for the first time within the context of the legislation approved in 2012, one of the development and investment plans for electricity and natural gas transmission and distribution networks (the plan regarding the national electricity distribution network) was deemed satisfactory as a whole and was approved by the Secretary of State for Energy.

Promotion of competition and sanction actions

In 2015, ERSE continued to undertake inspection and auditing activities that, together with the handling of complaints received, the opening and management of sanction procedures and the application of corresponding penalties, reflect the exercise of the powers conferred to ERSE by the Statutes and the Sanctions Regime for the Energy Sector, approved in 2013. In 2015, 91 complaints were received and 18 infraction procedures were launched. Furthermore, fines totalling €7.5 million were imposed on four energy suppliers, as were two cautions.

3 ELECTRICITY MARKET

3.1 NETWORK REGULATION

3.1.1 UNBUNDLING

CERTIFICATION OF THE TRANSMISSION SYSTEM OPERATOR

In accordance with the procedure established by Directive 2009/72/EC¹ for certification of the transmission system operator, which aims at unbundling the generation and trading activities and the operation of the transmission networks, ERSE issued a Decision in 2014 regarding the certification of Rede Eléctrica Nacional (REN) as operator of the National Electricity Transmission Network (RNT) under a *full ownership unbundling* regime. The 2014 Decision defined eleven conditions that had to be met within eight months in order to overcome several instances of non-compliance and to ensure the independence of these operators.

On 31 July 2015, ERSE decided to render effective its decision to certify REN, after verifying that the certification conditions required by the 2014 Decision had been met.²

ERSE continues to exercise its powers to supervise the obligations of the transmission system operator (ORT) as part of the full ownership unbundling regime, under the terms of the national legislation and of the aforementioned European Directives.

IMAGE DIFFERENTIATION

With regard to image differentiation in the electricity sector, the provisions of Directive No. 23/2013³ of 22 November remain in force and are applicable to the distribution system operator (EDP Distribuição) and to the supplier of last resort (EDP Serviço Universal), which serve over 100,000 customers.

¹ Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/54/EC

² Available at:

<http://www.erse.pt/pt/legislacao/Legislacao/Attachments/1825/Decis%C3%A3o%20Certifica%C3%A7%C3%A3o.pdf>

3.1.2 TECHNICAL FUNCTIONING

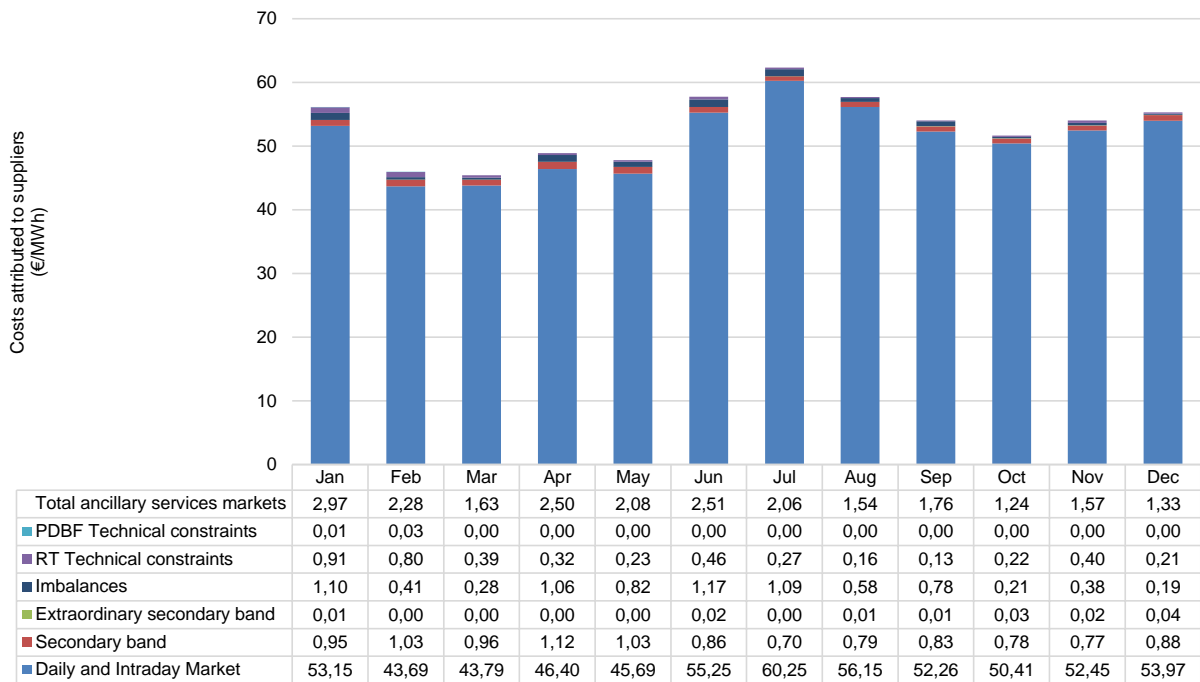
3.1.2.1 BALANCING

In 2015, as in the previous year, the compensation mechanism for electricity generation and consumption imbalances and to resolve technical constraints was mobilised in accordance with the ancillary services market, which REN is responsible for operating in its role as Global Technical System Manager.

The energy mobilised to resolve technical constraints and the secondary regulation band contracted involve costs that are paid by all customers. In addition, the costs of secondary regulation energy and regulated reserve energy mobilisation used to cancel the agents' imbalances in real time are paid by all the market agents that have deviated in a given period.

Figure 3-1 presents the impact of daily, intraday and ancillary services markets on the costs attributed to demand in 2015. Therefore, in addition to the portion related to the daily and intraday market, another portion is shown, which corresponds to the ancillary services market and presents its main components.

Figure 3-1 – Impact of daily markets and ancillary services markets on the costs attributed to suppliers operating in Portugal, 2015



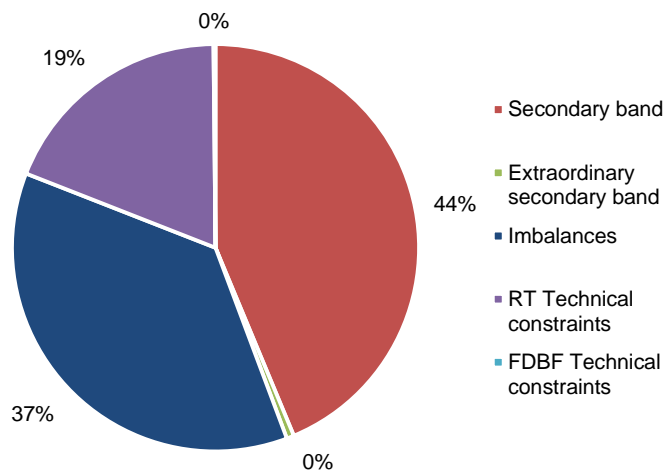
Source: REN data. Note: PDBF – Base Daily Operating Schedule and RT – Real Time.

Throughout 2015, the ancillary service market represented an average weighted cost of approximately €1.96/MWh sold, while the marginal weighted price in the daily and intraday market was approximately

€51.15/MWh. The latter represents an increase compared to 2014, while the average cost decreased between the two years.

Figure 3-2 presents a breakdown of the cost of the ancillary services market and shows that the most important components relate to secondary band contracting and imbalances.

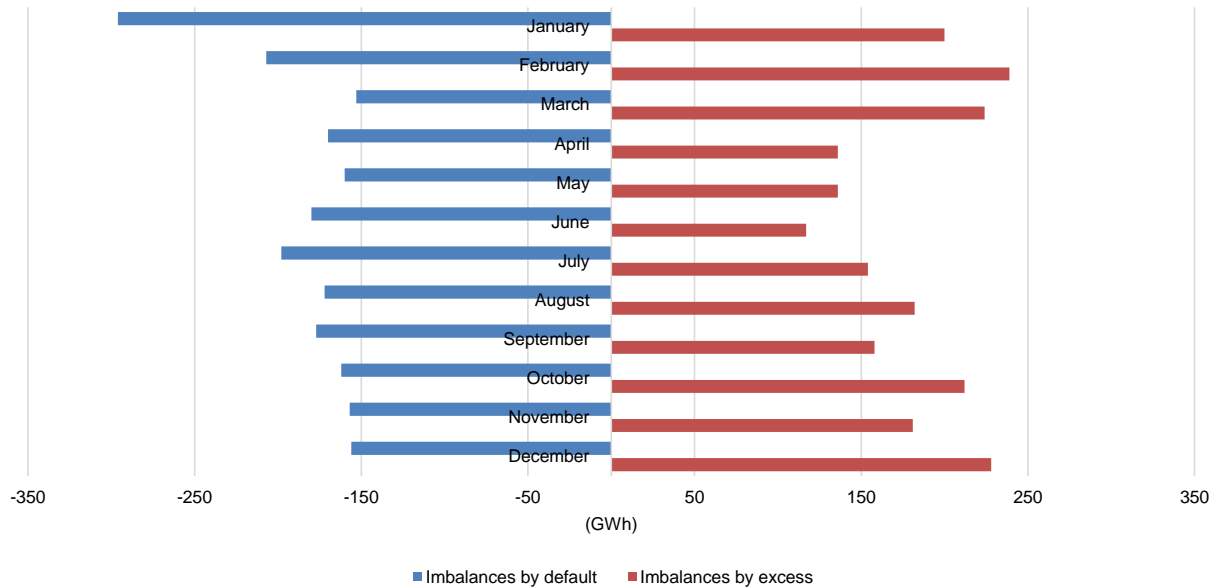
Figure 3-2 – Breakdown of the ancillary services market costs, 2015



Source: REN data

The valuation of the imbalances for each hour corresponds precisely to the variable costs of regulation payable to agents that rectify the imbalance by participating in the ancillary services market. Figure 3-3 shows the evolution of the energy imbalances throughout 2015, including the representation of under- and over-imbances. Compared to 2014, there was an increase in imbalances by default, particularly between May and October.

Figure 3-3 – Evolution of imbalances, 2015



Source: REN data

3.1.2.2 TECHNICAL QUALITY OF SERVICE

In Mainland Portugal, both the Tariff Code (RT) and ⁴the Quality of Service Code (RQS)⁵ include provisions to regulate continuity of supply.⁶

INCENTIVE TO IMPROVE CONTINUITY OF SUPPLY

The RT establishes an incentive to improve the continuity of supply with repercussions on the allowed revenue for the medium voltage (MV) and high voltage (HV) distribution system operators in Mainland Portugal. This incentive is aimed, on the one hand, at promoting the global continuity of electricity supply ("component 1" of the incentive), and, on the other, at encouraging the improvement of the level of the continuity of service among worst served customers ("component 2" of the incentive).

"Component 2" was introduced in the 2014 regulatory revisions, and applied for the first time to the network's performance in 2015.

⁴ Regulation no. 551/2014, of 15 December 2014, which approves the Tariff Code for the electricity sector.

⁵ Regulation no. 455/2013, of 29 November, which approves the Quality of Service Code for the electricity sector and the corresponding Procedures Manual. Complemented by Directive no. 20/2013, which approves the parameters for the Quality of Service Regulation and Directive no. 21/2013, which approves the deadlines for the classification of Exceptional Events and for the provision of information to ERSE.

⁶ In addition to this topic, the RQS also establishes obligations related to the quality of the voltage wave and of commercial service.

The value of the incentive's "Component 1" depends on the value of energy not distributed annually and is determined by using a function established in the RT. Interruptions classified by ERSE as Exceptional Events are excluded from the calculation of this value of energy not distributed⁷.

In 2014, the value of energy not distributed was lower than the reference value set for the regulatory period, as a result the incentive received by the operator of the RND represented approximately €279,000. For 2015, the amount of the incentive was approximately €2.2 million. The increase in the amount of the incentive granted relates to the improved performance achieved in 2015 and to an update of the valorisation of energy not distributed, resulting from the regulatory review conducted in 2013.

CONTINUITY OF SUPPLY

The transmission and distribution networks are described in terms of continuity of supply, based on indicators for each system (transmission and distribution), mainly regarding the time/duration of the interruption and on its frequency (TIE/TIEPI/SAIFI/SAIDI - please refer to the list of definitions of indicators in Annex III).

The number of short interruptions has also been monitored since 2014 through the MAIFI indicator.

Table 3-1 shows the figures for the continuity of supply indicators recorded in Mainland Portugal in 2015. Compared to the levels recorded in 2014, there was a downward trend in terms of unplanned and exceptional interruptions.

⁷ The RQS approved in 2013, which entered into force in 2014, establishes the concept of Exceptional Event as an incident with all of the following characteristics:

- Low probability of occurrence of the event or its consequences;
- The event causes a significant decrease in the quality of the service provided;
- It is not reasonable, in economic terms, that network operators, suppliers, suppliers of last resort or, in the case of the Autonomous Regions of the Azores (RAA) and Madeira (RAM), producers avoid all of its consequences;
- The event and its consequences are not attributable to network operators, suppliers, suppliers of last resort or, in the case of RAA and RAM, producers.

An incident shall only be considered an Exceptional Event after approval by ERSE, following a request by network operators, suppliers or suppliers of last resort.

Table 3-1 – Continuity of supply indicators for Mainland Portugal, 2015

Voltage Level	Indicator	Interruptions		
		Planned	Unplanned	
			Operator Responsibility	Exceptional events
Transmission	TIE (min)	-	-	0.21
	SAIFI (int)	-	0.01	0.01
	SAIDI (min)	-	0.14	0.15
	MAIFI (int)	-	0.02	-
HV Distribution	SAIFI (int)	0.004	0.214	0.012
	SAIDI (min)	1.634	16.57	0.043
	MAIFI (int)	-	0.976	-
MV Distribution	TIEPI (min)	0.118	52.537	7.693
	SAIFI (int)	0.001	1.627	0.143
	SAIDI (min)	0.145	74.302	12.236
	MAIFI (int)	0.018	10.177	0.186
LV Distribution	SAIFI (int)	0.018	1.438	0.097
	SAIDI (min)	2.442	66.222	8.805

Source: REN and EDP Distribuição data

The RQS sets individual standards for continuity of supply (annual number and duration of interruptions), which constitute a commitment to the customer by the network operator. The failure of the network operator to meet these standards is penalised by the payment of a monetary compensation (which is not intended to serve as indemnification for damages), without the need for the customer to request it. In 2014, there were 21,012 cases where the standard was not met, 20,514 of which were related to the duration of the interruptions and 33 to the number of interruptions; in total customers received 199,000 euros in compensation for failure to meet these indicators. In 2015, the provisional number of cases was 21,910, 21,906 of which were related to the duration of the interruptions and four to the number of interruptions; customers received 240,469 euros in compensation.

As one of the results achieved by the work developed by the RQS Monitoring Group (GA RQS), during its first year of operation, in June 2015, ERSE launched a campaign called "A Qualidade de Serviço cabe a todos" [Quality of Service Involves Everyone], by which a network of partnerships involving 24 key institutions of the National Electricity System (SEM) was created, with a view to making electricity network users more aware of the fact that quality of service should be supported by everyone, being a global responsibility. The first initiative of the campaign was focused on "Awareness of the Maintenance of Customer-owned Transformer Substations," aimed at conveying the message that the technical quality of

service must be a concern shared by all medium voltage customers, and at alerting them to the need to adopt the best practices for maintaining their transformer substations. In addition to direct consequences visible in the degradation of the quality of their own facilities, the failure to ensure the maintenance of customer-owned transformer substations also has a negative impact on the quality of the electricity that is provided by the network to neighbouring electrical installations. For that reason, the addressees received a leaflet advertising this initiative and a Handbook of Best Practices on Maintenance of Customer-owned Transformer Substations, which are available at the dedicated website that was created for the campaign⁸. Throughout the year, the GA RQS focused on the preparation of other initiatives as part of the campaign "A Qualidade de Serviço cabe a todos."

3.1.2.3 ELECTROMOBILITY CODE

At the end of 2015, ERSE approved the Electromobility Code, following a public consultation procedure that ran between June and August 2015.

3.1.2.4 CONNECTIONS

The regulatory framework for the commercial conditions governing connections to the network includes, among others, the following aspects:

- Mandatory connection to the network;
- Type of charges that can be levied;
- Rules for calculating network connection charges;
- Budget content and submission deadlines;
- Payment terms for connection charges;
- Construction of the network connection elements; and
- Provision of information.

Network operators are required to provide network connection to customers who request it in accordance with the commercial conditions approved by ERSE.

Electrical installations cannot be connected to networks without the prior issuance of a licence or authorisation by the relevant administrative bodies.

⁸ <http://campanhaqualidadedeservico.erse.pt/>

Networks are paid by electricity consumers as follows:

- Network connection charges in accordance with the rules approved by ERSE.
- Network use tariffs, which constitute a portion of the electricity bill. Charges borne by connection applicants (co-funding) are excluded from the calculation of these tariffs.

The commercial conditions include incentives for the appropriate economic signalling of the installation that will be connected to the network (the further away from the network, the higher the co-funding). They promote an efficient allocation of resources, particularly in terms of the requested power (the higher the requested power, the higher the costs to be borne by the applicant) and are based on rules that are simple and easy to apply, in order to ensure that applicants fully understand the connection charges, thereby reducing the level of conflicts in the sector.

The physical infrastructure that allows an electrical installation to be connected to the network is considered a network connection element, and is classified in the following two types:

- Connection elements for exclusive use - part of the connection through which electricity generated or consumed at the installation in question will be transported, exclusively (it has been established that this corresponds to the section of the connection closest to the consumer's installation up to a maximum length (30 metres, approved by ERSE).
- Connection elements for shared use – part of the connection through which electricity may travel to power more than one installation (corresponds, in low voltage (LV), to the length that exceeds the maximum length of the connection element for exclusive use).

The network operator may choose to oversize the connecting element for shared use, so that it may be used to power other installations in the future. In MV networks, connection elements are all intended for shared use.

With the revision of the Commercial Relations Code (RRC) in 2012, the applicant for a connection became responsible for the construction of the sections for exclusive use, and the obligation on the distribution system operator (DSO) to present a budget was removed. However, in geographic areas where there are no service providers, the DSO must handle the construction of the connection.

Once built, the connecting elements will form an integral part of the networks, as soon as they are deemed by the operator to be in proper technical operating conditions.

The DSO must send ERSE the data related to its activity in this area.

ERSE's responsibility code does not define maximum execution deadlines for the connection to electricity networks. However, for monitoring purposes, the distribution and transmission system operators are required to provide ERSE with annual information regarding connections to electricity networks, which

includes, among other aspects, the average execution time of connections made by the network operators. In 2015, the average execution time in the distribution network for the LV and MV levels was approximately 17 days, for a total of 6,946 connections. We should also add that the RQS for the electricity sector establishes the obligation for the DSOs to monitor the response times to requests for low-voltage connection services, namely the proportion of requests in which the corresponding information was provided to the applicant within 15 business days after the request was made.

3.1.2.5 SAFEGUARD MEASURES

In the event of a sudden crisis in the energy market or a threat to the safety and physical integrity of people, equipment, installations and networks due to a serious accident or another event of force majeure, the member of the Government responsible for energy may take any transitional and temporary safeguard measures necessary⁹.

In 2015, there were no incidents that required the application of safeguard measures¹⁰.

3.1.2.6 RENEWABLE ENERGY SOURCES

As part of the application of the European Directive on this matter¹¹, in Portugal, the concept of renewable energy sources relates to special regime generation (SRG). This special regime includes generation of electricity such as cogeneration, generation from renewable and non-renewable endogenous resources, distributed generation and generation without the injection of power into the network. Similarly, the generation of electricity through renewable and non-renewable endogenous resources, not subject to a special legal regime is also considered to be special regime generation¹². Therefore, the SRG concept now includes all renewable energy sources for generating electricity, including all hydropower generation.

Also as part of the SRG, we should mention Order no. 8810/2015, of 10 August, of the Directorate-General for Energy and Geology¹³, which provides that, under exceptional circumstances in the operation of the

⁹ Article 33-B of Decree-Law no. 215-B/2012, of 8 October, which introduces the sixth amendment to Decree-Law no. 172/2006, of 23 August, and completes the transposition of Directive 2009/72/EC, of the European Parliament and of the Council of 13 July concerning common rules for the internal market in electricity.

¹⁰ As set out in Article 42 of Directive 2009/72/EC of the European Parliament and of the Council.

¹¹ [Directive 2009/72/EC](#), concerning common rules for the internal market in electricity; Directive 2009/28/EC, of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.

¹² Article 18(1) of Decree-Law no. 215-A/2012, of 8 October, which introduces the fifth amendment to Decree-Law no. 29/2006, of 15 February, amended by Decree-Laws no. 104/2010, of 29 September, 78/2011, of 20 June, 75/2012, of 26 March, and 112/2012, of 23 May, transposing Directive 2009/72/EC.

¹³ Order no. 8810/2015, of 10 August, of the Directorate-General for Energy and Geology, which lays down the necessary rules and procedures to establish a discipline for the interruption of generation under the special scheme, namely the order and sequence of the power reduction to be complied with by the special-scheme generating plants connected to the RNT or the RND.

National Electricity System, particularly when there is congestion or when the safety of the supply/demand balance and the continuity of supply is at stake, the system manager may send curtailment orders with the purpose of controlling SRG facilities so they do not exceed a specific power value.

In Portugal, the energy generated by SRG, subject to a special legal regime, with guaranteed remuneration, must be bought by the supplier of last resort (SLR), with the application of *feed-in tariffs*. The differentiation of the remuneration of this SRG, in the current legal framework, depends on the generation technology.

The sales price to the supplier of last resort may be one of the following:

- Price resulting from the application of the tariff published by the Government;
- Price resulting from the bid submitted during tenders for the allocation of interconnection points for wind and biomass energy facilities. In these tenders, the discount on the tariff published by the Government is one of the weighted factors.

The prices published by the Government, currently in force, are based on an avoided cost approach, seeking to quantify them in terms of power (investment in new facilities), energy (cost of fuel) and environment (giving value to CO² emissions avoided) and also on a logic of differentiation in accordance with the generation technology or primary source of energy used. Therefore, the remuneration of the producer depends on the following factors:

- Period of delivery of the electricity to the network;
- Shape of the generation diagram for generating electricity; and
- Primary energy source used.

The SLR has been detailing the SRG's sale offer in the Iberian Electricity Market (MIBEL) since the end of 2011, acting as an aggregation agent for the SRG in Portugal.

The European legislation¹⁴ is transposed at national level by the prioritisation of renewable energy sources in relation to generation in the standard regime, both for access to the network, and for dispatch¹⁵, except in situations where this puts at risk security of the supply¹⁶. There are, however, limitations to the nominal power of each SRG facility that can be connected at each point of the network, depending on the availability of the network itself to accommodate these connections.

¹⁴ Directive 2009/29/EC of the European Parliament and of the Council of 13 April.

¹⁵ Hydropower plants with an installed capacity greater than 30 MW do not have priority dispatch.

¹⁶ Decree-Law no. 215-B/2012, of 8 October, Article 33-W.

In the case of Portugal, it is worth noting that the SRG with guaranteed remuneration does not directly assume the payment of the imbalances (costs associated with the balancing of the system) and so no explicit valorisation of the corresponding costs is performed¹⁷. Costs due to imbalances in the dispatch of these SRGs in the market, calculated by the difference between the real dispatch order and the market dispatch of the SRG, are covered by the instrumental buyer of the SRG, the SLR, and are incorporated into the network access tariff paid by all consumers.

3.1.3 NETWORK TARIFFS FOR CONNECTION AND ACCESS

REGULATORY FRAMEWORK

On 26 June 2014, ERSE submitted for public discussion a proposal for a regulatory review that covered the RRC, the RT, the Access to Networks and Interconnections Code (RARI) and the Network Operation Code for the electricity sector.

The review of the RT was published at the end of 2014, through Regulation No 551/2014 and focused on various matters, from which we highlight matters related to access tariffs, namely: i) the changes to the tariff structure arising from legislation associated with the General Economic Interest Costs (CIEG)¹⁸; the broadening of the scope of the social electricity tariff approved by Decree-Law no. 172/2014, of 14 November¹⁹; and the increase of bi-hourly and tri-hourly options, in the network access tariff, for power levels lower than 3.45 kVA, thus covering all the power levels defined for Standard LV (StLV). This increase of bi-hourly and tri-hourly options is also available for end-customer tariffs in the Autonomous Regions and for end-customer social tariffs in Mainland Portugal and in the Autonomous Regions.

Additionally, this regulatory review introduced rules for dynamic tariffs (pilot studies).

PROCEDURES AND METHODOLOGY FOR CALCULATING ELECTRICITY NETWORK ACCESS TARIFFS

In 2015, the methodology for calculating the electricity network access tariffs remained unchanged but, as mentioned above, there were changes to the structure of the network access tariffs associated with two facts: i) the changes to the legal framework of the CIEGs and ii) the increase of bi-hourly and tri-hourly

¹⁷ In Spain, the SRG answers directly for the costs from imbalances, which is not the case in Portugal, although the respective generating volumes are integrated in the same market reference. A study prepared in 2012 by the MIBEL Council of Regulators identified this specific issue as being one of the aspects to be harmonised in the MIBEL framework.

¹⁸ Under the terms of Order no. 251-B/2014, of 28 November, available at:

http://www.erse.pt/pt/legislacao/Legislacao/Attachments/1856/Portaria%20251-B_2014%20CIEG.pdf.

¹⁹ Diploma available at:

http://www.erse.pt/pt/legislacao/Legislacao/Attachments/1835/DL%20172_2014%20tarifa%20social.pdf.

options, in the network access tariff, for power levels lower than 3.45 kVA, thus covering all the power levels defined for $StLV \leq 20.7$ kVA.

ERSE is responsible for preparing and approving the Tariff Code, which establishes the methodology to be used for calculating tariffs, as well as the ways to regulate the allowed revenues. The approval of the Tariff Code is preceded by a public consultation and an opinion from ERSE's Tariff Board. The ERSE tariff-setting process, including its time frame, is also defined in the code.

For the purpose of contextualising the tariff calculation methodology for network access tariffs, a brief explanation of the current Portuguese tariff system is provided below.

Network access tariffs are charged to all electricity consumers for the use of the infrastructure. Generally speaking, these tariffs are paid by suppliers on behalf of their customers. In addition, they may be paid directly by customers benefiting from the status of Market Agent, which means customers buying energy directly on the markets, and who are responsible for managing their programming imbalances.

The revenue generated by regulated activities is obtained through specific tariffs, each with its own tariff structure and characterised by a given set of billing variables.

The following tariffs are approved for each of the regulated activities: Global Use of the System, Use of the Transmission Network in Extra High Voltage (EHV) and HV and Use of the Distribution Networks in HV, MV and LV.

Tariff prices are established in each activity so as to ensure that their structure follows the structure of the marginal costs and also enables the recovery of the allowed revenues in each activity.

Tariff charging and billing are based on the principle of non-discrimination of the energy's end use. All tariff options are available to all consumers.

Access tariff prices for each billing variable are determined by adding up the corresponding tariff prices per activity, in order to avoid cross-subsidisation and promote an efficient use of the resources.

This tariff calculation methodology allows for detailed knowledge of the various tariff components by activity or service. Therefore, each customer can know exactly how much they pay, for example, for the use of the MV distribution network, and how that amount is considered in terms of billing. The transparency in the formulation of the tariffs, which is a consequence of implementing this type of system, gains special importance for customers who have no experience in selecting a supplier and in particular for customers who are less informed.

NETWORK ACCESS TARIFF PRICES

The average price of the Network Access Tariffs forecast for 2015 (€0.0753/kWh), corresponded to a tariff increase of 6.3% between 2014 and 2015, and to the variations per voltage level presented in Table 3-2

Table 3-2 – Network Access Tariff Variation, 2015 vs. 2014

	2014 tariffs (average prices) €/kWh*	2015 Tariffs (average prices) €/kWh	Variation
Network Access Tariffs	0.0708	0.0753	6.3%
Access to EHV Grids	0.0225	0.0240	6.8%
Access to HV Grids	0.0274	0.0293	6.8%
Access to MV Grids	0.0478	0.0511	6.8%
Access to SpLV Grids	0.0813	0.0868	6.8%
Access to StLV Grids	0.1092	0.1157	6.0%

* Application of the 2014 tariffs to the demand forecast for 2015.

Source: ERSE

Table 3-3 presents the structure (revenue from regulated activities) and the level of consumption estimated for 2015.²⁰ Maintaining the 2014 tariff prices, the evolution of the consumption structure results in a 1.2% decrease in the average price.

Table 3-3 – Evolution of the average price of Network Access Tariffs 2014-2015

Characteristics and average price	2014 tariffs, 2014 consumption (1)	2014 tariffs, 2015 consumption (2)	2015 tariffs, 2015 consumption (3)
Revenue (10 ⁶ Euros)	3,192	3,160	3,358
Consumption (GWh)	44,533	44,617	44,617
Average price (€/kWh)	0.0717	0.0708	0.0753
% Variation		(2)/(1) = -1.2%	(3)/(2) = 6.3%

Source: ERSE

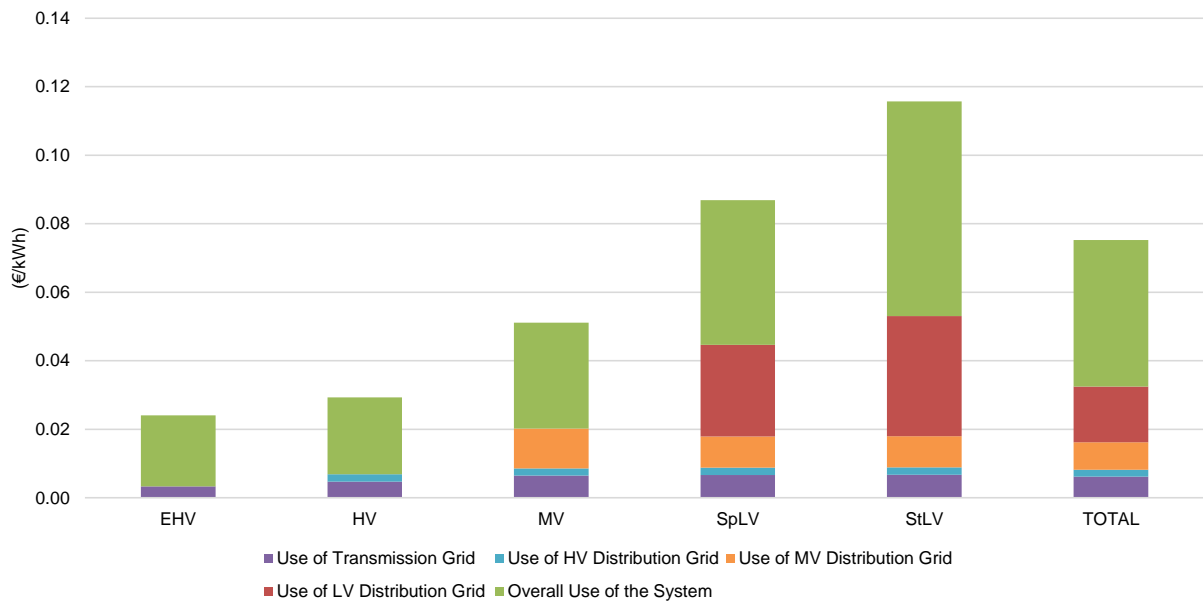
The main factor in the variation of access tariffs seen in 2015 is related to the decrease in demand, whose level came close to the 2006 figure, due to the economic crisis. With regard to the differentiated variations

²⁰ The final consumptions levels regarding 2015 will be disclosed in the 2017 Tariff and Price Proposal, in October 2016.

of prices in network access tariffs, we should note that the significant weight of the CIEGs also conditions the variations in the network access tariff prices by billing variable.

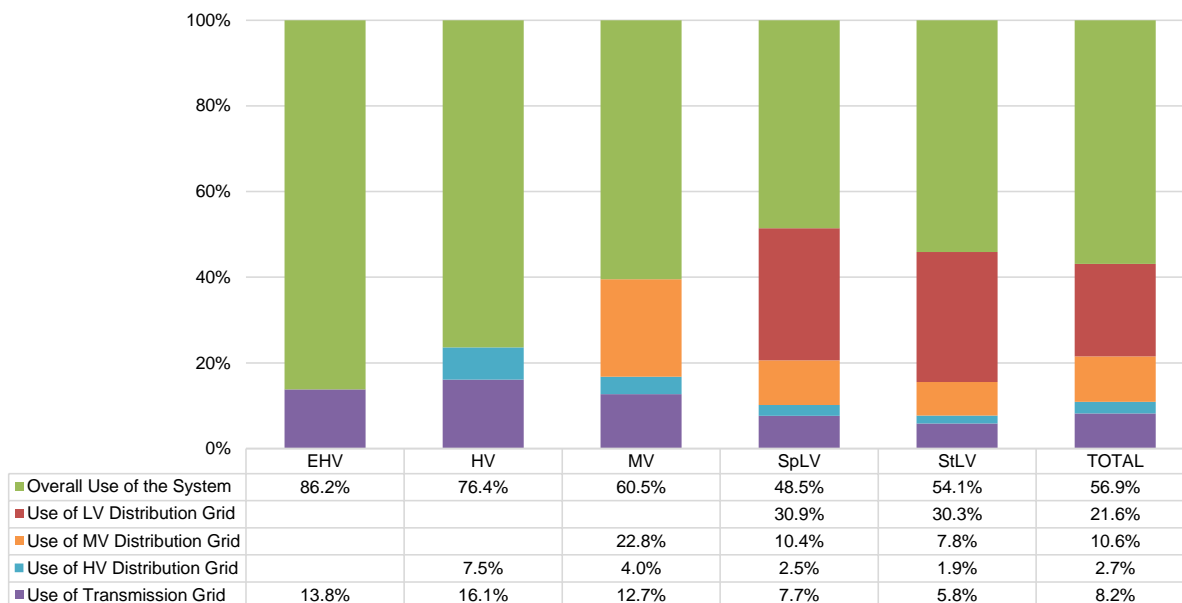
The figures below show, for each voltage level, the breakdown of the average price of the network access tariffs in 2015 by regulated activity and the structure of the average price for each voltage level by regulated activity.

Figure 3-4 – Breakdown per activity of the average price of network access tariffs, 2015



Source: ERSE

Figure 3-5 – Structure of the average price of network access tariffs, 2015



Source: ERSE

REGULATION METHODOLOGIES FOR DETERMINING ALLOWED REVENUE

2015 was the first year of the 2015-2017 regulatory period. As mentioned in the *annual report on the electricity and natural gas markets in 2014*, the beginning of a new regulatory period coincides with the evaluation of the existing regulation methodologies and with the definition of new regulatory parameters. A summary of the regulatory models for the regulatory period in force by type of network operator and for last-resort suppliers follows below:

- For Mainland Portugal:
 - Transmission system operator (TSO) - Model based on economic incentives: (i) application of a price cap methodology²¹ with efficiency targets for operating costs (OPEX²²); (ii) incentive for efficient investment in the transmission network through the use of reference prices in valuing new equipment to be incorporated into the network, whose greater risk is offset by a differentiated rate of return; (iii) incentive to increase availability of the elements of the RNT; (iv) incentive for maintaining equipment in operation at the end of its useful life.

²¹ The cost drivers that determine the evolution of the revenue recoverable by the application of the transmission network use tariff are not very volatile, bringing this methodology closer to revenue cap. The drivers are the length (km) of the network lines and the number of panels in substations. The efficiency factor was set at 1.5%.

²² Operational expenditure.

- Distribution system operator –Price cap methodology²³ applied to unit operating costs (OPEX) and costs accepted on an annual basis in the case of investment costs²⁴ (CAPEX), taking into account the investment plans proposed by the companies. Other incentives also apply: (i) incentive for investment in smart networks²⁵; (ii) incentive to improve quality of service and (iii) incentive to reduce losses.
- Supplier of last resort - *Price-cap* regulation²⁶, plus an uncontrollable costs component, so as to incorporate extraordinary costs arising from changes in the level of activity and in the profile of the customer portfolio underlying the regulated tariff phase-out process. This cost component must be analysed and calculated annually, on a case-by-case basis and shall only be considered when justified.
- In the Autonomous Regions of the Azores and Madeira, companies with electricity transmission and distribution concessions are subject to regulation based on economic incentives: (i) regulation of electricity purchase and management activities via a *revenue cap* methodology²⁷ (ii) regulation of the electricity distribution and sales activities via a *price cap* methodology²⁸ for calculating allowed revenues; (iii) definition of reference costs for the fuel oil consumed in electricity generation²⁹.

With regard to last resort supply, there is still no annual definition of reference costs aimed at ensuring compliance with the corresponding legal framework and at creating a sustained basis for defining the activity's unitary OPEX.

With regard to the cost of capital³⁰, we should highlight the introduction, in the 2015-2017 regulatory period, of an asset profitability control mechanism, with the aim of ensuring an approximation to the real remuneration rate of these assets associated with the methodology defined for the regulatory period in question and, in this way, avoiding excessive profits that may arise from effects that do not depend on the performance of the companies. This *ex post* limitation mechanism for the remuneration rate is applied to

²³ Cost drivers in HV/MV are distributed energy and network length (km); in LV, cost drivers are distributed energy and number of customers. The efficiency factor is 2.5%, plus inflation.

²⁴ Includes return on net assets and amortisations.

²⁵ In the 2015-2017 regulatory period, this incentive began to be calculated based on real and audited values, a process that will last for 6 years.

²⁶ The cost driver is the number of customers. The annual efficiency factor is 3.5%.

²⁷ Efficiency factor set at 3.5%.

²⁸ The cost drivers in the distribution activity in both Autonomous Regions are distributed power and the number of customers. For supply activities, the cost driver is the number of customers. In the Autonomous Region of the Azores, the efficiency targets applied to each of the activities vary between 2% for distribution and 3.5% for supply. In the Autonomous Region of Madeira, the efficiency targets are 3.5% and 4% for supply and distribution, respectively.

²⁹ Electricity generation in the Autonomous Regions of the Azores and Madeira is regulated, and is not liberalised because these regions have benefited from a derogation of the application of Directive 2003/54/EC.

³⁰ Asset remuneration rates for 2015 for Mainland Portugal - transmission: 6.4%; distribution: 6.75%. For the Autonomous Regions - transmission: 6.4%; distribution: 6.75%.

activities that are subject to remuneration of fixed assets and is symmetrical. Furthermore, for the same period, there was a change in the reference rate used to determine the cost of capital, which is now that of the *yields* of 10-year Treasury Bonds (instead of CDSs)³¹.

The allowed revenue for transmission and distribution system operators in what regards the overall management of the system, the purchase and sale of electricity from and to the commercial agent and the purchase and sale of the access to the transmission network includes costs arising essentially from legal decisions, the so-called CIEGs.

The most significant CIEGs, either in terms of value or their impact on the functioning of the market, are related to generation. Market liberalisation has led to the need to anticipate the termination of the long-term Electricity Acquisition Contracts (CAE). Two of these contracts remained in force, and the energy generated by those two plants is now managed by a trading company.

The revenue of this company depends on incentives defined by ERSE. In general, these incentives result in a direct relation between the supply revenues and the operating margin obtained through the sale of energy from the two plants with CAEs on the market.

The remaining long-term contracts were terminated and the respective power plants were included in a legal concept - Costs for the Maintenance of Contractual Equilibrium (CMEC) - which gives producers the right to receive financial compensation intended to grant them equivalent economic benefits as those provided by the CAE.

In addition to those costs, there are other equally significant ones related to the remuneration of the energy generated by renewable sources or cogeneration (SRG, except for large hydropower plants), determined administratively; concession rents are paid by the distribution system operator to the municipalities and with the compensation is paid to the companies of the Autonomous Regions of Madeira and the Azores via the application, in these regions, of a tariff level equal to the one used in Mainland Portugal.

In 2015, there were no significant changes in the nature of the portions included in the CIEG.

NETWORK CONNECTION COSTS

The rules and costs for connecting installations to the networks take into consideration criteria of economic rationality (adherence to the connection construction costs) and the need to ensure consumer access to electricity. The rules are approved by ERSE following a public consultation that involves all stakeholders; there were no regulatory changes in 2015.

³¹ *Credit Default Swaps.*

3.1.4 CROSS-BORDER ISSUES

In 2015, no significant changes were made to the management of the interconnections between Portugal and Spain, namely regarding the model for daily and intraday capacity allocation, which was assigned exclusively to the MIBEL daily and intraday market. Congestion is resolved through the application of a market-splitting mechanism.³²

It should be noted that MIBEL began operating officially on 1 July 2007, based on a single daily market (OMIE) which sustains the Mechanism for Joint Management of the Portugal-Spain Interconnection, with the latter being regulated by the rules and principles defined in the following legal/regulatory instruments:

- EC Regulation No. 714/2009 of the European Parliament and of the Council;
- Access to Networks and Interconnections Code;
- Procedures Manual for the Mechanism for Joint Management of the Portugal-Spain Interconnection;
- Joint Rules for Contracting Capacity in the Portugal–Spain Interconnection; and
- Rules and principles for the harmonised allocation of financial rights for the use of interconnection capacity.

Throughout 2015, quarterly auctions were held for each direction of the interconnection, concerning the last 3 quarters of 2015 and the 1st quarter of 2016, as well as the annual auction for the year 2016. The auctions took place through a platform managed by OMIP³³.

REVENUE FROM CONGESTION ON INTERCONNECTIONS

In 2015, the revenue from congestion on interconnections between Portugal and Spain, resulting from zonal price differences that emerged after the market splitting, reached a total of €1.2 million (see Table 3-4),

³² The mechanism for the auction of cross-border interconnection capacity (between the so-called bidding zones) is implicit in the offers that the agents place on the daily market and assumes the existence of a single market managed by a single market operator. When the cross-border interconnection capacity is higher than the transmission of energy arising from the closing of the market, the interconnection does not get congested and there is only one market price for the two bidding zones. On the other hand, when the interconnection capacity is lower than the transmission of energy arising from the closing of the market, the interconnection gets congested at its limit and the markets offer different prices - higher on the importing market and lower on the exporting market.

³³ Operador do Mercado Ibérico - Pólo Português

accentuating the downward trend that had already been observed last year, with a decrease of approximately 85% compared to 2014.

This decrease in the overall amount of congestion revenue confirms the growing market integration, observed both in the lower number of congestion hours and in terms of average price differences.

In terms of the reduction of the total number of congestion hours, there was a decrease of about 55%, going from 486 hours in 2014 to 212 hours in 2015. This total includes congestion in both directions of the interconnection.

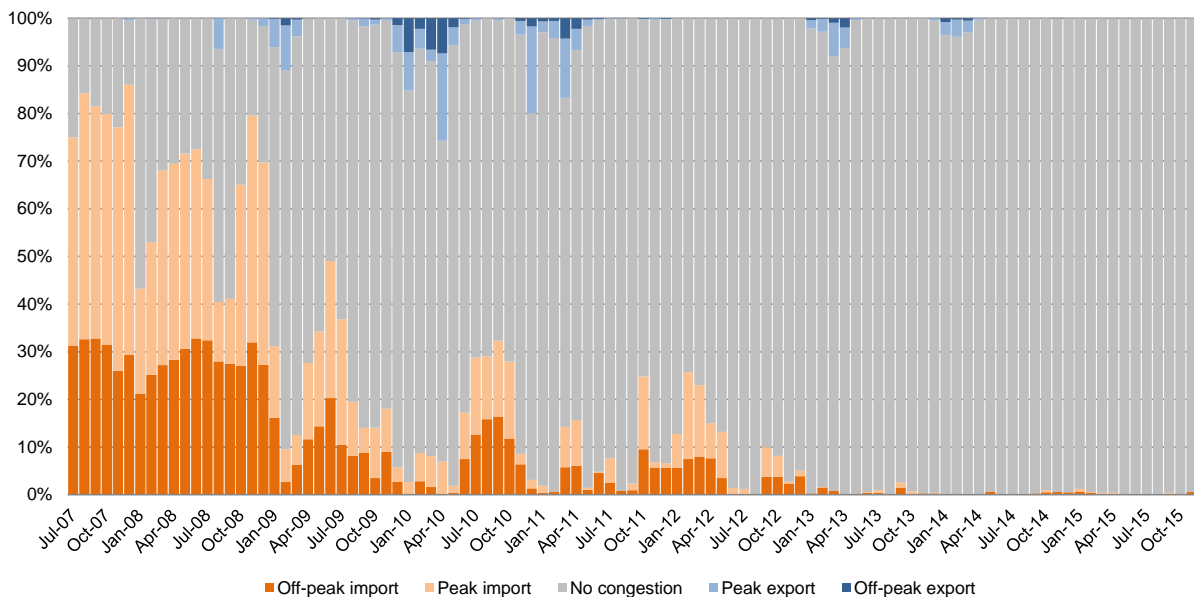
In terms of reduction of the price differential, in 2015 there was an average *spread* of €0.10/MWh, in imports, compared to the spread of €0.28/MWh in 2014, although this was for exports.

Table 3-4 – Monthly evolution of congestion revenue, 2015

Month	Congestion		Average Price PT	Average Price ES	Price differential	Imports (PT < ES)	Export (PT > ES)	Congestion Revenue (PT > ES)
	no. hours	% hours month	(€/MWh)	(€/MWh)	(€/MWh)	(MWh)	(MWh)	10 ³ €
January	39	5%	51.82	51.60	0.22	109,907	586,434	199
February	14	2%	42.57	42.57	0.00	386,357	238,587	75
March	12	2%	43.22	43.13	0.09	275,466	294,855	121
April	16	2%	45.49	45.34	0.16	143,900	455,563	225
May	13	2%	45.18	45.12	0.06	125,224	384,173	36
June	6	1%	54.74	54.73	0.02	72,523	509,990	14
July	12	2%	59.61	59.55	0.06	60,467	484,233	57
August	2	0%	55.59	55.59	0.01	85,268	443,726	2
September	7	1%	51.92	51.88	0.04	89,050	409,628	13
October	8	1%	49.89	49.90	0.00	468,618	194,448	22
November	33	4%	51.46	51.20	0.26	154,892	356,716	120
December	50	7%	52.92	52.61	0.31	151,634	445,971	290
								1,175

Source: OMEL data

Figure 3-6 represents the use of the available capacity, in both directions, on the Portugal-Spain interconnection, and illustrates that there was virtually no congestion throughout 2015.

Figure 3-6 – Usage of the Portugal-Spain interconnection capacity, 2007 to 2015

Source: REN and OMIE data

COOPERATION

ERSE regularly cooperates with the other European regulators in the scope of CEER and ACER in the pursuit of the Internal Energy Market.

With Portugal being geographically located on the Iberian Peninsula, ERSE cooperates closely with the Spanish regulator, through the MIBEL Council of Regulators, namely in terms of the coordinated management of the Portugal-Spain interconnection. Similarly, in terms of the work inherent to the Southwest region of Europe (SWE REM), work is underway with a view to the successful European integration of the Iberian Electricity Market.

➤ FIXED-TERM MANAGEMENT OF THE COMMERCIAL CAPACITY ON THE PORTUGAL-SPAIN INTERCONNECTION

In 2014, we witnessed the start of regular operations of the process for the harmonised allocation of financial transmission rights (FTR) of capacity on the Portugal-Spain interconnection, as a result of the work to integrate the Portugal-Spain interconnection into a harmonised and coordinated framework for the forward allocation of commercial capacity, undertaken by MIBEL's Council of Regulators and by the Southwest Europe Electricity Market, which resulted in the approval, in December 2013, of amendments to the Access to Networks and Interconnections Code and to the corresponding Procedures Manual of the Joint Management Mechanism of the Portugal-Spain Interconnection (following a public consultation).

In this regard, in 2015, there were four FTR allocation auctions on the Portugal-Spain border, with quarterly and annual horizons, where all the rights offered were acquired.

In December 2015, ERSE approved the adoption of the *Harmonised Allocation Rules* (HAR) provided for in the "*Forward Capacity Allocation*" Network Code, which are harmonised rules for the allocation of transmission capacity rights at European level. ERSE also approved the corresponding annex with product specifications regarding the border between Portugal and Spain.

➤ NOMINATION OF THE APPOINTED ELECTRICITY MARKET OPERATOR

Article 4 of Regulation (EU) No 2015/1222, which establishes a guideline on capacity allocation and congestion management, provides that, 4 months after the entry into force of the Regulation, each Member State should have designated one, or more, Nominated Electricity Market Operator(s) (NEMOs).

In the Portuguese case, this entity was designated by the Government in accordance with the provisions included in the Santiago Agreement, as provided for in Parliament Resolution no. 23/2006, which approves the Agreement between the Portuguese Republic and the Kingdom of Spain for the Constitution of an Iberian Electricity Market (MIBEL), signed in Santiago de Compostela on 1 October 2004.

That agreement establishes that the entity designated as NEMO is the OMIE³⁴, responsible for managing the daily and intraday market, as reported to the ACER in December 2015.

➤ COUPLING OF THE IBERIAN MARKET WITH THE NORTH-WEST REGION OF EUROPE

On 13 May 2014, the coupling of the Iberian market with the *North-West Europe*(NWE) region, which includes the markets of France, Belgium, the Netherlands, Germany, Luxembourg, United Kingdom, Norway, Denmark, Sweden and Finland), became a reality, and has been operating successfully since then.

In 2015, the MIBEL Council of Regulators continued to pursue the regulators' commitment, in close cooperation with the Iberian Market Operator (OMI) and with the system operators in Portugal and Spain (REN and REE), to take all the measures needed to enable MIBEL to be coupled to the markets of the North-West region of Europe.

³⁴ Operador del Mercado Ibérico de Energía – Polo Español, S.A.

➤ REGULATORY RESERVE EXCHANGE MECHANISM BETWEEN TRANSMISSION SYSTEMS OPERATORS

In 2015, the regulatory reserve exchange mechanism between transmission system operators continued its normal operation; it was approved in 2014 as part of ACER's South-West Regional Initiatives, the MIBEL and the BALIT project, concerning the exchange of system services between operators.

In this context, amendments were approved to the Procedures Manual for the System's Global Management, required to implement the regulatory reserve exchange mechanism between transmission system operators. These changes were approved following the joint work developed by transmission system operators in Portugal, Spain and France, in order to optimise the use of available resources and reduce the regulation reserve energy mobilised in each of the participating electricity systems.

MONITORING INVESTMENTS MADE BY THE ELECTRICITY INFRASTRUCTURE OPERATORS

Development and investment plan for the electricity transmission network

In 2015, REN - Rede Eléctrica Nacional, as operator of the National Electricity Transmission Network (RNT), submitted a proposal for the Development and Investment Plan for the Electricity Transmission Network for the 2016-2025 period (PDIRT-E 2015) to the Directorate General for Energy and Geology (DGEG)³⁵. In turn, the DGEG forwarded the proposed PDIRT-E 2015 to ERSE, who was responsible for conducting a public consultation on its contents, which ran between 26 November 2014 and 13 January 2015. Benefiting from the comments received during the public consultation, ERSE issued its opinion in 2016, having concluded that, despite presenting improvements and making attempts to incorporate some of the recommendations and comments included in the Opinion issued by ERSE with regard to the PDIRT-E proposed two years ago, the PDIRT-E 2015 proposal still could not be approved as a whole. Therefore, in order for approval of the PDIRT-E 2015 to become possible, ERSE recommended that the concessionaire of the RNT amend several aspects of the proposal, namely as regards the identification of projects that, given the urgent need for their entry into operation, still required a Final Investment Decision and required the plan to present, at least with regard to these projects, a weighting of the associated costs and benefits and the reasons for that urgency. The total amount of the investment planned in the PDIRT-E 2015 proposal still appeared to be inappropriate considering the recent and expected development of consumption and of the peak use of the RNT, the excellent quality of service and the absence of structural constraints in the RNT.

³⁵ Under the terms of Article 36-A(1) of Decree-Law no. 172/2006, of 23 August, as amended by Decree-Law no. 215-B/2012, of 8 October.

Development and investment plan for the electricity distribution networks

On 8 January 2015, ERSE published its Opinion regarding the Development and Investment Plan for the Electricity Distribution Network for the 2015-2019 period (PDIRD-E 2014), presented by EDP Distribuição, which benefited from the outcome of a public consultation that took place during the last quarter of 2014. Following the introduction of some of the amendments suggested in the aforementioned Opinion, the Secretary of State for Energy approved the PDIRD-E 2014 on 22 April 2015, which immediately entered into force. We should highlight that this was the first development and investment plan for energy networks and infrastructure to receive formal approval, in accordance with the legislation issued in October 2012.

In addition to the critical analysis carried out as part of the opinion on the Development and Investment Plan for the Electricity Transmission Network (PDIRT), every year ERSE carries out an analysis of the investments made by the RNT operator for the purpose of their consideration in the allowed revenue and subsequent reflection in the tariffs.

3.1.5 COMPLIANCE

In 2015, ERSE was not subject to any relevant and legally binding decisions from ACER or the European Commission.

Similarly, ERSE did not seek ACER's opinion regarding compliance of any decisions made by other regulatory entities with the guidelines of Directive 2009/72/EC or Regulation No 714/2009.

In 2015, on the legislative side, the following diplomas that transpose Community law or support the implementation of the market opening rules warrant special mention:

- **Order no. 97/2015, of 30 March** - Approves the new dates for the application of transitional tariffs to end-customers of natural gas with an annual consumption equal to or lower than 10,000 m³ and for electricity with consumption at normal low voltage.
- **Decree-Law no. 68-A/2015, of 30 April** - Sets out provisions with regard to energy efficiency and cogeneration production, transposing Directive 2012/27/EU, of the European Parliament and of the Council of 25 October 2012 on energy efficiency.
- **Law no. 75/2015, of 28 July** - Governing access to and exercise of the provision of audit services to cogeneration plants or to plants whose production is based on renewable energy sources.
- **Law no. 144/2015, of 8 September** - Transposes Directive 2013/11/EU, of the European Parliament and of the Council of 21 May 2013 on alternative resolution for consumer disputes, establishing a legal framework for out-of-court settlement mechanisms.

As part of its supervisory responsibilities, in 2015, the following initiatives undertaken by ERSE are highlighted:

- Verification and analysis of the general conditions of electricity supply contracts concluded with suppliers;
- Verification and analysis of commercial offers made available by suppliers in the liberalised market;
- Monitoring of flows between regulated and non-regulated activities, through the analysis of transfer pricing, namely through audits of the electricity TSO and the DSOs;
- Monitoring of the remuneration rates for regulated activities;
- Monitoring of an independent verification audit on the reference cost mechanism for investments made by the electricity transmission system operator;
- Monitoring of independent verification audits on the regulatory provisions regarding technical and commercial quality of service; and
- Inspections focused on the procedures used in assigning and applying the social tariff to electricity supplies.

As part of the Energy Sector Penalty System, approved by Law no. 9/2013, of 28 January, in 2015, ERSE received 91 complaints and opened 18 infraction proceedings (electricity and natural gas).

With regard to 2015, ERSE published five enforceable rulings against suppliers operating in Portugal. Of these rulings, three are related to suppliers that operate in the electricity and natural gas sectors. Overall, these proceedings involved more than €7.5 million; two of the enforceable rulings were the subject of judicial appeals lodged by the suppliers whose files are being processed by the Court for Competition, Regulation and Supervision.

The other two rulings are related to natural gas issues detailed in section 4.1.5.

3.2 PROMOTING COMPETITION

3.2.1 WHOLESALE MARKET

In 2015, a decrease was observed in the level of concentration in the electricity generation market (due to unfavourable hydrological conditions for hydropower generation by the incumbent) and, simultaneously, an increase was seen in the level of concentration in terms of installed capacity. This contributed to a very significant level of participation of thermal plants in meeting consumption demands.

However, the greatest contribution to the increase in the level of concentration of the EDP Group in terms of installed capacity was related to the entry into service of the installed capacity from new hydropower plants (Ribeiradio/Ermida, Baixo Sabor Montante e Jusante and Salamonde 2) and to the full consolidation

of 613 MW of installed capacity of wind farms following acquisition of control over some of the assets of the ENEOP consortium³⁶.

As was the case in 2014, the more favourable development of free trading was supported by a greater dispersion of energy contracting resources, particularly through the implementation of regulated fixed-term SRG energy placement mechanisms, with guaranteed remuneration, which suppliers can access.

In 2015, there were a series of economic and market circumstances that resulted in low energy price differences between the MIBEL areas, namely low reservoir storage levels and, consequently, a significant increase in the use of natural gas combined-cycle power plants and an increase in the weight of imports, together with a decrease in the relative weight of the intermittent component of SRG with guaranteed remuneration in the consumption structure, which favoured the integration of two pricing areas, despite the fact that the average price in Portugal was slightly higher than the average price in Spain.

The number of hours of market splitting rose in comparison with 2014, in line with the evolution recorded in the price difference between the two markets, due to unfavourable climatic conditions for hydropower, as well as the positive evolution in the average capacity of the Portugal-Spain interconnection for commercial purposes.

From the regulatory point of view, the development of market supervision mechanisms by ERSE sought to help strengthen the transparency and integrity of the wholesale electricity market.

Therefore, from a general point of view, due to unfavourable hydrological conditions, 2015 was marked by a development that was less beneficial to the incumbent, whose installed hydro capacity was the greatest, leading to a decrease in the overall concentration of electricity generation. Nevertheless, a high level of concentration persists in the electricity market, so the implementation of further measures to foster competition and promote transparency should follow on from the developments already achieved.

3.2.1.1 MONITORING THE PRICE LEVEL, TRANSPARENCY LEVEL AND THE LEVEL AND EFFECTIVENESS OF MARKET OPENING AND COMPETITION

Spot market prices

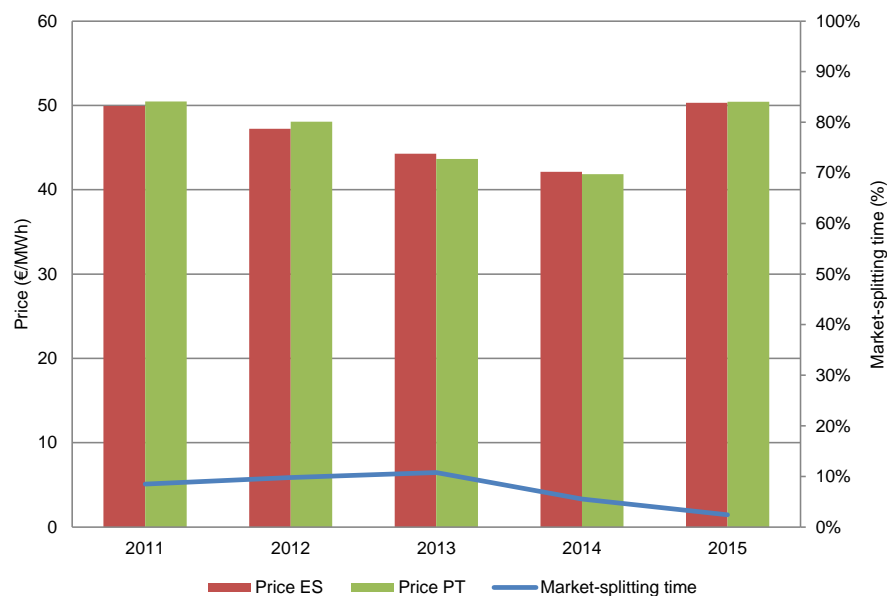
The evolution of prices formed in the wholesale market in Portugal is intrinsically related to the Iberian integration and the participation of Portuguese agents in MIBEL.

³⁶ ENEOP – Eólicas de Portugal, a former consortium of companies involved in wind projects in Portugal (EDP Renováveis, Enel Green Power and Generg), which installed a series of farms with a power of 1,200 megawatts (MW).

The price on the spot market is common to Portugal and Spain, except in situations in which there is congestion on the interconnection resulting in the need to apply the market-splitting mechanism, and thus, to apply different prices in the two countries.

The evolution of the annual average price on the spot market, both in Portugal and in Spain, is presented in Figure 3-7.

Figure 3-7 – Evolution of the average annual price in the spot market and market splitting, 2011 to 2015



Source: OMIE data

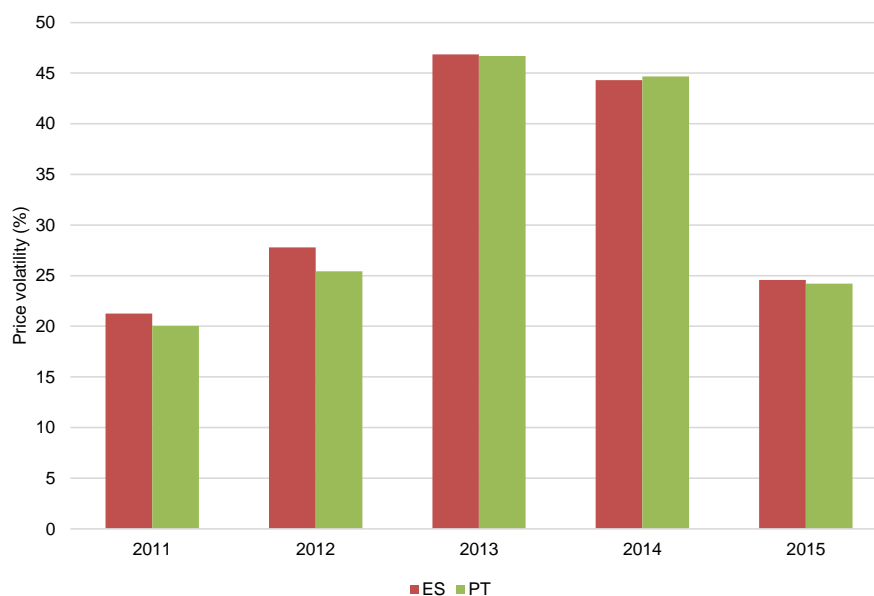
As can be seen from this figure, in 2015 the average price in the spot market for Portugal was €50.43/MWh, approximately 20% higher than the price recorded in 2014 (average annual price of €41.86/MWh). This increase essentially resulted from a decrease in hydropower generation in 2015, which led to prices being aligned with the marginal costs of the combined-cycle natural gas thermoelectric power stations. In any case, the average market price in 2015 for Portugal was approximately 2.5% above the benchmark³⁷ marginal cost of combined-cycle natural gas plants and approximately 75% above the marginal cost of coal-fired thermal plants.

³⁷ Estimated marginal cost calculated according to the methodology adopted in the Technical Standard published by ERSE. (http://www.erse.pt/pt/supervisaodemercados/mercadodeelectricidade/sistema/Documents/NT_Custo_marginal_CC_GT_Despacho_4694_2014.pdf), which excludes the estimate for costs related to the access to the high-pressure natural gas network by third parties.

Regarding the setting of the spot market price, the market's volatility represents an important aspect considered by market agents, namely regarding the need to cover price risks. In 2015, the volatility of the spot market price for Portugal, measured as the coefficient between the standard imbalance of prices in the year and the respective average price, was approximately 24%, which means prices ranged, on average, from €38/MWh to €63/MWh.

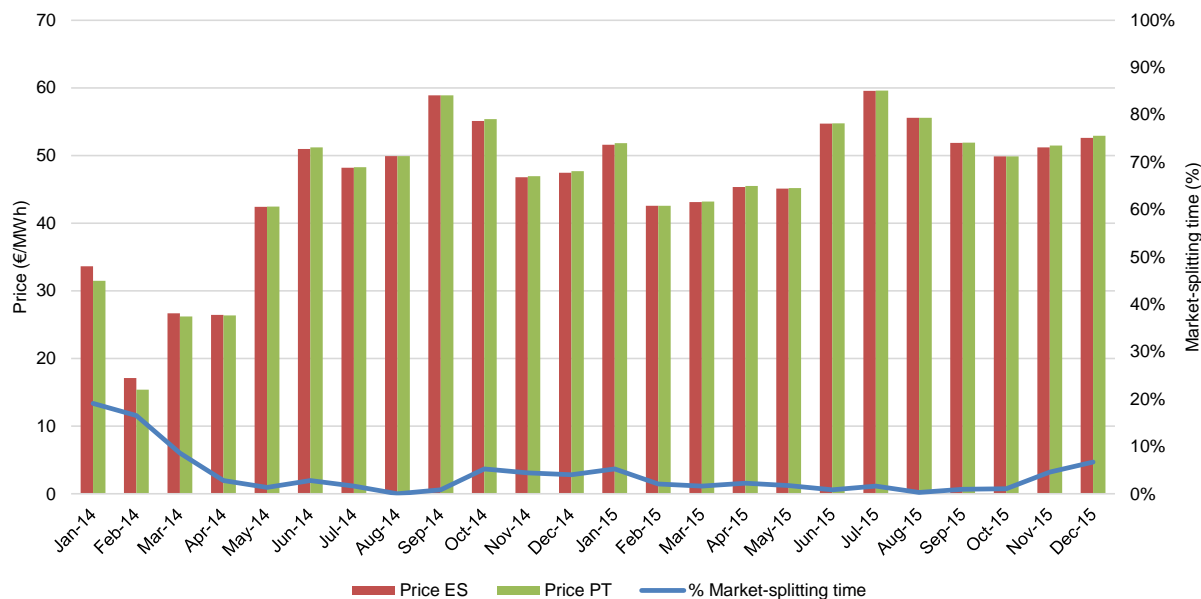
Figure 3-8 shows the evolution of the annual volatility of the spot market price, from 2011 to 2015, for both Portugal and Spain, with a significant decrease in the volatility of the spot price between 2014 and 2015. This decrease in volatility was mainly due to a decline in the contributions of hydropower generation and of the intermittent component of SRG with guaranteed remuneration in the consumption structure. In any case, the Portuguese market prices have been, on average, slightly less volatile than the Spanish ones, reversing the trend witnessed in 2014.

Figure 3-8 – Volatility of spot price, 2011 to 2015



Source: OMIE data. Note: volatility measured as a ratio between the standard imbalance of the spot price and the respective annual average.

Figure 3-9 presents the evolution of prices in Portugal and Spain and the percentage of time that market splitting was applied, broken down by month for 2014 and 2015. As regards 2015, we should highlight: (i) an increase in the average price set in the market compared to what had happened in 2014; (ii) the existence of drier hydrological conditions throughout the year; (iii) a decrease in the number of market splitting hours compared to 2014.

Figure 3-9 – Spot market price and market splitting time, 2014 and 2015

Source: OMIE data

Forward market prices

The MIBEL operating model provides for the existence of references for forward contracting in an organised market, where agents can place part of their electricity needs, namely to define, in part, the futures price for electricity to be supplied to end-users. The forward market is, in fact, an additional tool for agents to be able to mitigate the risks of price volatility and to ensure the availability of electricity (supply) or to meet demand with characteristics of greater predictability and stability.

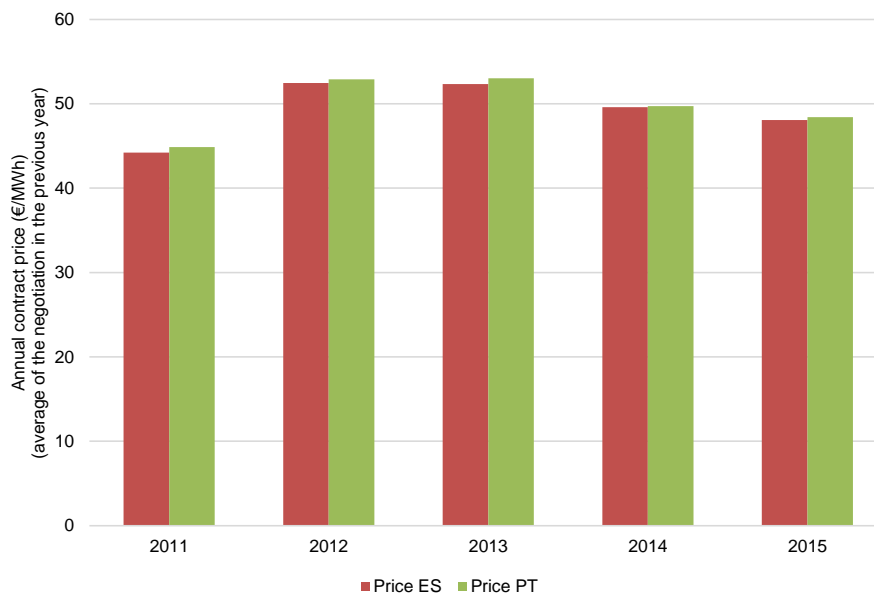
Indeed, as the spot market, in the Iberian context, is a rather liquid platform, especially for Portugal, approximately 75% of consumption is met through contracting in this market reference system. In this regard, without an intrinsic problem of liquidity and depth within the definition of the classic indicators used (number of transactions, market volume, dispersion of volumes negotiated), there is a growing need to cover the risks of fluctuating spot market prices for which one of the most efficient and transparent answers will be the use of organised market platforms for forward contracting.

The evolution of the price set in the forward market, in this case the market formally provided for under the agreement for creating MIBEL (OMIP), showed that the price could be expected to remain steady between 2014 and 2015. In fact, the market agents who, in 2014, had acquired a position in the delivery contract with a base load for 2015 would have paid an average price (€48.42/MWh for Portugal³⁸) about 4% lower

³⁸ The value of the forward provisioning price reflects the average weighted value per contract by volume of the 2015 annual contract with delivery in the Portuguese area of MIBEL, including the record of auction, continuous and over-the-counter (OTC) operations.

than the price set in the spot market. Figure 3-10 presents the evolution of the average market closing prices related to the annual contract, in a base load delivery.

Figure 3-10 – Evolution of the average price for negotiating the annual futures contract (delivery in Portugal and in Spain), 2011 to 2015

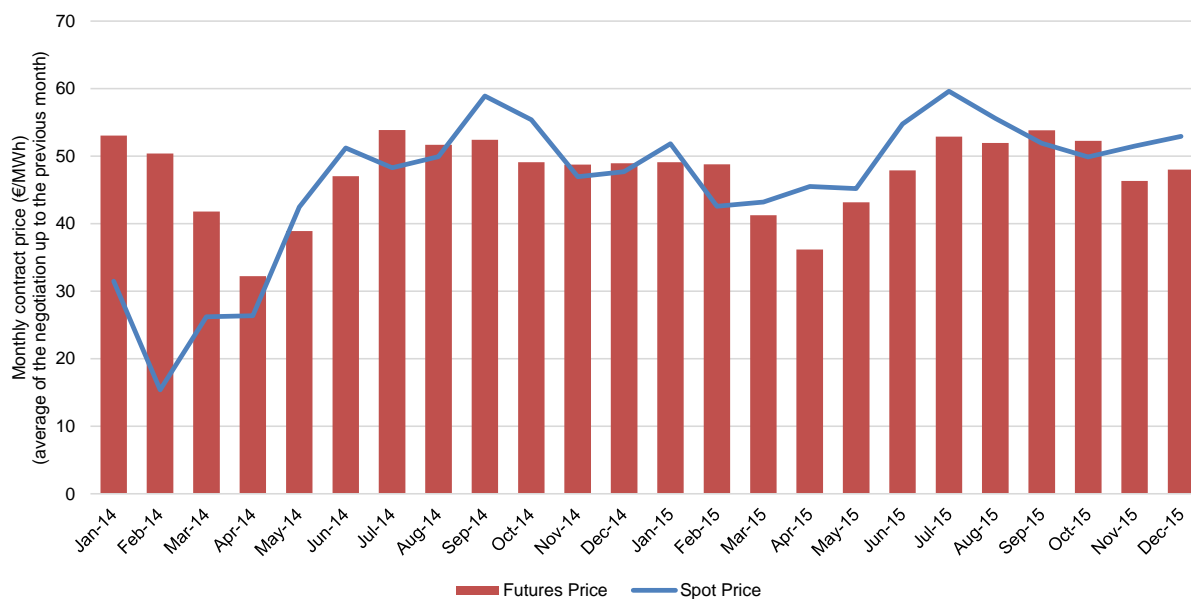


Source: OMIE data. Note: average closing price for the year prior to delivery, for a base load delivery; the 2015 price corresponds to the average price set during 2014.

On the other hand, the evolution of the negotiation of monthly future contracts with a base load delivery showed an increase in the average risk premium in forward contracting in February, September and October (difference between the forward price and the spot price for the corresponding month), showing a relative decline in expectations for the price set on the *spot* market. The situation was more favourable in the other months, and there was a decrease in the average risk premium compared to the spot market. In these months, the agents that ensured that their needs in the forward market for each month were covered in advance cancelled out their average price risk in the spot market.

Figure 3-11 presents the evolution of monthly futures contract prices in the market managed by OMIP, and also the spot negotiation price (both for Portugal). Throughout 2015, the evolution of the futures price for monthly contracts showed an upward trend in the price of energy traded on the organised market, lower than the evolution of the spot market, where the trend throughout the year was also upward.

Figure 3-11 – Evolution of the average price for negotiating the monthly futures contract (delivered in Portugal), 2014 and 2015

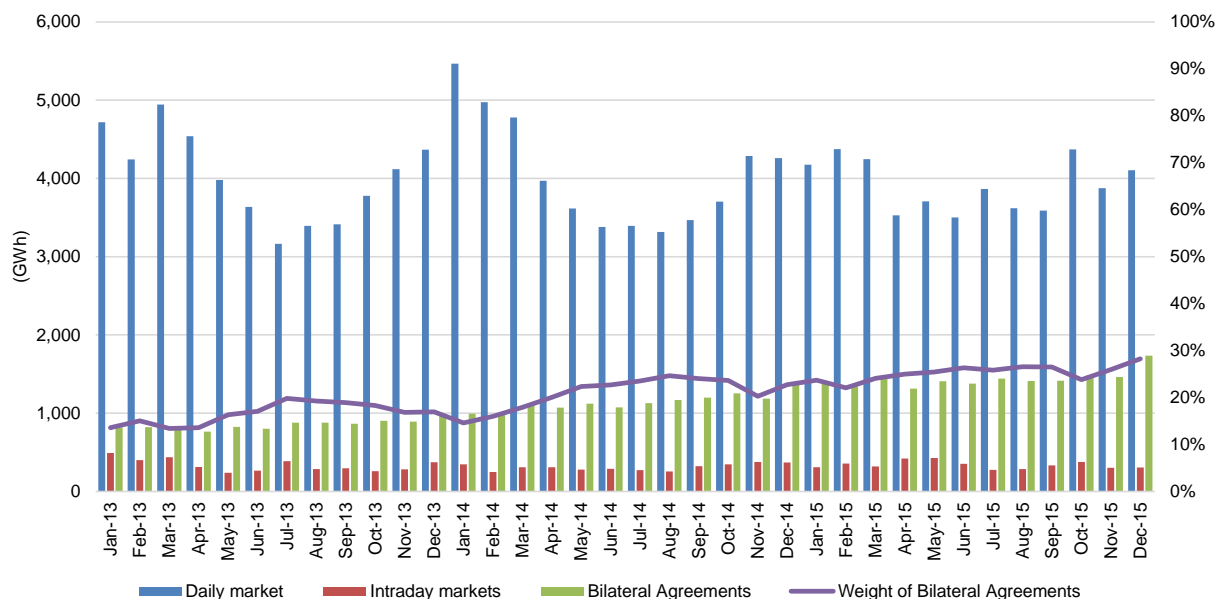


Source: OMIE and OMIP data

For 2015, as part of the application of the forward contracting mechanism for energy acquired from generators under a special regime, five guaranteed remuneration SRG auctions were held, with the placement of a total of five distinct products (one annual base load and four quarterly base loads). These five auctions resulted in the placement of total hourly power output (volume placed) of 650 MW. The variation in volume was carried out in full by the modulation of quantity in the quarterly product (400 MW for each quarter) and in the annual product (250 MW). The volume of energy placed in this instrument corresponded to approximately 12% of national consumption.

The auction held for delivery in 2015 ensured the full sale of the minimum volumes open for negotiation and allowed a stabilisation of the sale price for SRG energy. Furthermore, the existence of the auction mechanism provided risk coverage tools for the procurement of energy (in volume and in price) which were positively evaluated by the market agents.

Regarding spot market negotiation (daily and intraday markets), in the case of Portugal, it is much higher than the trading in bilateral contracts, as shown in Figure 3-12. It is useful, however, to bear in mind that the acquisition of fixed-term products listed on the MIBEL forward market is settled in cash through the daily market.

Figure 3-12 – Breakdown of energy supply volumes between markets, 2013 to 2015

Source: OMIE and REN data

For 2015, a positive evolution could be seen in the average weight of bilateral contracts, compared to 2014, and also in the absolute value of bilateral contracts (a 26% increase, equivalent to 3.6 TWh).

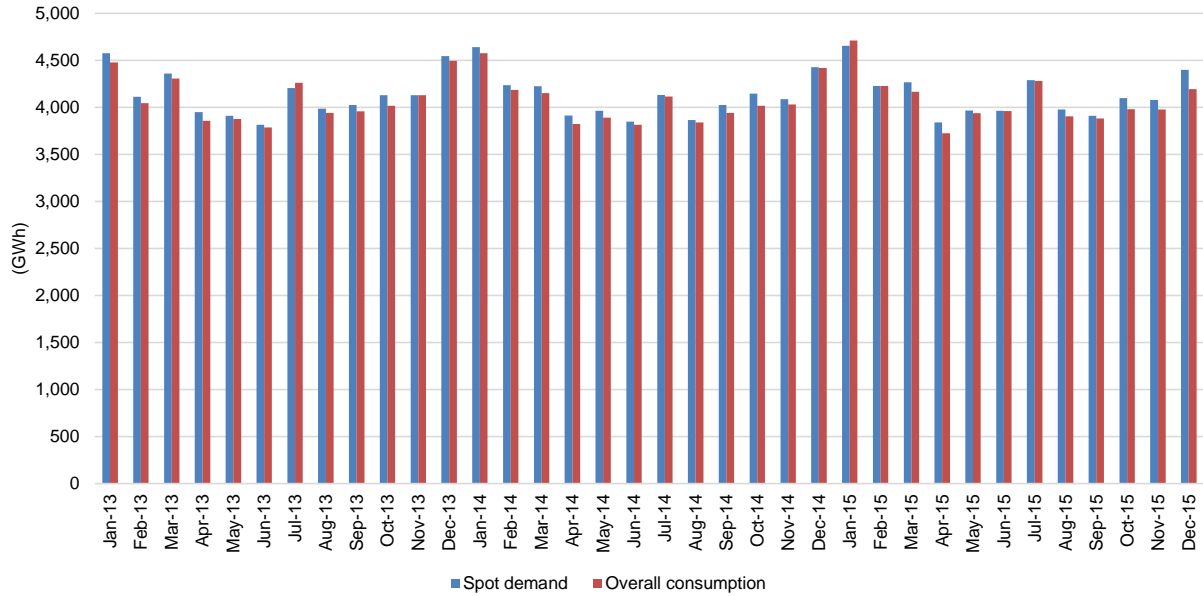
Spot contracting for the wholesale market in Portugal is part of the project to deepen MIBEL, i.e. the single market for Portugal and Spain with an associated mechanism for resolving congestion on a daily basis, based on market splitting whenever the flow of electricity generated by aggregated demand and supply exceeds the commercial capacity available on the interconnection. The contracting on the spot market is characterised by the following aspects:

- On the demand side, the agents registered in Portugal, including the SLR, place most of their demand on the spot market.
- On the supply side, all market agents offer their supply mostly on the spot market. In the case of special-regime generators with guaranteed remuneration, the supply is placed on the spot market through the only SRG buyer - the SLR - which aggregates the expected generation and submits the offers to the market.

Market evolution

The evolution, both for spot market demand and overall consumption in mainland Portugal, is given in Figure 3-13, where it can be seen that consumption is met by acquiring energy on the spot market. During 2013, the explicit offer of all SRG generation (with guaranteed remuneration) by the SLR on the day-ahead spot market allowed a significant part of the demand in this market to be covered.

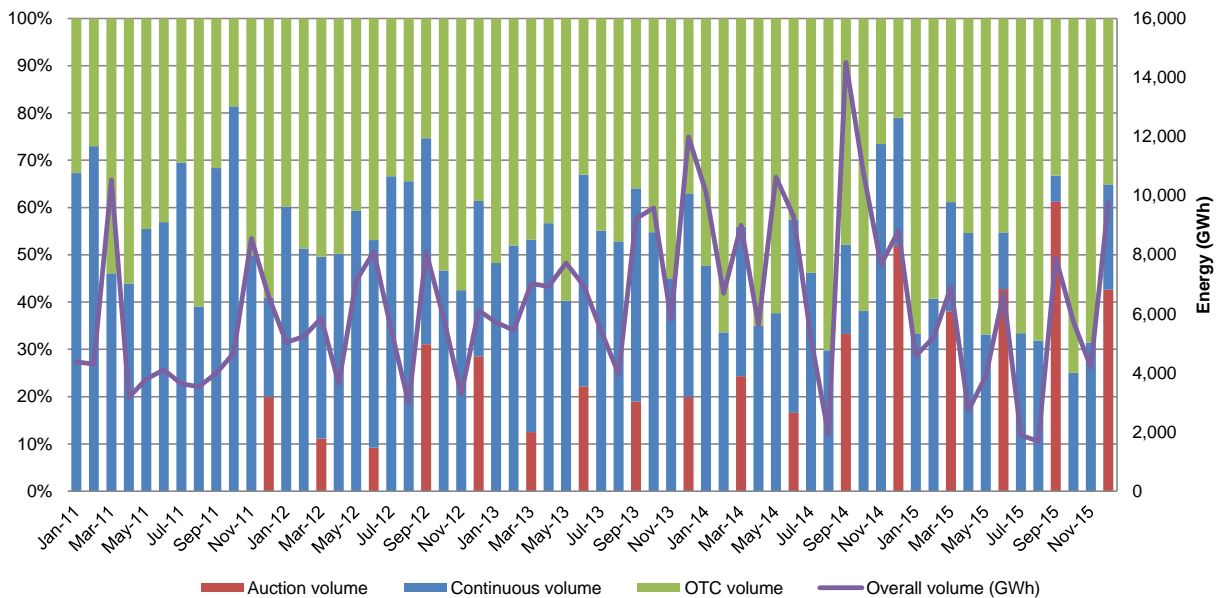
Figure 3-13 – Spot market demand and total monthly consumption, 2013 to 2015



Source: OMIE data

Figure 3-14 shows the evolution in the volumes recorded in the organised forward market foreseen in MIBEL (OMIP). There is a visible trend towards a significant increase in operations in the continuous market and OTC operations, although with high variability over time.

Figure 3-14 – Volumes in the MIBEL forward market, 2011 to 2015



Source: OMIP data

The increase in the volume being negotiated in auctions in December 2011 and during the months prior to the start of each quarter was due to the introduction, by ERSE, of a mechanism for selling electricity from special-regime generation with guaranteed remuneration, designed to make available market forward procurement and/or the coverage of price risks to suppliers on the liberalised market. In the last three auctions of 2014, a total of 250 MW were also negotiated for the annual contract for delivery in 2015, 400 MW to be delivered in the first quarter of 2015 and 200 MW to be delivered in the second quarter of 2015.

We should also highlight the fact that, from December 2014 onwards, there were auctions for the initial allocation of contracts regarding financial rights over capacity on the Portugal-Spain interconnection, in both directions, which allow market agents to cover the risk associated with the price differences between Portugal and Spain.

In 2015, the total trading volume in the forward market managed by the OMIP (including registered OTC transactions) was approximately 61 TWh. Compared to 2014, there was a 39% decrease in the total trading volume (corresponding to 39 TWh).

TRANSPARENCY

From a market monitoring point of view, it is important to consider the rules of transparency in the markets. The wholesale electricity market in Portugal benefits from a regulatory system which already imposes obligations to disclose insider information to the market. Indeed, the requirements to report relevant facts under the Commercial Relations Code have already been in force for five years and are comparable to the requirements in the *Regulation on Wholesale Energy Market Integrity and Transparency*³⁹ (REMIT) regarding the obligation to report insider information.

The reporting of transactions and trading orders associated with contracts negotiated in organised market platforms across the entire European Union began on 5 October 2015, in accordance with the schedule provided for in Article 12 of the Commission Implementing Regulation (EU) No 1348/2014 of 17 December on data reporting implementing Article 8(2) and Article 8(6) of the REMIT. All contracts provided for in Article 3, negotiated in the OMIE and OMIP organised market platforms, are subject to this obligation.

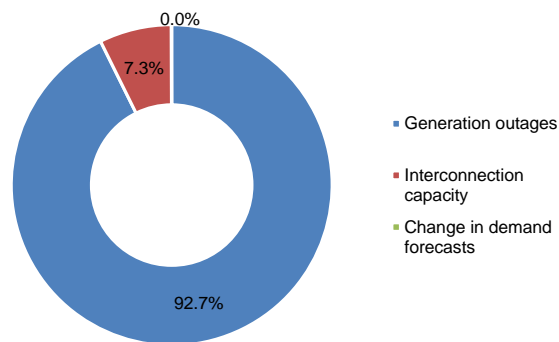
Among the facts subject to the reporting obligations are the unplanned unavailability of electricity generation plants, and also updates on their status, in addition to the unavailability of networks (transmission and distribution) which may affect consumption or price setting. The alterations in the capacity commercially available on the Portugal-Spain interconnection are also subject to the requirement to provide information

³⁹ Regulation (EU) no. 1227/2011 of the European Parliament and of the Council on wholesale energy market integrity and transparency.

by REN, as the system manager, as are also the significant imbalances in the forecast of aggregate consumption of the system and/or of each agent in particular.

Insider information is communicated in a centralised manner, and is available on a portal managed by REN. During 2015, 3,049 relevant facts were communicated. Of these, approximately 93% concerned generation unavailability, their updated or changed status, and 7% to changes in the interconnection capacity available for the market and respective price setting in the context of MIBEL, as can be seen in Figure 3-15.

Figure 3-15 – Communication of relevant facts, 2015



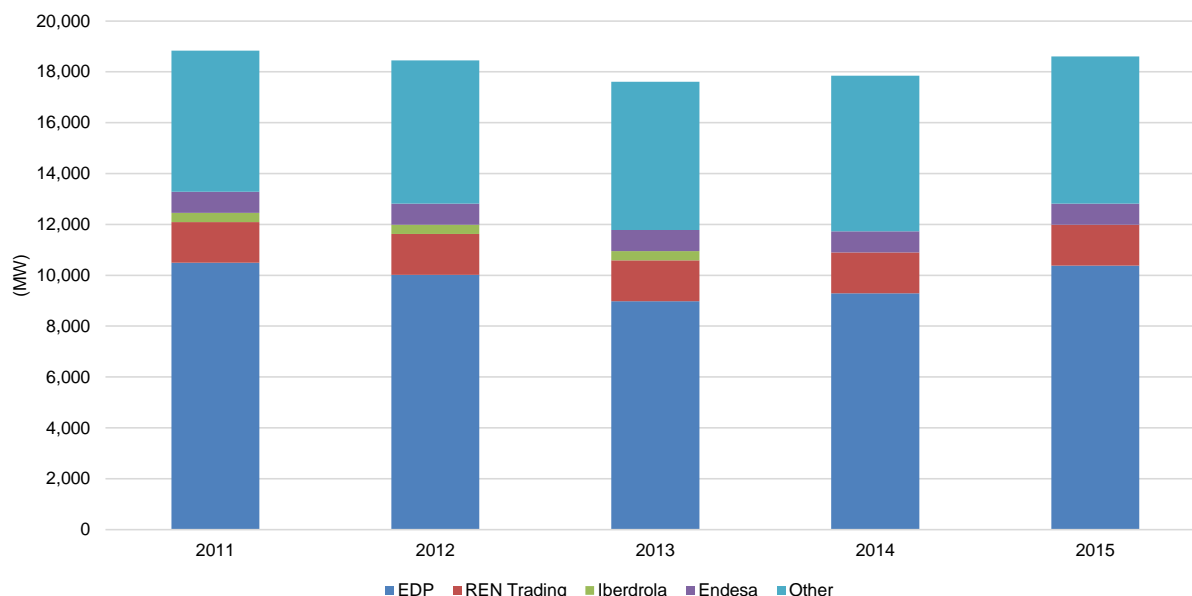
Source: REN data

COMPETITION EFFECTIVENESS

The wholesale market must be assessed by evaluating the installed power generation capacity and its effective production. To this end, it is important to analyse the evolution of the installed capacity in terms of primary electricity used.

As a complement to the analysis of the breakdown of installed capacity by technology, it is important to characterise the breakdown of the installed power generation capacity by owner or by managing company, as developed in Figure 3-16, from which we can see that EDP owns most of Portugal's installed capacity.

Figure 3-16 – Description of electricity installed power generation capacity in Portugal (by agent and installed capacity), 2011 to 2015



Note: 'Other' includes all undertakings that hold SRG assets with guaranteed remuneration.

Source: REN and EDP data

EDP Group's share of installed capacity showed a tendency to decrease until 2014, due to the decommissioning of the Carregado and Setúbal plants at the end of 2012, and also to the growth of the SRGs with guaranteed remuneration, in which EDP has a minority individual position. Additionally, we should mention the suspension, from 1 April 2014 onwards, of the measure to minimise competition risks implemented by the Competition Authority as part of the concentration operation that involved the acquisition by EDP of operation rights in the Alqueva and Pedrogão hydropower plants (EDIA). These rights determined the concession of the Aguieira/Raiva hydropower plant for a period of 5 years; Iberdrola was granted those operation rights via an international tender, a circumstance that had a residual impact on the growth of the EDP Group's share.

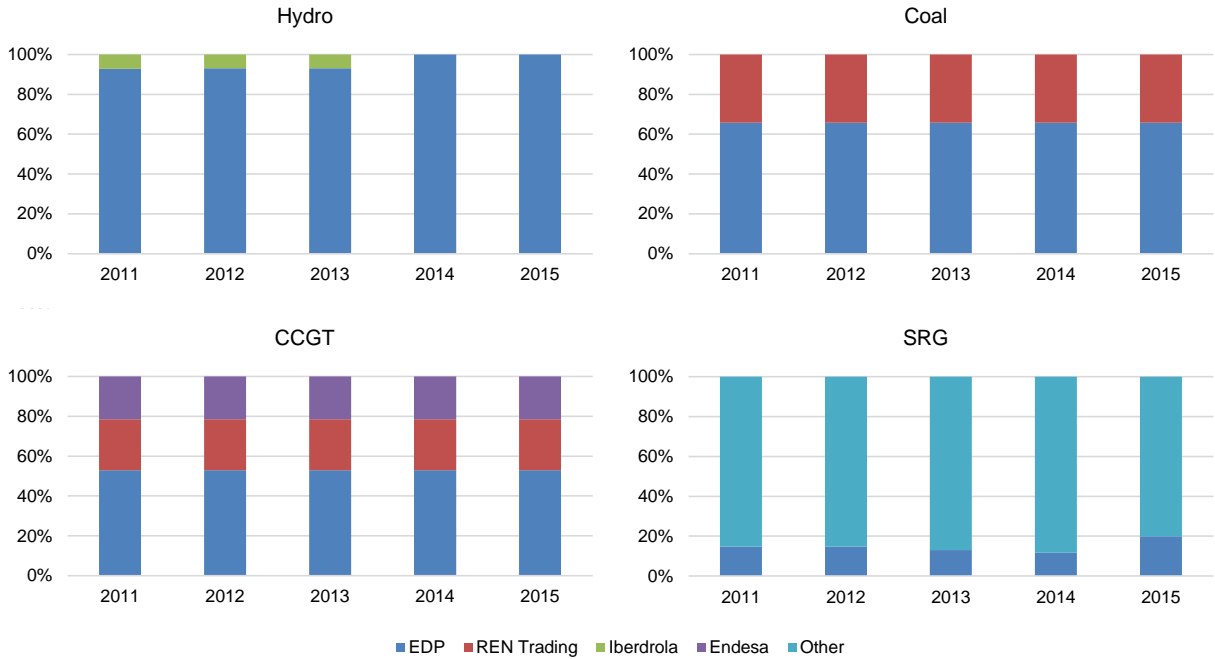
Thus, continuing a tendency that had already been identified in 2014, in 2015 the EDP Group increased its share, due to the entry into operation of 462 MW of installed power associated with the new hydropower power plants (Ribeiradio/Ermide, Baixo Sabor Montante e Jusante and Salamonde 2) and of the full consolidation of 613 MW of installed capacity, after acquisition of control over some of the assets of the ENEOP consortium, equalling the share recorded in 2011.

The review of the wholesale market also includes an evaluation of the market concentration, both in global terms and also in terms of each of the generating technologies.

The evolution of the quotas of the different market agents in terms of installed capacity by technology and/or regime is presented in Figure 3-17. All factors combined, the level of concentration of the electricity

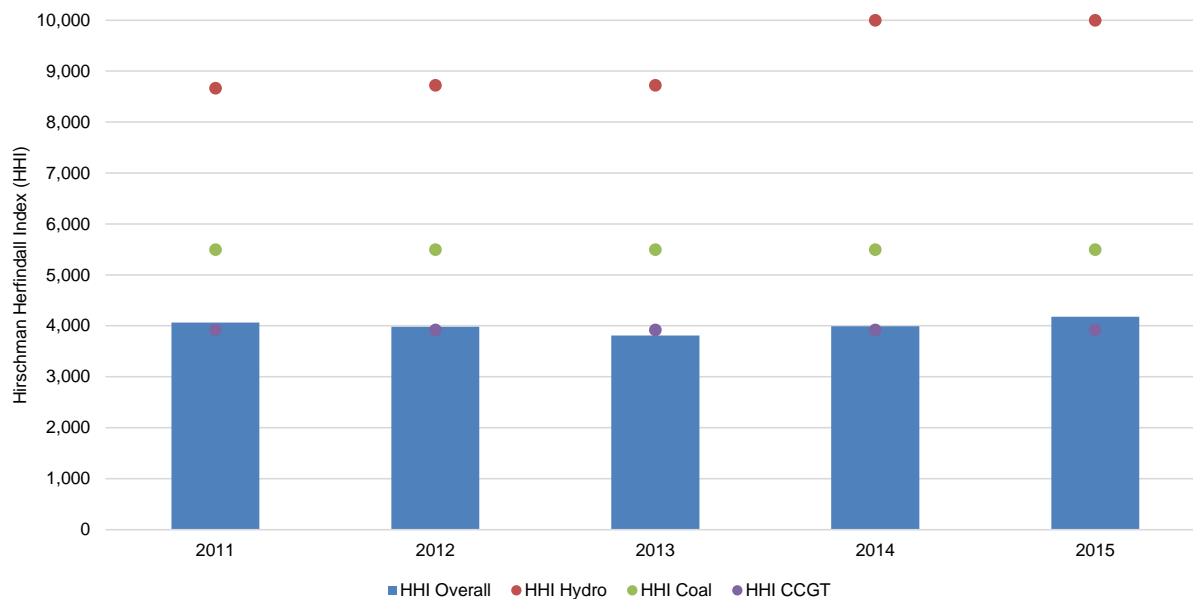
generation segment in Portugal is high, first of all in terms of installed capacity, as demonstrated by Figure 3-18. This figure presents the value of the Hirschman-Herfindall Index (HHI), which measures market concentration.

Figure 3-17 – Installed capacity shares by agents in the different technologies, 2011 to 2015



Source: REN and EDP data

Figure 3-18 – Concentration in generation in terms of installed capacity, 2011 to 2015



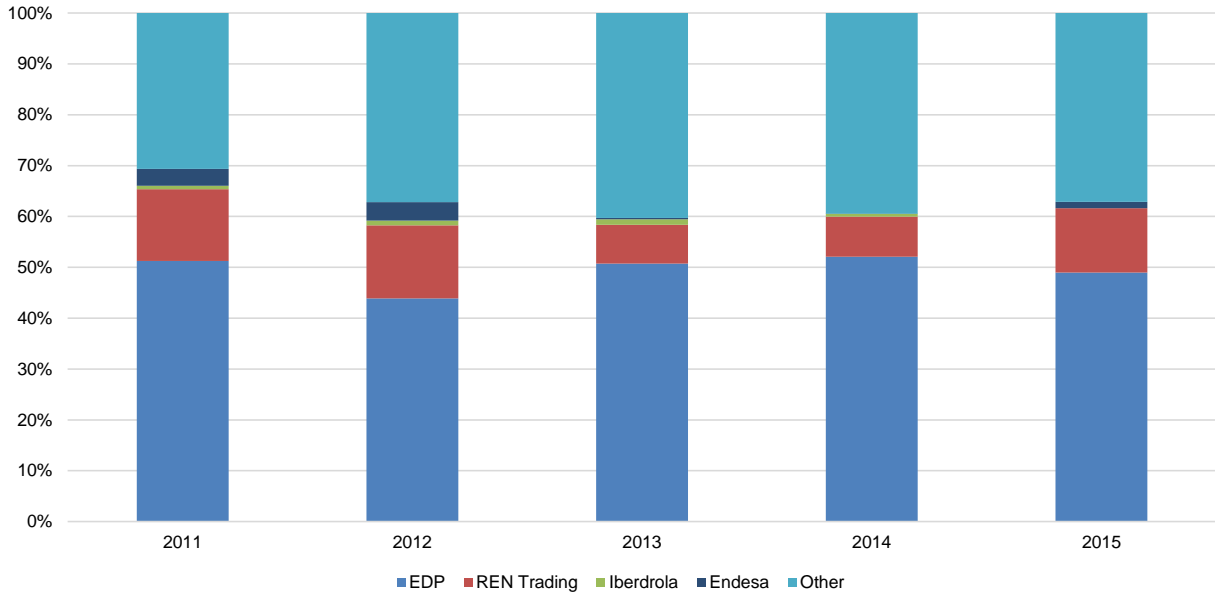
Source: REN and EDP data

Between 2011 and 2013, the HHI figures for installed capacity showed a gradual decrease in the overall concentration of capacity offered in the Portuguese system, particularly via the aforementioned increase in SRG capacity. In the coal segment, no changes in the level of market concentration were recorded and, in the case of hydro, the entry into operation of the capacity reinforcements from the two plants held by EDP in 2012 led to an increase in market concentration in this technology. In 2014, the assignment, on 1 April 2014, of the operating rights for the hydropower plant of Aguieira/Raiva, which Iberdrola held by way of a *tolling*⁴⁰ contract with the EDP group, reinforced the full dominance of the incumbent in water technology. That dominance continued in 2015, due to the entry into operation of new hydropower plants owned by the same incumbent.

The evolution in quotas of electricity generation by agent is shown in Figure 3-19, while the same evolution in the different technologies and special regime with guaranteed remuneration are presented in Figure 3-20.

⁴⁰ Bilateral generation agreement in which the owner of the power generation plant bears the operational risk, and the counterparty bears the market risk. That agreement defines a rent that the counterparty pays to the owner for the right to manage the power generation plant on the market.

Figure 3-19 – Shares of energy generated by agent, 2011 to 2015



Source: REN and EDP data. It does not include import energy figures.

Overall, in 2015 we should highlight the decrease in the contribution of the EDP Group to the total generation of Mainland Portugal, mainly due to an increase in thermal generation as a result of a decrease in hydropower generation.

Figure 3-20 – Share of energy produced by agents in the different technologies, 2011 to 2015



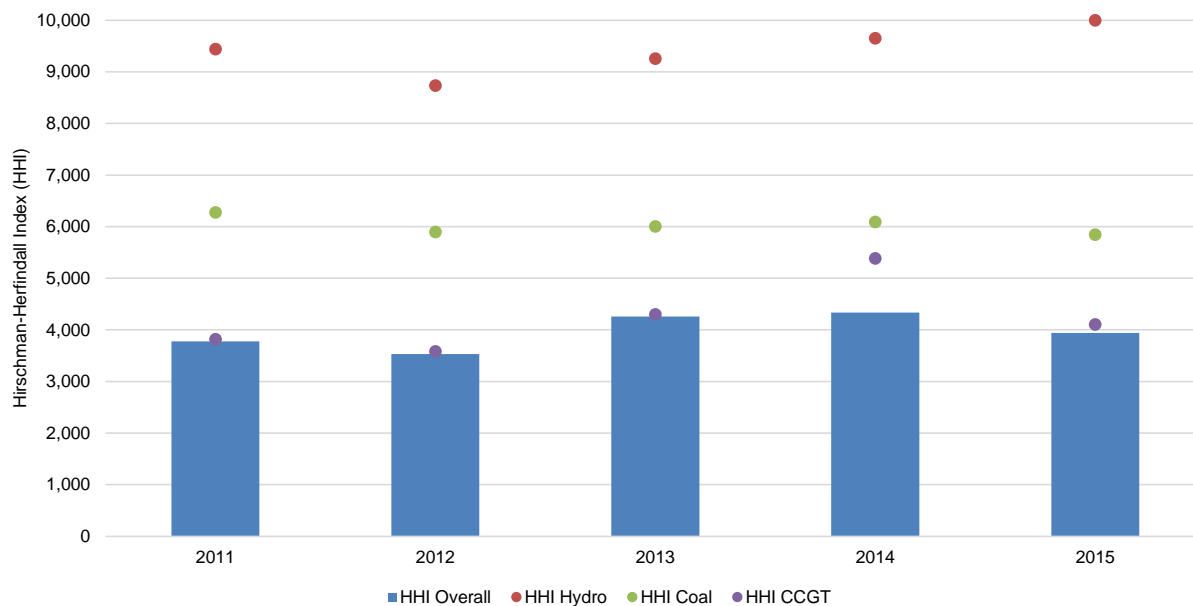
Source: REN and EDP data

In terms of electricity generated, the trend between 2011 and 2015 points to a different evolution of EDP's generation quota in the main technologies. In SGR, the incumbent's quota fell between 2011 and 2015, mainly due to the decrease in generation from thermal sources with guaranteed remuneration (biomass and cogeneration).

With regard to hydro production, even though 2015 was a less favourable year in hydrological terms, there was an increase in the EDP Group's share because it owns 100% of the standard-regime hydropower plants, as the incumbent in this generation technology.

In 2015, in the case of the natural gas combined cycle plants, there was a significant increase in their production compared to 2014. This increase of approximately 3,870 GWh in absolute terms included the increased production of the generating assets held by the EDP Group, REN Trading (Turbogás plant) and Endesa (Pego plant). The EDP Group's share grew due to an increase in the electricity generated by the Ribatejo and Lares natural gas combined cycle plants. In 2015, with regard to Endesa and REN Trading, there was, in absolute terms, a significant increase in production in the plants operated by these two companies, compared to 2014. However, in terms of market share, Endesa witnessed an increase while REN Trading experienced a decrease.

The concentration indicators for electricity generation, presented in Figure 3-21 show that, overall, in 2015, generation was less concentrated than in 2014. This trend is supported mainly by a decrease in the level of concentration in the thermal generation segments (coal and natural gas), while the position of the EDP Group in the SRGs with guaranteed remuneration continued to be minor considering the segment as a whole.

Figure 3-21 – Concentration in electricity generation, 2011 to 2015

Source: REN and EDP data

At the same time, one should bear in mind that, as a more detailed analysis is not possible, the SRGs with guaranteed remuneration not controlled by EDP are, for the purposes of calculating the concentration indicators, wholly in the hands of a single entity (a single market share). Accordingly, on the one hand, the true evolution of market concentration in the special regime generation cannot be seen and, on the other, the figures for overall concentration will be equal to or greater than those that actually exist in the current market structure.

RESEARCH AND MEASURES TO PROMOTE EFFECTIVE COMPETITION

Within the framework of the role of sectoral regulation in matters related to the promotion of competition, ERSE has specific duties granted to it by the legal framework governing the electricity sector as well as other tasks which arise from competition law.

The institutional and legal framework for competition and the electricity sector states that ERSE must be consulted by the Competition Authority as part of market concentration processes, whenever those involved are players in the electricity market. ERSE's opinion is not binding in legal terms, and the measures for minimising competition risks (also known as "remedies") may be monitored by ERSE.

The monitoring of competition in the electricity markets has structural and behavioural aspects. The structural conditions of competition in the market tends to be the responsibility of sectoral regulation, namely through the regulations which must induce principles for the development of market competition. In terms of behavioural performance, ERSE, as the sectoral regulator, has specific powers to monitor the functioning

of the electricity market, and, under the terms of its statutes, must notify the Competition Authority of possible practices which contravene competition law.

In 2015, ERSE issued eight opinions to the Competition Authority, seven of which concerned companies that operate in the special regime generation market, whose assets benefit from a guaranteed remuneration, and one concerned a control position in an electricity and natural gas supplier:

1. ERSE's opinion on the acquisition of sole control by FINERGE and TP of the ENEOP windpower company's assets;
2. ERSE's opinion on the Iberwind / PTRW merger;
3. ERSE's opinion on the acquisition of sole control by EDP Renewables of Ventinvest's windpower assets;
4. ERSE's opinion on the GENERG/ENEOP merger;
5. ERSE's opinion on the EDP Renewables/Stirlingpower merger;
6. ERSE's opinion on the acquisition of joint control of Attentionfocus by Espírito Santo Capital and Globalwatt;
7. ERSE's opinion on the SUMA/EGF merger; and
8. ERSE's opinion on the acquisition of joint control of Goldenergy by AXPO International and Dourogás, SGPS.

Many of the remedies presented by ERSE with regard to mergers in the special-regime generation market focused on identifying the generating assets based on their respective delivery point code (CPE), particularly wind farms owned by the notifying companies, in order to assist the monitoring of the SRG by ERSE, provided for under national law, and on the obligation to inform the market of the planned or fortuitous unavailability of each of the assets over which they have exclusive or majority control, and whenever the unavailable capacity is equal to or higher than 10 MW through the transparency platform provided for under Regulation (EU) No 1227/2011 of the European Parliament and of the Council.

3.2.2 RETAIL MARKET

Throughout 2015, we continued to witness a consolidation of the liberalised market, both in terms of overall electricity consumption and in the number of customers.

Structural factors, such as the phase-out of regulated tariffs for end-customers and the adoption of transitional tariffs subject to an incentive to switch suppliers; the adoption of regulated risk coverage mechanisms by the suppliers; and enhanced transparency in the communication of available offers to end-consumers, facilitated an increase in the number of suppliers that operate in the market, leading to greater market robustness.

Similarly, in terms of economic and market circumstances, the decrease in energy price differences between Portugal and Spain in the wholesale market encouraged the perception of lower commercial risks among suppliers that operate in Spain and who compete against the Portuguese market leader.

At the end of 2015, there were 16 suppliers operating on the market, 13 of which are present in the domestic consumer segment.

In 2015, supplier switching was marked by a significant penetration of suppliers on the liberalised market in segments such as customers with the highest level of consumption, large customers and industrial consumers, but also in the domestic consumer segment; approximately 75% of consumers in that segment were already in the liberalised market at the end of 2015 (14 p.p. more compared to the end of 2014).

The intensity of supplier switching intensity is still high and, in 2015, switches occurring within the liberalised market represented more than 1/3 of the total supplier switches.

With the legislative review of 2012, the approval of the Quality of Service Code for the electricity sector (RQS SE) became ERSE's responsibility. The new regulation approved in 2013 first established the integration of the market suppliers as part of the RQS SE, something that occurred simultaneously with the growing liberalisation of the sector and the choice of an increasing number of consumers to be supplied by these agents. Additionally, 2015 was the first year in which the Quality of Service Report published by ERSE included information regarding suppliers on the liberalised market.

As part of commercial quality, the amount of information reported to ERSE increased with the broadening of the reporting obligations to cover suppliers on the liberalised market. Simultaneously, in 2015 the companies were more committed to preparing better quality reports. However, there are still many gaps that need to be filled by suppliers, particularly the larger ones. With regard to the general indicators, there was, overall, a good performance. However, in the individual indicators, a high number of failures to meet the standards were noted for which the compensation due is late or yet to be paid to consumers.

3.2.2.1 MONITORING THE PRICE LEVEL, TRANSPARENCY LEVEL AND THE LEVEL AND EFFECTIVENESS OF MARKET OPENING AND COMPETITION

METHODOLOGY FOR MONITORING REFERENCE PRICES AND AVERAGE PRICES CHARGED IN THE RETAIL MARKET

Suppliers send ERSE updated information on the reference prices⁴¹ charged or expected to be charged as part of the sale of electricity for all LV electricity supply. Reference prices are understood to be the set of tariffs, tariff options and respective prices and indexes per billing variable offered by suppliers to their customers, as well as the conditions for applying the tariffs, namely the characteristics for minimum consumption, duration of contracts and conditions for the revision of prices. Reference prices are the supplier's basic sales offer which does not prevent the application of differentiated special contractual conditions such as discounts or other promotional campaigns.

The information provided to ERSE by suppliers is included in simulation and decision-making support tools for consumers, made available by ERSE on its website.⁴²

Furthermore, all electricity suppliers inform ERSE on a quarterly basis of the average prices actually charged in the retail market. This information is used by ERSE to monitor and supervise the retail electricity market, and also serves as an information tool for the reports produced by official statistical data bodies (INE or EUROSTAT, for example).

TRANSPARENCY

With the aim of continuing to provide information to electricity consumers on the reference prices charged in the market, as well as computer tools to help customers choose a supplier, ERSE continues to update and offer simulators on its website which give electricity consumers objective information to help them make an informed choice, namely regarding the selection of the best offer on the market, based on the following simulators:

- Simulation of power to be contracted;
- price comparison simulator for StLV supplies in mainland Portugal;
- Billing simulator for EHV, HV, MV and Special Low-Voltage (SpLV) electricity in mainland Portugal.
- Billing simulator for MV and SpLV electricity in the Autonomous Region of the Azores; and
- Billing simulator for HV, MV and SpLV electricity in the Autonomous Region of Madeira.

⁴¹ Pursuant to Order no. 18637/2010 of 15 December, available at: http://www.erse.pt/pt/legislacao/Legislacao/Attachments/1531/Despacho18637_%202010.pdf

⁴² The various simulators available can be found at <http://www.erse.pt/pt/simuladores/Paginas/Simuladores.aspx>.

The price comparison simulator for the electricity market was reorganised with increased functionalities at the end of 2014, a process that continued in 2015. This intervention was made following an increase in the number and diversity of offers available for energy consumers, as part of the development of retail markets. The purpose was, thus, to offer electricity consumers a new set of features that would allow them to customise their simulation in order better to adapt it to their requirements and needs, as well as their consumption profiles. These new features concern the payment methods, contracting and provision of additional services.

In order to guarantee the transparency of the information made available to consumers, ERSE also checks if the suppliers publish the offers that are being practised on the market on their websites, in terms of both price and commercial conditions, and that they are in line with the information on reference prices sent to ERSE as part of its monitoring.

In addition, under the terms of the Commercial Relations Code (RCC), suppliers with over 5,000 customers⁴³ are obliged to publicly disclose, through available communication channels and also on websites, their offers, and also the general conditions of contracts for StLV customers. Additionally, when expressly requested to, the supplier must submit a proposal for the supply of electricity within 8 business days, for LV customers, and 12 business days, for all the other customers, from the date on which the request was made by the customer.

There are also rules in force concerning the obligation to provide information in the invoices sent to the customers, namely information regarding the network access tariff, the CIEG and the electricity labelling segments.

The rules for customer access to information regarding their consumption are regulated by ERSE under the terms of the Measurement, Reading and Data Availability Guide [Guia de Medição, Leitura e Disponibilização de Dados]⁴⁴. With regard to measurement rules, facilities with extra high voltage, high voltage and medium voltage connected in EHV, HV, MV and SpLV are equipped with remote reading metering systems (telemetry), with readings every 15 minutes for EHV, HV and MV and monthly remote reading for SpLV. In facilities connected in StLV, the reading is done locally. The distribution system operator is obliged to conduct a meter reading every 3 months⁴⁵, and should provide a toll-free telephone

⁴³ Under the terms of Article 105 of the Commercial Relations Code, "when suppliers have 5,000 or more customers, it is assumed that their retail activities cover all types of electricity supply."

⁴⁴ Approved by Directive no. 5/2016, of 26 February, available at:

http://www.erse.pt/pt/legislacao/Legislacao/Attachments/1956/Diretiva_8_2016_Proc%20GMLDD_versão%20internet.pdf.

⁴⁵ Under the terms of Article 268 of the Commercial Relations Code for the electricity sector, available at:

<http://www.erse.pt/pt/electricidade/regulamentos/relacoescomerciais/Documents/RRC%20DR.pdf>.

assistance service to all its customers so they can submit their own readings.⁴⁶ The readings provided by the customer and by the DSO have the same legal value for billing purposes.

The number of offers available to customers in StLV has been increasing, and ERSE felt the need to create more effective conditions for consumer access to the necessary information, with the aim of enabling them to make properly informed choices. Therefore, ERSE established a Directive (no. 6/2015) concerning the provision of pre-contractual and contractual information to electricity consumers, which provides the obligation to disclose and harmonise the contents of the conditions for the provision of pre-contractual and contractual information to electricity consumers in Mainland Portugal.

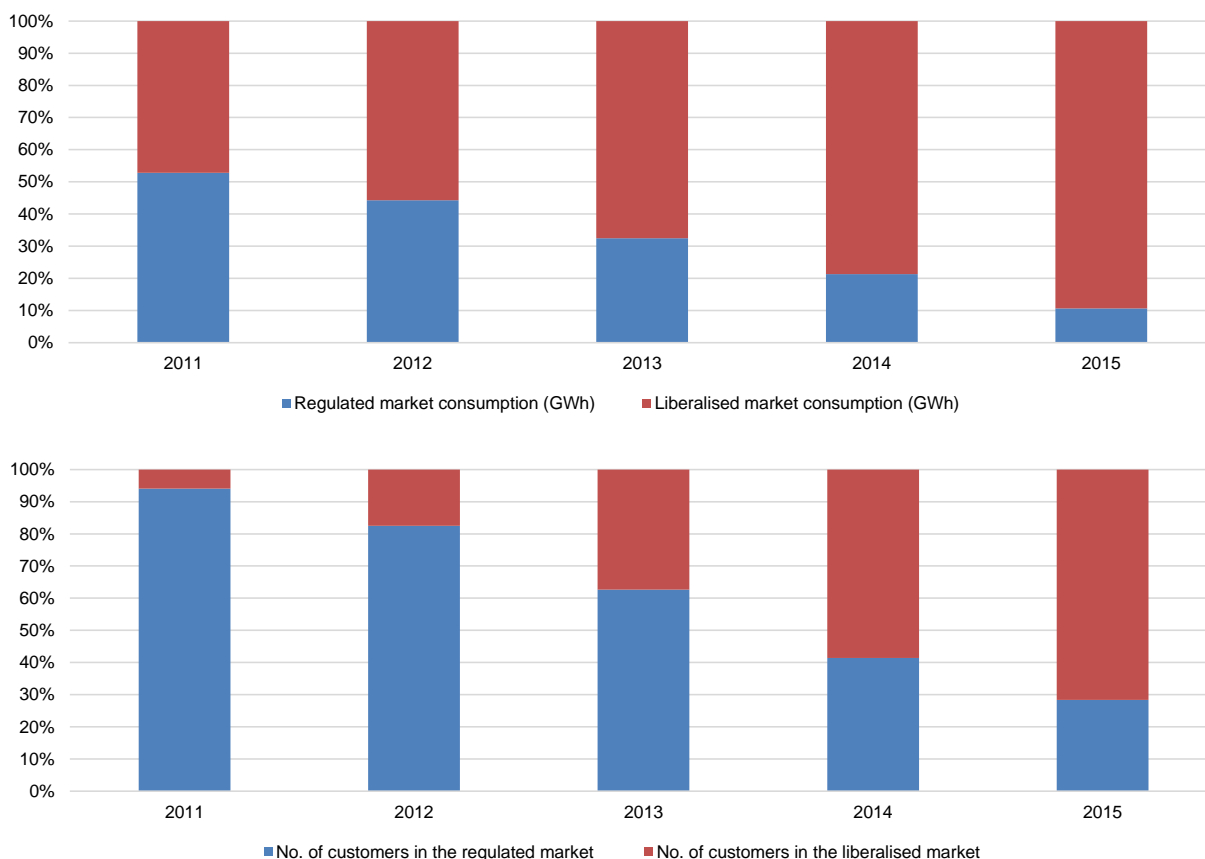
COMPETITION EFFICIENCY

The liberalisation of the electricity sector in Mainland Portugal has progressed gradually, with the liberalised market consolidating its position, particularly since 2012.

The evolution of the consumption and number of customers in the liberalised market in Portugal can be seen in **Erro! Autorreferência de marcador inválida..**

⁴⁶ Under the terms of Article 35 of the Quality of Service Code for the electricity sector, available at: http://www.erse.pt/pt/electricidade/regulamentos/qualidadedeservico/Documents/DR_Regulamento%20455-2013-RQS.pdf.

Figure 3-22 – Breakdown of consumption and number of customers between the regulated and the liberalised market, 2011 to 2015



Source: REN and EDP Distribuição data

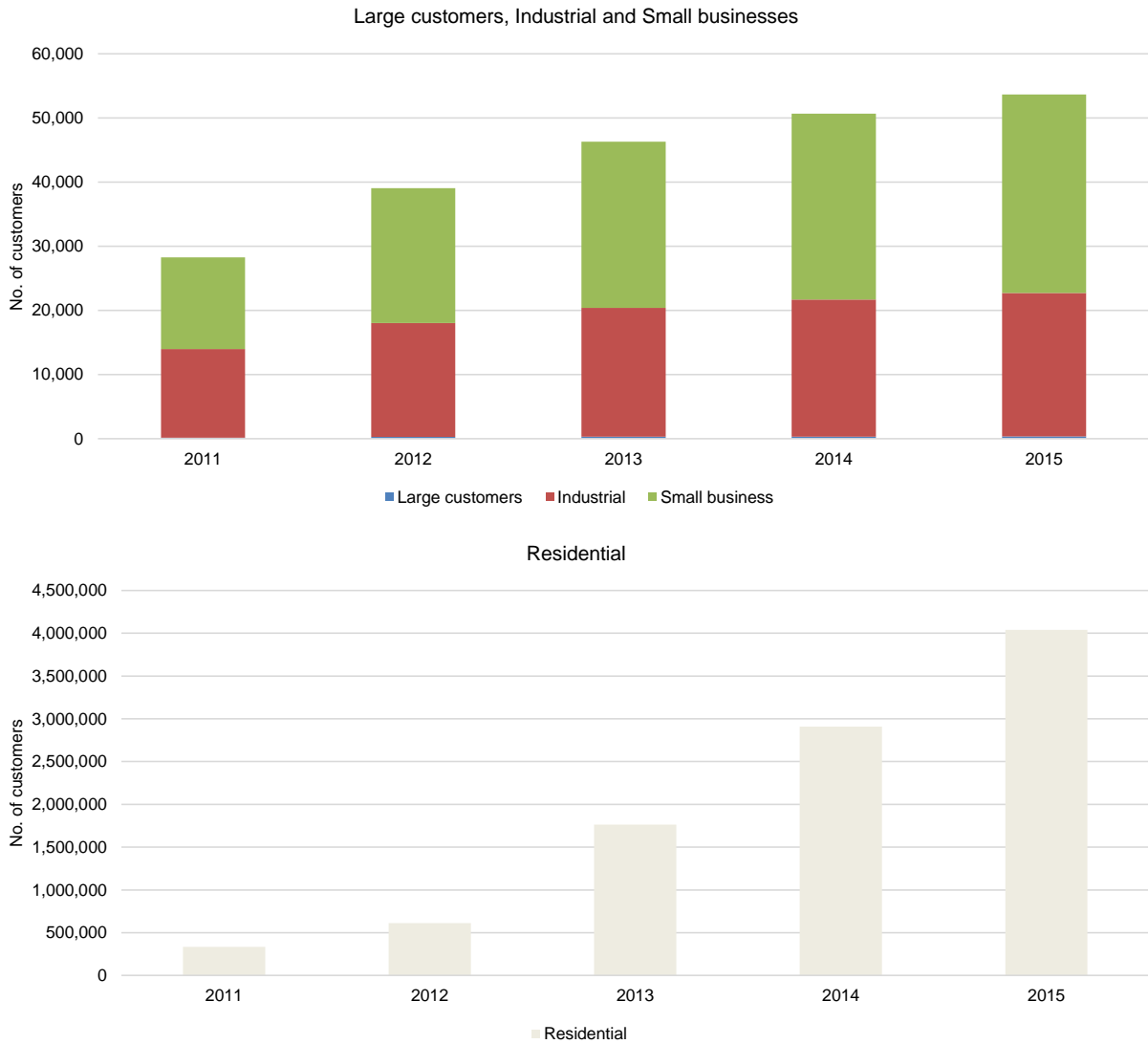
The increase in the size of the liberalised market, as demonstrated in the figure, was also due to the phase-out of the regulated tariffs that, from January 2013, covered all customers including the residential ones. With this development, in 2015 consumption in the liberalised market already represented more than 89% of total consumption.

With regard to the total number of customers, the gradual increase in the size of the market in the period analysed is essentially due to the continuing entry of residential customers, which in 2015 increased by nearly 39% in comparison to the previous year.

In Figure 3-23, we can see that, in 2015, the segments with higher consumption levels – large customers (EHV⁴⁷ and HV), industrial customers (MV) and small businesses (SpLV) – continue to grow between 5% and 7% in the liberalised market.

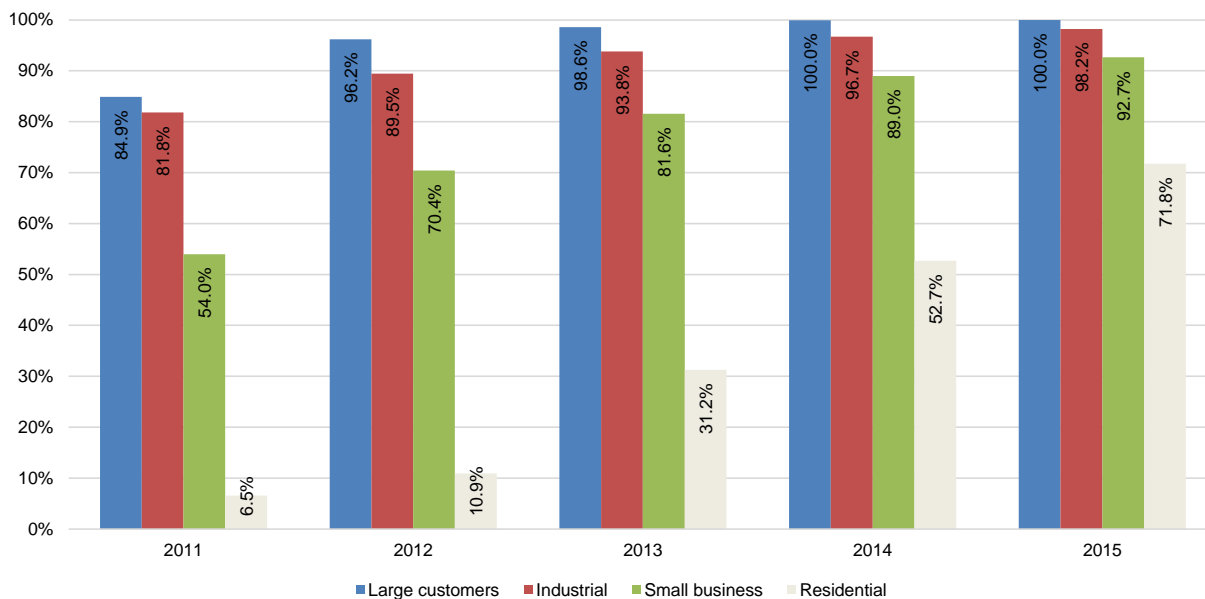
⁴⁷ All EHV customers have been in the free market since July 2013

Figure 3-23 – Evolution of the liberalised market in Mainland Portugal, 2011 to 2015



Source: EDP Distribuição data

The level of consumption associated with each customer segment of the liberalised market is shown in Figure 3-24; it can be noted that, in 2015, all of the consumption by large customers was ensured by market suppliers, and the same happened with approximately 98% of the consumption by industrial customers.

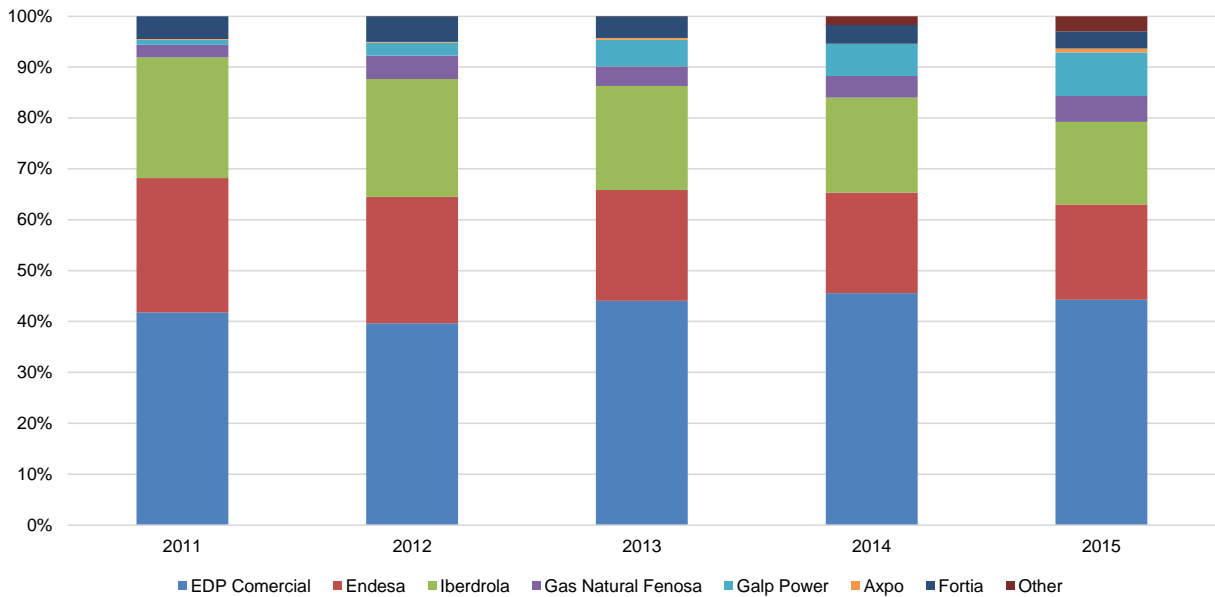
Figure 3-24 – Penetration of the liberalised market by customer segment, 2011 to 2015

Source: EDP Distribuição data

In the liberalised market, an analysis by segment indicates that the industrial customer segment is the most competitive of all, while the residential customer segment had the most market concentration, with the number of suppliers in this segment continuing to increase at the end of 2015.

Thus, the growth of the liberalised market, which already involved 16 suppliers, and the overall decrease in market concentration in 2015, together with the provision of more and better information to the consumers, led to a decrease in the level of concentration in the domestic customer segment. The growth of the EDP Group's market share (the main operator in the electricity market), which had been occurring since 2012, witnessed a reversal in 2015; the liberalised market suppliers continued to account for approximately 45% of supply in the past year, as we can see in Figure 3-25.

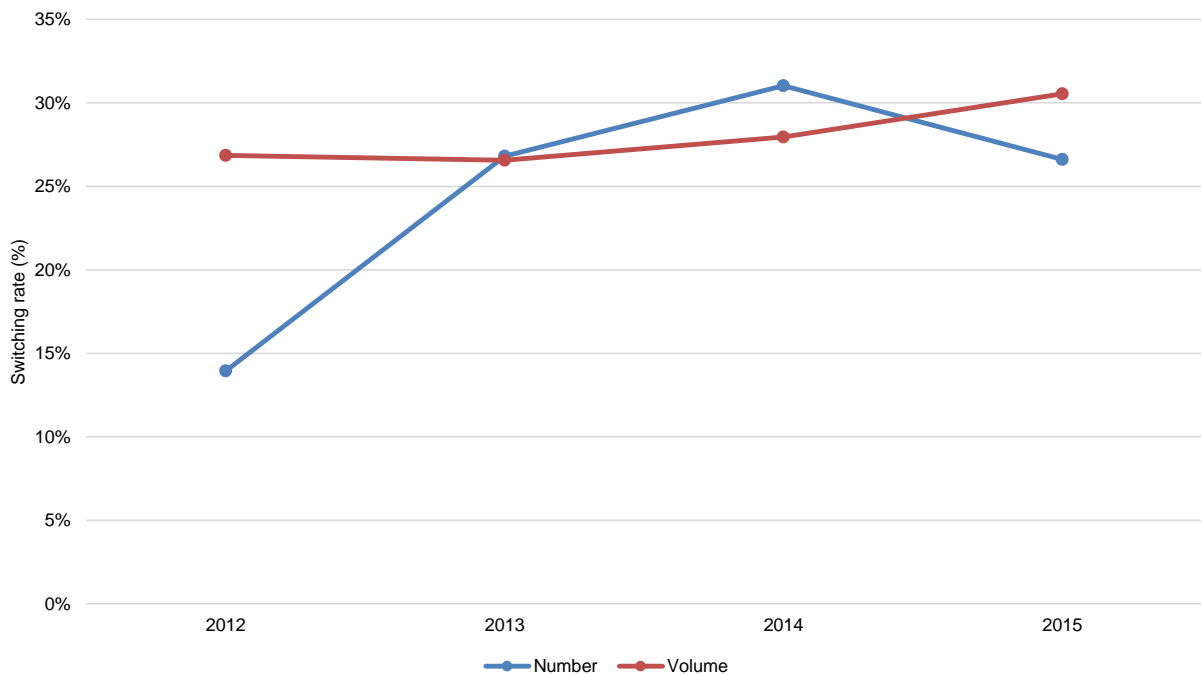
Figure 3-25 – Supply structure in the liberalised market by supplier, 2011 to 2015



Source: EDP Distribuição data

Supplier switching rates are still high and, in 2015, approximately 27% of electricity consumers switched supplier. In December 2015, the switches within the liberalised market represented approximately 34% of the total number of supplier switches.

Figure 3-26 – Supplier switching, 2012 to 2015



Source: EDP Distribuição data

An analysis of the evolution of the retail market is available on the ERSE website in the form of a monthly report, which provides information regarding issues linked to competitive pressure on the market and on each of its segments.

3.2.2.2 RECOMMENDATIONS ON SUPPLY PRICES, INVESTIGATIONS AND MEASURES TO PROMOTE EFFECTIVE COMPETITION

RECOMMENDATIONS FOR SUPPLY PRICES

In 2015, ERSE did not publish recommendations regarding conformity of prices under the terms provided for in Article 37 of Directive 2009/72/EC, considering that the transitional tariff regime for the sale of electricity to end-customers in HV, MV, SpLV and StLV is still in force. However, we should highlight that, every year, ERSE publishes, in the supporting document regarding the approved tariffs and prices, the value of the additive tariffs, which includes the breakdown and the structure of the average reference price for end-customers, according to the following headings: energy and supply, network use and system management and general economic interest costs (CIEGs). This information shows the costs associated with each activity, including the value of supply⁴⁸.

MEASURES TO PROMOTE EFFECTIVE COMPETITION

As mentioned above with regard to the wholesale market, ERSE has its own powers arising from the legal framework for the energy sector and for competition.

In 2015, ERSE issued two opinions forwarded to the Competition Authority, one on the acquisition of joint control over Goldenergy by AXPO International and Dourogás, and the other on the existence of practices that restrict competition involving electricity and natural gas offers.

In the first case, ERSE expressed its non-opposition to the operation, considering that the relative position of AXPO and GOLDENERGY in the supply of electricity and natural gas in Mainland Portugal, (considered either individually or collectively) is complementary between them and represents a low market share in electricity (in number of customers and consumption) and in natural gas (mainly in consumption). On the other hand, the companies involved in the operation were not, directly or indirectly, integrated into the incumbent groups in electricity and natural gas, a circumstance that turned them into elements of competition in the electricity and natural gas supply activity.

⁴⁸ Information available in Chapter 7.3 of the supporting document regarding tariffs and prices for 2015, available at <http://www.erse.pt/pt/electricidade/tarifaseprecos/2015/Documents/PaginaPrincipal/Tarifas%20e%20Pre%C3%A7os%202015.pdf>.

The second case was an opinion on a commercial partnership between the largest market supplier and a hypermarket chain. In this case, ERSE considered that the partnership seemed to have a limited impact on competition in the retail supply segment, visible in the attraction of new customers to EDP Comercial, according to the report published annually as a result of Recommendation no. 2/2013, concerning aspects of electricity contracting that are relevant for consumers: the existence and scope of loyalty periods, the availability of payment methods and the indexing of prices on the liberalised energy market.

The adoption of the standardised contractual form, which established the obligation to disclose and harmonise the contents of the conditions for the provision of pre-contractual and contractual information to electricity consumers in Mainland Portugal, is a measure considered effective by ERSE for effectively promoting competition. This measure contributes to allowing consumers to have a more effective access to information, with the aim of enabling them to make properly informed choices.

Following the regulatory review of the electricity sector, completed in 2014, the Commercial Relation Code included the obligation for suppliers and suppliers of last resort to present, in the settlement invoice, the existence of a multi-monthly plan to settle situations where a meter reading leads to an adjustment of the estimated consumption values which is equal to or higher than the average monthly consumption of that consumer's installation for the six months prior to the meter reading in question.

In 2015, ERSE published a Directive (Directive no. 8/2015), which details the operative procedures for applying these adjustments.

TARIFF DEFICIT

The LV end-user prices defined for 2006 were limited, so that their variation could not be above that expected for the Consumer Price Index, and variations in the StLV tariffs defined for 2007 were limited to 6%. These limitations created a tariff deficit for regulated companies. These deficits are recovered in continuing instalments through the GUoS (Global Use of the System) tariff over a period of 10 years, starting in 2008.

In the 2009 tariffs, the tariff adjustments made in 2007 and 2008 to electricity costs were deferred for a period of 15 years with effect from 2010, as was the extra cost of acquiring electricity from SRGs with guaranteed remuneration pertaining to 2009.

Subsequently, in 2011, it was decided that the extra costs from SRG would be recovered over a five-year period, taking effect from the 2012 tariffs and continuing until 2020 at most. In 2015, there were amendments to the legislation that provide for a phased impact of the additional costs from SRG, establishing that the tariff adjustments related to additional costs with SRG incurred until 31 December 2020, can be recovered by allowed revenues.

For 2015, another tariff deficit was created, which corresponded to the extra SRG cost in 2015, including the 2013 and 2014 adjustments.

In 2015, the amounts owed from the main items of the electricity sector's tariff deficit are those shown in the following table.

Table 3-5 – Tariff deficit, 2015

	Debt in 2015 (10³ EUR)
Tariff deficit 2006/2007	76,779
Tariff deficit 2008	1,114,788
Tariff deficit 2012	266,135
Tariff deficit 2013	673,550
Tariff deficit 2014	1,196,918
Tariff deficit 2015	1,511,151
Others	240,869
Total	5,080,191

3.3 SECURITY OF SUPPLY

Under Portuguese law, the powers relating to security of supply in the electricity sector are the responsibility of the Government, which delegated monitoring responsibilities to the Directorate General for Energy and Geology⁴⁹. However, ERSE monitors the evolution of the installed capacity and the evolution of demand, which is addressed in greater detail below.

3.3.1 MONITORING THE BALANCE BETWEEN SUPPLY AND DEMAND

The capacity margin, which is defined as the difference between the installed generation capacity and the maximum peak consumption for the year, in respect of the installed capacity, stood at 53% in 2015, maintaining the figure recorded since 2013.

The evolution in installed capacity and maximum requested capacity is shown in Table 3-6.

⁴⁹ In accordance with Decree-Law no. 29/2006, of 15 February, as amended by Decree-Law no. 215-A/2012, of 8 October, and with Decree-Law no. 172/2006, of 23 August, as amended by Decree-Law no. 215-B/2012, of 8 October.

Table 3-6 – Capacity margin, 2011 to 2015

	2015 (MW)	2014 (MW)	2013 (MW)	2012 (MW)	2011 (MW)	2015/2011 Change (%)
Total installed capacity	18,533	17,833	17,790	18,546	18,903	-2%
Thermal	5,585	5,585	5,750	6,697	7,407	-25%
Hydro	5,724	5,269	5,239	5,239	4,980	15%
SRG	7,224	6,979	6,801	6,610	6,516	11%
Maximum annual capacity	8,618	8,313	8,322	8,554	9,192	-6%
Capacity margin	9,915	9,520	9,468	9,992	9,711	2%
	[53%]	[53%]	[53%]	[54%]	[51%]	

Source: REN data. In the table, the term "SRG" corresponds to SRG with guaranteed remuneration.

In addition, electricity consumption in 2015 totalled 48.96 TWh, a slight increase of 0.3% compared to 2014 (after correcting for the effect of temperature and number of work days, the variation compared to the previous year is +0.1%).

Table 3-7 presents total consumption as provided by various supply sources provided by various sources.

Table 3-7 – Consumption supply, 2014 and 2015

	2015 (GWh)	2014 (GWh)	Change (%)
Hydro generation	8,797	14,664	-40.0%
Thermal generation	19,152	12,661	51.3%
SRG	20,216	21,673	-6.7%
Import balance	2,266	900	151.8%
Pumped hydro generation	1,467	1,079	36.0%
Total consumption	48,964	48,819	0.3%

Source: REN data. In the table, the term "SRG" corresponds to SRG with guaranteed remuneration.

In 2015, hydrological conditions were unfavourable, with a hydrological index of 0.74. Hydropower power plants on the liberalised market supplied 17% of electricity consumed, a figure lower than the 29% recorded in the previous year. Thermal power plants on the liberalised market ensured a quota of 37%, with 27% of their generation coming from coal-fired plants and only 10% coming from natural gas plants.

The deliveries of the special-regime generators with guaranteed remuneration corresponded to a share of 41% of consumption, lower than the 44% recorded in 2014; the import balance experienced a significant increase, corresponding to 4% of consumption.

The percentage breakdown of electricity generation by power source in the last 5 years is presented in Table 3-8.

Table 3-8 – Breakdown of generation, 2011 to 2015

	2015	2014	2013	2012	2011
Coal	27%	22%	22%	24%	18%
Natural gas	10%	3%	3%	11%	28%
Hydro	17%	29%	26%	12%	20%
Import balance	4%	2%	5%	16%	6%
SRG	41%	44%	43%	37%	36%

Source: REN data. In the table, the term "SRG" corresponds to SRG with guaranteed remuneration.

The maximum capacity demanded of the public network occurred on 7 January 2015, with 8,618 MW, corresponding to an increase of 305 MW compared to the figure recorded in February 2014, a fact that contradicts the successive decreases in the maximum annual capacity witnessed in the 4 previous years.

The evolution in annual maximum capacity is shown in Table 3-9.

Table 3-9 – Maximum annual capacity, 2011 to 2015

Year	Day	Power (MW)	% Change
2015	07-Jan	8,618	3.67%
2014	04-Feb	8,313	-0.11%
2013	09-Dec	8,322	-2.71%
2012	13-Feb	8,554	-6.94%
2011	24-Jan	9,192	-2.24%

Source: REN data

In 2015, in terms of the installed capacity at plants on the liberalised market, we highlight the entry into operation of the capacity reinforcement at Salamonde, river Cávado, with a capacity increase of 220 reversible MW, the increase of the amount at Baixo Sabor with 153 reversible MW, and the Ribeiradio plant, river Vouga, with 75 MW.

In terms of special-regime generation with guaranteed remuneration, it is worth highlighting the increase of 285 MW of new capacity by wind generators and 33 MW by photovoltaic generators, reaching a total of 7,224 MW.

The evolution in terms of installed capacity at the end of each year is shown in Table 3-10.

Table 3-10 – Power Generation capacity, 2014 and 2015

	2015 (MW)	2014 (MW)	VARIATION (MW)
HYDROPOWER PLANTS (market-based)	5,724	5,269	455
THERMAL POWER PLANTS (market-based)	5,585	5,585	0
Coal	1,756	1,756	0
Natural gas	3,829	3,829	0
SRG INSTALLED CAPACITY	7,224	6,979	245
Thermal Generators	1,547	1,627	-80
Hydro Generators	422	415	7
Wind generators	4826	4541	285
Photovoltaic Generators	429	396	33
TOTAL	18,533	17,833	700

Source: REN data. In the table, the term "SRG" corresponds to SRG with guaranteed remuneration.

In 2015, the main developments in the RNT were the following:

- In the Minho region, to ensure the flow of the production from the Salamonde and Frades capacity reinforcements, the 400-kV connections to Vieira do Minho from Pedralva, Salamonde and the Frades Plant.
- To the north of the Greater Porto area, we highlight the new Vila Nova de Famalicão substation, which will integrate the new 400-kV connection between the Porto region and the Pedralva substation, crucial to ensure the flow of the new generation in Cávado/Alto Minho, and also to facilitate international exchanges, integrating the future interconnection with Spain planned for this area.
- In the Lisbon area, we highlight the opening of the new Alto de S. João substation.
- In the Alentejo region, there is a new 400-kV line between the Estremoz substation and the Divor area, to ensure the region's supply.

In terms of quality of service, the transmission network recorded an Equivalent Interruption Time of 0.21 minutes.

3.3.2 MONITORING OF INVESTMENTS IN GENERATING CAPACITY

In 2015, there were no relevant developments as regards new investments in generation by thermal power stations; the expected evolution until 2030 of the standard-regime power plant system results, according to

the DGEG⁵⁰, from the development of the projects for the construction of 4 new 400-MW CCGT groups that have been approved and of the most recent information about investment intentions provided by the producers, who communicated their intention to waive the electricity generation license that had been granted to them by the DGEG.

In the case of the evolution of the hydropower stations, we highlight the aforementioned entries into operation of the Salomonde capacity reinforcement, with a capacity increase of 220 reversible MW, the increase of Baixo Sabor, with 153 reversible MW and the Ribeiradio plant, with 75 MW. As of 31 December 2015, the National Programme for Dams with High Hydropower Potential [PNBEPH - Programa Nacional de Barragens de Elevado Potencial Hidroelétrico] was expected to be completed by 2030. It envisages a series of new power plants with a total generation capacity of around 1,100 MW, 810 MW of which will use reversible equipment. However, in the second quarter of 2016, the Portuguese Government announced the following decisions regarding the PNBEPH: postponement of Fridão for 3 years (238 MW); cancellation of Girabolhos (364 MW) and Alvito (225 MW).

According to the National Action Plan for Renewable Energy [PNAER 2020 - Plano Nacional de Ação para as Energias Renováveis]⁵¹ the evolution of the installed capacity indicated in Table 3-11.

Table 3-11 – Forecast for SRG generation, 2018 and 2020

	2018	2020
	(MW)	(MW)
Wind	5,142	5,300
Hydro (< 10 MW)	379	400
Hydro (> 10 MW)	8,540	8,540
Biomass	814	828
Solar	589	720
Waves	6	6
Geothermal	29	29

Source: PNAER 2020 data

⁵⁰ Report on the Monitoring of Supply Security in the National Electricity System for 2015 to 2030.

⁵¹ PNAER 2020: Part II of the Resolution of the Council of Ministers no. 20/2013, published in the official Portuguese Gazette, Series I, of 10 April.

3.3.3 MEASURES TO MITIGATE PEAKS IN DEMAND OR DISRUPTIONS IN SUPPLY

With regard to security of supply in the electricity sector, during 2015, there were no incidents which resulted in the need to implement measures aimed at guaranteeing the coverage of peak demand or supplier shortfalls.

4 NATURAL GAS MARKET

4.1 NETWORK REGULATION

4.1.1 UNBUNDLING

CERTIFICATION OF THE TRANSMISSION SYSTEM OPERATOR

The procedure for certifying the transmission system operator follows the transposition into national law of Directive 2009/73/EC⁵², which introduced new rules regarding the organisational framework of the natural gas sector, specifically through the adoption of measures aimed at strengthening the unbundling of generation and supply activities from the operation of the transmission networks, in order to pursue the creation of an internal energy market in the European Union.

In 2014, ERSE issued a decision concerning the certification of REN - Gasodutos as operator of the National Natural Gas Transmission Network (RNTGN) under a *full ownership unbundling* regime, establishing 11 conditions that had to be met within 8 months in order to overcome a series of non-compliance and ensuring the independence of these operators.

In July 2015, ERSE decided to render effective its decision to certify REN Gasodutos, after verifying that the certification conditions required by the 2014 Decision had been met.

ERSE continues to exercise its powers to supervise the obligations of the TSO as regards the full ownership unbundling regime, under the terms of the national law and the European Directives.

4.1.2 TECHNICAL FUNCTIONING

4.1.2.1 BALANCING

In 2015, as in previous years, the balancing rules were included in the Procedures Manual for the Global Technical Management (MPGTG) of the natural gas system (SNGN), approved by ERSE.

The MPGTG details the methodologies for obtaining the breakdown of the energy that flows through the relevant points of the RNTGN, from which the individual balances of the market agents are determined. Specifically, this corresponds to determining the stocks of natural gas that each market agent has in the

⁵² Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC.

infrastructure that constitute the National Transmission Network, Storage Infrastructure and LNG Terminal Network (RNTIAT).

In the case of the RNTGN, market agents must manage the balance between the supply and demand of natural gas in the transmission network so that the individual balances are within the maximum and minimum stock allocated to each of them annually, in accordance with the methodology published in the MPGTG. This approach consists of assigning a tolerance to each market agent, proportional to the size of their customer portfolio and also taking into account the market segments they supply, namely the electricity generation market and the conventional market. The sum of all the individual tolerances reflects the accumulated capacity of the network (linepack).

Market agents whose balances violate the tolerances determined by their maximum and minimum individual stocks are considered to be in individual imbalance and a penalty is applied in line with the costs that these imbalances cause to the system. This is done in accordance with what is set out in an incentive mechanism to restore individual balances in the MPGTG.

The incentive mechanism to restore individual balances applies penalties based on the storage tariff of the LNG terminal, in cases where the agents are in a situation of imbalance in the RNTGN and hold a positive stock of gas in the SNGN. In situations where there is a negative stock of natural gas in the SNGN, in aggregate, the penalty is determined on the basis of the valuation of natural gas in the reference markets. This mechanism seeks to promote greater involvement by the market agents in managing supplies for their customer portfolios, on the one hand and, on the other, a suitable attribution of costs incurred to balance the RNTGN.

4.1.2.2 ACCESS TO STORAGE INFRASTRUCTURE, LINEPACK AND ANCILLARY SERVICES

The involvement of market agents in managing supplies for their customer portfolio benefits from individual tolerances to consolidate, on a daily basis, natural gas supply with demand in the transmission network. In practice, this tolerance corresponds to an implicit access to the linepack or, in other words, the transmission system operator, without an explicit allocation of costs, assumes the balance of the market agents, as long as the individual deviations are within the respective tolerances. The cost of this base service (residual balance) is incorporated in the transmission network tariffs, and the implicit access to the linepack is proportional to the capacity used by the market agents in the RNTGN, incorporating a policy of positive discrimination in favour of the smaller market agents who, in relative terms, benefit from larger tolerances.

In addition to the implicit access to the linepack in the transmission network, a regulated third-party access regime (rTPA) is applied explicitly to the storage of natural gas in the Carriço underground storage facility and at the Sines LNG terminal. ERSE approves the capacity allocation mechanisms detailed in the Procedures Manual for Access to the SNGN Infrastructure (MPAI) and the tariffs for the use of said

infrastructure, ensuring that there will be sufficient capacity to meet the commercial needs of the market agents.

ERSE monitored the access conditions to the storage facilities, especially in cases of potential congestion at the Carriço facility. It should be highlighted that, to date, there has been sufficient capacity available to satisfy the requests from market agents.

4.1.2.3 THIRD-PARTY ACCESS TO STORAGE

In 2015, third-party access to the natural gas storage facilities was governed by a regulated regime.

It should be noted that Decree-Law no. 30/2006 of 15 February, as expressed by Decree-Law no. 230/2012 of 26 October, and Decree-Law no. 140/2006 of 26 July, as expressed by Decree-Law no. 231/2012, of 26 October, states that, in respect of third-party access to RNTIAT networks and infrastructure, the regime of regulated access is maintained, extending it, however, to the possibility of new concessions for underground storage facilities, for a purpose other than the constitution and maintenance of safety stocks, benefiting from a system of negotiated access.

4.1.2.4 CONNECTIONS

The regulatory framework for the commercial conditions governing connections to the network includes, among others, the following aspects:

- Mandatory connection to the network;
- Type of charges that can be levied;
- Rules for calculating network connection charges;
- Budget content and submission deadlines;
- Terms for connection charge payment;
- Construction of the network connection elements; and
- Provision of information.

The network operator is required to provide a network connection to customers who request it in accordance with the commercial conditions approved by ERSE. Distribution system operators are subject to a requirement of connection only for customer installations with an annual consumption of 10,000 m³, as well

as for installations located within the area of influence of the respective network, defined as the geographic area in the proximity of the existing network, whose boundary is defined by ERSE (currently 100 m).

Natural gas installations cannot be connected to networks without the prior issuance of a licence or authorisation by the relevant administrative bodies.

Once built, the connecting elements will form an integral part of the networks, as soon as they are deemed by the operator to be in proper technical operating condition.

Regulation codes require that network operators send information to ERSE, on a half-yearly basis, on the number of connections established, co-funding granted to applicants, broken down by type of connection elements, total length of elements built, average budgeting deadlines and average execution times, as well as the number of changes made to existing connections.

ERSE's responsibility code does not define maximum execution deadlines for the connection to natural gas networks. However, for monitoring purposes, the distribution and transmission system operators are required to provide ERSE with half-yearly information regarding connections to natural gas networks, which includes, among other aspects, the average execution time of connections made by the network operators. In 2015, the average time required for the execution of works to connect facilities with an annual consumption of up to 10,000 m³ to the distribution networks was approximately 36 days, for a total of 5,584 connections.

4.1.2.5 QUALITY OF SERVICE

The Quality of Service Code for the natural gas sector envisages, in technical terms, the monitoring of the quality of service provided by the various infrastructure operators, and covers three areas: continuity of service, natural gas attributes, and the pressure of natural gas supplied to customers. The Quality of Service Code defines the rules for evaluating and describing the quality of the natural gas supply, and applies to customers, suppliers and sector infrastructure operators.

ERSE publishes an annual report on quality of service in the natural gas sector, according to the provisions established in the RQS, aimed at briefly describing the quality of service provided by natural gas sector entities.

Regarding the LNG terminal, general indicators have been established for continuity of service with the objective of evaluating the service provided by this infrastructure in the following processes: reception of LNG from tankers and carriers, loading of tanker trucks with LNG (for the supply of satellite LNG units) and the injection of natural gas into the transmission network.

In 2015, the most significant aspects in terms of the performance of the LNG terminal were the following:

- The number of tanker trucks experiencing a delay in loading corresponded to 5% of the total, a figure that has been decreasing when compared to previous years. The main causes for delay were the unavailability of the fuelling stations, the cooling of tanks, operational unavailability at the LNG terminal and technical problems;
- The number of unloadings of LNG carriers was 25;
- No delays were recorded in the unloading of LNG carriers; and
- The natural gas injection assignments for the transmission network recorded a compliance of 100%, as in previous years.

In terms of the continuity of service associated with underground storage, it is important to assess the management of the natural gas flow between this infrastructure and the transmission network. In 2015, the compliance of the injection and extraction assignments and energy storage compliance was 100%.

Continuity of the supply to the transmission network is evaluated through general indicators which consider the number and duration of interruptions at the points of delivery. We should note that, in 2015, there were no interruptions in the transmission network.

In the distribution networks, as with the transmission network, performance is assessed through indicators which consider the number and duration of interruptions. In 2015, there were no interruptions in 5 out of the 11 existing distribution networks (Beiragás, Duriensegás, Dianagás, Sonorgás and Paxgás) and only 0.39% out of approximately 1.39 million customer installations suffered interruptions. No customer was affected by more than one interruption. The vast majority (67%) of interruptions in the distribution networks occurred due to one-off cases or cases of force majeure, caused by third-party interventions in the networks. The average duration of the interruptions per customer was less than 3 minutes in all the distribution networks. The standards set for the values of the various indicators were met.

Over the last four years, all the limits set out in the RQS for the natural gas characteristics monitored by the transmission system operator and the operator of the LNG terminal were respected.

All distribution system operators presented information on the monitoring of the pressure in their networks. In 2015, the pressure supplied was monitored at 353 points in the distribution networks. There were one-off incidents of non-compliance with the pressure limits set out in the applicable legislation and in the monitoring methodologies which, according to the distribution system operators, had no impact on the supply of natural gas to customers.

4.1.3 NETWORK TARIFFS FOR CONNECTION AND ACCESS

REGULATORY REVIEW

Taking into account the beginning of the new regulatory period for natural gas, as well as the need to adjust the regulatory framework to match the European rules (via the application of the European Network Codes), and to review the methodologies for the economic regulation of the operators' activities in the context of the current situation of the natural gas sector and its future development, ERSE launched a regulatory review process for natural gas.

On 18 December 2015, ERSE submitted for public discussion a regulatory review proposal that covered the Commercial Relations Code (RRC), the Tariff Code (RT), the Access to Networks, Infrastructure and Interconnections Code (RARII) and the Infrastructure Operation Code (ROI) of the natural gas sector. The regulatory amendments arising from the public consultation entered into force in 2016.

PROCEDURES AND METHODOLOGY FOR CALCULATING NATURAL GAS INFRASTRUCTURE ACCESS TARIFFS

In 2015, the methodology for calculating natural gas infrastructure access tariffs was maintained.

The methodology for calculating infrastructure access tariffs is an integral part of the Tariff Code⁵³, whose approval and amendments are preceded by a public consultation and by a mandatory, but non-binding, opinion from the Tariff Council. The rules concerning the process for the setting of tariffs, including its scheduling, are also included in ERSE's Regulations.

The following brief explanation of the new Portuguese tariff system serves to contextualise the tariff calculation methodology.

The infrastructure access tariffs applied to all natural gas consumers for access to the respective infrastructure, and more specifically, the tariffs for the use of the transmission network, the use of the distribution network, the use of the LNG reception, storage and regasification terminal, and the use of underground storage.

Generally speaking, these infrastructure access tariffs are paid by suppliers on behalf of their customers. They may be paid directly by customers benefiting from the status of market agent, i.e. customers buying energy directly on the markets, and who are responsible for managing imbalances arising from differences

⁵³ Under the terms of article 58 of Decree-Law no. 140/2006, of 26 July, as amended by Decree-Law no. 231/2012, of 26 October, available at http://www.erse.pt/pt/legislacao/diplomas/Documents/DL%20231_2012.pdf.

between the capacity contract, demand forecasts for their customer portfolios and actual consumption recorded, depending on the sales margins defined by ERSE.⁵⁴

NETWORK ACCESS TARIFF PRICES IN 2015

The variation in the average price of infrastructure access tariffs for the 2015-2016 gas year, relative to the previous gas year (2014-2015), is shown in the following tables.

Table 4-1 – Evolution of infrastructure access tariffs for the 2015-2016 gas year

Access tariffs per pressure level	Average price 2014-2015 (EUR/MWh)*	Average price 2015-2016 (EUR/MWh)	Change
Power Plant Access	3.85	4.57	18.5%
HP Customer Access	2.22	2.48	11.9%
MP Access	6.84	6.56	-4.1%
LP Access>	21.76	20.25	-6.9%
LP Access<	43.08	40.45	-6.1%

* Application of the 2014-2015 tariffs to the demand forecast for 2015-2016.

Source: ERSE

Table 4-2 – Tariff evolution per activity, 2015-2016 gas year vs. 2014-2015 gas year

Tariffs per activity	2014-2015 tariffs (average prices), 2015-2016 consumption*	2015-2016 tariffs (average prices), 2015-2016 consumption	Change
Sines Terminal	2.40	2.58	8%
Underground Storage	11.34	11.81	4%
Use of Transmission Network	1.65	1.78	8%
Use of Distribution Network	12.99	12.00	-7.6%
Overall Use of the System	0.93	1.13	22%

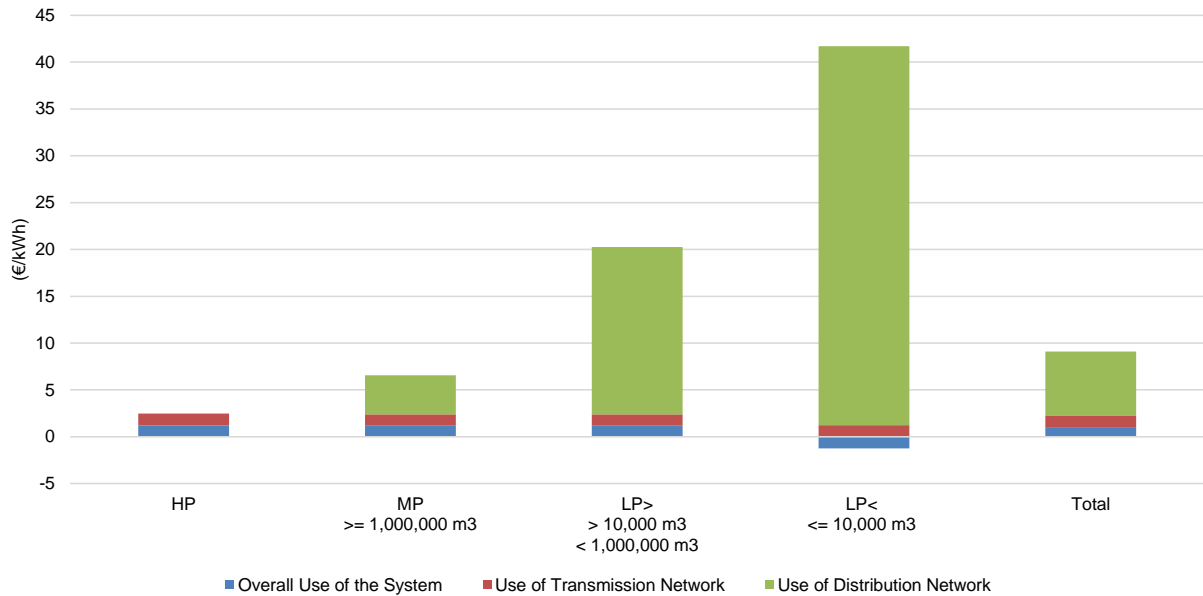
* Application of the 2014-2015 tariffs to the demand forecast for 2015-2016.

Source: ERSE

⁵⁴ Under the terms of Directive 15/2015, of 9 October, available at <http://www.erse.pt/pt/legislacao/Legislacao/Attachments/1916/Diretiva%2015-2015.pdf>.

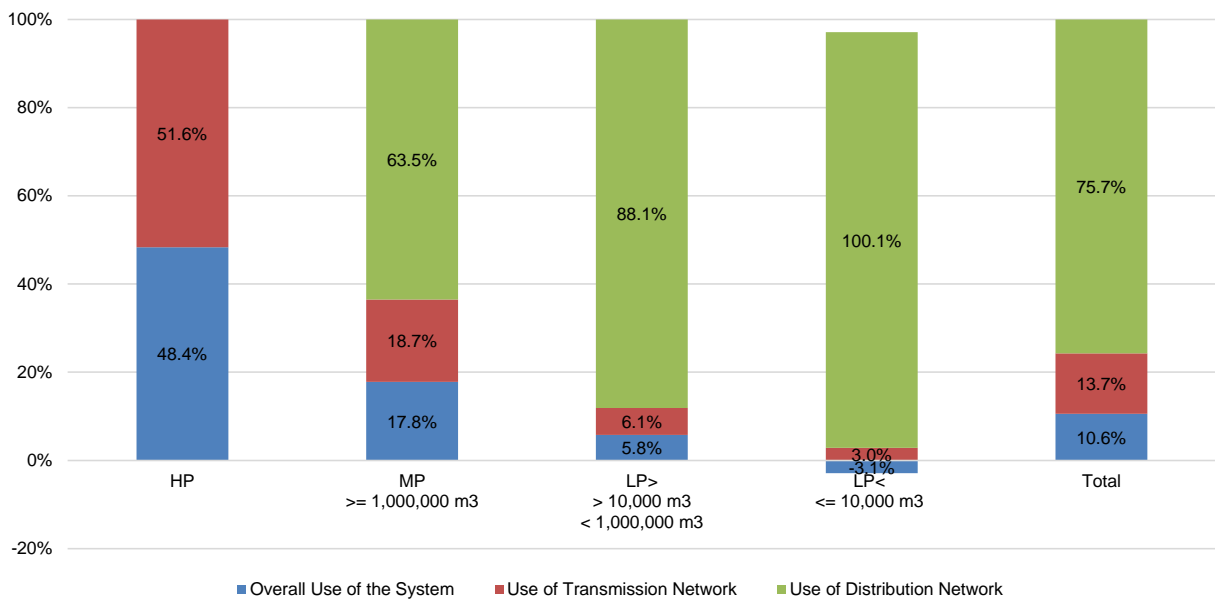
The figures below present the breakdown and structure of the average price of the network access tariffs, by the various tariffs of which they are composed, for each pressure level. High-pressure access does not include electricity generation centres.

Figure 4-1 – Breakdown of the average price of Network Access Tariffs, 2015-2016 gas year



Source: ERSE

Figure 4-2 – Structure of the average price of network access tariffs, 2015-2016 gas year



Source: ERSE

REGULATED TARIFFS AND ACTIVITIES OF THE NATURAL GAS SECTOR

In the natural gas sector, there are some regulated activities whose allowed revenues are established by ERSE and are recovered by the following tariffs: global use of system, use of transmission network, use of the LNG reception, storage and regasification terminal, use of underground storage, use of MP distribution network, use of LP distribution network, energy and supply.

Tariff prices for each activity are established in such a way that their structure reflects the structure of marginal or incremental costs and also enables the recovery of allowed revenue.

TARIFF ADDITIVITY APPLIED TO THE NATURAL GAS INFRASTRUCTURE ACCESS TARIFFS

Customers who intend to use natural gas infrastructure, namely the networks, the LNG terminal and underground storage, must pay the respective access tariffs.

Network access is paid by all consumers of natural gas. Network access tariffs are calculated by adding the following tariffs together: global use of system, use of transmission network and use of distribution network. Access tariff prices for each billing variable are determined by adding up the corresponding tariff prices per activity. Insofar as the tariffs making up this sum are based on marginal costs, cross-subsidisation between consumers is avoided and an efficient use of resources is promoted.

Tariffs for the use of the LNG reception, storage and regasification terminal and the use of underground storage are paid only by users of this infrastructure.

This tariff calculation methodology allows for detailed knowledge of the various tariff components by activity or service. Therefore, each customer can know exactly how much they pay, for example, for the use of the MP distribution network, and how that value is considered in terms of billing. The transparency in the formulation of the tariffs, which is a consequence of implementing this type of system, gains special importance for customers who have no experience in selecting a supplier and in particular for customers who are less informed.

REGULATION METHODOLOGIES FOR DETERMINING ALLOWED REVENUE

2015 was the last year of the 2013-2014 to 2015-2016 regulatory period, and it was also a year of preparation for the new regulatory period beginning in July 2016. Below we describe the regulatory methodologies in force in 2015 for each of the regulated activities.

- Reception, Storage and Regasification of LNG – application of a *price cap*⁵⁵ methodology for operational costs (OPEX⁵⁶) and of a *rate of return* methodology with a 10-year capital cost-flattening mechanism (ending in the 2016-2017 gas year) for CAPEX⁵⁷; application of a mechanism for the attenuation of tariff adjustments that recognises positive externalities for the entire national natural gas system associated with this activity;
- Underground Storage - *price cap*⁵⁸ methodology for OPEX regulation and *rate of return* methodology for CAPEX regulation.
- Natural Gas Transmission – this activity follows a regulation based on incentives for OPEX, using a *price cap* methodology with one portion that is not indexed to the evolution of physical variables and three portions indexed to the evolution of the transported quantities, the extension of the transmission network and the number of GRMS (Gas Regulation and Measurement Station), and a *rate of return* methodology for CAPEX;
- Natural Gas Distribution – *price cap*⁵⁹ methodology for OPEX and *rate of return* methodology for CAPEX; and
- Supplier of last resort retail activity – *price cap*⁶⁰, methodology plus the remuneration of the working capital. We should add that the concessionaires have the right to an additional revenue of €4 per customer (number of customers at the beginning of each regulatory period).

The annual efficiency targets applied to the OPEX ranged from (i) 1.5% to 3% in the case of LNG reception, storage and regasification; (ii) 1.5% for transmission, (iii) 1.5% to 4% for underground storage; (iv) 1.5% to 5.8% per company, in the case of distribution, and (v) 3% for all suppliers of last resort.

Attention is drawn to the methodology used to index the cost of capital, introduced in the 2013-2014 to 2015-2016 regulatory period. This enables the evolution of the economic and financial context to be

⁵⁵ The cost driver that determines the evolution of revenue recoverable by application of the respective tariff is re-gasified energy.

⁵⁶ Operational expenditure

⁵⁷ Capital expenditure

⁵⁸ The cost drivers that determine the evolution of revenue recoverable by application of the respective tariff are extracted/injected energy, the storage capacity for REN Armazenagem and the storage capacity for Transgás Armazenagem.

⁵⁹ The cost drivers that determine the evolution of revenue recoverable by application of the respective tariff are distributed energy and supply points.

⁶⁰ The cost driver that determines the evolution of revenue recoverable by application of the respective tariff is the average number of customers.

reflected, thereby compensating equity and other risks⁶¹. Therefore, remuneration rates are updated based on the average daily price of 10-year treasury bonds issued by the Portuguese Republic. Given the volatility of the market indicators, a cap and a floor were established.

REVIEW OF THE REGULATORY METHODOLOGIES FOR DETERMINING ALLOWED REVENUE AS PART OF THE PREPARATION OF THE NEW REGULATORY PERIOD

As mentioned above, 2015 was a year of preparation for the new 2016-2017 to 2018-2019 regulatory period. In this context, the applied regulatory methodologies were evaluated and new regulation parameters were defined. Below we describe the main changes introduced in each activity as a result of that analysis:

- Underground Storage⁶² – application of a mechanism to attenuate adjustments in the allowed revenue, similar to the one applied to the reception, storage and regasification of LNG;
- Natural Gas Transmission and Distribution – these two activities are covered by the implementation of a mechanism for the recovery of allowed revenue associated with the evolution of demand, whose definition is provided for in the Tariff Code; and
- Supplier of Last Resort retail activity – definition and application of reference costs, as in the electricity sector.

DISPUTED RULING

In terms of appeals against a ruling or methodology used by the regulatory entity, under the terms provided for in Article 41(1) of Directive 2009/73/EC, it should be noted that the natural gas distribution network concessionaires brought lawsuits against ERSE, challenging the approval of tariffs for use of the networks relating to the period between 1 July 2010 and 30 June 2016.

These lawsuits were duly challenged and are currently under review and trial in the competent administrative court, with no ruling having been handed down thus far.

NETWORK CONNECTION COSTS

In the regulatory review of the natural gas sector undertaken in 2015, ERSE established the need to review the sub-regulations that define the conditions for sharing costs between the applicants for new connections

⁶¹ For gas year 2015-2016, the asset remuneration rates were the following: High-pressure activities - 7.44%; distribution activities – 7.94%.

⁶² This activity has been undertaken by a single operator since mid-2015 due to the acquisition, by REN Armazenagem, of Transgás Armazenagem's natural gas underground storage assets via a transfer of its partial concession.

and the natural gas system, which should be aimed at increasing economic efficiency as part of the distribution of natural gas. The guiding principle of that review was to ensure that, in the specific case of the integration of existing consumption hubs, there is the possibility of separating the investments made on the extension of the network that increase the densification of costs (and, consequently, reduces the unit costs of natural gas distribution) from those that bring a negative contribution into the system through an increase of the unit costs of natural gas distribution.

4.1.4 CROSS-BORDER ISSUES

The Capacity Allocation Mechanisms (CAM) and Congestion Management Procedures (CMP) applied to the SNGN infrastructure are set out in accordance with the provisions of the Access to Networks, Infrastructure and Interconnections Code (RARII) which ERSE is responsible for publishing.

RARII features a set of principles aimed at bringing forward the implementation of the rules set forth in EU Regulation No 984/2013 of the Commission of 14 October, which established the network code for CAM in gas transmission networks and which completed EC Regulation No 715/2009 of the European Parliament and of the Council of 13 July, in respect of the conditions for access to the natural gas transmission networks.

According to RARII, ERSE is responsible for approving the MPAI, which was first published in 2013. This manual includes the rules previously established in the CAM and CMP for the SNGN infrastructure. The MPAI includes a thorough revision of the capacity allocation rules with the introduction of the capacity reservation concept through an *ex ante* allocation of annual, quarterly, monthly and daily capacity products in the infrastructure.

Insofar as capacity allocation is concerned, it must be stressed that, no Third-Party Access refusals have been registered in the SNGN infrastructure until now. However, in 2013, the rules and procedures to be applied to the Carriço underground storage facility were revised and the rules and procedures applicable to the RNTGN and the Sines LNG terminal regarding this matter were published for the first time.

The capacity allocation mechanisms in force only allocate capacity on an annual basis; i.e. the current framework does not allow for long-term commitments. This explains why the implementation of EU Regulation No 984/2013, regarding the harmonised capacity allocation on the interconnections is not subject to significant constraints on the Portuguese side.

The rules for the harmonised allocation of capacity at the natural gas interconnections between Portugal and Spain for the 2015 allocation year were based on the Network Code on Capacity Allocation Mechanisms in Gas Transmission Systems, approved by Regulation (EU) No 984/2013. This European Regulation entered into force in November 2013 and its application became mandatory in all Member States from 1 November 2015 onwards.

In Portugal, the rules are supplemented by the Access to Networks, Infrastructure and Interconnections Code (RARII), approved by ERSE through Regulation no. 139-C/2013, of 16 April, by the Procedures Manual for Access to Infrastructure (MPAI), approved by Directive no. 14/2014, of 4 August, and by the notice "Allocation of capacity at the *VIP Ibérico* between Portugal and Spain 2015-2016 – Announcement," published by REN Gasodutos and by Enagas (the Spanish operator of the natural gas transmission network), under the terms of Procedure no. 11 of the MPAI and of Article 47 of the RARII.

Therefore, between 1 and 31 October 2015, the rules of the "Information Memorandum" applied as regards the processes for the allocation of capacity at the virtual point of natural gas interconnection between Portugal and Spain, approved by Decision no. 1/2014, of 21 February, with the adjustments provided for in the notice "Allocation of capacity at the Iberian *VIP* between Portugal and Spain 2015-2016 – Announcement."

From 1 November 2015 onwards, the rules established in Regulation (EU) No 984/2013 applied fully, taking into account that the daily capacity products (for the following day and intraday) will be allocated via the PRISMA platform.

In 2015, as part of the early application of Regulation (EU) No 984/2013 and for the purpose of auctioning the annual allocation of the capacity of the *Virtual Interconnection Point (VIP)* referring to 2015-2016, held in March 2015, ERSE, in coordination with the *Comisión Nacional de los Mercados y la Competencia (CNMC)*, approved the respective rules, having identified the need to include in the MPAI the fundamental principles of interconnection capacity allocation.

ACCESS TO INTERCONNECTIONS

In the context of ACER's Gas Regional Initiative (GRI) for the South of Europe, which aims to implement a regional natural gas market, harmonisation of the CAM in the three countries of the South region (Portugal, Spain and France) has been set as a priority. As such, according to the European guidelines and in the context of MIBGAS, the Portuguese and Spanish TSOs allocate capacity on the interconnections through a Joint Capacity Allocation Mechanism in the Portugal-Spain Interconnections (at Valença do Minho and Campo Maior).

Efforts to implement the Joint CAM in the Portugal-Spain Interconnections began in 2011, and are based on the *Framework Guidelines on Capacity Allocation* published by ACER and later, on EU Regulation No 984/2013. ERSE and CNMC are responsible for approving this mechanism, which is subject to a consultation open to all stakeholders.

With the Joint CAM in the Portugal-Spain Interconnections in place, harmonised procedures for capacity allocation in the interconnections were established, resulting in bundled capacity products allocated at a

VIP, with a gradual elimination of the differences which still existed in the methodologies applied on either side of the border.

This mechanism, initially implemented in 2012, took effect between 1 October 2012 and 30 September 2013, and is presently in its third year of implementation (between 1 October 2015 and 30 September 2016, i.e. the Portuguese 'gas year').

In the first year, there was no demand for annual and quarterly capacity products at the respective auctions and the capacity was later allocated for shorter time frames. These were carried out in a non-harmonised manner, according to the rules and principles implemented in each country. From 2013 onwards, there were new auctions (annual and quarterly), with capacity being allocated in the *VIP*, both for annual and quarterly products.

In 2015, the process for the harmonised allocation of capacity at the Portugal-Spain interconnection (2015-2016) progressed thanks to the adoption of the rules provided for in Commission Regulation (EU) No 984/2013. Thus, auctions began for annual, quarterly and monthly products and, more recently, from October 2015 onwards, auctions of daily products. All these auctions were held via a European platform for capacity allocation (PRISMA platform). REN Gasodutos and Enagas participated as part of a pilot project and with special conditions. Since March 2014, market agents in Portugal use the PRISMA platform for contracting capacity on the interconnection.

The allocation of harmonised capacity on the interconnections between Portugal and Spain suffers from a sharp drop in the capacity available at the Campo Maior interconnection due to the long-term capacity contracts which existed prior to the implementation of the Joint CAM in the Portugal-Spain interconnections. In light of this, it will be necessary to wait for the end of the aforementioned contracts, in force on the Spanish side, for a wider application of this concept.

COOPERATION

The Portuguese and Spanish transmission system operators have been cooperating closely with each other to improve the interoperability of the two systems. This cooperation has resulted in management agreements for the Portugal-Spain interconnections coherent with the *Interconnection Agreements* provisions established in the Network Code for Interoperability and Data Exchange prepared by ENTSOG, recently approved by Regulation (EU) 2015/703 of the Commission of 30 April 2015.

As a result of the decision to implement the Joint CAM in the Portugal-Spain Interconnections, the cooperation between the operators became more effective with the setting of more ambitious objectives regarding the allocation of capacity in the interconnections.

The *VIP* concept, aggregating the Campo Maior and Valença do Minho interconnections, is currently operational and the capacity is allocated on the *VIP* up to a monthly capacity product. In 2015, the annual, quarterly and monthly auctions were held via the European platform PRISMA and the daily products were allocated, until September 2015, on a *First Come First Served* (FCFS) basis and, from October 2015 onwards, through auctions.

In addition to capacity products, ERSE and CNMC have been taking steps to gradually eliminate the *pancaking* tariff and promote the mutual recognition of market agents. Additionally, ERSE and CNMC continued to work on possible models to integrate the Iberian natural gas market, provided for in the work plan of the Southern Gas Regional Initiative. This integration of markets is included in the European *Target Model* for natural gas, defined by ACER.

MONITORING OF INVESTMENTS MADE BY THE NATURAL GAS INFRASTRUCTURE OPERATORS

Development and Investment Plan for the Natural Gas Transmission Network

In 2015, REN Gasodutos presented its proposal for the Development and Investment Plan of the RNTIAT for the period between 2016 and 2025 (PDIRGN 2015). Under the terms of Decree-Law no. 140/2006, of 26 July, as amended by Decree-Law no. 231/2012, of 26 October, ERSE submitted the aforementioned PDIRGN 2015 proposal for public consultation, and subsequently prepared its opinion, in which it indicated that the proposal under analysis should be amended by the operator of the RNTGN, in order to ensure that only three specific projects were submitted for approval while the others should include an express indication mentioning their possible approval in future editions of the PDIRGN. It also explained that, due to their material impact on tariffs, ERSE would not endorse any revised proposal for the PDIRGN 2015 that did not take into account the aforementioned postponements. At the end of the year, the 2015 PDIRGN proposal was being reviewed for formal approval by the minister responsible for energy.

Development and Investment Plan for the Natural Gas Distribution Networks

On the other hand, in 2015 ERSE also issued its Opinion on the four proposals for Development and Investment Plans of the Natural Gas Distribution Network for the period between 2015-2019 (PDIRD GN 2015-2019), submitted by the operators of the national natural gas distribution network (RNDGN). ERSE submitted the aforementioned PDIRD GN 2015-2019 proposals for public consultation, and subsequently prepared its opinion, in which it identified gaps that should be filled before the approval of any of the proposals that were submitted. Considering that the four PDIRD GN 2015-2019 required very different levels of improvements, there was an emphasis on their pioneering nature, which could explain some of the gaps that had been identified. The PDIRD GN 2015-2019 proposals were submitted to the minister responsible for energy for review and formal approval.

As part of the process for selecting the second European list of PCIs ("Projects of Common Interest"), which was published by the European Commission in the last quarter of 2015, REN Gasodutos once again submitted the application of PCI 5.4 (third interconnection between Portugal and Spain), which maintained its status as a PCI. Every year, ACER conducts a monitoring exercise focused on the evolution of each PCI; the 2016 exercise is currently underway.

4.1.5 COMPLIANCE

As part of the competences that were conferred to it by its Statutes and other applicable legislation, ERSE fulfils the obligations inherent in its role as a regulator, as mentioned in section 3.1.5, with regard to the electricity sector.

In 2015, on the legislative side, and with regard to natural gas, the following measures warrant special mention:

- **Order no. 97/2015, of 30 March** - Approves the new dates for the application of transitional tariffs to end-customers of natural gas with annual consumption equal to or lower than 10,000 m³ and for electricity with consumption at normal low voltage.
- **Order no. 643/2015, of 21 August** – Establishes the percentage of the shareholdings of different companies in MIBGAS, S. A., the company that is authorised to manage the organised gas spot market, as part of the creation of the Iberian Natural Gas Market (MIBGAS).

In December 2015, ERSE launched a public consultation of its proposals regarding the following regulations for the natural gas sector:

- Commercial Relations Code;
- Access to Networks, Infrastructure and Interconnections Code;
- Tariff Code; and
- Infrastructure Operation Code.

As part of its supervisory responsibilities, in 2015, the following initiatives undertaken by ERSE are highlighted:

- Verification and analysis of the general conditions of natural gas supply contracts concluded with suppliers on the liberalised market;
- Verification and analysis of commercial offers made available by suppliers on the liberalised market;
- Monitoring of flows between regulated and non-regulated activities, through the analysis of transfer pricing;
- Monitoring of the remuneration rates of regulated activities; and

- Supporting independent audits of supplier switching procedures.

As part of the Energy Sector Penalty System, approved by Law no. 9/2013, of 28 January, in 2015, ERSE received 91 complaints and opened 18 infraction proceedings (electricity and natural gas), as mentioned in section 3.1.5.

In 2015, solely within the natural gas sector, ERSE published two enforceable rulings against suppliers operating in Portugal.

There were three other enforceable rulings⁶³ against suppliers that operate simultaneously in the natural gas and electricity sectors, as described in section 3.1.5.

4.2 PROMOTING COMPETITION

4.2.1 WHOLESALE MARKET

4.2.1.1 MONITORING THE PRICE LEVEL, TRANSPARENCY LEVEL AND THE LEVEL AND EFFECTIVENESS OF MARKET OPENING AND COMPETITION

PRICES

There is currently price formation reference based on an organised or regulated market for the natural gas wholesale market in Portugal. The start of spot product trading with delivery in Spain, in December 2015, on the platform managed by MIBGAS S.A. (the entity authorised by the Portuguese government through Order no. 643/2015 to manage the organised gas spot market), did not change the situation. In fact, the start of the trading through MIBGAS with delivery in the Portuguese area is still pending specific regulation, and the trading volumes recorded in the organised market with delivery in Spain were rather low.

On the other hand, Portugal is not a natural gas producer, so negotiation and procurement constitute the first segment of the sector's value chain. In this context, the Portuguese market is supplied with natural gas through entries into the system via the interconnection with Spain (Campo Maior and Valença) and the port terminal at Sines (LNG terminal), by means of long-term contracts.

The supply of natural gas through the interconnections is essentially based on the contract between Sonatrach and the Galp group (representing 67% of the import balance in 2015) which includes obligations

⁶³ All the decisions are published on ERSE's website at:
<http://www.erse.pt/pt/psancionatorios/decisooesERSE/Paginas/index.aspx>.

to purchase and the payment of quantities consumed or not (*take or pay clause*). This contract assumes the existence of annual supply of around 2.5 bcm for the duration of the contract, i.e. until 2020.

Supply through the terminal is, essentially, based on contracts of the same nature, with the LNG coming from Nigeria. This contract follows price rules defined in contracts, and envisages an annual volume of approximately 3.42 bcm.

In 2015, about 33% of the natural gas was supplied via loads of LNG predominantly originating in Nigeria.

Other agents of lesser importance in the Portuguese market supply natural gas from Spain, (where there is a liquid wholesale market, with supplies from Algeria, Nigeria, Trinidad and Tobago, Egypt, Qatar, Oman, Norway, Libya and Equatorial Guinea, among others) and also through the entry of carriers in the Sines LNG terminal.

TRANSPARENCY

Although a process is underway to implement the transparency and market integrity rules at European level, it is acknowledged that the use of long-term natural gas contracting mechanisms hinders the transparency and symmetry of the information on the market. This is also the case in the natural gas sector in Portugal, where, despite the existence of regulated mechanisms for wholesale contracting, information about the operation of the market is still scarce. However, the reporting of transactions and trading orders associated with contracts negotiated in organised market platforms began on 5 October 2015, in accordance with the schedule provided for in Article 12 of the Commission Implementing Regulation (EU) no. 1348/2014 on data reporting implementing Article 8(2) and Article 8(6) of REMIT⁶⁴.

Despite the fact that the Iberian natural gas hub MIBGAS began operating in December 2015, with trading of spot products with delivery in Spain, there is still no schedule for the start of spot trading with delivery in Portugal; this makes it difficult to define reference prices and trading market records for both the spot market and the forward market, and is an added difficulty in the task of providing the natural gas market with more information and transparency.

As the information on the transactions includes, in itself, commercially sensitive information, it is clear that, in the regulatory context, one can foresee mechanisms which, on one hand, ensure the protection of commercially sensitive information and, on the other, provide the conditions for the integrity of the market and its transparency.

⁶⁴ Regulation (EU) No 1227/2011 of the European Parliament and of the Council on wholesale energy market integrity and transparency.

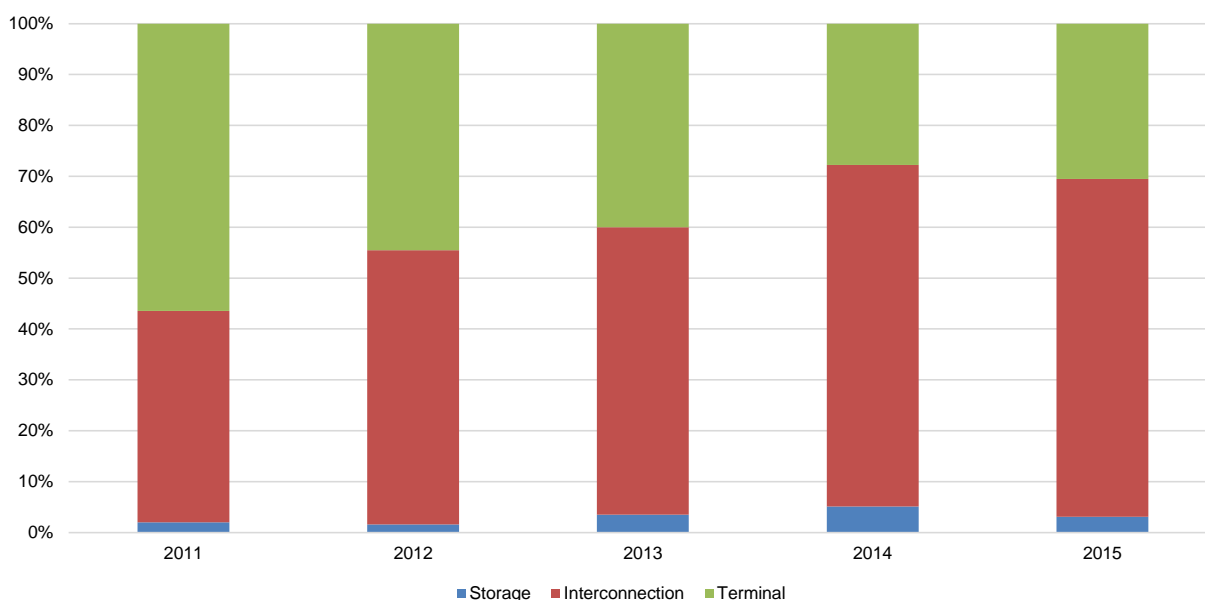
For that purpose, these needs were identified for their inclusion in the regulatory review of the natural gas sector, completed in 2016.

COMPETITION EFFECTIVENESS

As Portugal does not have its own production, the main countries supplying natural gas are Algeria and Nigeria. This is done mainly through long-term take or pay contracts. The breakdown of supply is described in Figure 4-3. It can be seen that until 2011, the terminal (contracts for LNG from Nigeria) was responsible for most of the natural gas introduced into the Portuguese market. However, from 2012 onwards, a gradual decrease in the importance of the terminal as opposed to the use of the interconnection, at both the Campo Maior and Valença entry points, became clearly visible, with the interconnection with Spain being the main supply route in 2015, representing approximately 67% of the total volume of gas contracted. Moreover, at the start of the 2000s, the entry via Valença was essentially used for continuous outgoing international traffic to Spain, a situation which has been inverted over the last few years.

With regard to the use of the Sines terminal for the introduction of natural gas in Portugal, it is possible that it is being penalised by the fact that, unlike in Spain, in Portugal there is no liquid LNG exchange market, intra and inter-terminal, a circumstance that significantly reduces the storage costs borne by the agents that introduce natural gas via terminals. The implementation of regulated swap mechanisms at the Sines Terminal does not seem to have been enough to counter the tendency towards a decrease in their use.

Figure 4-3 – Breakdown of supply by infrastructure, 2011 to 2015



Source: REN Gasodutos, REN Armazenamento, and REN Atlântico data

For the 2014-2015 gas year, there was no auction to release excess quantities of natural gas (which result from the *take or pay* supply contracts, which allow the sale of contractual quantities on the market through auctions).

4.2.2 RETAIL MARKET

From the point of view of the development of the retail market, we continued to witness a consolidation of the liberalised market, in terms of overall natural gas consumption, and in the number of customers, partly due to the phase-out of regulated tariffs for end-customers.

At the end of 2014, more than 95% of natural gas consumption within the conventional segment (excluding standard-regime power plants) was being supplied by suppliers on the liberalised market.

At the end of 2015, there were 9 suppliers operating on the market, 8 of which present in the domestic consumer segment.

By the end of 2015, about 700,000 consumers, from a total of approximately 1.4 million, had switched supplier through the respective platform, and most of them were from the residential segment.

4.2.2.1 MONITORING THE PRICE LEVEL, TRANSPARENCY LEVEL AND THE LEVEL AND EFFECTIVENESS OF MARKET OPENING AND COMPETITION

METHODOLOGY FOR MONITORING REFERENCE PRICES AND AVERAGE PRICES CHARGED IN THE RETAIL MARKET

Suppliers send ERSE updated information on the reference prices⁶⁵ charged or expected to be charged in the sale of natural gas for all low-pressure (LP) supply. Reference prices are understood to be the set of tariffs, tariff options and respective prices and indexes per billing variable offered by suppliers to their customers, as well as the conditions for applying the tariffs, namely minimum consumption, duration of contracts and conditions for price changes. Reference prices are the supplier's basic sales offer which does not prevent the application of differentiated special contractual conditions such as discounts or other promotional campaigns.

The information provided to ERSE by suppliers is included in simulation and decision-making support tools for consumers, made available by ERSE on its website.⁶⁶

⁶⁵ Pursuant to ERSE Order No. 3677/2011 of 24 February.

⁶⁶ ERSE's website provides various simulation tools. The various simulators available can be found at: <http://www.erse.pt/pt/simuladores/Paginas/Simuladores.aspx>.

Furthermore, all natural gas suppliers regularly inform ERSE of the average prices actually charged in the retail market. This information is used by ERSE to monitor and supervise the retail natural gas market, and also serves as an information tool for the reports produced by official statistical data bodies (INE or EUROSTAT, for example).

TRANSPARENCY

With the aim of continuing to provide information to natural gas consumers on the reference prices charged in the market, as well as the computer tools to help consumers choose a supplier, ERSE has provided a simulator on its webpage since August 2012 that provides natural gas consumers with objective information so that they can make informed choices, namely regarding the selection of the best offer on the market. The simulator compares prices in mainland Portugal for installations with an annual consumption of less than 10,000 m³.

The price comparison simulator for the natural gas market was reorganised with increased functionalities at the end of 2014, a process that continued in 2015. This intervention was made following an increase in the number and diversity of offers available for natural gas consumers, as part of the development of retail markets. The purpose was, thus, to offer natural gas consumers a new set of features that would allow them to customise their simulation in order better to adapt it to their requirements and needs, as well as their consumption profiles. These features are related to the payment methods, contracting and provision of additional services.

In order to guarantee the transparency of the information made available to consumers by suppliers, ERSE also checks that the suppliers publish the offers which are being practiced on the market on their websites, in terms of both price and commercial conditions, and that they are in line with the information on reference prices sent to ERSE as part of its monitoring.

We should add that, under the terms of the Commercial Relations Code, all suppliers that intend to supply customers with annual natural gas consumptions lower than 10,000 m³ must publicly disclose, namely on their webpages, public offers for the supply of natural gas⁶⁷. Additionally, when expressly requested, the supplier must submit a proposal for the supply of natural gas within 8 business days, for customers with an annual consumption lower than 10,000 m³, and 12 business days, for all the other customers, from the date on which the request was made by the customer⁶⁸. There are also rules in force concerning the obligation to provide information in the invoices sent to the customers, namely information regarding the portion

⁶⁷ Article 87 of the Commercial Relations Code, available at: http://www.erse.pt/pt/gasnatural/regulamentos/relacoescomerciais/Documents/RRC_GN2016_DR.pdf.

⁶⁸ Idem.

associated with network access tariffs, the indication of the measured volume of natural gas and conversion factors to energy (from m³ to kWh) and natural gas labelling.

The rules for customer access to information regarding their consumption are regulated by ERSE under the terms of the Measuring, Reading and Data Availability Guide [Guia de Medição, Leitura e Disponibilização de Dados]⁶⁹. With regard to measurement rules, all connections to networks from customer facilities with an annual consumption equal to or higher than 100,000 m³ are equipped with remote-reading metering systems (telemetry). For annual consumption higher than 10,000 m³ and lower than 100,000 m³, the distribution system operator should proceed with monthly readings, while for annual consumption lower than 10,000 m³ the readings should be made every two months⁷⁰.

The distribution system operator is also obliged to provide a toll-free telephone assistance service to all its customers so they can submit their own readings and a 24-hour, toll-free telephone assistance service to allow reporting of failures and emergencies⁷¹.

COMPETITION EFFECTIVENESS

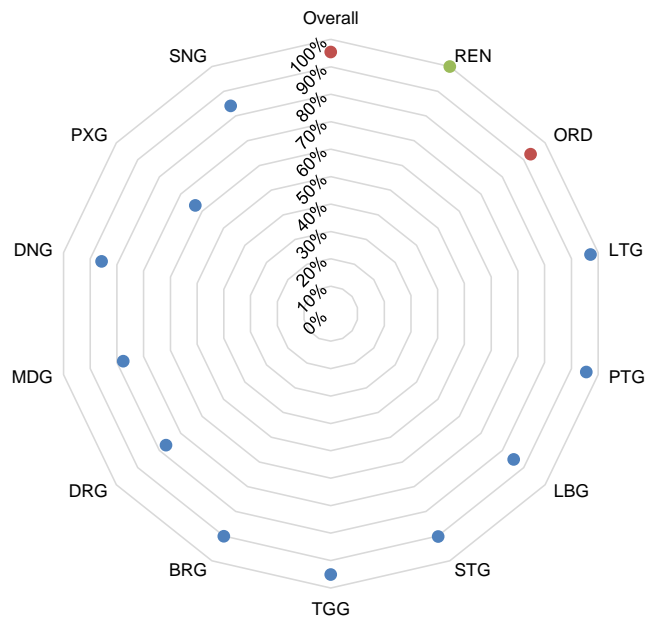
In terms of effective market opening, Figure 4-4 shows the part of the market (in consumption) that was being supplied by suppliers on the liberalised market in 2015. It can be seen that nearly 95% of total consumption, with the exception of power plants, is provided by market suppliers, and this value is generically higher among the leading natural gas distributors.

⁶⁹ Approved by Order no. 1801/2009, of 14 January.

⁷⁰ Under the terms of Article 241 of the Commercial Relations Code for the natural gas sector, available at: http://www.erse.pt/pt/gasnatural/regulamentos/relacoescomerciais/Documents/RRC_GN2016_DR.pdf.

⁷¹ Under the terms of Article 22 of the Quality of Service Code, available at: http://www.erse.pt/pt/gasnatural/regulamentos/qualidadedeservico/Documents/RQS_GN_abril_2013.pdf.

Figure 4-4 – Liberalised market penetration by DSO (total energy consumption, excluding electricity-generating plants), 2015

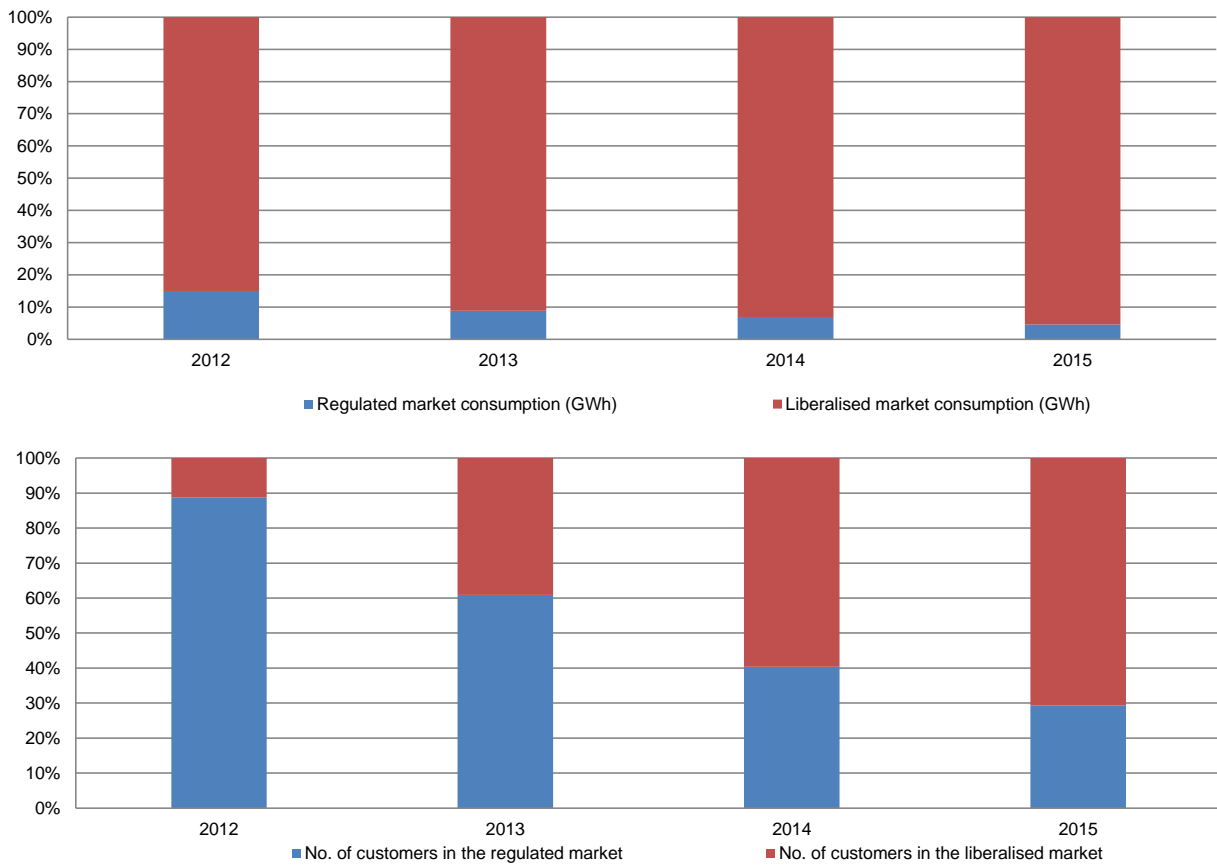


Note: BRG – Beiragás, DNG – Dianagás; DRG – Duriensegás; LBG – Lisboagás; LTG – Lusitaniagás; MDG – Medigás; PTG – Portgás; PXG – Paxgás; SNG – Sonorgás; STG – Setgás; TGG – Tagusgás. END – Endesa; GNF – Gas Natural Fenosa; INCR – Incrygas; Golden – Goldenergy.

Source: REN Gasodutos data

The increase in the size of the liberalised market, as Figure 4-5, also resulted from the phase-out of regulated tariffs that, in January 2013, covered all customers, including residential ones. This trend meant that consumption on the liberalised market already represented more than 89% of total consumption in 2015.

Figure 4-5 – Breakdown of consumption between the regulated and the liberalised markets, 2012 to 2015

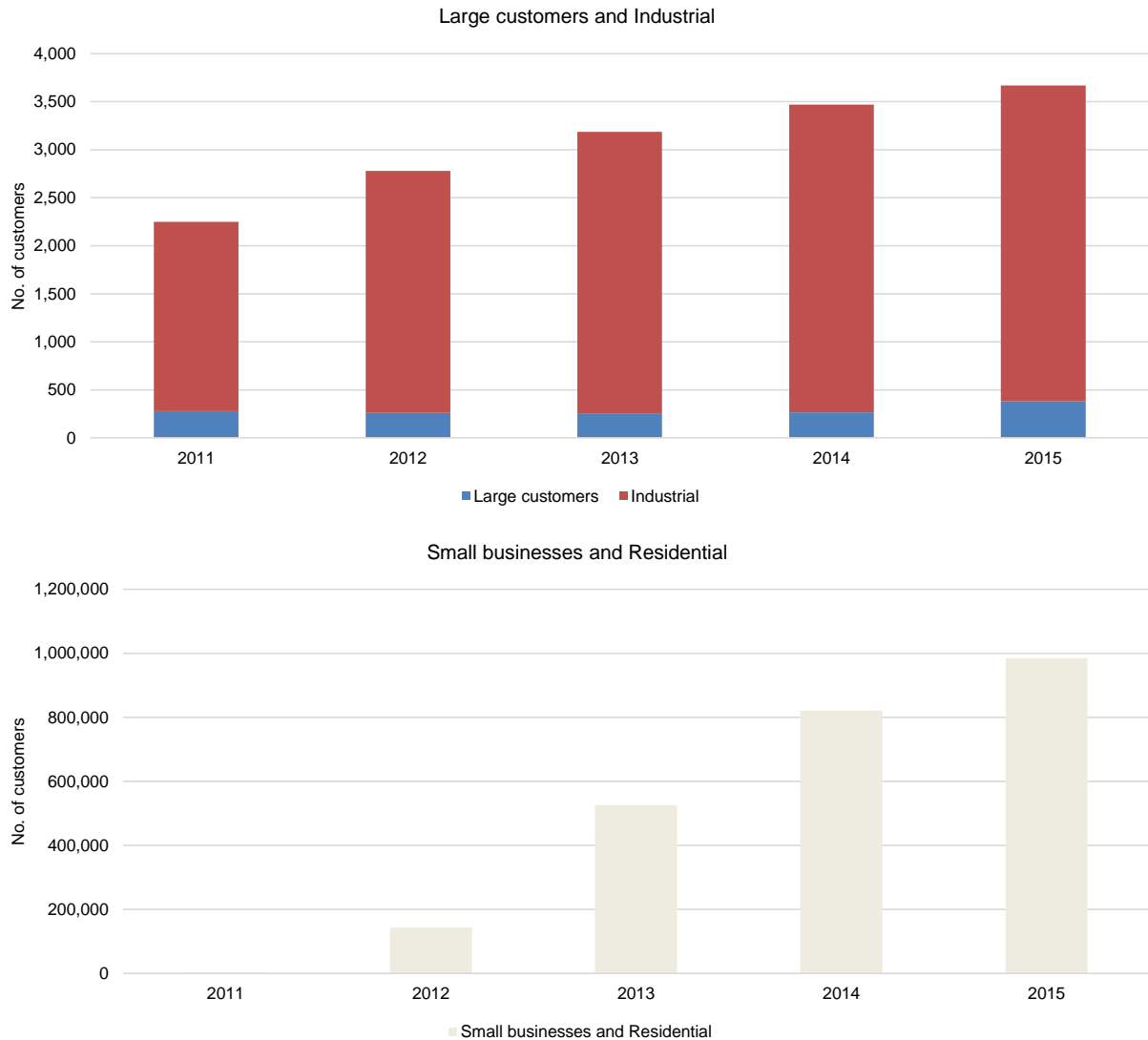


Source: REN Gasodutos data

With regard to the total number of customers, the increase of the market during the period under analysis is mainly due to the continuous entry of residential customers and small enterprises (segments with consumption lower than 10,000 m³), which, in 2015, increased nearly 20% compared to the previous year (see Figure 4-6). In 2015, approximately 71% of customers were already on the liberalised market.

In Figure 4-6 we can also note that, in 2015, the segment with the highest consumption, corresponding to large customers with an annual consumption higher than 1 million m³, had strong growth in the liberalised market, with an increase of 44% compared to 2014, while the number of industrial customers (with consumption between 10,000 m³ and 1 million m³) increased 3%.

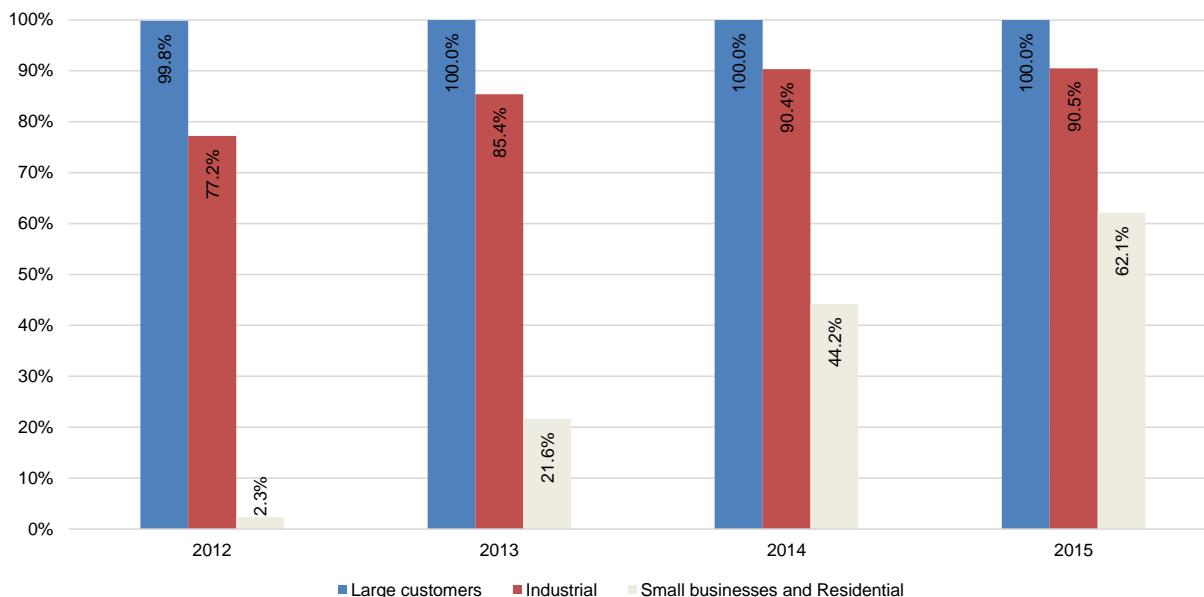
Figure 4-6 – Evolution of the liberalised market in Mainland Portugal, 2011 to 2015



Source: REN Gasodutos data

The consumption associated with each customer segment of the liberalised market is shown in Figure 4-7, and it is noticeable that, in 2015, all consumption by large customers was met by market suppliers, and the same happened with over 98% of the consumption by industrial customers.

Overall, the values specifically relating to the customer segment with an annual consumption greater than 10,000 m³ follow the same rationale as that of all customers. It should be noted that almost 99% of consumption from this group of customers is already being supplied by suppliers on the liberalised market.

Figure 4-7 – Penetration of the liberalised market by customer segment, 2012 to 2015

Source: REN Gasodutos data

With regard to the liberalised market, an analysis by segment shows that the industrial customer segment is the most competitive segment, while the residential customer segment is also highly competitive; in this segment, none of the suppliers had a share higher than 50% at the end of 2015, and the number of suppliers continued to increase throughout the entire year.

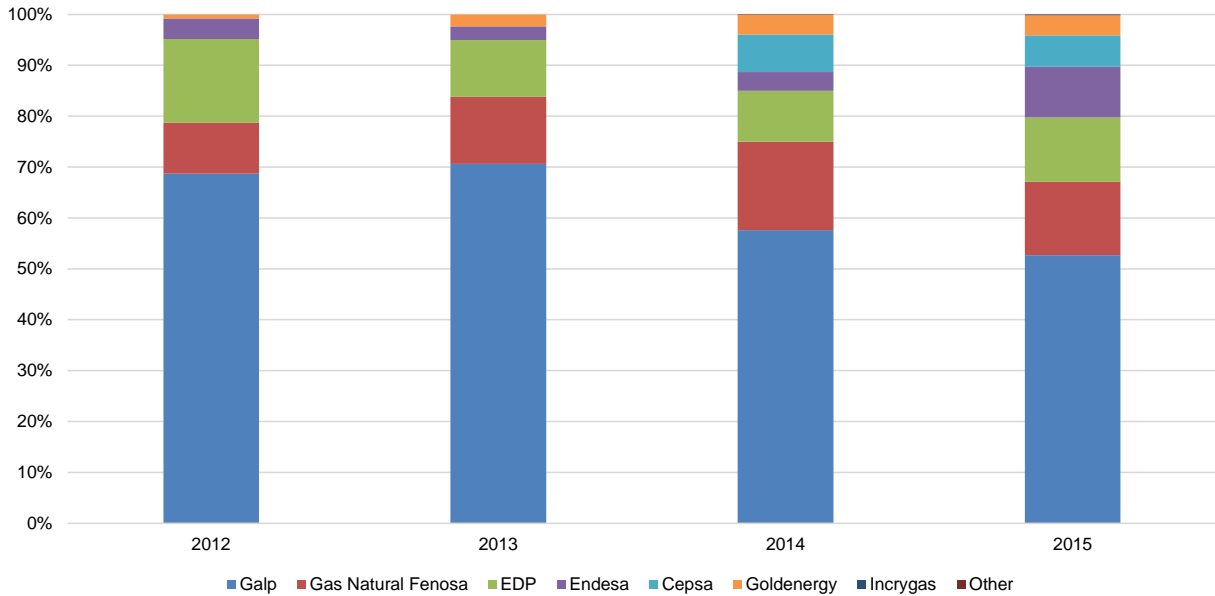
In terms of the number of customers, the residential segment is the largest one in the liberalised natural gas market, representing almost all customers, but only representing approximately 6% of the total consumption in this market.

At the end of 2015, there were nine suppliers operating on the market, eight of which present in the domestic consumer segment. The number of offers available to customers with consumption lower than 10,000 m³ has been increasing, and ERSE felt the need to create more effective conditions for consumer access to necessary information, with the aim of enabling them to make properly informed choices. Consequently, ERSE established a Directive (Directive no. 6/2015) concerning the provision of pre-contractual and contractual information to electricity consumers, which provides for the obligation to disclose and harmonise the contents of the conditions for the provision of pre-contractual and contractual information to electricity consumers in Mainland Portugal.

Therefore, the growth of the liberalised market and the decrease of overall market concentration in 2015, together with the provision of more and better information to consumers, led to a decrease in the level of concentration in the segment with lower consumption, i.e., in the domestic customer segment. The decrease in the market share of the Galp Group, the main operator on the natural gas market, has been

visible since 2014; the share decreased from nearly 70% of the consumption in 2013 to approximately 53% in 2015, as visible in Figure 4-8.

Figure 4-8 – Supply structure in the liberalised market by supplier, 2012 to 2015

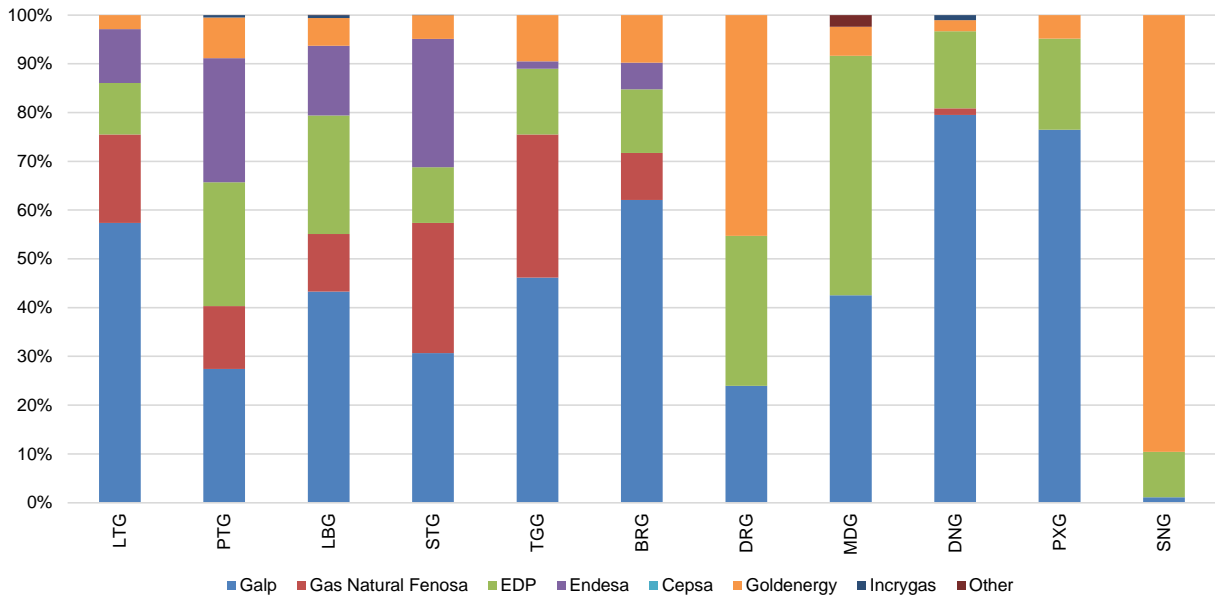


Source: REN Gasodutos data

Supplier switching rates are still high and, in 2015, approximately 25% of the natural gas consumers switched supplier.

Figure 4-9 shows the breakdown of market share by distribution network, in terms of consumption supplied. Unlike in previous years, in 2015 the Galp Group held a market share of over 50% in the distribution networks managed by Beiragás (BRG), Dianagás (DNG) and Paxgás (PXG).

Figure 4-9 – Breakdown of consumption supplied by suppliers on the liberalised market and by distribution network, 2015



Source: REN Gasodutos data

In 2015, the EDP Group was second in terms of natural gas supply share, a position that was more pronounced in the distribution networks operated by Portgás (PTG), LisboaGás (LBG), DurienseGás (DRG) and Medigás (MDG).

We should also highlight Goldenergy, which continues to hold majority positions in the distribution networks operated by DurienseGás and Sonorgás (SNG).

Endesa has approximately one quarter of the market shares in the areas concessioned by Portgás and Setgás; the same happens with Gás Natural Fenosa in the areas managed by Setgás and Tagusgás.

In 2014, an audit of supplier switching procedures which, in accordance with ERSE's rules, takes place every 2 years, was initiated. This audit focused on compliance with the provisions on supplier switching procedures established by ERSE, particularly in ensuring transparency and non-discrimination in the use of the platform, in order to ensure the proper processing of supplier switching and compliance with reporting deadlines. The audit was completed in 2015.

The auditor raised a series of doubts, namely as regards situations in which the deadlines for reply are exceeded by the suppliers or by the network operators, or reasons for objection attributable to the different players involved in the various stages of the switching process, which were not previously provided for in the applicable legal framework. Suggestions were made on how to resolve the situations that were not in line with the supplier switching procedures.

An analysis of the evolution of the retail market is available on the ERSE website in the form of a quarterly report, which shows the issues of competitive pressure on the market and on each of its segments.

4.2.2.2 RECOMMENDATIONS ON SUPPLY PRICES, INVESTIGATIONS AND MEASURES TO PROMOTE EFFECTIVE COMPETITION

RECOMMENDATIONS FOR SUPPLY PRICES

In 2015, ERSE did not publish recommendations regarding supply prices under the terms provided for in Article 37 of Directive 2009/72/EC, considering that the transitional tariff regime for the sale of natural gas to end-customers with an annual consumption lower than and higher than 10,000 m³ (transitional tariffs) remains in force. However, we should highlight that, every year, in the supporting document regarding the approved tariffs and prices, ERSE publishes the value of the additive tariffs. These average reference prices are calculated using the additive tariffs for the sale to end-customers, which are the sum of the tariffs by regulated activity published by ERSE. The energy tariff corresponds to the cost incurred by the wholesale supplier of last resort in the purchase and sale of natural gas, €23.56/MWh, and does not include aggravating factors provided for in the Order issued by the Government official responsible for energy⁷²). This information shows the costs associated with each activity, including the value of supply⁷³.

MEASURES TO PROMOTE EFFECTIVE COMPETITION

ERSE publishes an annual report, as a result of Recommendation no. 2/2013, concerning aspects of natural gas contracting that are relevant to consumers: the existence and scope of loyalty periods, the availability of payment forms and the indexing of prices on the liberalised energy market.

The number of offers available to customers with consumption lower than 10,000 m³ has been increasing, and ERSE felt the need to create more effective conditions for consumer access to the necessary information, with the aim of enabling them to make properly informed choices. Consequently, ERSE established a Directive (Directive no. 6/2015) concerning the provision of pre-contractual and contractual information to natural gas consumers, which provides for the obligation to disclose and harmonise the contents of the conditions for the provision of pre-contractual and contractual information to natural gas consumers in Mainland Portugal.

⁷² Under the terms of Order no. 108-A/2015, of 14 April.

⁷³ Information available in chapter 7.3 of the supporting document regarding tariffs and prices for 2015-2016, available at: <http://www.erse.pt/pt/gasnatural/tarifaseprecos/2015a2016/Documents/Tarifas%20GN%202015-2016.pdf>.

TARIFF DEFICIT

In the natural gas sector, there is no tariff deficit to be reported.

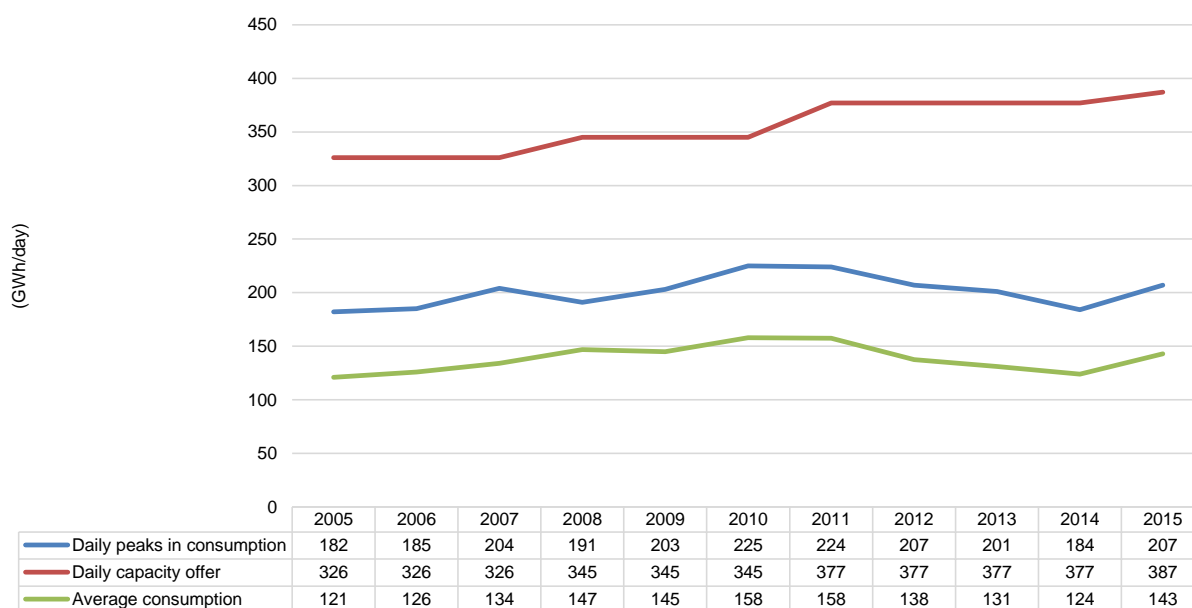
4.3 SECURITY OF SUPPLY

Under Portuguese law, the powers relating to the security of supply in the natural gas sectors are the responsibility of the Government, which delegated monitoring responsibilities to the Directorate General for Energy and Geology⁷⁴. However, ERSE monitors the evolution of the installed capacity and the evolution of demand, which is addressed in greater detail below.

4.3.1 MONITORING THE BALANCE BETWEEN SUPPLY AND DEMAND

Figure 4-10 shows the evolution of the capacity offered in the SNGN⁷⁵, average daily consumption and annual peak consumption of natural gas, between 2005 and 2015.

Figure 4-10 – Evolution in the capacity offered in the SNGN, daily average consumption and consumption peaks, 2005 to 2015



Source: REN Gasodutos data

⁷⁴ In accordance with Decree-Law no. 30/2006, of 15 February, as amended by Decree-Law no. 230/2012, of 26 October, and with Decree-Law no. 140/2006, of 26 July, as amended by Decree-Law no. 231-B/2012, of 26 October.

⁷⁵ The capacity offered in the SNGN corresponds to the sum of the entry capacity of the Campo Maior and Valença do Minho interconnections and the connection between RNTGN and the Sines LNG terminal.

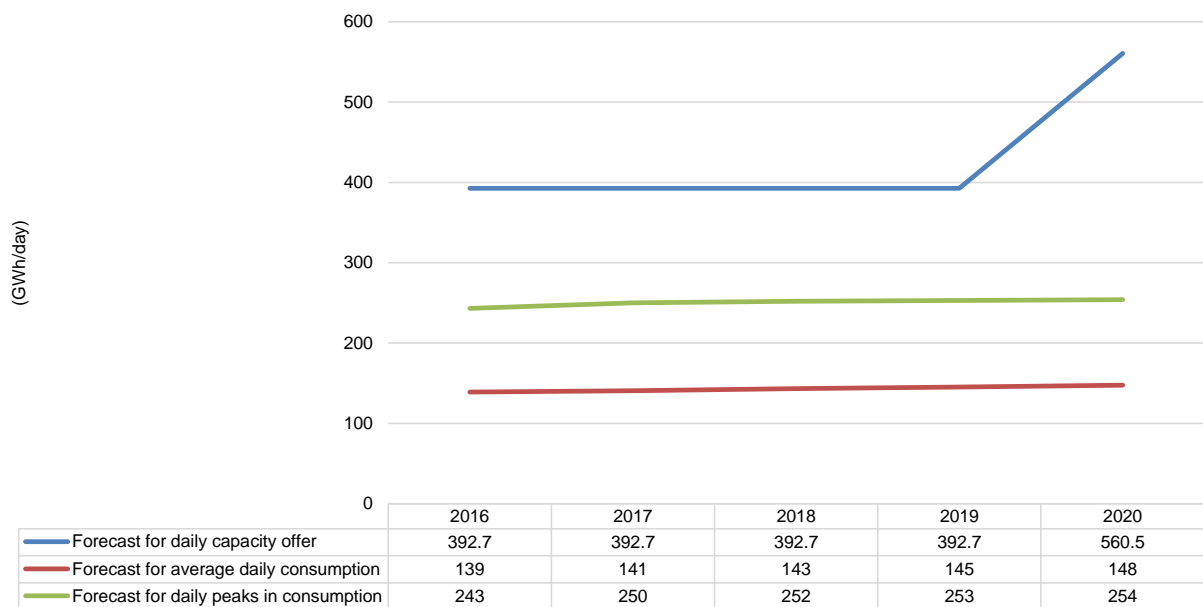
The analysis of the figure above shows a large gap between the capacity offered in SNGN and the annual consumption peaks, especially from the time when the Sines LNG terminal began operating in 2004. In 2015, the average daily consumption and the peak consumption represented, respectively, 37% and 53.5%, of the entry capacity offered in the SNGN, which reflects the margin that exists between the capacity available for commercial purposes and the capacity used.

ERSE monitors the allocation of capacity in the RNTGN, in particular the level of capacity offered for commercial purposes in comparison to the used capacity.

4.3.2 EXPECTED FUTURE DEMAND, AVAILABLE SUPPLIES AND ADDITIONAL CAPACITY

Figure 4-11 presents the forecast for the evolution of the capacity offered in the SNGN, average daily consumption and annual peak consumption of natural gas, between 2016 and 2020.

Figure 4-11– Evolution in the capacity offered in SNGN, daily average consumption and consumption peaks, 2016 to 2020



Source: REN Gasodutos data

An analysis of the figure above clearly shows the comfortable margin between the capacity offered for commercial purposes and the estimated capacity usage for the coming years. According to REN's forecasts, average daily consumption and peak consumption will represent, respectively, 26% and 45%, of the entry capacity offered in the SNGN in 2020.

4.3.3 MEASURES TO COVER PEAK DEMAND OR SHORTFALLS OF SUPPLIERS

The Portuguese market is essentially supplied by natural gas from Algeria and LNG from Nigeria. Indeed, the construction of the Sines LNG terminal, which began operating in 2004, was mainly related to the diversification of supply sources and the promotion of security of supply.

Another initiative to promote security of supply and diversification of supply sources is the integration of the Portuguese market into an Iberian market. Indeed, in 2013, the presence of market agents in the SNGN, with significant activity in Spain, led to an increase in the use of the interconnections, with the Portuguese market benefiting from a wider diversification of supply sources available in the Spanish market.

In addition to the measures adopted to safeguard security of supply and to meet peak consumption, on the supply side, there are also measures which have been planned and implemented for the demand side, namely the interruptibility of large consumers. Indeed, the power plants of Tapada do Outeiro and Lares have bi-fuel groups, and were granted interruptibility status by DGEG, for the purpose of maintaining natural gas emergency stocks. In this context, it is possible to act on the demand side in a situation of covering peak consumption or when there is a disruption in supply to the SNGN.

The legislative framework in force also establishes public service obligations regarding the establishment of natural gas emergency stocks which are intended to give the SNGN the means to respond to situations when there are disruptions in the supply and/or coverage of extreme peak consumption. In this context, the reinforcement of the Carriço underground storage infrastructure and the reinforcement of the storage component of the Sines LNG terminal make it possible to ensure compliance with the public service obligations established by Portuguese law and community regulations, namely Decree-Law no. 140/2006 of 26 July, as expressed by Decree-Law no. 231/2012 of 26 October and EC Regulation No 994/2010, respectively.

5 CONSUMER PROTECTION AND DISPUTE SETTLEMENT

5.1 CONSUMER PROTECTION

ERSE's mission to protect the rights and interests of energy consumers translates into the pursuit of certain functions and subsequent execution of various tasks, based on the regulatory framework itself. To this end, in 2015, it is worth highlighting legislative measures that directly affected ERSE's activity. In turn, ERSE undertook regulatory activities towards implementing the legislative options issued and triggered mechanisms for verifying compliance with applicable legal and regulatory provisions, as well as providing information and clarification to consumers, and actively participating in the resolution of disputes submitted for its intervention.

Thus, in 2015, the following legislative initiatives are worth underlining:

- Publication of Law no. 144/2015, of 8 September, which transposes into national law Directive 2013/11/EU of the European Parliament and of the Council of 21 May 2013 on alternative dispute resolution for consumer disputes (ADR). The aforementioned law establishes the principles and rules applicable to the functioning of ADR entities, to the out-of-court settlement of consumer disputes and to the legal framework of the Portuguese ADR entities, which are meant to operate as a network.
- Publication of Decree-Law no. 2/2015, of 6 January, which amends Decree-Law no. 195/99, of 8 June, thus extending the deadline for submitting requests for the reimbursement of deposits paid for essential public services, such as electricity and natural gas, to consumers, while creating additional obligations regarding the provision of information to customers whose deposits are yet to be refunded.
- Publication of Decree-Law no. 15/2015, of 30 January, which amends Decree-Laws no. 74/2012, of 26 March; 75/2012, of 26 March; 66/2010, of 11 June, and 104/2010 of 29 September, which establish the framework for the phase-out of regulated tariffs. This diploma changes the way the period is set for the application of the corresponding transitional tariffs for the supply of natural gas and electricity to end-customers with annual consumption lower than or equal to 10,000 m³ and with standard low voltage consumption, and forbids suppliers on the liberalised market from indexing contractual prices to the transitional tariff for end-customers.
- Publication of Decree-Law no. 205/2015, of 23 September, which amends Decree-Law no. 57/2008, of 26 March, concerning the legal framework applicable to unfair business-to-consumer commercial practices implemented before, during or after a commercial transaction related to a good or service, thus clarifying the transposition of Directive 2005/29/EC.

- Order No. 237/2015 of 12 August, which amends Order No. 278-C/2014 of 29 December, which defined new procedures and conditions for the granting, application and maintenance of the social tariff.

From the regulatory measures that had the greatest impact on consumer protection in 2015, we highlight the following:

- The obligation to provide pre-contractual and contractual information to electricity and natural gas consumers in Mainland Portugal.
- Detailed operative procedures for billing adjustments.
- Guidelines for measuring, reading and disclosing electricity data in Mainland Portugal

With regard to verifying compliance with the regulations it approved, ERSE promoted the execution of audits, particularly on supplier switching procedures in the electricity and natural gas sectors. We should also highlight the inspections carried out with a focus on the application of the extraordinary social support to the consumer and the social tariff.

ERSE also verified and monitored the changes introduced by some suppliers on the liberalised market in respect of the general terms of the supply contracts proposed, and those submitted by new suppliers.

With regard to the information given to consumers, in addition to answering individual requests, handled as part of dispute management, ERSE prepares and updates the information published on the Energy Consumer Portal, which can be found on ERSE's website. Also with the objective of providing energy consumers with clearer information, both directly and indirectly, ERSE organises or participates in, at the invitation of other entities, information and training sessions on the issues of greatest concern to electricity and natural gas consumers. In 2015, ERSE was present at several events, with particular emphasis being given to the topics of alternative dispute resolution, the phase-out of regulated tariffs and supplier switching.

As far as the resolution of conflicts of a commercial and contractual nature is concerned, ERSE employs mediation and conciliation procedures, whereby it can recommend the resolution of disputes or suggest to the parties that they find a mutually agreeable solution, but it may not impose these measures on the parties involved. Simultaneously, and as a result of a case-by-case analysis, ERSE recommends the use of arbitration, especially when carried out in the context of existing arbitration centres for consumer conflicts. The following section includes more detailed information on the handling of complaints by ERSE in 2015.

5.2 DISPUTE SETTLEMENT

ERSE directly intervenes in the resolution of disputes by encouraging the use of voluntary arbitration and making use of other mechanisms for settling disputes on a voluntary basis, whereby it can recommend the resolution of specific cases.

ERSE promotes frequent inspections of complaints records and of the installations of the electricity and natural gas suppliers to assess their compliance with the law and sector codes, particularly in relation to specific obligations relating to the Complaints Book.

In 2015, ERSE's information and energy consumer support service received 24,758 complaints, of which 19,898 were related to the electricity sector and 4,838 to the natural gas sector.

Of the total complaints received, 13,640 (approximately 55%) were complaints written in the Complaints Books of the companies against whom the complaints were lodged; 11,438 of these related to the electricity sector and 2,202 to the natural gas sector.

Billing, interruptions of supply, commercial quality and supply contracts were, once again, the topics that required the most attention from ERSE in 2015, in the electricity sector and in the natural gas sector.

In 2015, ERSE also received a total of 2,289 requests for information, from which we highlight the requests for information on tariffs and prices (410); supplier switching (358); supply contracts (337) and billing (298).

Every working day, from 3 p.m. to 6 p.m., ERSE's energy consumer information and support service provides information via a dedicated low-cost telephone line⁷⁶.

⁷⁶ The consumer pays only the cost of a local call with the remainder being covered by ERSE.

ANNEXES

I. LIST OF ABBREVIATIONS AND ACRONYMS

- ACE – Energy Consumers Support Office
- ACER – Agency for the Cooperation of Energy Regulators
- BCM – Billion Cubic Meters
- CAE – Electrical Power Purchase Agreements
- CAPEX – Capital Expenditure
- CCGT – Combined Cycle Gas Turbine
- CDS – Credit Default Swaps
- CEER – Council of European Energy Regulators
- CIEG – General Economic Interest Costs
- CMEC – Costs of Maintenance of Contractual Equilibrium
- CMVM – Comissão de Mercados e Valores Mobiliários
- CNMC – *Comisión Nacional de Mercados y Competencia*
- CNMV – *Comisión Nacional de Mercados de Valores*
- DGEG – Directorate General for Energy and Geology
- DSO – Distribution System Operator
- EHV – Extra High Voltage (voltage between phases whose effective value is greater than 110 kV)
- ERI – Electricity Regional Initiative
- ERSE – Energy Services Regulatory Authority
- FCFS – First Come First Served
- FTR – Financial Transmission Rights
- GRI – Gas Regional Initiative
- GRMS – Gas Regulation and Measurement Station
- GWh – Gigawatt hour
- HP – High Pressure (pressure whose value exceeds 20 bar in relation to atmospheric pressure)

- HV – High Voltage (voltage between phases whose effective value is greater than 45 kV and less than or equal to 110 kV)
- LNG – Liquefied Natural Gas
- LP – Low Pressure (pressure whose value is lower than 4 bar in relation to atmospheric pressure)
- LV – Low Voltage (voltage between phases whose effective value is equal to or lower than 1 kV)
- MIBEL – Iberian Electricity Market
- MIBGAS – Iberian Natural Gas Market
- MP – Medium pressure (pressure between 4 and 20 bar in relation to atmospheric pressure)
- MPAI – Procedures Manual for Access to SNGN Infrastructure
- MV – Medium Voltage (voltage between phases whose effective value is greater than 1 kV and less than or equal to 45 kV)
- NEMO – Nominated Electricity Market Operator
- OMI – Iberian Market Operator
- OMIE – Iberian Energy Market Operator – Spanish Section, SA
- OMIP – Iberian Market Operator - Portuguese Section
- OPEX – Operational Expenditure
- OTC – Over The Counter
- PCI – Project of Common Interest
- PDBF – Base Daily Operating Schedule
- PDIR – Development and Investment Plan of the RNTIAT
- RARII – Access to Networks, Infrastructure and Interconnections Code
- REN – Rede Eléctrica Nacional
- RNDGN – National Natural Gas Distribution Network
- RNT – National Electricity Transmission Network
- RNTGN – National Natural Gas Transmission Network
- RNTIAT – National Transmission Network, Storage Infrastructure and LNG Terminal Network
- RQS – Quality of Service Code
- RRC – Commercial Relations Code
- RT – Real Time

- RT – Tariff Code
- SEN – National Electricity System
- SLR – Supplier of Last Resort
- SNGN – National Natural Gas System
- SpLV – Special Low Voltage (LV supply or delivery where contracted power is greater than 41.4 kW)
- SRG – Special Regime Generation
- StLV – Standard Low Voltage (LV supply or delivery where contracted power is equal to or lower than 41.4 kVA)
- SWE REM – Southwestern Europe Regional Electricity Market
- TSO – Transmission System Operator
- VIP – Virtual Interconnection Point
- WACC – Weighted Average Cost of Capital

II. LIST OF LEGAL DIPLOMAS

A. NATIONAL LEGISLATION

- Law no. 144/2015, of 8 September, which transposes Directive 2013/11/EU, of the European Parliament and of the Council of 21 May 2013 on alternative resolution for consumer disputes, establishing a legal framework for out-of-court settlement mechanisms
- Law no. 75/2015, of 28 July, which governs the access to and exercise of the provision of audit services to cogeneration plants or to plants whose production is based on renewable energy sources
- Law no. 9/2013, of 28 January, which approves the Energy Sector Penalty System, transposing, together with the amendment to the Statutes of the Energy Services Regulatory Entity, Directives 2009/72/EC and 2009/73/EC, of the European Parliament and of the Council of 13 July 2009, concerning common rules for the internal market in electricity and natural gas and repealing Directives 2003/54/EC and 2003/55/EC, of the European Parliament and of the Council of 26 June 2003
- Decree-Law no. 205/2015, of 23 September, which amends Decree-Law no. 57/2008, of 26 March, concerning the legal framework applicable to unfair business-to-consumer commercial practices implemented before, during or after a commercial transaction related to a good or service, thus clarifying the transposition of Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005
- Decree-Law no. 68-A/2015, of 30 April, which sets out provisions with regard to energy efficiency and cogeneration production, transposing Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency
- Decree-Law no. 15/2015, of 30 January, which amends Decree-Laws no. 74/2012, of 26 March; 75/2012, of 26 March; 66/2010, of 11 June, and 104/2010 of 29 September, which establish the framework for the phase-out of regulated tariffs. This diploma changes the way the period is set for the application of the corresponding transitional tariffs for the supply of natural gas and electricity to end-customers with annual consumption lower than or equal to 10,000 m³ and with standard low voltage consumption, and forbids suppliers on the liberalised market from indexing contractual prices to the transitional tariff for end-customers.
- Decree-Law no. 2/2015, of 6 January, which amends Decree-Law no. 195/99, of 8 June, thus extending the deadline for submitting requests for the reimbursement of deposits paid for essential public services, such as electricity and natural gas, to consumers, while creating additional obligations regarding the provision of information to customers whose deposits are yet to be refunded
- Decree-Law no. 172/2014, of 14 November, which introduces the first amendment to Decree-Law no. 138 -A/2010, of 28 December, which creates the social tariff for the supply of electricity, and the

first amendment to Decree-Law no. 102/2011, of 30 September, which creates the extraordinary social support for energy consumers, with the purpose of broadening the eligibility conditions for attributing the aforementioned social tariff to end-customers regarded as economically vulnerable

- Decree-Law no. 231/2012, of 26 October, which introduces the third amendment to Decree-Law no. 140/2006, of 26 July and concludes the transposition of Directive 2009/73/EC, of the European Parliament and of the Council of 13 July concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC of the European Parliament and of the Council of 26 June
- Decree-Law no. 230/2012, of 26 October, which introduces the fifth amendment to Decree-Law no. 30/2006, of 15 February and completes the transposition of Directive 2009/73/EC, of the European Parliament and of the Council of 13 July concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC, of the European Parliament and of the Council of 26 June. It also implements Regulation (EC) No 715/2009, of the European Parliament and of the Council of 13 July on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005, and Regulation (EU) No 994/2010, of the European Parliament and of the Council of 20 October concerning measures to safeguard security of gas supply and repealing Council Directive 2004/67/EC
- Decree-Law no. 215-B/2012, of 8 October, which introduces the sixth amendment to Decree-Law no. 172/2006, of 23 August, and completes the transposition of Directive 2009/72/EC of the European Parliament and of the Council of 13 July concerning common rules for the internal market in electricity
- Decree-Law no. 215-A/2012, of 8 October, which introduces the fifth amendment to Decree-Law no. 29/2006, of 15 February, transposing Directive 2009/72/EC of the European Parliament and of the Council of 13 July concerning common rules for the internal market in electricity
- Parliamentary Resolution no. 23/2006, which approves the Agreement between the Portuguese Republic and the Kingdom of Spain for the Constitution of an Iberian Electrical Energy Market (MIBEL), signed in Santiago de Compostela on 1 October 2004
- Resolution of the Council of Ministers no. 20/2013, published in the Official Gazette, 1st series, of 10 April, which approves the National Energy Efficiency Action Plan for the period 2013-2016 and the National Renewable Energy Action Plan for the period 2013-2020
- Order no. 643/2015, of 21 August, which establishes the percentages of the shareholdings of different companies in MIBGAS, S. A., the company that is authorised to manage the organised gas spot market, as part of the creation of the Iberian Natural Gas Market (MIBGAS)
- Order no. 237/2015 of 12 August, which amends Order no. 278-C/2014 of 29 December, which defined new procedures and conditions for the granting, application and maintenance of the social tariff

- Order no. 108-A/2015, of 14 April, which defines the mechanism for determining the aggravating factor included in the transitional tariff for end-customers of natural gas
- Order no. 97/2015, of 30 March, which approves the new dates of the period for applying transitional tariffs to end-customers for natural gas with annual consumption equal to or lower than 10,000 m³ and for electricity with consumption at normal low voltage
- Order no. 251-B/2014, of 28 November, which introduces the second amendment to Order no. 332/2012, of 22 October, concerning the criteria for the differentiated impact of costs arising from measures related to energy, sustainability or general economic interest policies on the tariff for the overall use of the system applicable to activities covered by the National Electricity System
- Regulation no. 416/2016, of 29 April, which approves the Commercial Relations Code for the natural gas sector
- Regulation no. 557/2014, of 19 December, which approves the Commercial Relations Code for the electricity sector.
- Regulation no. 551/2014, of 15 December 2014, which approves the Tariff Code for the electricity sector
- Regulation no. 455/2013, of 29 November, which approves the Quality of Service Code for the electricity sector and the corresponding Procedure Manual
- Regulation no. 139-C/2013, of 16 April, which approves the Access to Networks, Infrastructure and Interconnections Code (RARII)
- Regulation no. 139-A/2013, of 16 April, which approves the Quality of Service Code for the Natural Gas Sector
- Directive no. 5/2016, of 26 February, of ERSE, which approves the Guidelines for Measuring, Reading and Disclosing Electricity Data in Mainland Portugal
- Directive 15/2015, of 9 October, of ERSE, which establishes commercial margins for the market agents
- Directive no. 8/2015, of 27 May, of ERSE, which details the operative procedures for the application of these adjustments
- Directive no. 6/2015, of 27 April, of ERSE, concerning the provision of pre-contractual and contractual information to electricity consumers, which provides for the obligation to disclose and harmonise the contents of the conditions for the provision of pre-contractual and contractual information to electricity consumers in Mainland Portugal
- Directive no. 14/2014, of 4 August, of ERSE, which approves the Procedure Manual for Access to Infrastructure (MPAI)

- Directive no. 23/2013, of 22 November, of ERSE, on image differentiation in the electricity sector
- Directive no. 21/2013, of 22 November, of ERSE, which approves the deadlines for the classification of Exceptional Events and for providing information to ERSE
- Directive no. 20/2013, of 22 November, of ERSE, which approves the Parameters for the Quality of Service Regulation
- Order no. 8810/2015, of 10 August, of the Directorate General for Energy and Geology, which lays down the necessary rules and procedures to establish a discipline for the interruption of generation under the special regime, namely the order and sequence of the power reduction to be complied with by the special-regime generating plants connected to the RNT or the RND
- Order no. 3677/2011, of 24 February, of ERSE, which establishes the monitoring of reference prices and average prices charged by natural gas supplies, in order to define the information requirements to be met by the suppliers as regards the calculation and disclosure of both the reference prices that the suppliers expect to charge in the market and the average prices that are effectively charged
- Order no. 18637/2010, of 15 December, of ERSE, which establishes the monitoring of reference prices and average prices charged by electricity supplies, in order to define the information requirements to be met by the suppliers as regards the calculation and disclosure of both the reference prices that the suppliers expect to charge in the market and the average prices that are effectively charged. This order amends Order no. 9244/2009, introducing some changes in the methodology for calculating reference prices and of the average prices that are charged.
- Order no. 1801/2009, of 14 January, of ERSE, with proceeds with the quarterly review applicable to energy prices for natural gas tariffs in the 1st quarter of 2009
- Decision no. 1/2014, of 21 February, of ERSE, which approves the processes for the allocation of capacity in the virtual point of natural gas interconnection between Portugal and Spain
- Recommendation no. 2/2013, concerning aspects of electricity contracting that are relevant for the consumers: the existence and scope of loyalty periods, the availability of payment methods and the indexing of prices on the liberalised energy market

B. EU LEGISLATION

- Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community.
- Directive 2009/28/EC, of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC

- Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC
- 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
- Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC
- Commission Regulation (EU) No 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management
- Commission Regulation (EU) No 2015/703 of 30 April 2015 establishing a network code on interoperability and data exchange rules
- Commission Implementing Regulation (EU) No 1348/2014 of 17 December 2014 on data reporting implementing Article 8(2) and Article 8(6) of Regulation (EU) No 1227/2011 of the European Parliament and of the Council on wholesale energy market integrity and transparency
- Commission Regulation (EU) No 543/2013 of 14 June 2013 on submission and publication of data in electricity markets and amending Annex I to Regulation (EC) No 714/2009 of the European Parliament and of the Council
- Commission Regulation (EU) No 984/2013 of 14 October 2013 establishing a Network Code on Capacity Allocation Mechanisms in Gas Transmission Systems and supplementing Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July on conditions for access to the natural gas transmission networks.
- Regulation (EU) No 1227/2011 of the European Parliament and of the Council of 25 October 2011 on wholesale energy market integrity and transparency (REMIT)
- Regulation (EC) No 994/2010 of the European Parliament and of the Council of 20 October 2010 concerning measures to safeguard security of gas supply and repealing Council Directive 2004/67/EC
- Regulation (EC) No 715/2009, of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005
- Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No 1228/2003

III. INDICATORS OF TECHNICAL CONTINUITY OF SUPPLY

TIE	Equivalent Interruption Time: indicator applying to the transmission network. This expresses the system's downtime (applicable to long-term interruptions), based on the average value of the expected annual capacity (Pme)
TIEPI	Installed Capacity Equivalent Interruption Time: Indicator applying to the MV distribution network. This shows the duration of the downtime (applicable to long-term interruptions) of the installed capacity in transformer stations
SAIDI	Average duration of long system interruptions: indicator applying to the transmission and distribution networks
SAIFI	Average frequency of long system interruptions: indicator applying to the transmission and distribution networks
MAIFI	Average frequency of short system interruptions: indicator applying to the transmission and distribution networks

Note: Long interruptions - Interruptions with a duration of over 3 minutes. Short interruptions - Interruptions with a duration between 1 second and 3 minutes, inclusive.