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1 INTRODUCTORY REMARKS

The year of 2009 was notable for the strengthening of the electricity and natural gas markets with a view to consolidating a single energy market for Iberia. This would be a positive experience from the standpoint of the creation of the European Union's internal energy market.

It is thus important to look at the main developments that have occurred in the Wholesale Iberian Electricity Market (MIBEL), which allow for the conclusion, on the basis of almost two years' operating experience, that there has been a steady integration of the two markets, reflected in the following developments: (i) reduction of the electricity market price; (ii) reduction of the price differences between the two countries in 2009; and (iii) significant reduction of the periods of market spliting. Several occasional factors played a role in this, such as the reduction in electricity consumption in the two countries and the fall in primary energy prices compared with 2008 due to the international economic and financial crisis. Structural factors were involved, too, such as the expansion of installed capacity in combined cycle plants in Portugal.

In terms of the Iberian Natural Gas Market (MIBGÁS), ERSE and CNE developed a joint initiative in 2009 to harmonise gas supply licences in Iberia, which resulted in a proposal for the mutual recognition of natural gas market supply licences in the context of the MIBGÁS submitted to the Portuguese and Spanish governments in early 2010.

With respect to Portugal, 2009 was marked by the progress made towards market concentration. In the electricity sector there was a slight reduction of concentration in the generation market due to the increase in installed capacity for the special regime generation, especially increased use of wind farms, this being a segment in which the incumbent does not control the majority of the market, and also due to the assignment by the latter of part of its hydropower generation to a new operator following a decision by the competition authority.

With respect to natural gas, ERSE held the first auction to offload quantities of natural gas in 2009, making it possible to place 300 million cubic metres in order to promoting the decentralisation of the gas market. This measure resulted in the placing of the equivalent of around 6% of the year's overall demand at the disposal of the agents.

With respect to the retail markets, there was a transfer of electricity consumers supplied by the last resort suppliers (LRS) to market suppliers, because the end-user tariff charged by the LRS for 2009 had a reference price for the cost of energy that was found to be higher than the average spot market price. In relation to natural gas, the timetable for opening up the market as defined by law established that all customers consuming more than 10 000 m^3 (n) could freely choose their supplier from 1 January 2009, and all customers would be able to do so from 1 January 2010. During the year in question, the market was opened up to power plants and to all industrial consumers, which accounted for around 94% of the overall market. For the effective choice of supplier, management of the supplier switching process was

assigned to the operator of the national electricity transmission network. ERSE established and published in March 2009 the procedures and supplier switching time limits to be observed.

From the regulatory standpoint, ERSE worked on a project to continuously monitor the electricity wholesale market trend and the behaviour of the agents operating in it. The purpose was to strengthen the transparency and integrity of its operations. With respect to the electricity retail market, attention is drawn to the price monitoring activity. For this, the methodology known as “Monitoring reference prices and average prices practised by electricity suppliers” was approved in 2009. This laid down the information requirements to be established with the suppliers in relation to the calculation and forwarding of both the reference prices suppliers expect to be practising in the market and the average prices actually practised.

In terms of the natural gas market’s performance, ERSE implemented measures in 2009 that led to additional growth in this sector and which included the adoption of new regulation models to be applied in the new three-year regulation period, 2010-2011 to 2012-2013.

Still related to the performance of the electricity and natural gas sectors, transparency and greater rigour in the commercial operations engaged in by the agents demand an independent, neutral, impartial and responsible intervention, particularly by the networks and other infrastructure operators and the LRS (last resort suppliers). In this context the regulatory revision approved by ERSE for the electricity sector, within the 2009-2011 regulatory period, imposed an obligation on these operators to provide codes of conduct, set up autonomous websites and present a proposal with a view to distinguishing their images.

A similar path was marked out for the natural gas operators, with the regulatory proposal being launched in 2009 and approved early in 2010.

Finally, we should mention developments related to public service obligations. Portugal was one of the Member States whose regulators accepted the invitation of the European Commission to be the national authority responsible for implementing a checklist of energy consumers’ rights. In the meantime, the third legislative package for energy, in which ERSE played an active part as chair of the Energy Package Working Group, as part of the work of the CEER/ERGEG, established the duty to disseminate a list of rights enjoyed by energy consumers.

ACRONYMS

- ACE – Energy Consumers Support office.
- CCGT – Combined-cycle gas turbines.
- CEER – Council Of European Energy Regulators
- CNE – Comisión Nacional de Energía (Spain).
- CRE – Commission de Régulation de l'Énergie (France).
- DGEG – Directorate-General for Energy and Geology.
- DSO – Distribution System Operator.
- DUoN – Distribution Use of Network.
- DUoN (HV) – Distribution Use of Network in HV.
- DUoN (LV) – Distribution Use of Network in LV.
- DUoN (MV) – Distribution Use of Network.
- ERGEG – European Regulators Group for Electricity and Gas
- ERSE – Energy Services Regulatory Authority (Portugal).
- GUoS – Global Use of System.
- HP – High pressure (pressure of more than 20 bar in relation to atmospheric pressure).
- HV – High Voltage (voltage RMS between phases greater than 45 kV and lower than or equal to 110 kV).
- LNG – Liquefied Natural Gas.
- LP – Low pressure (pressure of less than 4 bar in relation to atmospheric pressure).
- LRS – Last Resort Supplier.
- LV – Low Voltage (RMS voltage between phases equal to or lower than 1 kV).
- MIBEL – Iberian Electricity Market.
- MP – Medium pressure (pressure of 4 bar or more and equal to or less than 20 bar in relation to atmospheric pressure).
- MV – Medium Voltage (RMS voltage between phases greater than 1 kV and equal to or lower than 45 kV).
- OMEL – Operador del Mercado Ibérico de Energia – Pólo Español, SA (spot market).
- OMIP – Operador do Mercado Ibérico de Energia – Polo Português , SA (derivatives market).

- OTC – Over The Counter.
- PDIR - RNTIAT Development and Investment Plan.
- PPA – Power Purchase Agreement.
- RMS – Root Mean Square.
- RNT – National Electricity Transmission Network (Mainland Portugal).
- RNTGN – National Natural Gas Transmission Network.
- RNTIAT – National Transmission, Storage Infrastructure and LNG Terminal Networks.
- SNGN – National Natural Gas System.
- SpLV – Special Low Voltage (LT supply or delivery where subscribed power is (i) Mainland Portugal - above 41.4 kW, (ii) Autonomous Region of the Azores – equal to or above 20.7 kW and is achieved by way of maximum power at 15 minute intervals, (iii) Autonomous Region of Madeira - above 62.1 kW).
- SRG – Special Regime Generation.
- StLV – Standard Low Voltage (LT supply or delivery where subscribed power is (i) Mainland Portugal - 41.4 kW or lower, (ii) Autonomous Region of the Azores – 215 kW or lower and is not achieved by way of maximum power at 15 minute intervals, (iii) Autonomous Region of Madeira - 62.1 kVA or lower).
- TSO – Transmission System Operator.
- TUoN – Transmission Use of Network.
- VHV – Very High Voltage (effective voltage between phases greater than 110 kV).

2 KEY DEVELOPMENTS IN THE ELECTRICITY AND NATURAL GAS SECTORS

2.1 WHOLESALE MARKET

DEGREE OF CONCENTRATION AND MARKET POWER

There was a slight fall in the concentration in the electricity generation market in 2009 in terms of both installed capacity and also energy generated. A crucial contribution to this development was the growth of the installed capacity of SRG[1] and the corresponding energy generated, especially from wind farms, this being a segment in which the incumbent is not dominant. At any rate, in the second half of the year the major market operator expanded its standard regime generation portfolio, largely by means of a new CCGT plant and assigned part of its hydropower generation capacity to a new operator following a stipulation to this effect by the competition authority.

Also in terms of generation concentration, 2009 did not continue with the mechanisms to assign generation capacity employed in 2007 and 2008.

The more favourable development of supply under a market regime led to greater dispersion of energy contracting resources, particularly to an increase in the amount of energy involved in bilateral contracts, although the value of the spot market acquisitions remained high in relation to other markets.

Wholesale market operations in 2009 also benefited from less hostile price forming conditions on the organised market: there were occasional factors which led to fewer price differences between the MIBEL price areas (to which Portugal belongs), such as the trend in primary energy prices and in the global demand for electricity, and others of a structural nature, like the coming into operation of new generation capacity, which allowed the reduction of structural differences in the power plant generation system between the two MIBEL areas. In this context, the number of hours of market splitting declined significantly, in line with the evolution of the price difference between the two MIBEL areas. Therefore, the integration of the markets ought to be viewed as an additional expression of more effective conditions for free competition.

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

[1] The special regime generation of electricity is the activity licensed according to special legal schemes, under the adoption of policies intended to foster the generation of electricity by means of renewable endogenous resources or combined heat and electricity generation technology.

In relation to the natural gas sector, attention is drawn to the start of implementation of market mechanisms to assign regulated amounts of natural gas, via the first auction which was held in 2009 for the gas year[2] 2009-2010. At any rate, energy consumption over 2009, along with the international economic and financial crisis imposed market conditions in which demand fell short of the amounts contracted.

On the whole, therefore, the electricity wholesale market developed favourably in 2009, as did the natural gas wholesale market, albeit to a lesser degree, and this caused a reduction of overall concentration of electricity generation and, prospectively, of the supply of natural gas. Even so, a high level of concentration persists in the electricity and natural gas markets and the implementation of further measures to foster competition and promote transparency should follow on from the developments already achieved.

MARKET INTEGRATION

With a view to consolidating market integration in the context of creating the internal energy market two initiatives under ERGEG regional initiatives are particularly worth mentioning, the South-West Electricity Regional Market (South-west ERI) for the electricity sector and the South Europe Gas Regional Market (South GRI) for the natural gas sector, alongside the Iberian Natural Gas Market (MIBGAS).

The South-West ERI is one of the seven regional electricity markets set up under the ERGEG regional initiatives. The purpose of the South-West ERI is to integrate the electricity markets of France and the Iberian Peninsula (MIBEL) in a single regional electricity market. The Spanish regulator for the sector, CNE, is coordinating the activity of the South-West ERI in collaboration with ERSE, in Portugal, and the French regulator, CRE. A number of steps were taken in 2009, which are explained in greater detail in main document's section 3.2.1 of the, in order to consolidating this market.

Various measures were undertaken to strengthen this market in 2009 under the Gas Regional Initiative for South Europe (South GRI), established in 2006, particularly by allocating short and long term capacity in the interconnection between France and Spain, as described in section 4.2.1 of the main document.

In terms of the Iberian Natural Gas Market (MIBGAS), a joint initiative of ERSE and CNE submitted to the Portuguese and Spanish governments in 2008 saw the start of the process to harmonise natural gas market supply licences in Iberia, as explained in section 4.2.1 of the main document.

[2] The gas year runs from 1 July each year to 30 June of the following year.

2.2 RETAIL MARKET

Bearing in mind the specificities of the electricity and natural gas retail markets, each market will be dealt with separately.

2.2.1 ELECTRICITY SECTOR

MARKET DEVELOPMENT

In 2009 the retail market saw a clear recovery of the liberalised segment of electricity consumption which was prompted by the competitiveness of energy prices on the market in relation to the implicit value of that energy in the regulated tariffs. In addition, the energy price differences between Portugal and Spain narrowed on the wholesale market and this favoured the perception of lower commercial risk on the part of new entrants.

In 2009 the concentration in the electricity retail market was characterised by growth in the liberalised segment and greater dispersion of market shares.

Supplier switching in the electricity market was characterised by a significant penetration, in late 2009, by open market suppliers in the large customer and industrial customer segments, with respective shares of 40% and 50% of total consumption in each segment.

END USER TARIFFS

As regards the end user sales tariffs development , mainland Portugal the following nominal change, differentiated by voltage level and supply type, was ascertained between 2009 and 2008:

Table 2-1 – Nominal tariff change for end users between 2009 and 2008

	Change 2009/2008
End User Tariffs	**4.9%**
VHV	5.9%
HV	5.9%
MV	5.9%
LV	4.4%
SpLV	4.8%
StLV	4.3%

ERSE is responsible for monitoring the retail price of electricity and for informing consumers and the other market agents. In this context it is responsible for overseeing the market at various levels, including those relating to prices. This monitoring of market prices is supplemented by the reports issued by the official bodies (INE and EUROSTAT).

As will be seen in section 3.2.2 of the main document, in 2009 ERSE commenced procedures to set up a database in order to analyse retail market operations.

At the same time, the reference prices sent by the various suppliers operating on the market in mainland Portugal enable ERSE to provide a price simulator for StLV facilities on its website.

2.2.2 NATURAL GAS SECTOR

MARKET DEVELOPMENT

There was a significant transfer of LRS supplied consumers to the market regime in 2009. ERSE approved supplier switching procedures and this made it possible to develop a software platform capable of handling supplier switching processes from 1 January 2010, the date from which all consumers, including households, would be able to freely choose their supplier. These procedures followed ERGEG's recommendations on good practices, with the aim of improving transparency and reducing information asymmetries in the choice of supplier.

END USER TARIFFS

The household customer segment had not yet been liberalised in 2009. The LRS who supply this segment charge the End User tariffs set by ERSE.

The table below shows the average price trend for the End User tariffs for the 2009-2010 gas year.

Table 2-2 – Nominal change in End User tariffs

End User Tariffs	Change
Consumption > 2 000 000 m^3/year	-7.2%
10 000 m^3/year< Consumption < 2 000 000 m^3/year	-4.6%
Consumption < 10 000 m^3/year	-3.9%

2.3 PUBLIC SERVICE OBLIGATIONS

Compliance with public service obligations, which include consumer protection, prompted a number of initiatives in 2009.

Portugal was one of the Member States whose regulator accepted the invitation of the European Commission to be the national authority responsible for implementing a checklist of energy consumers' rights. This checklist was prepared by ERSE in collaboration with several partners, including consumer groups and government departments responsible for the areas of consumer affairs and energy. This list of energy consumers' rights was published on the ERSE website and websites of other participants on the 15th of March, which was the World Consumer Rights Day. Meanwhile, the third legislative package established the duty to publish a list of energy consumers' rights.

Following the development of ERSE's new institutional portal in 2009, the energy consumer's portal was also launched. This contains information designed to answer the main concerns and needs of energy consumers. The portal is also intended to provide better information so as to contribute to the efficacy of ERSE's responses to citizens' requests.

2009 was also marked by inspections of the complaints records of the regulated companies, as part of the systematic and legally empowered activity of the regulator. Four companies were inspected with a view to checking the application of (among others) the rules applying to public service obligations, with which the network operators and suppliers, especially the LRS, are bound to comply.

The key objective of the ERSEFORMA programme is educating consumers, directly or via the bodies that represent or cooperate to uphold their interests. In 2009 it also undertook several education and information actions on the regulation of the electricity and natural gas sectors. The ERSEFORMA programme is targeted at public and private entities which are responsible for applying energy sector legislation, such as consumer protection groups, small claims courts, arbitration centres and companies providing services related to the regulated sectors. Between 2008 and 2009 ERSE ran 18 training actions

for 223 trainees. One should also highlight the new Energy Consumer Programme that was drawn up in 2009, for implementation in 2010.

COMPLAINTS AND REQUESTS FOR INFORMATION

ERSE has a multidisciplinary team which receives, processes and answers complaints and requests for information from all energy consumers who approach it.

ERSE may intervene to resolve complaints in two ways:

- Administrative interventions – these include complaints sent to ERSE that may amount to an infringement of the regulations within ERSE's remit and lead to the need to impose a sanction on the entity complained of. An intervention by ERSE neither impedes nor prohibits recourse to the courts, and decisions by ERSE can be appealed in the civil courts.
- Voluntary interventions making use of alternative means of resolving disputes - these include complaints on matters not covered by the normative or supervisory remit of ERSE. In these cases any intervention by ERSE is not binding.

In 2009 ERSE received 3197 complaints related to the electricity sector and 1701 about the natural gas sector. The main topics of complaints in both sectors related to billing and quality of commercial service, issues that accounted for 87% of all complaints in the electricity sector and 73% in the natural gas sector.

In terms of requests for information, ERSE received about 1,200 such requests in 2009, of which 65% related to the electricity sector and 21% to the natural gas sector. The other 14% were related to matters outside ERSE’s sphere of regulatory competence, in particular to propane gas (8%). In both sectors the issues that triggered the highest number of information requests were related to electricity and natural gas prices and billing and supplier switching.

As part of its regulatory activity, ERSE receives and appraises information on requests for information and complaints provided by sundry agents from the regulated sectors (network operators, infrastructure operators, suppliers and last resort suppliers).

2.4 INFRASTRUCTURE

Due to the specificities of the electricity and natural gas sectors, each sector is dealt with separately in this section.

2.4.1 ELECTRICITY SECTOR

ACCESS TARIFFS

In 2009 the method for calculating the grid access tariffs remained unchanged (see point 3.1.2.1 of the main document).

INVESTMENT IN DIRECT LINES (ARTICLE 22)

There was no investment in direct customer supply lines from dedicated generating plants in 2009.

ALLOCATION OF INTERCONNECTION CAPACITY

The allocation of capacity in the Iberian Electricity Market during 2009 was exclusively based on the allocation of capacity by implicit auction through the daily market. No explicit auction of capacity was carried out, as had been provided for in the regulations in force in mainland Portugal.

In terms of interconnection use between Portugal and Spain, the number of hours when interconnections were in full use fell by over 50%, while the congestion rate fell from 62% in 2008 (5 442 hours) to 38% in 2009 (2 172 hours). There was also a trend for the price difference between Portugal and Spain to fall, with an annual average value of EUR 0.67/MWh compared with EUR 5.5/MWh in 2008. There were around 223 hours in 2009 when the interconnection was congested in the Portugal-Spain export direction.

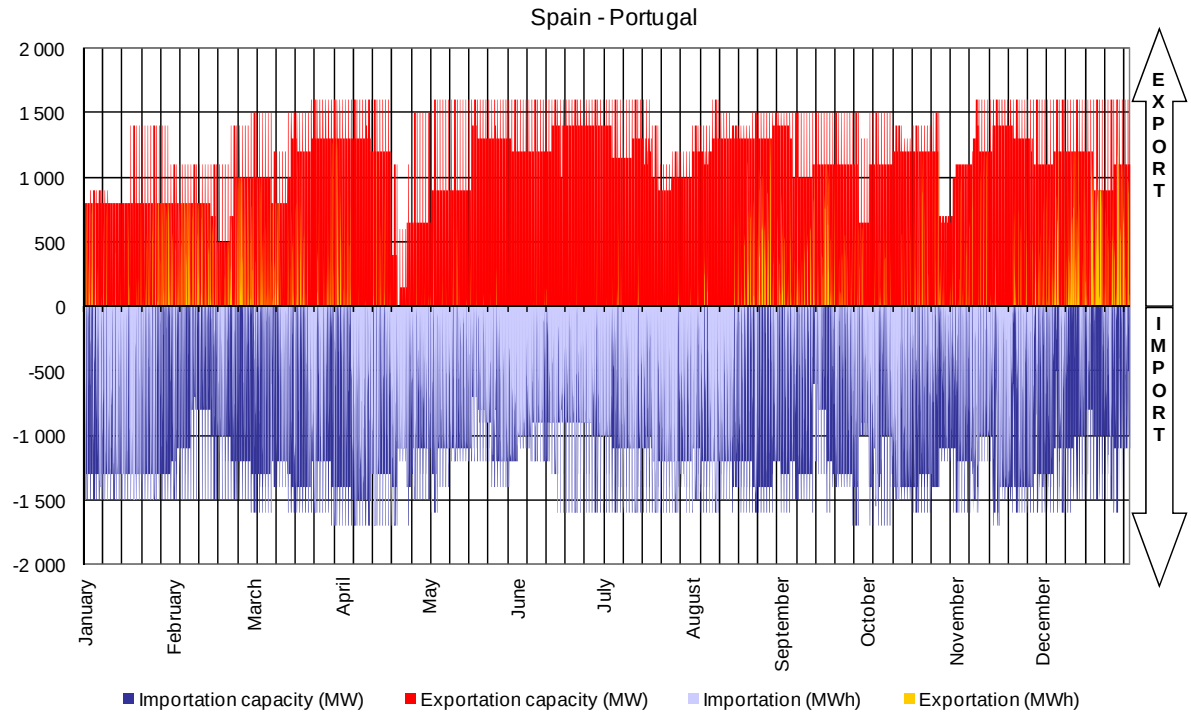
Table 2-3 – Monthly congestion figures for the Portugal-Spain interconnection in 2009

Month	Congestion (hrs/month)		Arithmetic average price difference (€/MWh)
	no. of hours	% hours	
January	274	37%	1.54
February	136	20%	- 0.44
March	103	14%	0.03
April	200	28%	1.18
May	252	34%	1.14
June	351	49%	1.63
July	271	36%	0.96
August	148	20%	0.53
September	107	15%	0.40
October	113	15%	0.43
November	126	18%	0.,84
December	91	12%	- 0.26
Average for year	**181**	**25%**	**0.67**

Source: ERSE, OMEL

The figure below shows the use of available capacity, in both directions, for the Portugal-Spain interconnection.

Figure 2-1 – Use of Portugal-Spain interconnection capacity



Source: ERSE, OMEL

The convergence between market prices in Portugal and Spain strengthened in 2009. This was linked to a significant fall in the number of congestion hours, further marking the reversal of the transit directions in the interconnection on a number of occasions.

2.4.2 NATURAL GAS SECTOR

ACCESS TARIFFS

The method for calculating the infrastructure access tariffs remained unchanged in 2009, as explained in section 4.1.2.1 of the main document.

INTERCONNECTION USE AND CAPACITY

As in 2008, the natural gas markets of the Iberian Peninsula continue to experience the predominant recourse to long-term supply contracts of the “take-or-pay” type.

INVESTMENT (ARTICLE 22)

The scheme for accessing the infrastructure of the SNGN is regulated and no derogation pursuant to Article 22 of Directive 2003/55/EC of the European Parliament and Council, of 26 June, has been applied.

ALLOCATION OF CAPACITY

The natural gas infrastructure is recent in Portugal and its capacity exceeds current requirements. Accordingly, no congestion has been recorded in the National Natural Gas System (SNGN) infrastructure. Notwithstanding that fact, the regulatory framework in force includes mechanisms for allocating capacity available in the SNGN infrastructure and it envisages establishing the use of market solutions for coping with congestion.

2.5 SECURITY OF SUPPLY

2.5.1 ELECTRICITY SECTOR

POWERS OF THE REGULATORY BODY

Under Portugal's legal framework, published in 2006, powers related to security of supply lie with the Government.

INVESTMENT DEVELOPMENT

An additional 944 MW of special regime installed capacity was generated in 2009, reaching 5 470 MW at the end of the year. Wind power generation, in particular, almost doubled in terms of installed capacity to reach 3 357 MW.

In terms of the power plant generation system, the recent strengthening in CCGT power plants in Portugal's centre region (870 MW) and the construction (approved) of new hydroelectric power plants by 2020, which will significantly increase installed hydropower capacity, should be noted.

Significant investment projects in the transmission network include those in North and Central Portugal designed to handle SRG (wind energy), as well as the building of a new 400 kV line in the Centre-South region, will boost security of supply and improve quality of service in that region. Finally, the opening of a new substation in North-East Portugal is, together with the strengthening of the local 220 kV and 400 kV transmission network, an important investment that aims to increase interconnection capacity.

ARRIVING AT A DEMAND/SUPPLY BALANCE

The capacity margin, which is defined as the difference between installed generation capacity and the maximum peak load for the year, referred to as installed capacity, grew in the last year to 45% compared with 40% in 2008, and 35% in 2006 and 2007. The coming into operation of 2 new CCGT groups, totalling 879 MW contributed to this improvement. See section 5.1.2 for more details.

DIVERSIFICATION OF ENERGY SOURCES AND ORIGINS

In 2009, the electricity consumed was supplied in the following proportions: natural gas (23%), import balance (9%), fuel oil (1%), coal (24%), hydroelectric (14%) and SRG (29%).

2.5.2 NATURAL GAS SECTOR

POWERS OF THE REGULATORY BODY

Under Portugal's legal framework powers related to security of supply lie with the government.

INVESTMENT DEVELOPMENT

2009 saw the development of investment projects submitted for ministerial approval under the PDIR[3].

Investment in boosting the capacity of the Carriço natural gas underground storage infrastructure was maintained in 2009, and the TGC-4 cavern was completed and entered into operation. A project for a new cavern, TGC-2, was also developed and this should enter into operation at the end of 2011.

In addition, expansion of the infrastructure of the LNG terminal at Sines also started in 2009. This consists of building a third LNG storage tank, increasing natural gas injection capacity into the RNTGN and the construction of a new loading bay for tank trucks.

The underground storage infrastructure and the LNG terminal will be enough to supply households for 20 days and two natural gas combined cycle power plants for 15 days, pursuant to Chapter XI of Decree-Law 140/2006, of 26 July.

For information on sources of supply, see section 5.2 of the main document.

[3] The RNTIAT Investment and Development Plan (PDIR) encompasses the National Natural Gas Transport Network (RNTGN), the LNG terminal and the underground storage of natural gas.

2.6 REGULATION/UNBUNDLING

The need to differentiate the image of network operators and LRS from one another and in relation to all the other entities operating in the electricity and natural gas sectors is increasingly going to be an important feature of the legal obligation to separate the activities of vertically integrated companies.

Market transparency and greater clarity in commercial operations require an independent, disinterested, impartial and responsible intervention, largely by the network and other infrastructure operators and the LRS. The regulation approved by ERSE in this area reiterates the obligation to provide codes of conduct, set up autonomous websites and presents a proposal with a view to distinguishing their images.

In 2009 the electricity saw some of these measures being implemented, in particular the adoption of codes of conduct by network operators and the LRS. These codes of conduct contain a set of procedures to be followed by anyone offering customer reception services. These are given prominence on websites and in companies dealing with customers in person.

The websites of the distribution network operator and the LRS have been autonomized in relation to one another, to the parent company and to the other entities in the electricity sector. Following prior consideration by ERSE, other measures were also added with the aim of separating images; some are still in progress, such as:

- The placing of the identity of each company in terms of its activity on bills, on letters replying to requests for information and answering complaints, on business cards and on information leaflets.
- The identification of companies which share the space meant for customer reception.

The natural gas sector followed the same course as that described for the electricity sector with the regulatory proposal being launched in 2009, and the corresponding regulatory revision was approved and published at the beginning of 2010.

2.7 GENERAL CONCLUSIONS

ERSE actively participated in the work of CEER/ERGEG concerning the development of the 3rd Package on the Internal Energy Market.

In this context it should be noted that some of the pillars differentiating it from directives in force have already been implemented in Portugal, in particular the unbundling of the electricity transmission network operators from the natural gas operators. This does not mean that the basis for the separation of activities established in Portuguese law which transposes the Directives in the 3rd package could not be improved.

The new Directive 72/2009/EC arising from the 3rd Package establishes principles that aim to fortify the independence of the TSO, in particular by implementing ownership unbundling for the transmission network operators, by laying down that Member States should ensure that control of the TSO is not directly or indirectly exercised by whoever produces or supplies energy. This new situation will lead to closer supervision of the transmission network operator's activities and the stakes in the company's shareholder capital.

In the natural gas sector, as with electricity, the new Directive 73/2009/EC has established principles that are designed to strengthen the independence of the TSO, particularly by implementing ownership unbundling. The operators of the, RNTGN the LNG terminal and the underground natural gas storage infrastructure that are part of the REN group, have been independent of market agents in operational, legal and ownership terms since 2006.

In terms of the increased autonomy of the regulators envisaged in the new directives, the expectations of ERSE should be noted in relation to greater independence in managing budget execution as well as the consolidation and expansion of powers beyond the implementation of the fines and penalties scheme already attributed, but which can only be exercised through a specific legal instrument.

3 REGULATION AND PERFORMANCE IN THE ELECTRICITY MARKET

3.1 REGULATION MATTERS

3.1.1 CONGESTION MANAGEMENT MECHANISMS FOR ALLOCATING AVAILABLE CAPACITY AT THE INTERCONNECTIONS

There were no changes made to the 2008 management model for interconnections between Portugal and Spain in 2009. This means that the model for the assignment of physical capacity is the same, with capacity being assigned solely via a market splitting mechanism implemented in the MIBEL daily and intraday markets.

One should recall that MIBEL officially began operating on 1 July 2007 and is based on a single daily market (OMEL) which sustains the Mechanism for Joint Management of the Portugal-Spain Interconnection. This is regulated by the rules and principles established in these laws:

- EC Regulation 1228/2003 of the European Parliament and the Council and Decision 2006/770/EC, which amends its annex.
- Access to Grids and Interconnections Regulations (RARI).
- Procedures Manual for the Mechanism for Joint Management of the Portugal - Spain Interconnection.
- Joint Rules for Contracting Capacity in the Portugal – Spain Interconnection.

At the request of the Governments of the two countries, the Council of Regulators proposed implementing a mechanism for assigning physical interconnection capacity rights through explicit auctions in a time frame preceding the daily time frame. This proposal was rejected by the Spanish government, which published Orden ITC/1549/2009 by the national MITyC in 2009. This establishes an auction for derivatives to cover the price difference between the Portuguese and Spanish MIBEL zones, to apply in Spain, and which differs from the mechanism published earlier by ERSE. Two auctions have been held so far, one in June and the other in December, 2009.

3.1.2 REGULATION OF TRANSMISSION SYSTEM OPERATORS AND DISTRIBUTION SYSTEM OPERATORS

3.1.2.1 ACCESS TO GRIDS TARIFF

PROCEDURES AND METHODOLOGY FOR CALCULATING ELECTRICITY GRID ACCESS TARIFFS

ERSE is responsible for preparing and publishing the Tariff Regulation Code which establishes the methodology for calculating tariffs and prices and the forms of regulation of the allowed income. Before approval, the Tariff Regulation Code must be submitted to public consultation and be the subject of an opinion from the Tariff Board.

The tariff fixing process, including the time frame, is also defined in the regulations.

In order to explain the adopted tariff calculation methodology, there follows a brief description of the existing Portuguese tariff system.

The Grid Access Tariffs charged to all electricity consumers for using the infrastructure are considered. Generally speaking these Grid Access Tariffs are paid by suppliers on behalf of their customers. They may also be directly paid by customers that also function as market agents (i.e. customers that buy energy directly in the market and are responsible for managing their scheduling imbalances).

The existence of LRS is backed up by the existence of End User tariffs. These tariffs are calculated by adding the Supply Tariff and the Energy tariff to the Grid Access Tariffs. These last two tariffs reflect the commercial management costs of the LRS and the energy supply costs, in organized markets or under bilateral contracts subject to prior approval by ERSE.

TARIFFS AND REGULATED ACTIVITIES OF THE ELECTRICITY SECTOR

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

The following tariffs are approved for each regulated activity: Global Use of System, Transmission Use of Network, HV and MV Distribution Use of Network, LV Distribution Use of Network and Network Commercial Management.

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 revenue in each activity.

Tariff charging and billing are based on the principle of non-discrimination as regards the final energy use. Tariff options are available to all consumers.

TARIFF ADDITIVITY APPLIED TO GRID ACCESS TARIFFS

Grid access paid by all electricity consumers includes the following tariffs: Global Use of System, Transmission Use of Network, Distribution Use of Network and Network Commercial Management. Prices of access tariffs for each billing variable are determined by adding up the corresponding tariff prices per activity.

Calculation of End User tariffs charged by the LRS is based on the tariffs per activity included in grid access, plus the Energy Tariff and the Supply Tariff.

Insofar as the tariffs making up the sum are based on marginal costs, this situation prevents cross-subsidisation between customers and ensures an efficient allocation of resources.

This tariff calculation methodology allows for detailed knowledge of the several tariff components by activity or service. Thus, customers know exactly how much they pay, for example, for using the MV distribution network and how that value is considered in terms of billing. Transparent definition of the tariffs – the result of the implementation of this type of system – is especially important to customers who have no experience in choosing suppliers, in particular less informed amongst them.

FORMS OF REGULATION

The year 2009 saw the new regulation models established in 2008 being applied for the first time, to the new regulation period, 2009 to 2011. The main changes for each agent are:

- Transmission system operator – shift from a model based on rate of return on investment and costs accepted on an annual basis to a model based on economic incentives: (I) application of a revenue cap methodology to exploration costs; (II) incentive for efficient investment in the transmission system through the use of reference prices in valuing new equipment to be incorporated into the system, whose greatest risk is offset by a differentiated rate of return; (III) the incentive to increase availability of the elements of the RNT; (IV) incentive for maintaining equipment in operation at the end of its useful life.
- Distribution system operator – continuation of regulation by incentives, taking the form of: (I) incentive for efficient management of costs via a price cap methodology; (II) incentive to improve quality of service; (III) loss reduction incentive; (IV) incentive to improve environmental performance.

- Companies holding the electricity transmission and distribution concessions in the Autonomous Regions of the Azores and Madeira – consolidated application of regulation by economic incentives: (I) the electricity distribution activity came to be regulated via a price cap methodology for calculating income; (II) definition of reference costs of fuel oil consumed in electricity generation[4].

The economic targets were set on the basis of benchmarking studies of international scope[5], in the case of electricity transmission, and national scope for electricity distribution. In relation to transmission, parametric (COLS and SFA) and non-parametric methods (DEA) were used. In relation to distribution, parametric (SFA) and non-parametric methods (DEA) were used. The annual efficiency factors applied to unit costs were 3% for transmission and 3.5% for distribution.

In order to give continuity to these methodologies in the new regulatory period, in 2009 ERSE conducted a study to determine the reference costs to apply to investment in the electricity transmission system. In addition, a study was begun in 2009 on the reference prices of fuel oil in the Azores.

REVENUE FROM CONGESTION ON INTERCONNECTORS

Revenue from congestion on interconnectors between Portugal and Spain arising from the price zone difference after the application of market splitting fell significantly in 2009, to stand at 10.9 million euros compared with 64 million euros in 2008. This reduction resulted from the convergence of prices between Portugal and Spain and in the growth of interconnector occupation in the export direction (Portugal > Spain).

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

[5] "ECOM+ Results 2005 - Final Report", Sumicsid AB, 2005-10-30

Table 3-1 – Monthly congestion rents for 2009

Month	Congestion (hrs/month)		Arithmetic average price PT	Arithmetic average price ES	Arithmetic average price difference	Congestion rent
	no. of hours	% hours	(€/MWh)	(€/MWh)	(€/MWh)	(thous. €)
January	274	37%	51.47	49.93	1.54	2 305
February	136	20%	40.28	40.71	-0.44	714
March	103	14%	38.34	38.31	0.03	533
April	200	28%	38.38	37.20	1.18	1 139
May	252	34%	38.11	36.97	1.14	986
June	351	49%	38.45	36.82	1.63	1 255
July	271	36%	35.58	34.62	0.96	927
August	148	20%	35.21	34.68	0.53	547
September	107	15%	36.27	35.87	0.40	464
October	113	15%	36.21	35.78	0.43	582
November	126	18%	33.23	32.39	0.84	774
December	91	12%	30.18	30.43	-0.26	639
						10 866

Source: ERSE, OMEL

3.1.2.2 BALANCING

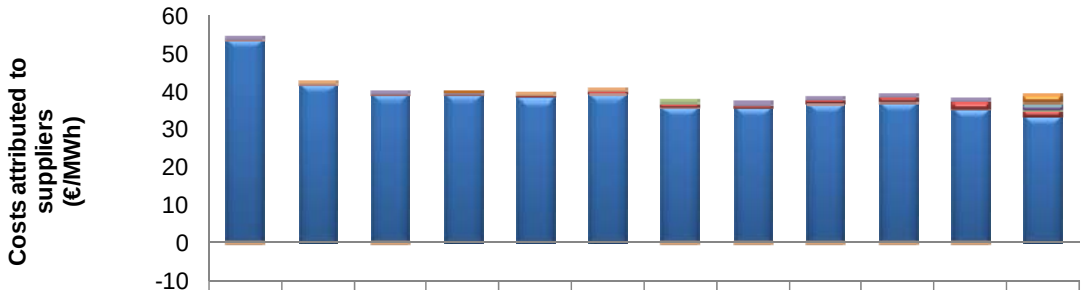
In 2009 the service to compensate electricity generation and consumption imbalances and to resolve technical constraints was mobilized in accordance with the system services market. With respect to this, REN, in its capacity as technical manager of the system, is responsible for the operationalisation of this market.

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

Figure 3-1 shows the impact of the daily markets and the system services on the costs allocated to the suppliers in 2009. In addition to the portion related to the daily market, therefore, there is another that is

related to the system services markets which is composed by contracting the secondary band and the extraordinary band, by mobilising energy to cope with technical constraints in real time (RT) and under the validation of the daily market programme (Functioning Base Daily Programme – FBDP), and by the agents' imbalances (secondary regulation and regulation reserve energy mobilisation).

Figure 3-1 – Impact of daily markets and system services on the costs allocated to suppliers operating in Portugal, in 2009

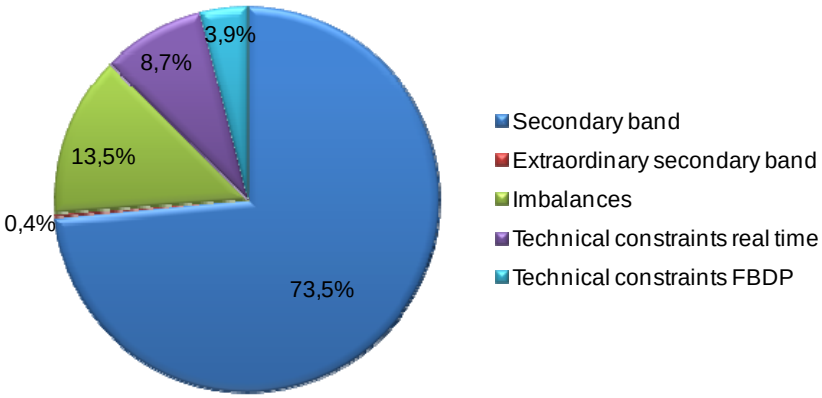


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Total operating markets	0,29	0,67	0,47	1,15	0,69	1,43	0,77	1,00	0,92	1,12	2,04	5,47
Imbalances	-0,13	0,19	-0,02	0,51	0,20	0,45	-0,31	-0,11	-0,08	-0,30	-0,09	1,90
Technical constraints FBDP	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,62
Technical constraints RT	0,00	0,08	0,02	0,07	0,01	0,02	-0,01	0,01	0,02	0,01	0,16	1,01
Secondary band extraord.	0,00	0,00	0,00	0,00	0,00	0,00	0,01	0,01	0,00	0,01	0,01	0,01
Secondary band	0,41	0,40	0,47	0,58	0,47	0,96	1,09	1,09	0,97	1,41	1,96	1,92
Daily market	53,50	41,90	39,20	39,10	38,50	39,20	36,10	35,90	37,00	37,20	35,50	33,50

In 2009 the system services markets represented an average cost of around EUR 1.34/MWh supplied relative to an average annual price on the daily market of around EUR 39/MWh.

Figure 3-2 shows the breakdown of the system services markets' costs, and it is clear that the most important component is contracting the secondary regulation band.

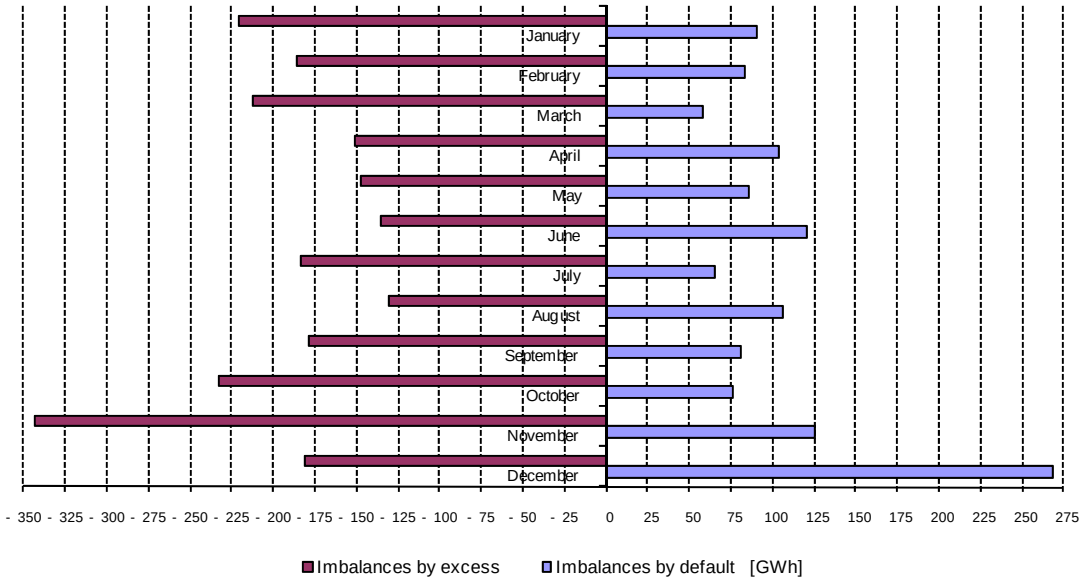
Figure 3-2 – Breakdown of the system services markets' costs in 2009



Analysis of Figure 3-1 also shows there was a significant increase in the costs of these markets in December, which is due largely to the portions related to technical constraints and imbalance. This cost increase was due to the weather conditions in December which caused lack of availability on transmission lines, systematically requiring the resolution of technical problems.

Under the current methodology, the valuation of the imbalances each hour is exactly the same as the variable costs of regulation payable to those agents that rectify the imbalance by participating in the system services markets Figure 3-3 shows the evolution of energy imbalances throughout 2009. It shows both imbalances by default and imbalances by excess.

Figure 3-3 – Imbalances (2009)



3.1.2.3 QUALITY OF SERVICE

Both the Tariff Regulation Code and the Quality of Service Code have provisions for regulating continuity of supply in Mainland Portugal. With respect to the quality of service of electricity supply in the Autonomous Regions, the respective codes were published in 2004 for enforcement in Madeira and the Azores.

INCENTIVE TO IMPROVING CONTINUITY OF SUPPLY

The Tariff Regulation Code establishes an incentive to improve continuity of supply, with repercussions on the allowed revenue for the MV and HV distribution system operator in mainland Portugal. The value of the incentive depends on the annual value of energy not distributed and is determined by a method established in the regulations.

In 2008 the value of energy not distributed led to a null incentive. Accordingly, in 2010 the incentive to improve quality of supply did not change the value of the allowed revenue in the MV distribution activity.

On the basis of the information available to date, it is likely that the value of not-distributed energy in 2009 will result in a decrease of allowed revenue in the MV and HV distributions systems in 2011.

CONTINUITY OF SUPPLY IN 2009

The transmission and distribution systems are described next in terms of continuity of supply, based on four indicators for each system that were established for 2009:

- EIT – Equivalent Interruption Time indicator applying to the transmission system. This expresses the system interruption time based on the average expected annual capacity (P_{me})
- ICEIT – Installed Capacity Equivalent Interruption Time: indicator applying to the MV distribution system. It shows the duration of the interrupt of installed capacity in the transformer sub-stations.
- SAIDI – System Average Interruption Duration Index: indicator applying to the transmission and distribution systems.
- SAIFI – System Average Interruption Frequency Index: indicator applying to the transmission and distribution systems.

The delivery points are the points on the system where electricity is delivered to customers' premises or to another system.

Table 3-2 shows the figures for the continuity of supply indicators for mainland Portugal in 2009. The transmission system indicators are calculated taking into account all interruptions at the points of delivery (PdE) and the distribution system indicators take into account interruptions lasting more than 3 minutes.

Table 3-2 – Continuity of supply indicators for mainland Portugal, 2009

Voltage	Indicator	Scheduled	Accidental
Transmission	EIT (min)		1.624
	SAIFI		0.211
	SAIDI (min)		15.332
MV Distribution	ICEIT (min)	0.117	150.699
	SAIFI (int/PdE)	0.002	3.340
	SAIDI (min/PdE)	0.308	241.893
LV Distribution	SAIFI (int/customer)	0.011	3.630
	SAIDI (min/customer)	0.308	241.893

Note: Provisional figures

Source: REN, EDP Distribuição

Information was received in 2009 on the payment of compensation to customers for non-compliance with individual standards of continuity of supply in 2008, showing that 55 958 instances of non-performance had been recorded and that customers were paid a total of €462 360.50.

Table 3-3 shows the figures for continuity of supply indicators for the main islands in the Autonomous Region of the Azores. The indicators are calculated on the basis of interruptions lasting more than 3 minutes.

Table 3-3 – Continuity of supply indicators for the main islands in the Autonomous Region of the Azores comprising a transmission and distribution system, 2009

Island	Voltage	Indicator	Scheduled	Accidental
São Miguel	Transmission	EIT (min)		4.80
		SAIFI (int/PdE)		0.13
		SAIDI (min/PdE)		5.40
	MV Distribution	ICEIT (min)	111.61	311.62
		SAIFI (int/PdE)	1.41	10.27
		SAIDI (min/PdE)	141.62	425.69
	LV Distribution	SAIFI (int/customer)	n/a	n/a
		SAIDI (min/customer)	n/a	n/a
Terceira	Transmission	EIT (min)		n/a
		SAIFI (int/PdE)		1.33
		SAIDI (min/PdE)		186.60
	MV Distribution	ICEIT (min)	81.49	498.50
		SAIFI (int/PdE)	0.84	23.09
		SAIDI (min/PdE)	92.71	593.66
	LV Distribution	SAIFI (int/customer)	n/a	n/a
		SAIDI (min/customer)	n/a	n/a
Pico	Transmission	EIT (min)		936.00
		SAIFI (int/PdE)		4.00
		SAIDI (min/PdE)		808.80
	MV Distribution	ICEIT (min)	97.80	1242.07
		SAIFI (int/PdE)	1.18	12.93
		SAIDI (min/PdE)	133.00	1226.40
	LV Distribution	SAIFI (int/customer)	1.28	14.03
		SAIDI (min/customer)	159.27	1239.18

Note: Provisional figures.

Source: EDA

In all, 2 170 instances of non-compliance with the individual standards of continuity of supply were recorded in 2009, affecting about 2% of customers in the Autonomous Region of the Azores.

Table 3-4 shows the figures for continuity of supply indicators for the islands in the Autonomous Region of Madeira. The indicators are calculated on the basis of interruptions lasting more than 3 minutes.

Table 3-4 – Continuity of supply indicators for the islands in the Autonomous Region of Madeira, 2009

Island	Voltage	Indicator	Scheduled	Accidental
Madeira	Transmission	EIT (min)	67.57	5.35
		SAIFI (int/PdE)	3.56	0.10
		SAIDI (min/PdE)	101.66	7.98
	MV Distribution	ICEIT (min)	168.62	28.82
		SAIFI (int/PdE)	4.79	0.43
		SAIDI (min/PdE)	210.79	45.58
	LV Distribution	SAIFI (int/customer)	3.75	0.65
		SAIDI (min/customer)	2.63	1.80
Porto Santo	Transmission	EIT (min)	38.65	0.00
		SAIFI (int/PdE)	1.25	0.00
		SAIDI (min/PdE)	58.25	0.00
	MV Distribution	ICEIT (min)	130.55	32.39
		SAIFI (int/PdE)	2.24	0.65
		SAIDI (min/PdE)	138.55	42.32
	LV Distribution	SAIFI (int/customer)	1.96	0.98
		SAIDI (h/customer)	2.37	7.40

Note: Provisional figures.

Source: EEM

A total of 1 242 instances of non-compliance with the individual standards of continuity of supply were recorded in 2009, affecting about 2% of customers in the Autonomous Region of Madeira.

3.1.3 SEPARATION OF SYSTEM OPERATORS

3.1.3.1 TRANSMISSION AND DISTRIBUTION SYSTEM OPERATOR

ACTIVITY UNBUNDLING

The transmission and distribution system operators comply with the rules for unbundling activities contained in Directive 2003/54/EC, transposed into Portuguese law.

The electricity transmission operator in mainland Portugal is independent of the other activities involved in the electricity sector, both legally and in terms of assets. Its business area is the transmission of electricity and the overall technical management of the National Electricity System.

The distribution system operator, which is exclusively responsible for distributing HV and MV electricity, and for nearly all the LV distribution, is part of a vertically integrated company. It is therefore obliged to legally unbundle the other activities in which it is engaged, in the electricity sector.

The LRS, too, have to observe the principles and rules of independence, impartiality and disinterest in the exercise of their activities in relation to the other market agents, including the market regime suppliers.

The distribution system operators and the LRS which serve fewer than 100 000 customers are exempt from the obligation to legally unbundle their activities. There are ten companies in this situation, serving around 30 000 customers.

CODE OF CONDUCT

The legislation and the regulations approved by ERSE that apply to the electricity sector establish the duty for the transmission system operator, the distribution system operator and the LRS to draw up a Code of Conduct. This should contain the rules to be followed by those in charge of the various activities, with a view to operations being independent, disinterested, impartial and responsible. Codes of conduct should therefore specify measures to allow the exclusion of discriminatory behaviour and its appropriate control.

New codes of conduct were adopted by the distribution system operator and the LRS in 2009. These were first appraised by the regulator, which made various comments and suggestions that have mostly been incorporated in them.

Even though they are included in the codes of conduct, the regulations for the electricity sector have shown the need to draw up a set of procedures for use in customer service departments for electricity consumers, provided by the distribution system operator and the LRS. These procedures are intended to protect consumer rights, particularly with respect to access to commercially sensitive information, protecting personal information and unfair trading practices. Though included in the relevant codes of conduct, the procedures to be used in the reception services must be clearly stated on the websites of the companies and in the places where customers are attended to personally.

Compliance with the codes of conduct is checked by means of annual audits.

INDEPENDENT WEBSITES

Another step achieved in the regulation of the electricity sector which was implemented in 2009 was the creation of independent websites by the distribution system operator and the LRS belonging to the same business group. The online individualisation of these firms, in relation to one another and to the parent

company and other entities in the electricity sector, is fundamental for the effective unbundling of their activities and images.

IMAGE DIFFERENTIATION

In the wake of the prior appraisal by the regulator, the distribution system operator and the LRS also embarked on an action plan in 2009 which contained several measures to help distinguish their images.

In addition to the independent websites, other ways of making the individual identity of the companies and their specific activities on the electricity market more easily noticed by consumers and the wider public were presented. To this end, the identity of each company and its activity should be made clear in all the media used in contact with consumers. For example, the name of each firm appearing on the bills sent to customers, on letters replying to requests for information and answering complaints, on employees' business cards, on information leaflets and in the shops with personalised customer service.

3.1.3.2 AUTONOMOUS REGIONS OF THE AZORES AND MADEIRA

ACTIVITY UNBUNDLING

EDA and EEM are the companies responsible for purchasing, distribution and the last resort supply of electricity, respectively in the Autonomous Region of the Azores and the Autonomous Region of Madeira.

The Autonomous Regions of the Azores and Madeira were granted a derogation of the terms established in Directive 2003/54/EC of the European Parliament and of the Council of 26 July, through Commission Decisions no. 2004/920/EC of 20 December and no. 2006/375/EC of 23 May. Considering the terms of the aforementioned laws and decisions, the activities referred to above are subject only to unbundling in accounting terms, observing the rules established in the Tariff Regulations Code.

CORPORATE IMAGE OF SYSTEM OPERATORS

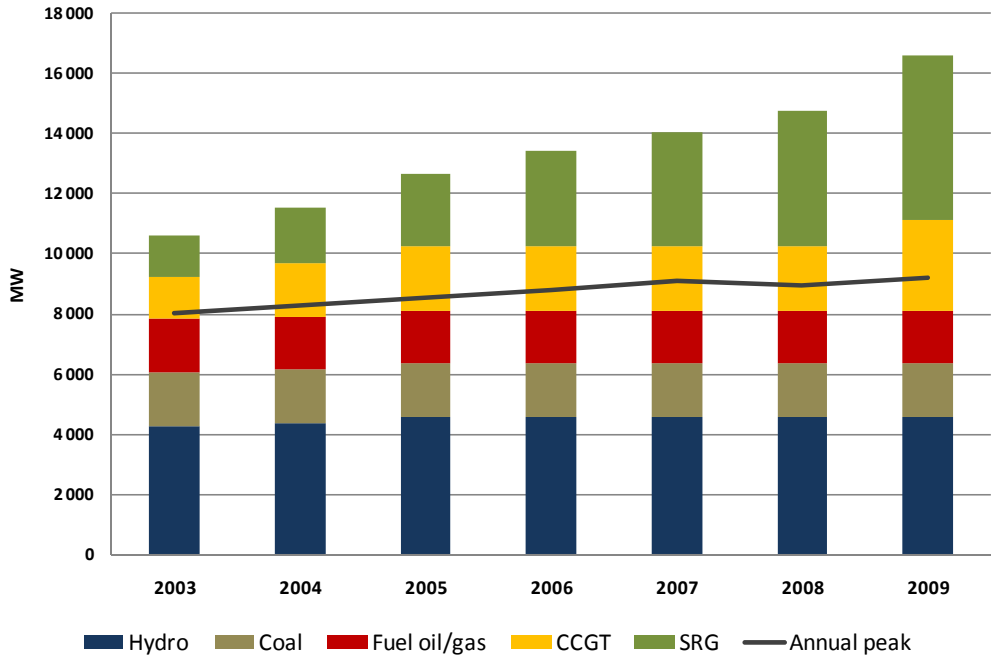
Both EDA and EEM have their own websites, viz. www.eda.pt and www.eem.pt.

3.2 COMPETITION

3.2.1 CHARACTERISATION OF THE WHOLESALE MARKET

Figure 3-4 shows the evolution in installed capacity in Portugal from 2003 to 2009.

Figure 3-4 - Characterisation of the power plant generation system in Portugal by type of generation and installed capacity



Source: REN

The composition of the Portuguese power plant generation system has seen two major changes in the last few years:

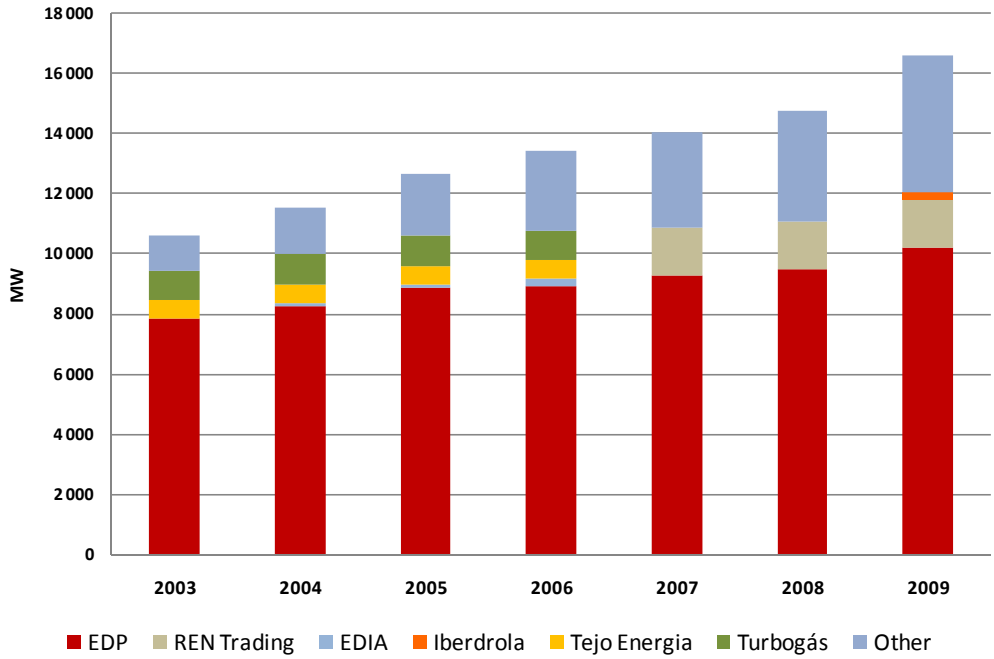
- There has been a marked increase in SRG installed capacity.
- In the standard regime segment (thermal and large hydropower) the make-up also underwent change, because of the increase in the natural gas units (CCGT).

Detailed information on the installed capacity can be found in Chapter 5.

The annual change reveals that there is a fairly small margin between the maximum peak for the year and the installed capacity in the standard regime power plant generation system for most of the period observed, and this situation improved in 2009 with the entry of new CCGT based capacity.

The increase in installed capacity related to special regime power plants, particularly wind farms, although helping to increase the system's overall margin, significantly accentuates the volatility of exploitation of the installed capacity in the other primary energy units, since it is guaranteed that their power is fed into the system.

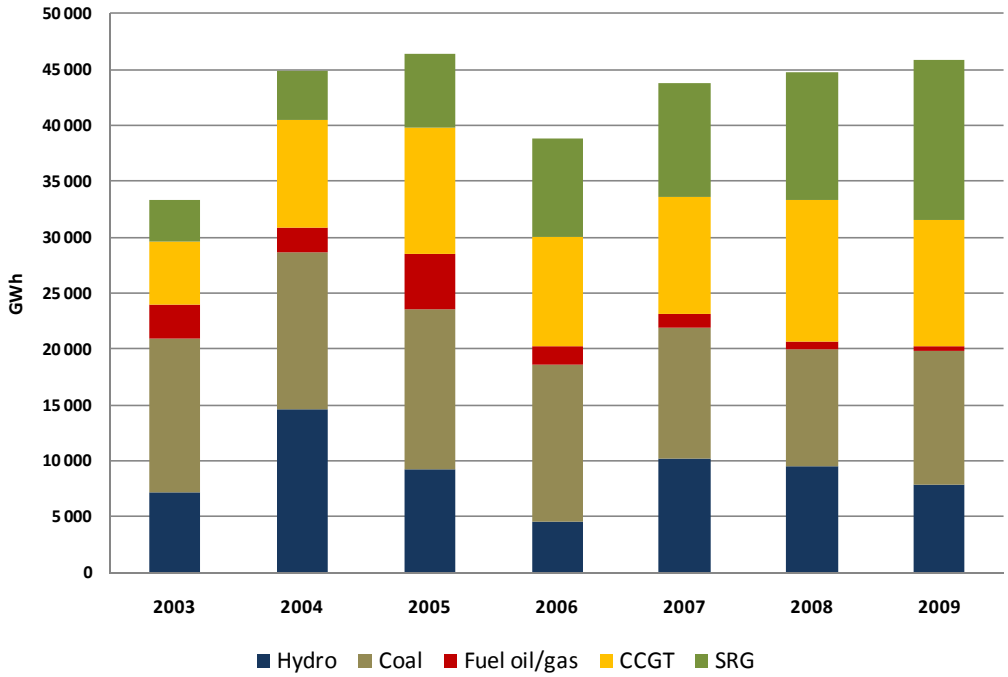
Figure 3-5 - Characterisation of the power plant generation system in Portugal by agent and installed capacity



Source: REN

In addition to the analysis of the breakdown of installed capacity by technology, it is also important to characterise the breakdown of power plant generation system by owning or management company, as in Figure 3-5. It is a simple fact that EDP owns most of Portugal's power plant generation system, with that share of ownership being increased in 2009, largely due to the new CCGT power plant. However, the EDP Group share in terms of installed capacity has been falling, mostly thanks to the growth in the SRG segment in which EDP has a minority position. Also worthy of mention is the entry into force of the measure to reduce competition risks decided by the Competition Authority, which ordered the assignment of operating rights of the Aguieira-Raiva hydropower plants to Iberdrola for a 5-year period. This decision was preceded by an international tendering procedure.

Figure 3-6 - Characterisation of the power plant generation system in Portugal by type of generation and energy produced

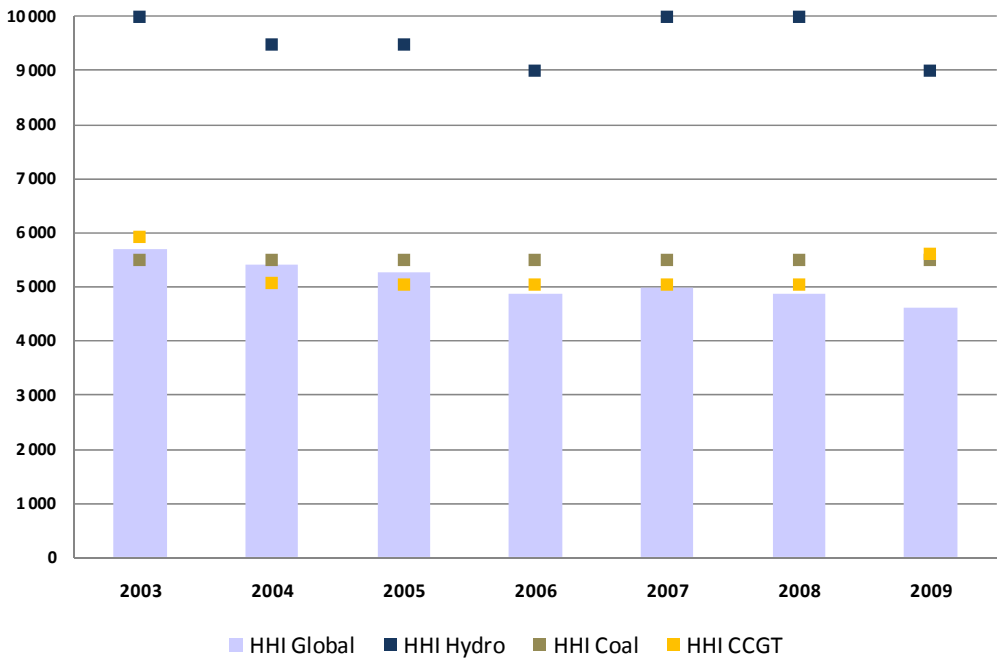


Source: REN

The breakdown of electricity generation by technology, including special regime, in the past few years is shown in Figure 3-6. Analysis of this figure shows the wide variability of hydropower generation, highly dependent on the existence of the relevant renewable resource, compared with the greater stability (and shipping conditions) of thermal power generation. The trend towards abandoning fuel oil based generation, and increasing SRG, was more marked in 2009. As far as thermal power generation is concerned, while installed capacity expanded in 2009, the percentage input from CCGT remained the same as in 2008.

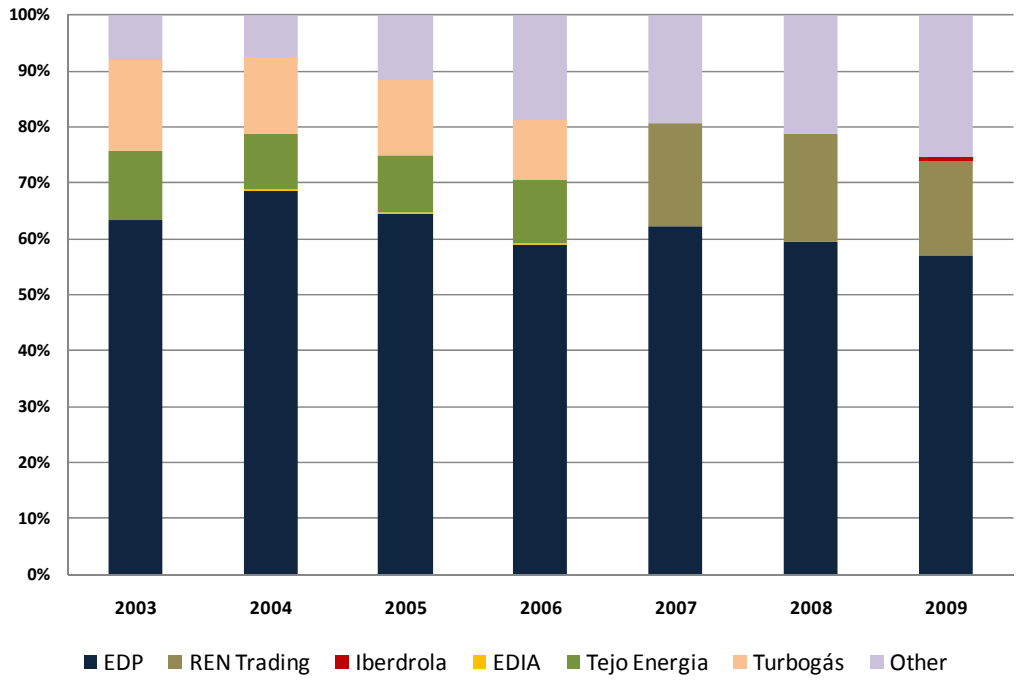
Combining all factors, the concentration in the electricity generation segment in Portugal is high in terms of installed capacity, as can be seen in Figure 3-7, which gives the Hirschman-Herfindahl Index (HHI), which measures market concentration. The HHI figures for installed capacity show a slight growth between 2003 and 2009 in the overall concentration of capacity supply in the Portuguese system, particularly via the above-mentioned increase in SRG capacity. The entry of a new CCGT power plant into the portfolio of the EDP Group from 2008 to 2009 led to greater market concentration in this sector. Another event was the assignment of the management of a hydropower plant to Iberdrola, which resulted in a slight reduction in the Hirschman-Herfindahl index for hydropower generation. With the arrival of the new CCGT plant this generation segment became slightly more concentrated in terms of business than the coal segment.

Figure 3-7 - Concentration in generation in terms of installed capacity



Electricity generation share by agent is shown in Figure 3-8.

Figure 3-8 – Electricity generated by agent

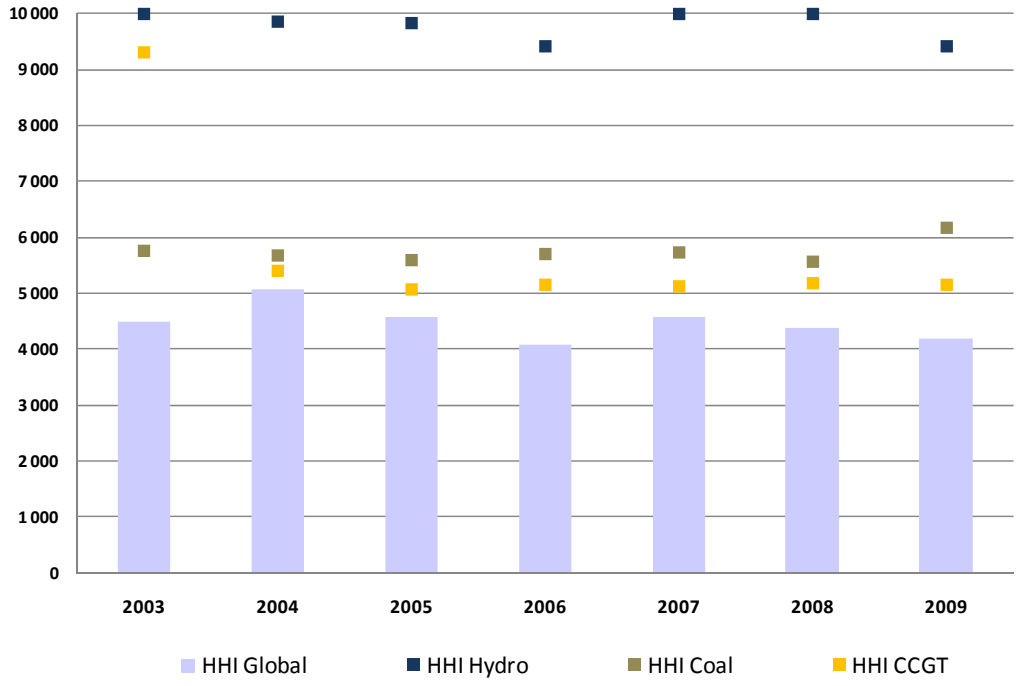


Source: REN, prepared by ERSE – does not include figures for imported energy.

Overall, in 2009 there was a slight fall in the EDP group's participation in total generation in mainland Portugal, basically because of the increased contribution of other agents in the SRG segment. Furthermore, the above-mentioned assignment of the running of a hydropower plant formerly in the EDP group's portfolio to Iberdrola also played a part, though only a minor one, in reducing the share allocated to the incumbent operator.

The concentration indicators for electricity generation given in Figure 3-9 show that, overall, in 2009 generation was less concentrated compared with 2008 or at the start of the period analysed (2003), though it is above the lowest figure recorded in said period (2006). This is due to the slight fall in concentration in the hydropower and CCGT generation units, while the position of the EDP group in SRG remains a minority in relation to the segment as a whole.

Figure 3-9 - Concentration in generation in terms of electricity generation



The impact of the capacity release auctions conducted in 2007 and 2008 were not considered in this analysis of the concentration for both installed capacity and actual generation. These auctions allowed the release of capacity from a power plant run by REN Trading in the first phase, and in the second phase extra capacity was released from the incumbent itself. The fact that none were held in 2009 is not considered either. If the capacity release auctions had continued in 2009 in the same format as in 2008, the degree of horizontal concentration would have been lower than was actually the case, and the fall would have been ever more substantial, compared with 2008.

At the same time one should bear in mind that, as a more detailed analysis is not possible, the SRG not controlled by EDP is, for the purposes of calculating the concentration indicators, wholly in the hands of a

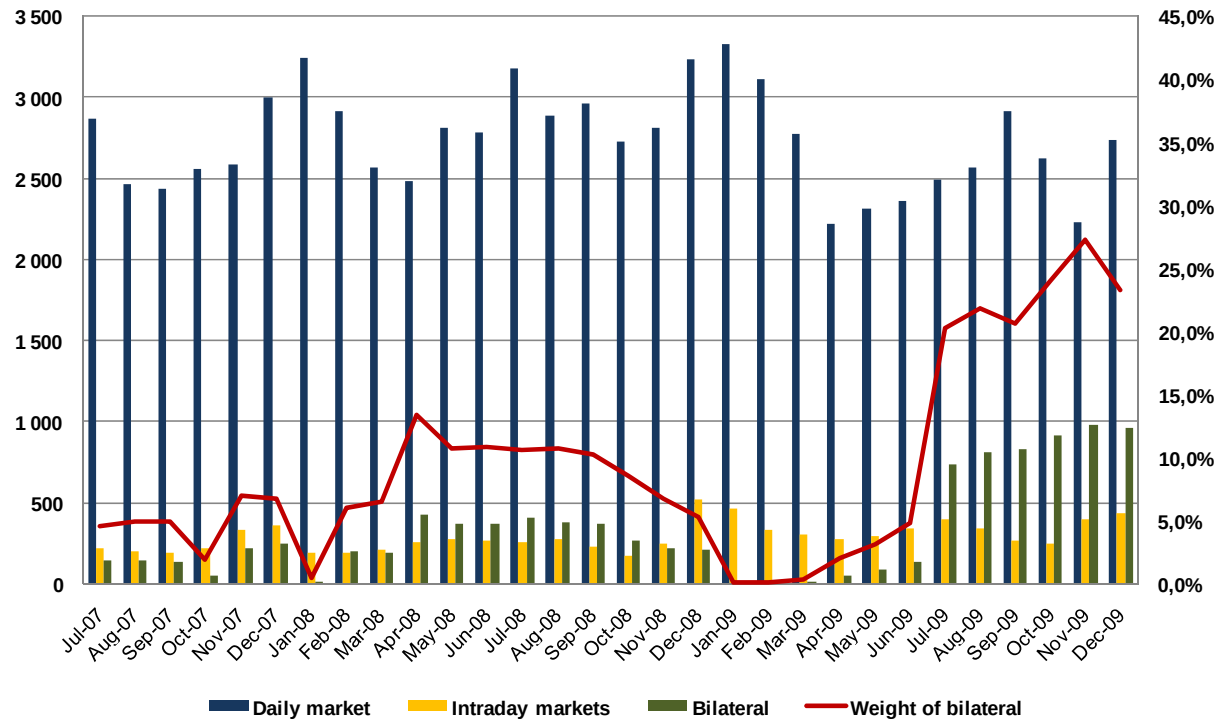
single entity (a sole market share). Accordingly, on the one hand the true development of corporate concentration in the SRG cannot be seen and, on the other, the figures for global concentration will be mostly those that actually exist in the current market structure.

Spot market (daily and intraday markets) trading in Portugal is much higher than trading in bilateral contracts, as shown in Figure 3-10. It is useful, however, to bear in mind that the acquisition of products listed on the MIBEL futures market is settled in cash through the daily market as it is unfeasible for them to be designated for bilateral contracts for two reasons:

a) More liquid products are delivered to the Spanish zone of MIBEL, and,

b) There is no commercially available interconnection capacity for the agents to underwrite apart from that allocated to the daily market.

Figure 3-10 – Breakdown of energy supplies between markets



Source: REN/OMEL

At any rate, the way contracting on the market evolved during the course of 2009 shows, on the one hand, an increase in the number of bilateral contracts and, on the other, a decline in the amount contracted on the daily spot market. In the latter case the increase in bilateral contracts and the higher SRG (not explicit in the market) both contributed to this trend.

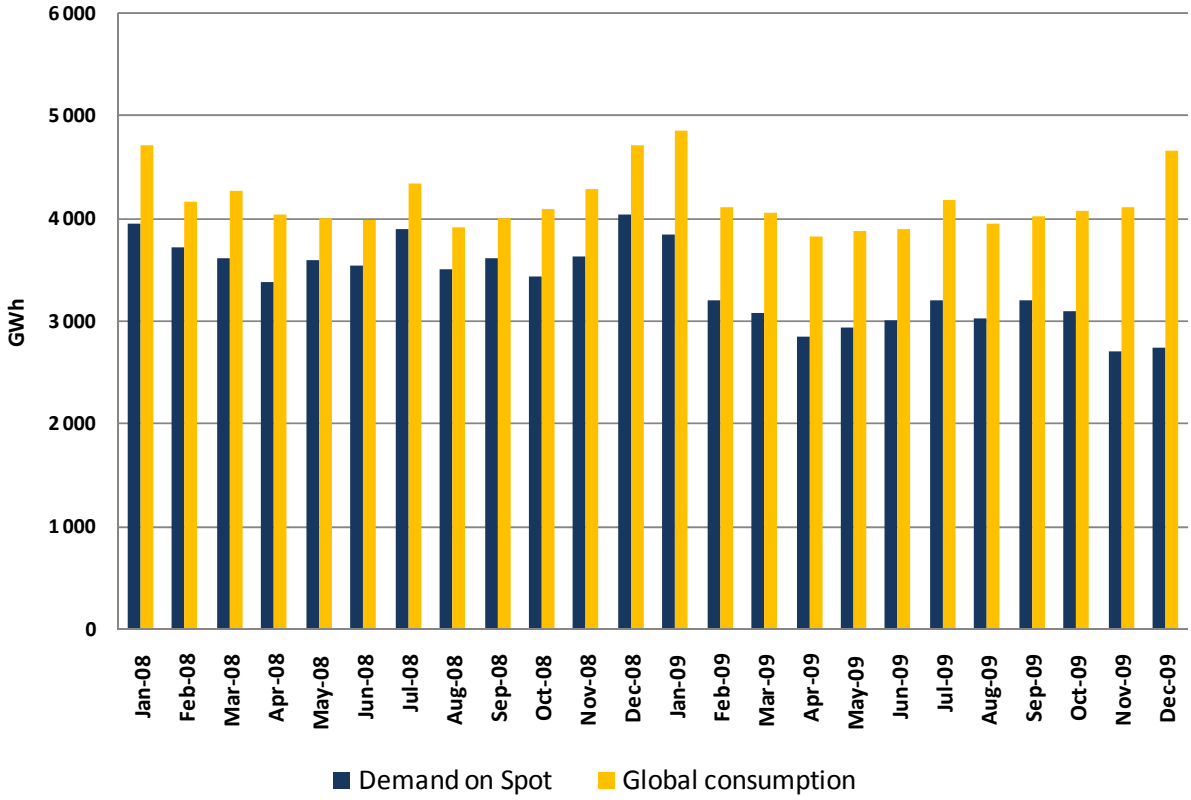
Spot contracts for the wholesale market in Portugal are part of the MIBEL consolidation process and there is a single market for Portugal and Spain with a mechanism for managing daily congestions based

on market splitting whenever the flow of energy generated by meeting the aggregate demand and supply exceeds the capacity available on the interconnection. The structure of spot market contracting is characterised by the following:

- On the demand side, the Portuguese agents, including the LRS, target most of their demand at the spot market. In the case of LRS the amounts of electricity acquired from SRG producers are deducted from the energy needed to supply customers (legal stipulation).
- On the supply side, all the market agents apart from the SRG producers mostly target their supply at the spot market.

The figures for both the spot market demand and overall consumption in mainland Portugal are given in Figure 3-11, where it can be seen that most consumption is met by purchases on the spot market, although this tendency has been diminishing throughout 2009, owing to the factors mentioned above.

Figure 3-11 – Spot market demand and total monthly consumption

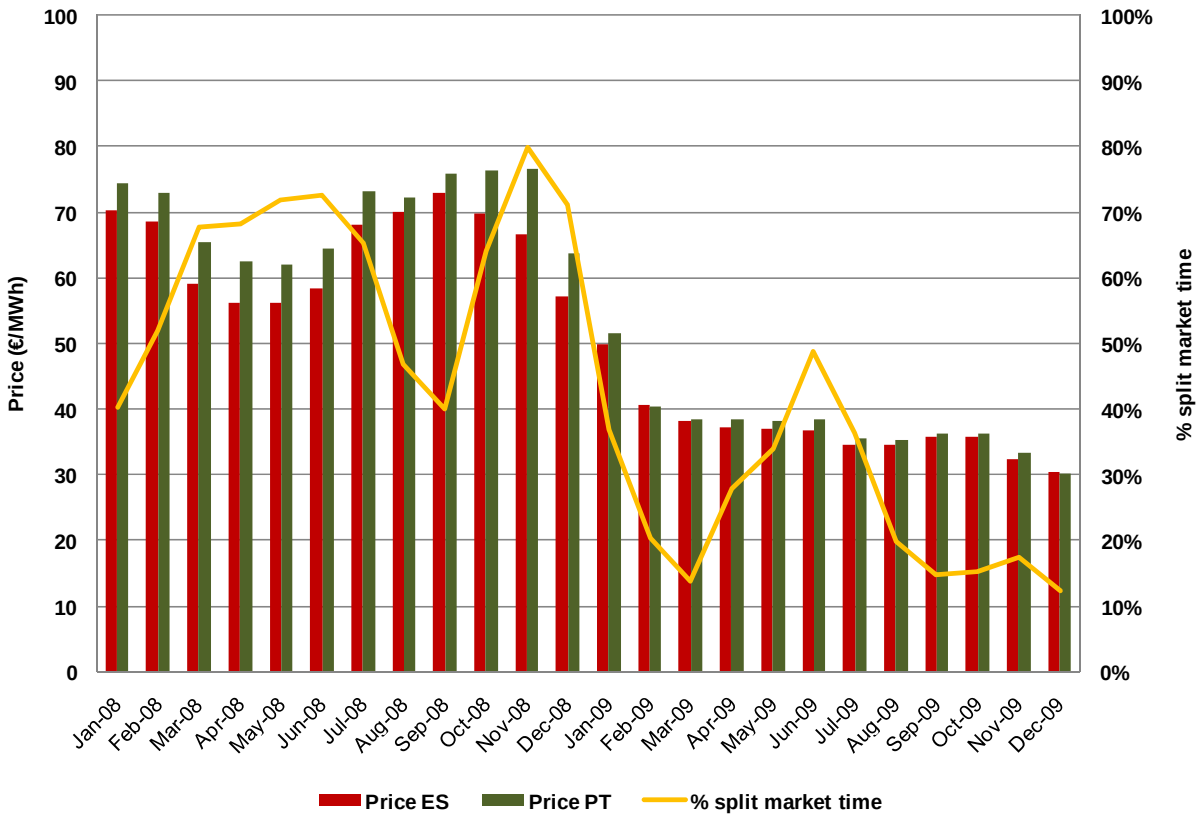


Source: REN/OMEL

The price formed on the spot market is, as mentioned earlier, the same for Portugal and Spain unless interconnection congestion makes it necessary to apply the market splitting mechanism (and therefore different prices for Portugal and Spain). Figure 3-12 shows the prices in Portugal and Spain and the percentage of split market time. In it one can observe (i) a general reduction of the market price; (ii) a

substantial reduction of the spreads between the two countries in 2009; and (iii) a reduction of the periods of market splitting. Several occasional factors played a role in this, such as the reduction in electricity consumption and the fall in primary energy prices compared with 2008. Structural factors were involved, too, such as the expansion of installed capacity in CCGT plants, which resulted in less recourse to more expensive power plants (like fuel oil plants).

Figure 3-12 – Spot market price and split market time



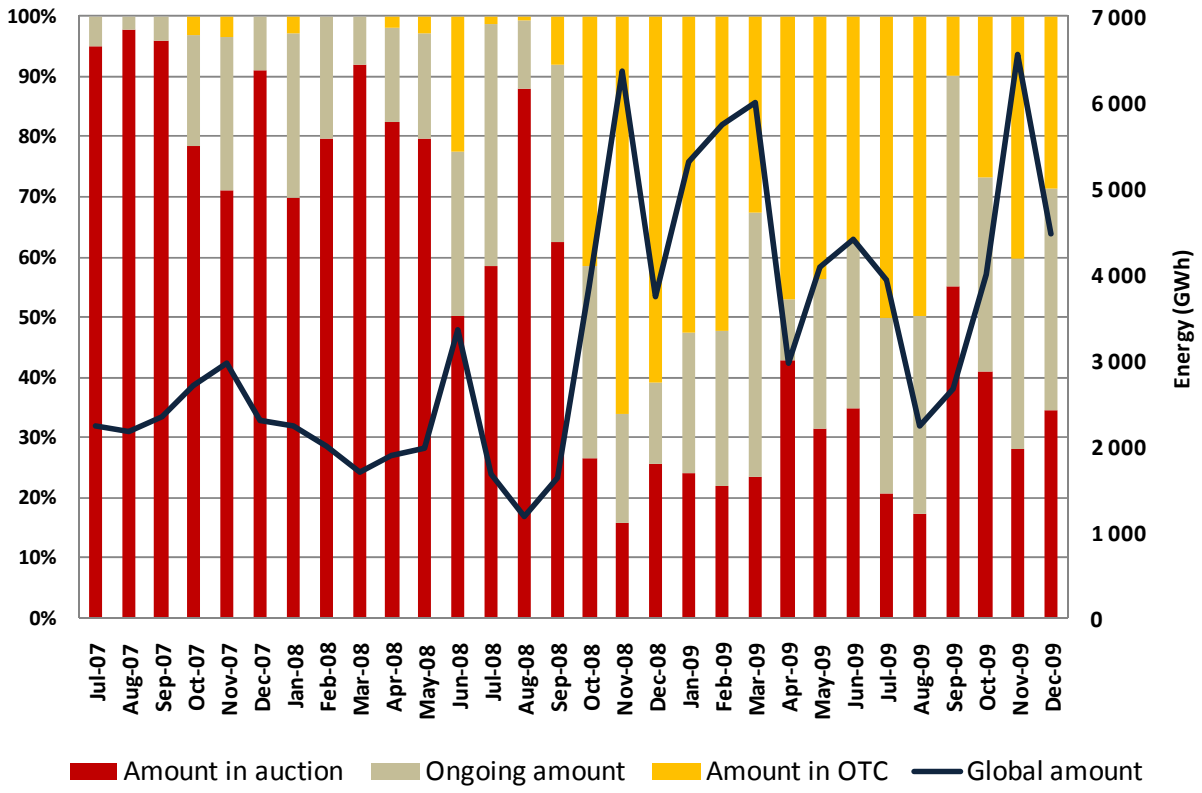
Source: OMEL

In Portugal there are mandatory auctions for the LRS[6] on the futures market, defined in the agreement establishing MIBEL (OMIP), where these agents place some of their energy needs, especially for a partial definition of the future price for the energy to be supplied under regulated supplies (through the application of a tariff established each year by ERSE). The functioning of the futures market is, besides, an extra instrument to help agents mitigate the risk of price volatility and ensure the placing of energy (supply) or meeting of demand with better predictability and stability.

[6] From July 2009 the compulsory purchases under MIBEL only cover the Portuguese LRS for acquisitions under OMIP.

Figure 3-13 shows the amounts recorded on the organised futures market, and the trend for OTC operations to increase significantly, that trend being particularly evident in 2009. The increase in the OTC operations on the organised market basically corresponds to a positive trend in the market's operations, explaining a series of operations which would otherwise not be easily identifiable in the current context of market transparency in place today.

Figure 3-13 – Amounts in the MIBEL futures market



Source: OMIP

Parallel to this, in 2009, the amount of energy underlying the holding of mandatory auctions for the LRS fell compared with the previous year, both because of a reduction in the energy needs of these agents (decreasing with the increase in the portion of supplies ensured by market regime suppliers), and, in the specific case of OMIP, through the cessation of obligation on the LRS in Spain in the second half of the year.

The overall turnover on the futures market controlled by OMIP (including the registered operations corresponding to OTC), and bearing in mind that this is a market that covers Portugal and Spain, rose to over 53 TWh in 2009, which is 66% up on 2008, and already exceeds the annual consumption in mainland Portugal.

MARKET INTEGRATION

Alongside the consolidation of MIBEL, there were other initiatives to create the Single Electricity Market, such as the South-West ERI. This is one of the seven regional electricity markets created under the ERGEG Regional Initiatives. The purpose of the South-West ERI is to integrate the electricity markets of France and the Iberian Peninsula (MIBEL) in a single regional electricity market. The CNE coordinates the activity of the South-West ERI in collaboration with ERSE, in Portugal, and the French regulator, CRE.

In 2009, in line with the other electricity regions, the South-West ERI's priority for activity focused on three fundamental areas: (1) harmonisation and improvement of congestion management (calculating and assigning available capacity; (2) harmonisation with respect to demands of transparency of information provided by transmission system operators; (3) integration of system services markets.

In 2009 the 1st Regional Report (South-West Europe) on the Management and Use of Interconnections in 2008 was drawn up. It has served as a benchmark for equivalent reports in the other regional electricity markets. The preparation of the South-West ERI's Action Plan for the 2010-2012 three-year period also got underway.

3.2.2 CHARACTERISATION OF THE RETAIL MARKET

In mainland Portugal the retail market is based on the co-existence of a public system with regulated tariffs practised by last resort suppliers (LRS) and a market-driven system in which the energy is freely contracted. As grid access tariffs are paid by all consumers or by suppliers on their behalf, they are naturally incorporated into either the End User tariffs practised by the LRS or the tariffs freely practised by market suppliers. The inclusion in the retail customer tariffs, regulated by ERSE, is done directly via the tariff additivity method.

CHARACTERISATION OF ELECTRICITY DEMAND

Table 3-5 characterizes electricity demand in mainland Portugal. For this purpose it shows consumption and the number of customers by type of supply. The figures in this table are those forecast by ERSE for 2009, i.e. they provide the basis for determining the tariffs for that year.

Table 3-5 – Characterisation of demand by type of supply

Type of supply	Energy (GWh)	Number of customers
VHV	**1 712**	**60**
HV	**6 593**	**222**
MV	**14 609**	**23 310**
LV	**25 100**	**6 175 350**
SpLV	3 613	33 313
StLV (w/ IP)	21 486	6 142 037
Total	**48 014**	**6 198 942**

TARIFF ADDITIVITY APPLIED TO END USERS

The End User tariffs charged to customers of the regulated system by the LRS are given by adding together the grid access tariffs and the energy and supply tariffs practised by the LRS. Prices of End User tariffs of each billing variable are obtained by adding the corresponding prices of the said tariffs.

This method of determining the tariffs applied by the LRS makes it possible to prevent cross-subsidisation between:

- Monopoly activities (i.e. grid activities) and market activities (supply and generation of electricity).
- Customers of the LRS with different consumption profiles.
- Customers of the LRS and market-driven customers.
- LRS and market suppliers.

Moreover, cross-subsidisation is prevented by having tariffs that compose the sum based on marginal costs – in terms of structure – and on total costs – in terms of level. This also induces an efficient resource allocation.

AVERAGE PRICE STRUCTURE OF END USER TARIFFS PRACTISED BY THE LRS IN 2009

The figures below give the breakdown and structure for each voltage level, by regulated activity, of the average price of the End User tariffs practised by the LRS.

Figure 3-14 – Average price of End User tariffs practised by the LRS in 2009

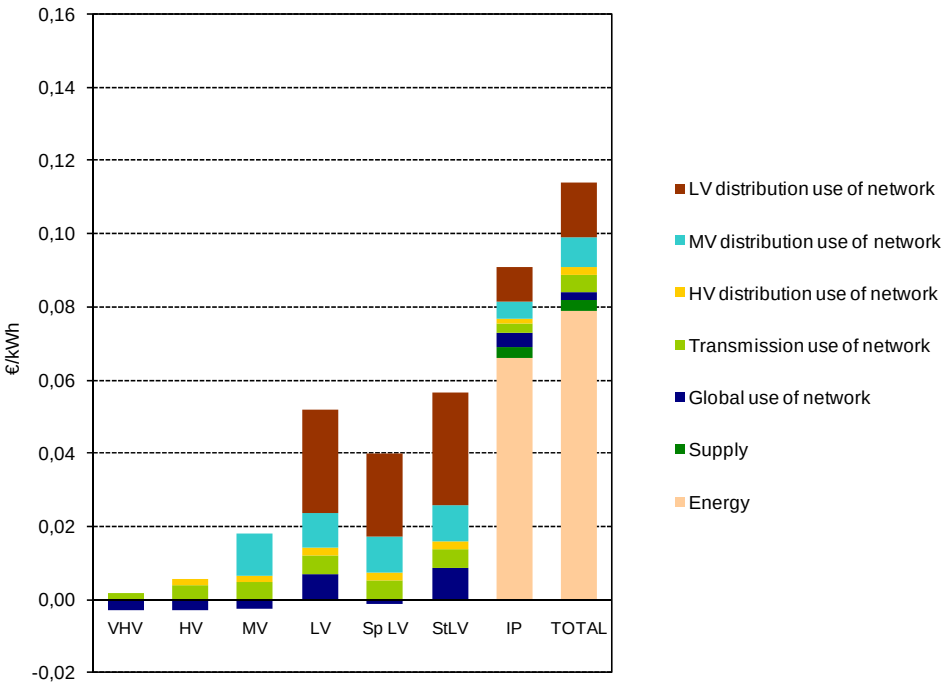
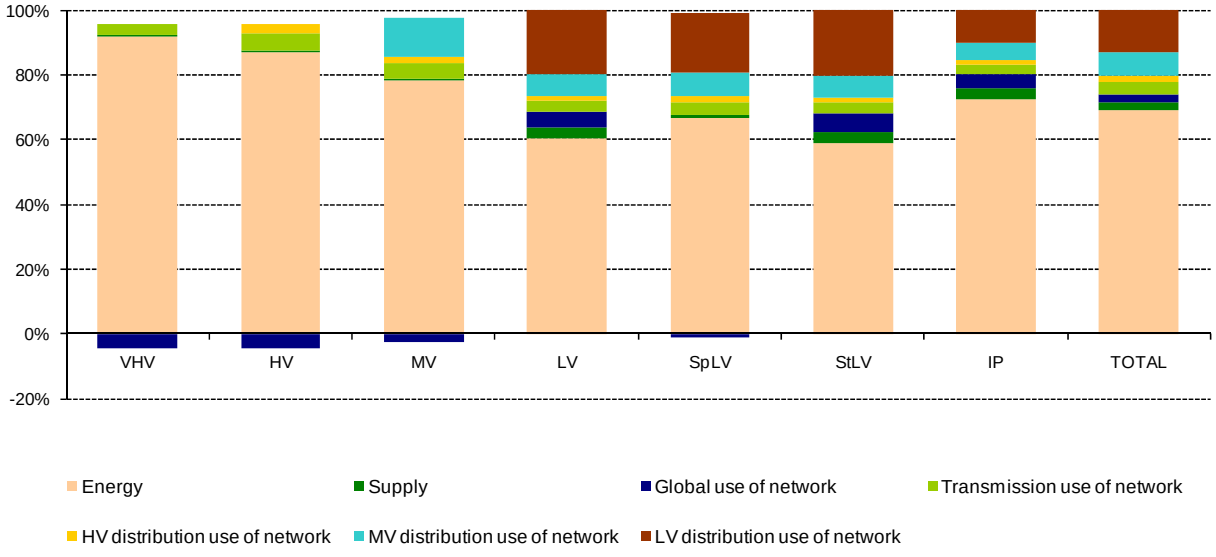


Figure 3-15 – Average price of End User tariffs practised by the LRS in 2009



END USER TARIFFS PRACTISED BY THE LRS BETWEEN 1998 AND 2009

The table below shows the average price trend for the End User tariffs in mainland Portugal since 1998.

Table 3-6 – End User tariffs practised by the LRS, by voltage level

Tariff		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Change
VHV	real	100	87	85	82	71	69	70	76	77	81	82	85	-15%
	nominal	100	90	90	90	82	82	85	95	98	106	110	117	17%
HV	real	100	87	84	81	76	74	74	80	82	86	87	90	-10%
	nominal	100	90	89	90	87	87	90	99	105	112	117	124	24%
MV	real	100	87	84	82	77	75	76	80	85	86	87	90	-10%
	nominal	100	90	89	91	89	89	93	100	108	113	116	123	23%
SpLV	real	100	93	90	87	86	85	85	85	94	96	95	98	-2%
	nominal	100	95	95	96	97	100	102	105	119	124	128	134	34%
StLV	real	100	93	90	87	86	86	86	86	84	86	86	88	-12%
	nominal	100	95	95	96	98	101	103	106	107	112	115	121	21%

METHODOLOGY FOR GATHERING REFERENCE PRICES AND AVERAGE PRICES PRACTISED ON THE RETAIL MARKET

The role of ERSE is to monitor the retail electricity market and to inform consumers and other agents in order to foster market transparency as a critical factor for efficiency. In this context it is responsible for analysing the market at various levels, including those relating to prices. This price monitoring together with the reports issued by official bodies (INE and EUROSTAT) is highly important for the players in the electricity sector.

Electricity suppliers have to send ERSE the reference prices each year[7] and inform consumers of them. They must also send the effective average prices every quarter.

In 2009 ERSE approved the methodology for "Monitoring reference prices and average prices [8] practised by electricity suppliers" to comply with the information requirements to be established with the suppliers in relation to the calculation and sending of both the reference prices suppliers expect to be applying on the market and the average prices actually practised.

The reference prices sent by the various suppliers operating on the market in mainland Portugal enable ERSE to provide a price simulator for StLV facilities on its website. The average prices practised, which

[7] Reference prices are the tariffs, tariff options and the respective prices and reference rates for each billing variable offered by suppliers to their customers, as well as the conditions for applying the tariffs, i.e. minimum consumption characteristics, durations of contracts and price revision conditions.

[8] Average prices actually practised by the retail market suppliers.

ERSE only began receiving in 2009, under the aforementioned order, enabled a database to be set up in order to analyse retail market operations.

SIMULATORS

With the aim of continuing to provide information to electricity consumers on the reference prices practised on the market, as well as the computer tools to help consumers choose a supplier, ERSE's website still offers simulators that will give electricity consumers objective information to help them make an informed choice when it comes to choosing the best offer on the market.

- Simulation of power to subscribe.
- Price comparison simulator for StLV supplies in mainland Portugal.
- Billing simulator for VHV, HV, MV and SpLV electricity in mainland Portugal.
- Billing simulator for MV and SpLV electricity in the Autonomous Region of the Azores.
- Billing simulator for HV, MV and SpLV electricity in the Autonomous Region of Madeira.

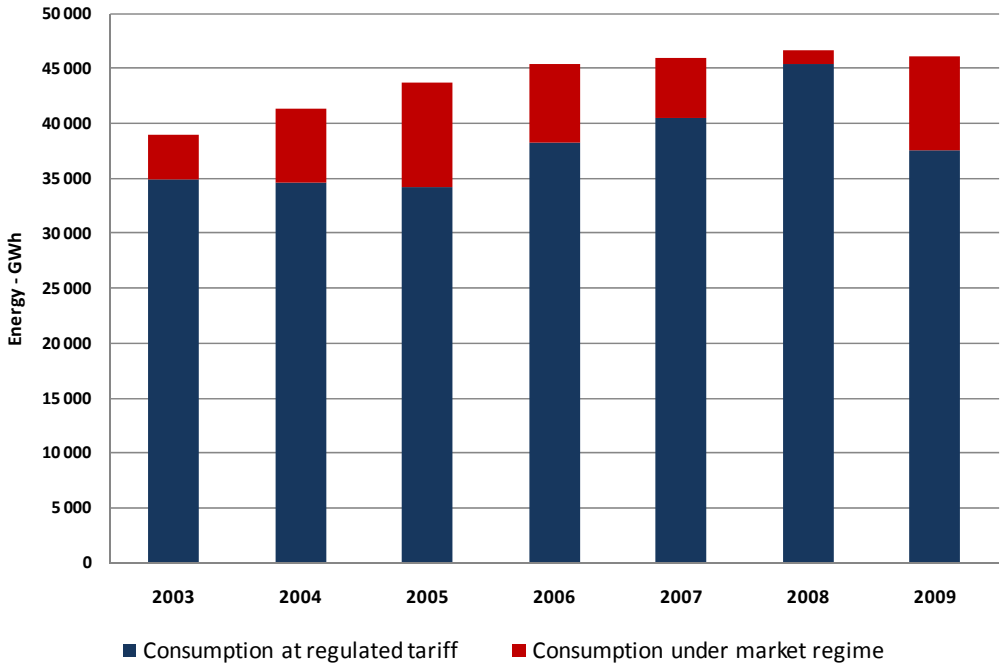
EVOLUTION OF ELECTRICITY SUPPLY (RETAIL MARKET)

The liberalisation of the electricity sector in mainland Portugal followed exactly the same method as that used in most other European countries. The market was opened up gradually, starting with the biggest consumers and the highest voltages.

Currently the supplies under the market regime and supplies to end users paying the regulated tariff exist side by side, and all customers can negotiate their electricity contracts with a supplier or agree to be supplied by the LRS, paying the tariffs fixed by ERSE.

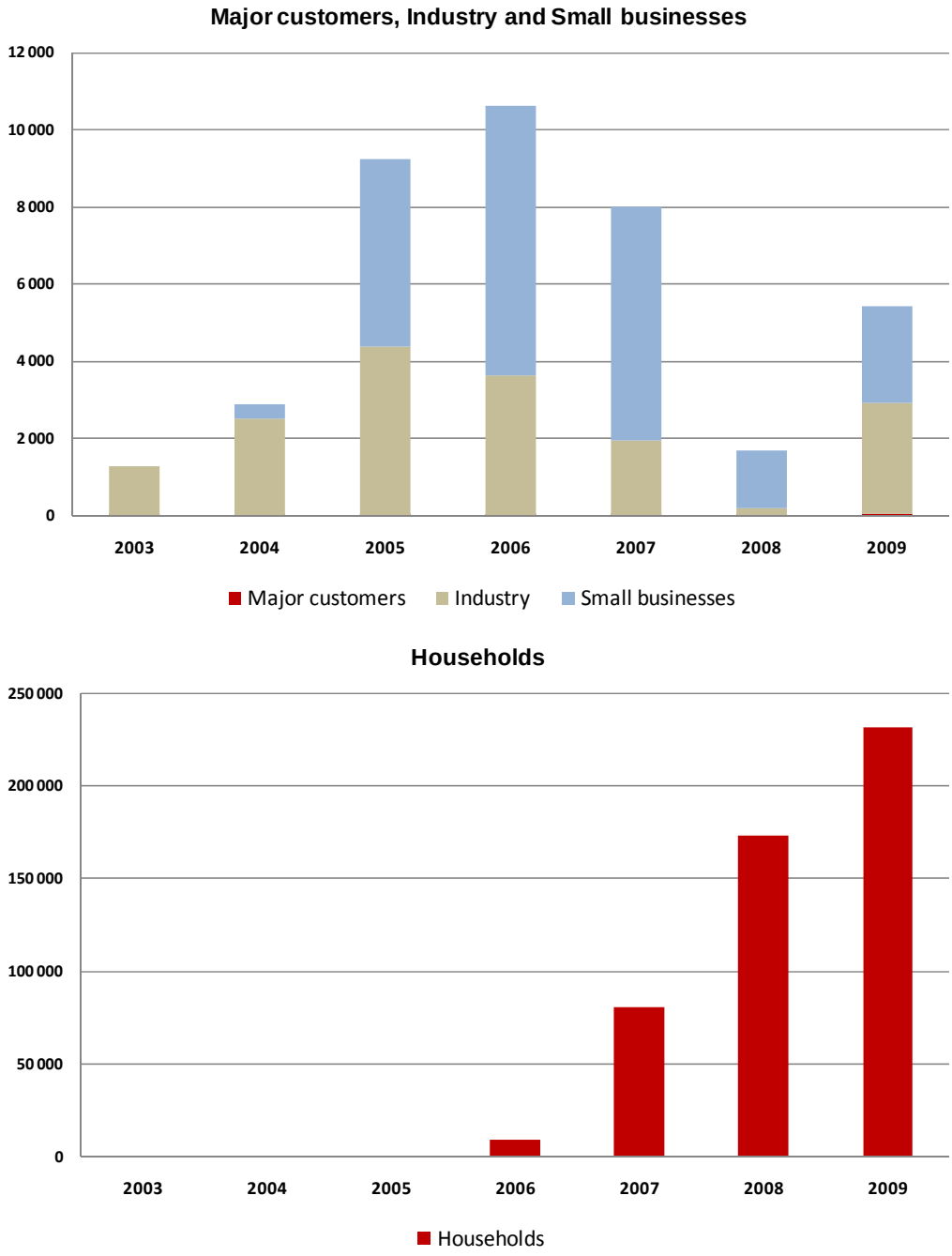
The Portuguese market was opened up in stages and the process was completed in 2006, when it was opened up to all customers. The regulated and market regime consumption trends are shown in the figure below.

Figure 3-16 - Regulated and open market consumption



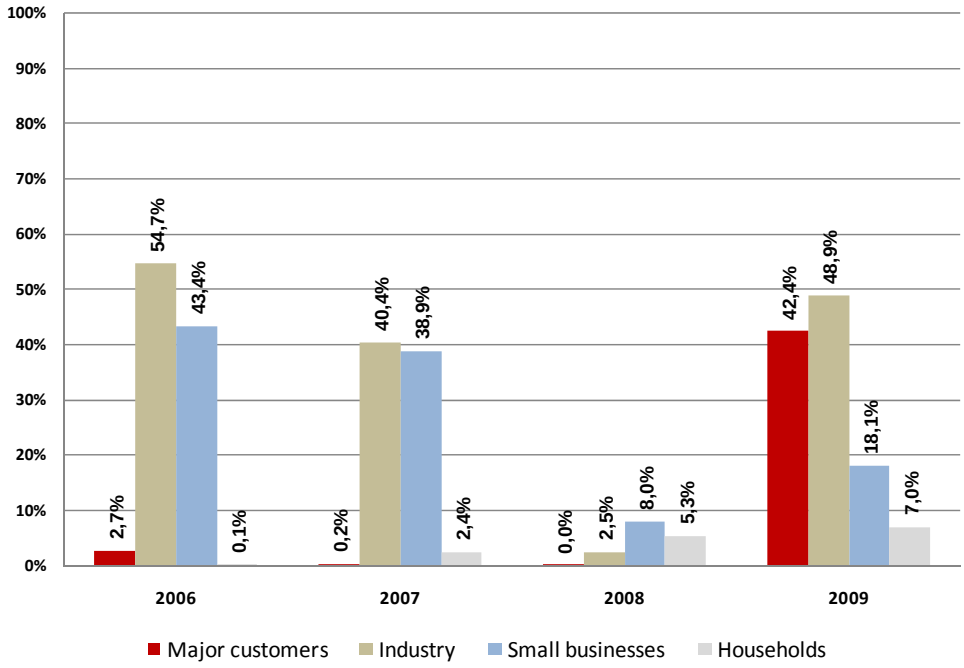
In 2009 the fixing of the end user tariff led to the cost of the energy implicit in it exceeding the market price and this led to consumers supplied by the LRS switching to the market regime. In addition, the operating conditions of the wholesale market resulted in a smaller spread of prices between Portugal and Spain and less congestion time on the interconnection (reflected in the lower percentage of market splitting), and so the trading risk was reduced for new entrants.

Figure 3-17 - Number of market regime customers in mainland Portugal



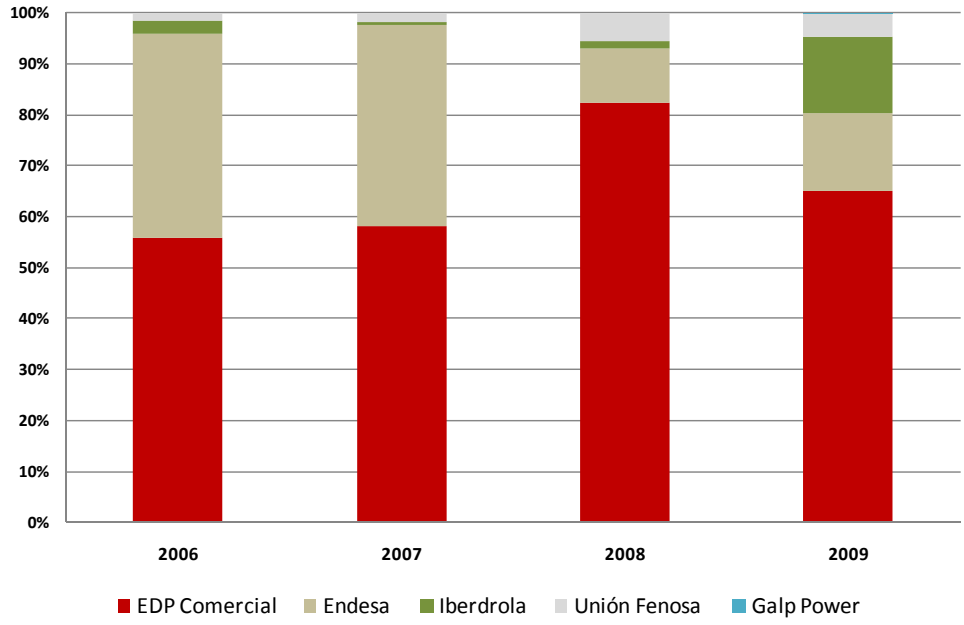
The increase in the total number of customers in the market regime can mostly be put down to household customers, for whom liberalisation started in September 2006, even though it is clear that in 2009 a large swathe of industrial customers returned to the market regime, along with a smaller number of customers from the small business segment. Figure 3-18 shows how much of the consumption of each consumer segment comes from the market regime. In 2009 about half the consumption of industrial customers was covered by market suppliers and that over 40% of the consumption of major customers was provided in the same way.

Figure 3-18 – Market regime penetration by customer segment



The growth in market regime supply in 2009 was matched by a reduction in market concentration in terms of supply under this regime. This is demonstrated by the loss of market share of the EDP group, the main operator, from 2008 to 2009, as shown in Figure 3-19.

Figure 3-19 – Market regime supply structure by supplier



It is also worthwhile bearing in mind that, in terms of market structure, the regulated supply of electricity in Portugal has been ensured since 2007 by an entity that is legally independent of the distribution system operator, with these activities being considered separately and being subject to mandatory segregation of information. At the same time there are 10 local operators which, in terms of energy supplied, account for no more than 1% of the total consumption in mainland Portugal and which are last resort suppliers.

COMPLAINTS AND REQUESTS FOR INFORMATION

Matters related to complaints and requests for information are dealt with in point 2.3.

3.2.3 MEASURES FOR PROMOTING COMPETITION

In the context of measures to prevent abuse and dominant positions, in addition to the conditions carried over from previous years, particularly those embodied in the definition of the concept of relevant fact and the proposed definition of harmonized Iberian concept of dominant operator, 2009 was notable for the entry into force of the agreement by which Iberdrola became the operator of the Aguieira-Raiva hydropower plant.

The entry into operation of that agreement is in fact an imposition by the Competition Authority under the concentration operation that involved the integration of the Alqueva hydroelectric power plant in the EDP group's portfolio. Indeed, as a condition for the approval of that concentration it was established that EDP should assign the operating of generation capacity equivalent to the integrated capacity in its generation portfolio. The Competition Authority's ruling related to the assignment of the operation of the Aguieira-Raiva plant for a period of 5 years, amounting to total capacity equivalent to that of the Alqueva plant (240 MW).

The expiry of this agreement should coincide with the entry into operation of new hydroelectric power plants under the National Dam Scheme, thereby ensuring that at the end of that agreement there will be greater deconcentration in terms of generation capacity in the hydropower segment than there was before the contract (total capacity managed by the EDP group).

The implementation of the Aguieira-Raiva operating agreement was preceded by a tendering procedure which Iberdrola won since its bid was the most advantageous on the basis of the stipulated conditions.

4 REGULATION AND PERFORMANCE OF THE NATURAL GAS MARKET

4.1 REGULATION MATTERS

4.1.1 MECHANISMS FOR MANAGING CONGESTIONS AND ALLOCATING AVAILABLE CAPACITY IN THE INFRASTRUCTURE

AVAILABLE CAPACITY AND RULES OF ACCESS TO THE INFRASTRUCTURE

Allocation of capacity in the national natural gas system's infrastructure is based on prior scheduling and assignment processes for the said infrastructure.

The scheduling involves regular information processes whereby market players inform the national natural gas system infrastructure operators of the capacities they wish to use over a given period of time. The regulatory framework currently in force provides the existence of annual, monthly and weekly scheduling processes, regarding the transmission system, the distribution grids, the LNG terminal and the underground storage infrastructure.

Assignments are communication processes which transmit forecasts of capacity use at the national natural gas system's infrastructures for the next day. They must therefore reflect a very accurate forecast of consumption. Capacities programmed and assigned by the market players must be accounted for according to the forecast portfolio consumption.

Checking mechanisms have been linked to the scheduling and assignment processes with a view to checking the overall feasibility of all scheduling requests made by the market agents. The infrastructure operators, coordinated by the transmission system operator, in its role as global technical manager of the national natural gas system, allocate the programmed and assigned capacities after the checking mechanisms have confirmed the global feasibility of all scheduling and assignment requests. If such feasibility is not confirmed, then the congestion management mechanism described below comes into play.

The market players should be sequentially involved in scheduling until assignment takes place, inasmuch as capacities allocated under a scheduling process need to be confirmed in the subsequent processes – in case the market player really wants to use such capacity. Previously allocated capacities that have not been confirmed in the subsequent scheduling processes are made available to the market players again (*use it or lose it*).

The regulatory framework currently in force safeguards the allocation of capacity in the national natural gas system's infrastructures in connection with long-term natural gas supply contracts of the take-or-pay

type signed prior to the publication of Directive 2003/55/EC of the European Parliament and Council, dated 26 June 2003, for supplying consumers in the national territory. This provision does not exempt market operators holding such contracts from participating in the scheduling and assignment processes.

The congestion management mechanism is activated whenever the overall scheduling and assignment requests of the market players are not feasible. In these circumstances the points of the SNGN infrastructure are identified where congestion is predictable and capacity is allocated by means of capacity auctions.

The congestion management mechanism applies to specific points in the infrastructure and safeguards two fundamental principles:

- Allocation of capacity shall be by way of market mechanisms.
- Charges arising from capacity allocation only come into effect if the forecast congestions are confirmed.

The mechanism adopted for allocating capacity in the natural gas underground storage facilities provides for scheduling plans, which are open to all market players with natural gas underground storage contracts, under which capacities available for commercial purposes within specific timeframes are allocated. If demand exceeds the supply in terms of the capacity made available by the underground storage infrastructure operators, then such capacity will be allocated by means of auctions.

4.1.2 REGULATION OF THE PUBLIC NATURAL GAS SYSTEM OPERATORS

4.1.2.1 GRID ACCESS TARIFFS

PROCEDURES AND METHODOLOGY FOR CALCULATING ACCESS TO NATURAL GAS INFRASTRUCTURE TARIFFS

Tariff calculations must comply with the calculation methodology previously established in the Tariff Regulation Code. ERSE is responsible for compiling and publishing the Tariff Regulation Code, and it must be submitted to public consultation and be the subject of an opinion from the Tariff Board prior to its approval.

The tariff fixing process – including its time frame, is also laid down in the regulations.

The following brief characterisation of the new Portuguese tariff system for the natural gas sector serves to contextualise the tariff calculation methodology.

Thus, the infrastructure access tariffs that apply to all natural gas consumers for access to the infrastructures in question are considered, more specifically the Grid Access tariffs, Use of the LNG Reception, Storage and Regasification Terminal Tariff and Use of Underground Storage Tariff.

Generally speaking, these infrastructure access 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 (i.e. customers buying energy directly on the market, and which are responsible for managing their programming imbalances).

The existence of LRS is backed up by the existence of End User tariffs. These tariffs are applicable to their customers and are calculated by adding the Supply Tariff and the Energy tariff to the Grid Access Tariffs. These last two tariffs reflect the commercial management costs of the LRS and the natural gas supply costs incurred by them to supply their customers.

TARIFFS AND REGULATED ACTIVITIES OF THE NATURAL GAS SECTOR

Various regulated activities are envisaged in the natural gas sector, and ERSE establishes the allowed revenue for each activity and the corresponding annual tariff that is applied.

The following tariffs are approved for each regulated activity: Global Use of System, Transmission Use of Network, Use of the LNG Reception, Storage and Regasification Terminal Tariff and Use of Underground Storage, Distribution Use of MP Network, Distribution Use of LP Network, Energy and Supply.

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

TARIFF ADDITIVITY APPLIED TO THE NATURAL GAS INFRASTRUCTURE ACCESS TARIFFS

Customers wishing to use the natural gas infrastructures, particularly the networks, the LNG terminal and underground storage, shall pay the relevant access tariffs.

Grid access is paid by all consumers of natural gas. Grid access tariffs are arrived at by adding the following together: Global Use of System, Transmission Use of Network and Distribution Use of Network. Prices of access tariffs for each billing variable are determined by adding up the corresponding tariff prices per activity.

The End User tariffs the LRS charges its customers are calculated on the basis of the tariffs per activity included in grid access, plus the Energy Tariff and the Supply Tariff.

The Use of the LNG Reception, Storage and Regasification Terminal tariff and the Use of Underground Storage tariff are paid only if the customer wants to use the respective infrastructures.

FORMS OF REGULATION

At the start of the new regulation period, the 2010/2011 to 2012/2013 three-year period, ERSE decided to assess the forms of regulation of the natural gas sector's activities, for which purpose it submitted a set of proposed changes for public discussion, which include:

- Reduction of the cost-of-capital smoothing period to 10 years for the LNG Reception, Storage and Regasification activity.
- Abolition of cost-of-capital smoothing with the gradual replacement of financial neutrality over a 3-year period for the Natural gas transmission activity and over 6 years for the Natural gas distribution activity.
- Adoption of a price-cap regulation for controllable costs in the Distribution and Retail Last Resort Supplier activities.

With a view to implementing the price cap, a study was begun in 2009 to analyse the natural gas sector so as to be able to define the potential efficiency gains for natural gas distribution companies. This study is based on a benchmark determined at national level based on parametric (OLS with panel data) and non-parametric (DEA) methods.

4.1.2.2 QUALITY OF SERVICE

The Quality of Service Regulations for the natural gas sector were first applied in July 2007. The information in this report relates to the 2008-2009 gas year, which covers the period 1 July 2008 to 30 June 2009.

The Quality of Service Regulations for the natural gas sector envisage monitoring the quality of service in the natural gas sector provided by the various infrastructure operators. Three areas are covered: continuity of supply, natural gas attributes, and pressure of natural gas supply.

CONTINUITY OF SUPPLY

LNG Terminal

Continuity of supply provided by the LNG terminal is characterised on the basis of the five indicators defined below:

- Average real time for unloading LNG tankers(h): quotient between the sum of the effective unloading times and the total number of unloadings.
- Average delay of LNG carrier unloading (h): quotient between the sum of the delays and the total number of delayed unloadings.

- Average time for loading LNG tank trucks (h): quotient between the sum of the effective loading times and the total number of loadings.
- Average delay of LNG tank truck loading (h): quotient between the sum of the delays and the total number of delayed loadings.
- Compliance with the natural gas injection assignments: quotient between the number of assignments achieved and the total number of assignments in relation to the injection of natural gas into the transport network.

In relation to the unloading times for LNG tankers and loading times for tank trucks, delays are held to have occurred whenever the unloading time is more than 20 h and the filling time is longer than 2 h.

Table 4-1 shows the indicators established for the 2008-2009 gas year.

Table 4-1 – Characterisation of quality of service of the LNG terminal, gas year 2008-2009

	Gas year 2008-2009					**Gas year 2007-2008**
	Quarter				**Annual**	
	1st Jul - Sept 2008	**2nd** Oct – Dec 2008	**3rd** Jan - Mar 2009	**4th** Apr – Jun 2009		
Number of unloadings from LNG carriers	9	8	11	11	39	35
Number of tank truck loading operations	400	611	660	465	2136	2148
Average real time for unloading LNG carriers (hh:mm)[1]	19:09	19:04	19:29	18:49	19:08	20:25
Average delay for unloading LNG carriers (hh:mm)[2]	0:00	0:00	0:00	0:00	0:00	51:22
Average real time for filling tank trucks (hh:mm)[3]	1:33	1:43	1:45	1:45	1:42	1:37
Average delay for filling tank trucks (hh:mm)[4]	0:30	0:30	0:34	0:29	0:31	0:49
Compliance with the NG injection assignments (%)[5]	100.00	100.00	100.00	100.00	100.00	100.00
Compliance with the NG energy injection assignments (%)[6]	99.49	98.32	99.34	99.69	99.20	99.33

Natural gas transport network

Continuity of supply of transmission network is assessed according to the following indicators:

- Average number of interruptions per exit point: quotient of total number of interruptions at the exit points over a specific period, by the total number of exit points, at the end of the period considered.

- Average duration of interruptions per exit point (minutes/exit point): quotient of the overall duration of interruptions at the exit points over a specific period, by the total number of exit points at the end of the period considered.
- Average duration of the interruption (minutes/interruption): quotient of the overall duration of interruptions at the exit points, by the total number of interruptions at the exit points over the period considered.

Two interruptions occurred in the service in the 2008/2009 gas year, resulting in the following figures for the general continuity of supply indicators:

- Average number of interruptions per exit point: 0.026 interruptions/exit point.
- Average duration of interruptions per exit point: 0.18 minutes/exit point.
- Average duration of interruption: 7 minutes/interruption.

Distribution networks

Continuity of the supply for the distribution networks is given by means of the three indicators established for the 2008-2009 gas year:

- Average number of interruptions per customer: quotient of total number of interruptions to customers over a specific period, by the total number of customers, at the end of the period considered.
- Average duration of interruptions per customer (minutes/customer): quotient of the overall duration of interruptions to customers over a specific period, by the total number of customers at the end of the period considered.
- Average duration of interruptions (minutes/interruption): quotient of the overall duration of interruptions to customers, by the total number of interruptions to customers over the period considered.

Table 4-2 – Characterisation of the quality of service of the distribution networks, gas year 2008-2009

Network operator	Number of interruptions					General indicators		
	Type of interruption				Total			
	Not controllable		Controllable					
	Scheduled	Accidental	Scheduled	Accidental		**Average number of interruptions per thousand customers** (interruptions/ 1000 customers)	**Average duration of interruptions per customer** (minutes/ customer)	**Average duration of interruptions** (minutes/ interruption)
	Reasons of public interest	*Security reasons Unforeseeable /force majeure*	*Supply reasons*	*Other reasons e.g. breakdown*				
Beiragás	0	0	0	0	0	0	0	0
Dianagás	0	0	0	0	0	0	0	0
Duriensegás	0	0	0	0	0	0	0	0
Sonorgás	0	0	0	0	0	0	0	0
Paxgás	0	0	0	0	0	0	0	0
Lusitaniagás	0	1	0	0	1	0.01	0.0002	42.00
Tagusgás	8	132	88	4	232	10.03	1.51	150.72
Medigás	0	253	0	0	253	20.38	1.75	86.10
Setgás	0	943	457	0	1 400	10.26	0.81	124.18
Portgás	0	1 632	0	0	1 632	8.13	1.48	182.62
Lisboagás GDL	0	2 101	11 523	178	13 802	28.91	9.14	316.57
Total	8	5 062	12 068	182	17 320	-	-	-

Source: Beiragás, Dianagás, Duriensegás, Sonorgás, Paxgás, Lusitaniagás, Tagusgás, Medigás, Setgás, Portgás, Lisboagás GDL

In this gas year the distribution networks of five operators did not suffer any interruptions, which can be explained by the fact that the natural gas networks, with the exception of the Lisboagás GDL network, are recent. The considerable difference between the number of interruptions in each distribution network and the figures for the indicators is largely due to the fact that the number of customers in each network differs widely.

The 17 320 interruptions that occurred affected 17 189 customers, 1.56% of the natural gas customers, with 131 customers being affected by two interruptions.

PRESSURE OF SUPPLY

In the 2008-2009 gas year the distribution system operator s monitored the pressure at certain points on the distribution networks. Depending on the type of points defined, the monitoring was either permanent or not, i.e. was conducted over the entire gas year or only for a fixed period of time.

4.1.2.3 BALANCING

Market players must manage the natural gas supply and demand balance within the leeway margin resulting from the maximum and minimum stock allocated to each of them. Failure by market players to comply with the maximum and minimum stock limits in the transport network creates a situation of individual imbalance, which is subject to a penalty scheme to be approved by ERSE in the framework of the incentive mechanism to restore the individual balance. The penalties were established following a proposal made by the transmission system operator. Their application does not release market players from their obligation to correct their individual imbalances and they must restore their stock to within the established limits.

The creation of an operational reserve has been provided for with a view to securing the integrity of the national natural gas system's infrastructures, particularly the transmission network. This operational reserve is the amount of natural gas required to meet short-term needs, resulting from possible differences between the profiles of injection into and extraction from the transmission network in the intraday period and the restoration of natural gas amounts due to minimum stock infringements by the market players, which may threaten the integrity of the transmission network.

Operational reserves must be constituted by the market players and use thereof is the exclusive responsibility of the transmission system's network operator. The amounts of natural gas allocated to the operational reserve, as well as the method for determining the tranche corresponding to each market player, are approved by ERSE through a proposal made by the transmission system operator.

4.1.3 SEPARATION OF INFRASTRUCTURE OPERATORS

The natural gas sector has operators in the following infrastructures:

- LNG Reception Terminal, Storage and Regasification
- Underground storage of natural gas
- Natural gas transmission network.
- Natural gas distribution networks.

Mainland Portugal currently has one LNG terminal operator, two underground storage operators, one transmission system operator, 11 distribution system operator s and 11 last resort suppliers. Only four of these suppliers are separate in legal terms from the distribution operators (these are the companies with more than 100 000 customers).

Infrastructure operators comply with the activities' unbundling criteria established in Directive 2003/55/EC, which has already been transposed into Portuguese law.

In 2009 the regulator submitted a regulatory proposal to public discussion that aimed to established a set of obligations with respect to the separation of image. These obligations were published in 2010.

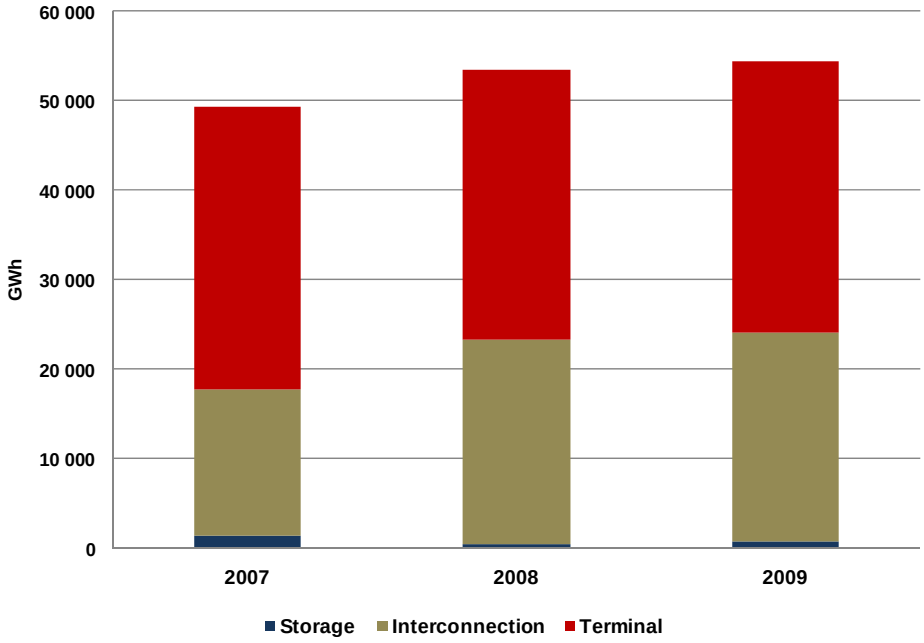
4.2 COMPETITION

4.2.1 CHARACTERISATION OF THE WHOLESALE MARKET

The Portuguese market is supplied with natural gas through entries into the system via the interconnectors with Spain (Campo Maior and Valença) and the port terminal at Sines, by means of long-term take-or-pay contracts. The main suppliers of natural gas are Algeria and Nigeria.

The breakdown of the supply is presented in Figure 4-1, showing that for the past three years the terminal (contracts for LNG from Nigeria) was responsible for supply of most of the natural gas to the Portuguese market, whose value in 2009 amounted to around 55% of the total amount of gas contracted for the national market.

Figure 4-1 – Breakdown of supply by infrastructure



The legal framework for the sector, i.e. that created by the laws published in 2006, has since established both the unbundling of activities and the operation of the sector on a market-driven basis.

In 2009 ERSE held the first natural gas release auction, as described in point 4.2.3.2. The auction was effective for the 2009-2010 gas year. The intention was to give stability to the sector's liberalisation

process and offer some degree of predictability to market agents for the planning of their operations. ERSE established that similar auctions would be held for the next two years.

The first natural gas release auction made it possible to place 300 million m^3 (equivalent to around 3500 GWh) with the aim of furthering de-concentration of the wholesale gas market. This means that the equivalent of around 6% of the overall demand for 2009 was placed at the disposal of the agents.

MARKET INTEGRATION

The integration of the natural gas market has been achieved by two initiatives, viz. the Iberian Natural Gas Market (MIBGAS) and South GRI.

The proposed organisational model and operating principles for MIBGAS[9] presented to the Portuguese and Spanish governments by ERSE and CNE in 2008 describe the plan of action for creating and developing this market:

- Harmonisation of licences for supplying natural gas in Iberia: CNE and ERSE should produce a study with a comparative analysis of the conditions for obtaining a supplier licence in both countries and recommendations for regulatory harmonisation.
- Convergence in the access tariff structure. In order to ensure access to the Iberian infrastructure there has to be convergence in the access tariff structure and systems, especially with respect to the transit of natural gas between Spain and Portugal, given its importance in the establishment of the Iberian market.
- Joint planning of the Iberian natural gas system: REN and ENAGAS should draw up an investment plan to strengthen the interconnectors and storage capacity for natural gas.

Under the first point of this action plan, in early 2009 ERSE and CNE placed for public discussion a proposal for the harmonisation and mutual recognition of supplier licences on the Iberian natural gas market[10]. The public consultation process ended on 15 April 2009, with seven market agents and operators in the natural gas system having forwarded their comments.

In light of the positive outcome of the public consultation, in early 2010 ERSE and CNE submitted a proposal for the mutual recognition of licences to supply natural gas under MIBGAS to their governments. The proposal included a joint analysis of the comments.

9 http://www.erse.pt/pt/consultaspublicas/historico/Paginas/19.aspx

10 http://www.erse.pt/pt/consultaspublicas/consultas/Paginas/27Consultapublica.aspx

With respect to South GRI, the regulators in Portugal, Spain and France (RCC South GRI) met in Madrid on 11 September 2006 to launch the natural gas regional initiative for South Europe. The main developments in assigning capacity, interoperability, investment and legal convergence have since been achieved.

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4.2.2 CHARACTERISATION OF THE RETAIL MARKET

DEMAND FOR NATURAL GAS

The demand for natural gas in mainland Portugal is outlined in point 5.2.1.

TARIFF ADDITIVITY APPLIED TO END USERS

As explained above, the End User tariffs charged to customers by the LRS are given by adding together the grid access tariffs and the energy and supply tariffs.

This method of determining the tariff, applicable by the LRS, makes it possible to prevent cross-subsidisation between:

- Monopoly activities (i.e. network activities and those involving other infrastructures) and market activities (supply and sale of natural gas).
- Customers of the LRS with different consumption profiles.
- Customers of the LRS and market-driven customers.
- LRS and market suppliers.

Insofar as the tariffs that compose the sum are based on marginal costs in terms of structure, and on total costs in terms of level, this prevents cross-subsidisation between customers and, by reflecting the marginal costs it also allows an efficient allocation of resources.

This tariff calculation methodology provides a detailed knowledge of all tariff components by activity or service. Thus customers may request a breakdown of the natural gas bill into each different regulated tariff component applicable, by average price and by tariff term. This possibility is laid down in the natural gas sector regulations currently in force.

Transparent definition of tariffs is particularly important for smaller customers and those who are less well-informed.

AVERAGE PRICE STRUCTURE OF END USER SALES TARIFFS

The figures that follow give the details of the average price structure of End user sales tariffs by the various tariffs that make them up: Energy tariff, Transmission Use of Network tariff, Global Use of System tariff, Distribution Use of Network tariff and Supply tariff.

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Figure 4-2 – Average price of End User tariffs in 2009-2010

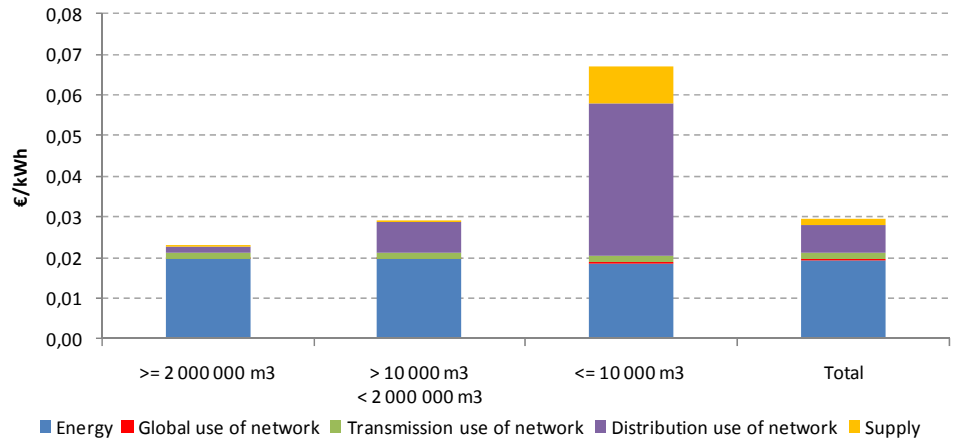
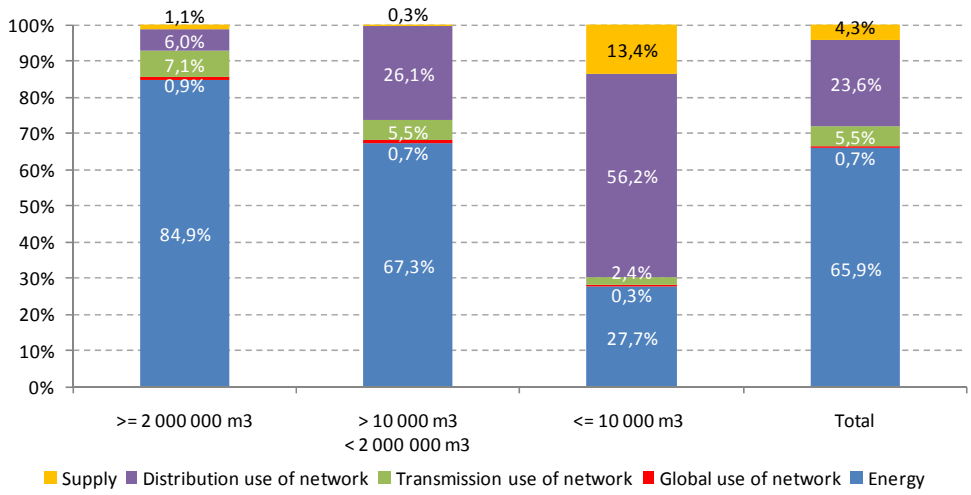


Figure 4-3 – Structure of average price of End User tariffs in 2009-2010



MARKET LIBERALISATION

The timetable for market liberalisation as defined by law establishes that the following parties can freely choose their supplier:

- All producers of electricity in standard generation, as of 1 January 2007;
- All customers whose consumption is 1 million m^3 (n) or more, as of 1 January 2008;
- All customers whose consumption is 10 000 million m^3 (n) or more, as of 1 January 2009;
- All other customers, as of 1 January 2010.

During 2009 the market was opened up to power plants and to all industrial consumers, which accounted for around 94% of the overall market, considering the average structure of the market over the last 4 years (2006-2009).

The following natural gas contract options are therefore available:

a) Signing a natural gas supply contract with market regime suppliers.

b) Signing a natural gas supply contract with the LRS.

c) Contracting natural gas on the organised markets or via bilateral contracts, in the case of customers who have the status of market agents.

The supplier switching process is handled by the national transmission system operator (REN Gasodutos), with the procedures and reasons for switching supplier being approved by ERSE. These procedures were published on 5 March 2009 (ERSE Order 6973/2009, published in the *Diário da República* (the official gazette) no. 45, Series II of 5 March).

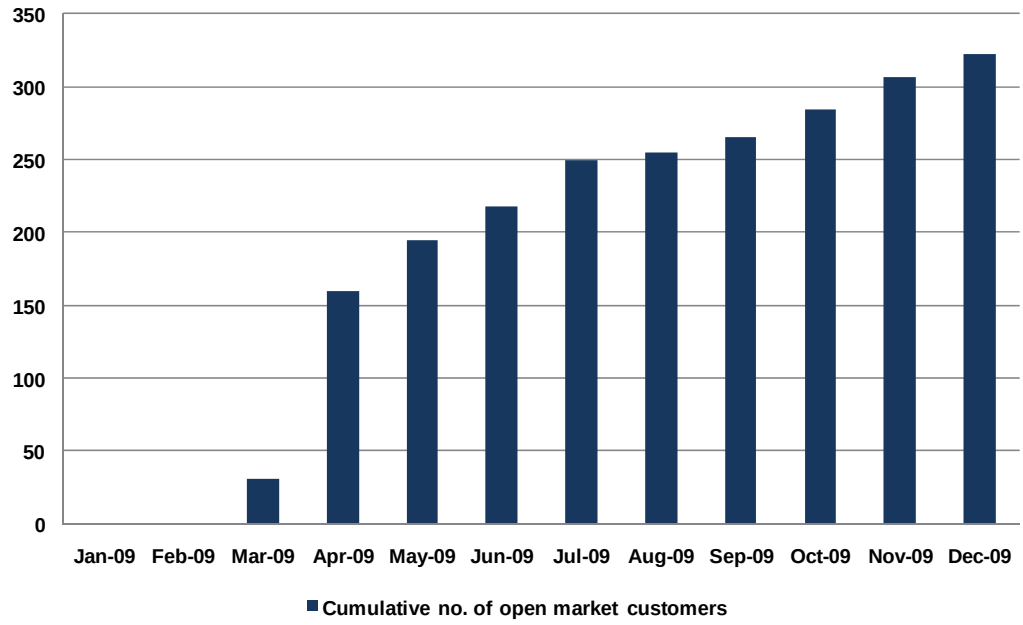
Under current regulations customers have the right to change their natural gas supplier up to 4 times in each period of 12 consecutive months. No charge may be levied for switching supplier.

As mentioned earlier, REN Gasodutos is the body entrusted, in the regulations, to operationalise the supplier-switching process. It began to implement the logistical and information platform for this purpose in 2009. The process was phased so as to respond to the opening up of the market to all industrial consumers and allow household consumers to switch suppliers.

The platform is too young to allow the gathering of global, reliable information to forward to ERSE for the purpose of overseeing and monitoring the liberalisation process. ERSE thus made some changes to the regulations so as to detail the obligations of the various agents for the performance of the duties to inform by the body charged with managing supplier switching, particularly with respect to the structure of the market in terms of consumption.

Based on the information processed by the supplier switching manager, 322 customers switched from supply at the regulated tariff to the portfolio of a market supplier, or started straightaway with consumption on the market in 2009, as shown in Figure 4-4. All the customers mentioned belong to the industrial customer segment.

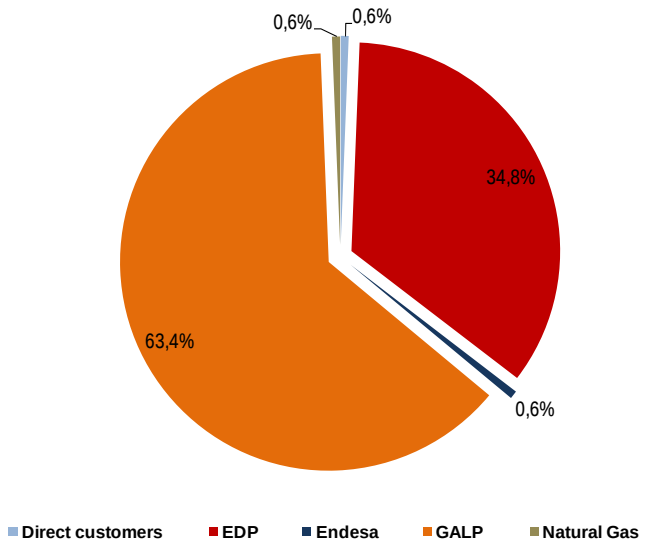
Figure 4-4 – Number of customers changing supplier in 2009



Migration between the portfolios of the two main operators accounts for a significant portion of the market regime suppliers' activity to attract customers.. Indeed, as shown in Figure 4-5, around 98% of the total number of supplier switches involved the GALP and EDP portfolios, which reflects significant concentration in the natural gas market. Nevertheless, 2009 was also marked by the active presence of

two other suppliers, independent of any agent or economic group with assets in the transmission or distribution of natural gas.

Figure 4-5 – Breakdown of capture of customers by open market suppliers in 2009



4.2.3 MEASURES FOR PROMOTING COMPETITION

4.2.3.1 CONCENTRATION OPERATIONS AND RELATIONS WITH THE COMPETITION AUTHORITY

Pursuant to the respective legal provisions, the Competition Authority must be notified of any business transaction that is classified or could be classified as a market concentration operation. This also applies to the natural gas sector. In such cases, the opinion issued by the competition regulator must be prepared in the light of the legal obligations of cooperation and coordination with the regulatory body responsible for the sector. ERSE is therefore called upon to issue a formal opinion in all such notifications involving entities from the energy sector.

No operations requiring notification to the Competition Authority were recorded in 2009. Accordingly, ERSE was not asked to issue any opinion.

4.2.3.2 NATURAL GAS RELEASE AUCTIONS

In order to encourage greater liberalisation of the natural gas market and thus promote more competition in the sector, ERSE decided to hold natural gas release auctions, allowing the provision of gas to the new market regime suppliers and to eligible consumers which find it advantageous to buy natural gas in these auctions.

The Commercial Relations Code for the Natural Gas Sector (Article 60) establishes that GALP Gás Natural, as a supplier in the SNGN, must organise annual auctions of natural gas in 2009, 2010 and 2011 for amounts of 300 million m^3 (n)/year.

The establishment of the definitive terms and conditions for holding the auction in the 2009-2010 gas year resulted from a prior consultation between ERSE and the bodies which showed an early interest in taking part in the auction, based on an initial proposal submitted by Galp Gás Natural.

ERSE approved the terms and conditions for the auction (300 million m^3 (n)) for the period 1 July 2009 to 30 June 2010 in Order 31629/2008, of 11 December.

Qualification to take part in the 2009/2010 auction was only approved for market regime suppliers and eligible customers (customers on that date with an annual consumption of more than 10 000 m^3 (n)), which could buy maximum amounts respectively of 90 million m^3 (n) or 1.2 times the confirmed consumption in the last twelve months.

The quantities of natural gas bought by participants in the auctions had to be consumed in Portugal, and the participation of conventional power plants and all entities in which the GALP Group has a majority shareholding or effectively controls were excluded.

The auction was held on 10 February 2009 and OMIP was in charge of its technical execution. The rules are contained in ERSE Order 1800/2009 of 14 January.

5 SECURITY OF SUPPLY

Under the Portuguese legal framework, published in 2006, the powers related to security of supply in the electricity and natural gas sectors lie with the Government, which has delegated responsibility for monitoring them to the Directorate General for Energy and Geology.

5.1 ELECTRICITY

5.1.1 BRIEF CHARACTERISATION OF 2009

The consumption of electricity in 2009 was about 49.9 TWh, which is a drop of 1.4% (1.8% after correction for the effect of temperature and number of business days) in relation to 2008.

In 2009 hydroelectric energy capability was below average for the 6th year running, registering a hydraulicity index of 0.77. However, reservoir storage in 2009 rose from 1 453 GWh to 2 545 GWh, respectively 47% and 83% of the maximum reservoir storage capacity of the Portuguese electricity system.

Hydroelectric power plants supplied 14% of consumption and thermal power plants contributed 48%. Deliveries to the grid by special regime producers grew by 25% in relation to 2008, amounting to 29% of national consumption.

The import balance was the lowest since 2003, supplying 10% of consumption.

In 2009 the installed capacity in standard regime hydropower plants remained unchanged. One should note the entry into service of the Lares CCGT power plant (2x435 MW) and the installation of 944 MW of special regime capacity, of which 207 MW were installed by thermal power generators, 20 MW by hydropower generators, 695 MW by wind power generators and 12 MW by photovoltaic generators.

In terms of development of the National Transmission Network, the construction of the Falagueira-Estremoz line and opening to the Estremoz substation are particularly noteworthy since they help considerably to improve the quality of service in the interior of Alto Alentejo. In addition, the Lagoaça substation (Freixo de Espada à Cinta) entered into service, significantly increasing the exchange capacity with the Spanish network through the new 400 kV interconnection being established in this area.

The autotransforming capacity of the Falagueira and Ferreira do Alentejo substations was also boosted, increasing, respectively, the capacity to receive renewable energy in the Beira Interior axis and the interconnection capacity with Spain.

In terms of quality of service, the Equivalent Interruption Time registered the historic minimum of 0.42 minutes.

Breakdown of electricity generation by energy source in the last 5 years is shown in Table 5-1.

Table 5-1 – Generation details

	2009	2008	2007	2006	2005
Gas	23%	24%	21%	20%	24%
Import balance	9%	19%	15%	11%	14%
Fuel oil	1%	2%	2%	3%	10%
Coal	24%	21%	23%	28%	30%
Hydro	14%	11%	19%	20%	9%
SRG	29%	23%	20%	18%	13%

Source: 2009 data supplied by REN

Satisfaction of consumption requirements by the various means of supply is presented in Table 5-2.

Table 5-2 – Consumption supply

	2009 (GWh)	2008 (GWh)	Change (%)
HYDRO POWER GENERATION	7892	6441	23
THERMAL POWER GENERATION	23708	23797	-0,37
SRG	14417	11565	25
IMPORT BALANCE	4777	9431	-49
HYDROPOWER PUMPING	929	639	45
TOTAL CONSUMPTION	49865	50595	-1,4

Source: 2009 data supplied by REN

In the years under review, the maximum power requested from the public grid – 9217 MW – occurred on 12 January, exceeding by approximately 245 MW the previous maximum recorded in December 2008.

The trend in annual maximum power is shown in Table 5-3.

Table 5-3 – Annual maximum power

Year	Day	Power (MW)	Change (%)
2009	12-Jan	9217	2.72
2008	2-Dec	8973	-1.50
2007	18-Dec	9110	3.48
2006	30-Jan	8804	3.24
2005	27-Jan	8528	3.38

Source: 2009 data supplied by REN

The development in terms of installed power at the end of each year is shown in Table 5-4.

Table 5-4 – Existing power plants

	2009 (MW)	2008 (MW)	Change (MW)
HYDROPOWER PLANTS	4.578	4.578	0
THERMAL POWER PLANTS	6.690	5.820	870
Coal	1.776	1.776	0
Fuel oil	1.476	1.476	0
Fuel oil / Natural gas	236	236	0
Diesel	165	165	0
Natural gas	3.036	2.166	870
SRG INSTALLED CAPACITY	5.470	4.526	944
Thermal generators	1.631	1.424	207
Hydro generators	405	385	20
Wind generators	3357	2662	695
Photovoltaic generators	75	53	22
Wave power generators	2	2	0
TOTAL	16738	14924	1814

Source: REN

The trend in installed capacity and maximum requested power is shown in Table 5-5.

Table 5-5 – Capacity margin

	2009 (MW)	2008 (MW)	2007 (MW)	2006 (MW)	2005 (MW)	2009/2005 Change (%)
Total installed power	16738	14924	14041	13621	12821	1.31
Thermal	6690	5820	5820	5852	5851	1.14
Hydro	4578	4578	4582	4582	4582	1.00
SRG	5470	4526	3639	3187	2388	2.29
Maximum annual power	9217	8973	9110	8804	8528	1.08
Capacity margin	7521	5951	4931	4817	4293	1.75
	(45%)	(40%)	(35%)	(35%)	(33%)	

Source: 2009 data supplied by REN

5.1.2 NEW INVESTMENT IN GENERATION

In accordance with the "Report on security of supply with respect to standard electricity generation for 2009-2020", published by REN, the predicted development of the electricity generation system in the 2009-2013 period and up to 2020 is due, in addition to the two CCGT groups of the Lares power plant (2.435 MW) that came into service in 2009, to the development of the construction projects of the other 6 new 400 MW CCGT groups already licensed and to recent information on generators' investment plans. Attention is drawn to the phased declassification of the Carregado power plant by 31 May 2010 and the declassification of groups 3 and 4 of the Tunes power plant in December 2010.

The development of the hydroelectric power generation network will boost the capacity of existing plants by around 1500 MW, of which 1080 MW are reversible, and new, in the implementation stage in Baixo Sabor (168 MW reversible) and Ribeiradio (70 MW). The National Programme for Dams with High Hydropower Potential (PNBEPH) is expected to be completed by 2020. It envisages a series of 10 new power plants with a generation capacity of 1100 MW, 810 MW of which will use reversible equipment**.**

Table 5-6 shows the trend forecasts for installed capacity in SRG generation.

Table 5-6 – Predicted SRG generation

	2011 (MW)	2014 (MW)	2019 (MW)
Wind	4928	5600	6950
Hydro (< 10 MW)	457	550	700
Biomass	773	913	943
Solar	232	580	1360
Waves	17	48	150
Geothermal	30	30	50
Cogeneration	2050	2230	2590

Source: "National Action Plan for Renewable Energy under Directive 2009/28/EC", DGEG.

"RNT Development and Investment Plan 2009-2014 (2019)" REN.

As far as the remuneration regime for SRG is concerned, the price is fixed by the Government and depends on technology and on the profile of energy delivered to the grid. The additional cost[11] resulting from this incentive is supported through the Global Use of System tariff.

5.2 GAS

5.2.1 BRIEF CHARACTERISATION OF 2009

The demand for natural gas in 2009 fell 5.4% compared with 2008, resulting in an overall positive balance for the period 2005 to 2009 of 5.6%. The demand for natural gas for electricity generation fell 13.4% in 2009, compared with 2008, and was the main reason for the reduction in demand for natural gas in 2008 since it accounts for over 40% of the total demand. In 2009 the only increase in demand was in the heavy industry segment (5.3%).

The next table shows the demand for natural gas by segment since 2005.

[11] Calculated as the gap between the price paid for SRG and the average price paid on the market or under a bilateral contract.

Table 5-7– Natural gas demand trend

	2009	2008	2007	2006	2005	Change 2009-2008 [%]	Change 2009-2005 [%]
Electricity market [TWh][9]	21.9	25.3	21.4	20.1	23.3	-13.4	-6.0
Heavy industry [TWh]	19.9	18.9	18.7	17.7	16.9	5.3	17.8
Regional distribution [TWh]	8.8	9.3	8.8	8.1	7.7	-5.4	14.3
Total demand [TWh]	50.6	53.5	48.9	45.9	47.9	-5.4	5.6

Source: REN Gasodutos

5.2.2 SECURITY OF SUPPLY IN THE NATIONAL NATURAL GAS SYSTEM

Chapter XI of Decree Law 140/2006 of 26 June establishes promotion of the conditions of guarantee and security of supply to the SNGN through the following measures:

- Establishment and maintenance of security reserves;
- Diversification of natural gas supply sources;
- Existence of long-term natural gas supply contracts;
- Development of interruptible demand;
- Development of cooperation and mechanisms of solidarity with operators in neighbouring countries;
- Promotion of energy efficiency;
- Definition and application of emergency measures.

5.2.2.1 SECURITY RESERVES

Market agents operating in the national territory are obliged to establish and maintain security reserves of not less than 15 days of uninterruptible consumption by the standard-regime electricity generators and 20 days of uninterruptible consumption of all other kinds.

The security reserves are created preferentially in natural gas storage facilities in Portugal, except where there is a bilateral contract that provides for the possibility of establishing reserves in other countries. Such a situation would require express authorisation from the minister responsible for energy.

The security reserves may include natural gas held in the underground storage facilities, the LNG terminal and on LNG tankers en route to LNG terminals in Portugal with a journey time of nine days.

In 2009, pursuant to Decree-Law 140/2006 of 26 July, the DGEG granted exemption from the need to establish security reserves to two power generators (the Tapada do Outeiro and Lares plants). Thus, in 2009 the security reserve quantities drops and, along with the entry into service of the new underground storage cavern at Carriço, the year saw the release of some of the storage capacity assigned to maintaining the SNGN security reserves.

5.2.2.2 UNDERGROUND STORAGE OF NATURAL GAS

In simplified terms the underground storage of natural gas facility consists of four underground caverns built in natural saline rock formations, using a single surface-level station. The PDIR plans to construct five more underground caverns to supplement the four currently in use.

Table 5-8 shows the useful storage capacity of the storage caves at the Carriço underground storage infrastructure – as well as the natural gas injection capacity into the RNTGN, in 2009.

Table 5-8 – Useful storage capacity and injection capacity into the RNTGN

Underground Cavern	Storage capacity [m^3]	Injection capacity into RNTGN [m^3(n)/h]
TGC-3	530 000	300 000
TGC-5	470 000	
TGC-1S	360 000	
TGC-4	550 000	

Source: Transgás Armazenagem and REN Armazenagem

5.2.2.3 LNG TERMINAL

The need to have a secure natural gas supply and to diversify supply sources led to a decision in the late 1990s to build an LNG terminal in Sines. Operational start-up of this infra-tructure occurred in early 2004; it has a maximum LNG storage capacity of 240 000 m3, a nominal injection capacity into the RNTGN of 600 000 m3(n)/h and a maximum injection capacity of 900 000 m3(n)/h.

Activity at the LNG Terminal in Sines in 2009, in terms of the unloading of LNG tankersand the filling of tank trucks, is shown in Table 5-9.

Table 5-9 – Activity at the LNG terminal – Unloading LNG

	2009	2008	2007	2006	2005	Change 2009-2008 [%]	Change 2009-2005 [%]
Total number of LNG tankers received	36	35	35	28	23	2.8	57
Total LNG unloaded [Mm^3_{GNL}]	4.3	4.6	4.6	3.5	2.9	-7.0	49
Total tank truck loading operations	2094	2097	2265	1618	1059	-0.1	98

Source: REN Atlântico

In 2009 REN Atlântico received and unloaded one more tanker than in 2008. But 57% more tankers were received than in 2005, resulting in a 49% increase in total LNG unloaded at the terminal.

In relation to the filling of tank trucks, there was a slight fall compared with 2008. The total LNG shipped accounted for just 2% of the total energy handled by the terminal.

The PDIR submitted by the REN group for ministerial approval envisages a substantial increase in the reception, storage and regasification capacity of the LNG terminal through adapting the jetty for the unloading of larger tankers, the building of a third LNG reservoir (with a useful capacity of 150 000 m^3 LNG), the expansion of nominal injection capacity to the RNTGN to 1 350 000 m^3(n)/h and enhanced flexibility and operational safety of the infrastructure.

5.2.2.4 IMPORT AND DIVERSIFICATION OF SUPPLY SOURCES

In 2009 55.6 TWh (4.68 bcm[12]) entered the National Natural Gas Transmission Network. The maximum importing capacity of natural gas by gas pipeline is 8.95 bcm, which shows that capacity is currently available for rapid development of the sector.

In 2009 natural gas entered the transmission network at the Sines LNG terminal connection point (60%) and the international connection point at Campo Maior (40%). The natural gas processed in Sines and conveyed through the Campo Maior interconnection comes mostly from Nigeria and Algeria.

Table 5-10 shows the RNTGN natural gas balance since 2006.

[12] 1 bcm (billion cubic meters) = 10^9 m^3.

Table 5-10 - RNTGN – entries and exits

	2009	2008	2007	2006	Change 2009-2008 [%]	Change 2009-2006 [%]
ENTRIES (TWh)	**55.6**	**53.9**	**51.1**	**51.7**	3.2	7.5
Interconnections [TWh]	22.5	23.4	18.3	27.8	-3.8	-19.1
Domestic Market	22.5	23.0	16.4	23.4	-2.2	-3.8
Transit	0	0.4	1.9	4.4	-100	-100
LNG Terminal [TWh]	33.1	30.1	31.5	23.1	10.0	43.3
Storage – Extraction [TWh]	0.67	0.3	1.3	0.8	123.3	-16.3
EXITS [GWh]	**51.7**	**53.9**	**51.3**	**51.9**	-4.1	-0.4
GRMS [TWh]	50.6	53.0	48.5	45.9	-4.5	10.2
Storage – Injection [TWh]	1.1	0.4	0.9	1.5	175.0	-26.7
Interconnections [TWh]	0	0.5	1.9	4.55	-100	-100
International Market	0	0	0	0.15	0	-100
Transit	0	0.5	1.9	4.4	-100	-100

Source: REN Gasodutos

5.2.2.5 LONG-TERM SUPPLY CONTRACTS

Transgás, SA, holder of the take-or-pay contracts, was renamed Galp Gás Natural, SA in February 2007. Thus, Galp Gás Natural, SA, a member of the Galp Energia group, is now the holder of the long-term take-or-pay natural gas supply contracts.

The first supply contract was signed in late 1993 by Sonatrach and Transgás. In addition to this contract, there are also three long-term LNG supply contracts with Nigeria.

The main features of these supply contracts are summarised below.

CONTRACT FOR THE PURCHASE OF NATURAL GAS FROM SONATRACH

Pursuant to this contract, Sonatrach undertakes to supply natural gas to Transgás – now called Galp Gás Natural. In turn Galp Gás Natural undertakes to acquire and pay for these quantities – used or not (take-or-pay). Sonatrach must supply an annual quantity of around 2.5 bcm for the duration of the contract, i.e. until 2020.

CONTRACTS FOR THE PURCHASE OF LIQUEFIED NATURAL GAS FROM NLNG

Three contracts for the acquisition of LNG have been signed with Nigerian LNG, Limited (NLNG): NLNG I, NLNG II and NLNG Plus. These contracts have been signed for a period of 20 years, with a 6-year grace period.

The quantity of LNG contracted under NLNG I is 0.42 bcm and supply began in 2000. Deliveries can be made at Huelva, Cartagena or Sines.

The quantity of LNG contracted under NLNG II is 1 bcm and supply began in 2002.

The quantity of LNG contracted under NLNG Plus is 2 bcm and supply began in 2006. Deliveries can be made at any Iberian terminal along the Mediterranean Coast, or at Sines.

DEFINITION AND APPLICATION OF EMERGENCY MEASURES.

In the event of a disruption to supply, the government minister responsible for energy may put temporary emergency measures in place, determining the use of the security reserves and steps to lessen demand.

The European Commission is informed of the adoption of such emergency measures, which, wherever possible or fitting, should involve the participation of the market operators and agents.

6 PUBLIC SERVICE

6.1 SOCIAL TARIFF

In Portugal the Social Tariff is a tariff option that is intended solely for electricity consumption in permanently occupied residential dwellings, though minor professional activity is allowed, with a contracted power of 2.3 kVA and an annual consumption not exceeding 400 kWh. This Social Tariff takes the form of a discount on the worth of the contracted power equal to ¼ of its worth in the "Simple Tariff" option. In mainland Portugal there were about 4 528 customers on the Social Tariff in 2009.

6.2 LAST RESORT SUPPLIERS (LRS)

The LRS hold supplier licences issued by the DGEG, which involve public service obligations, in particular to ensure the supply to customers requesting it or who do not choose a market supplier.

All the prices practised by the LRS are fixed by ERSE under the regulations to which their activities are subject. The government appoints the LRS under specific legislation and indicates their functions in the electricity and natural gas sectors.

6.3 INTERRUPTIONS TO SUPPLY

Interruptions to the electricity or natural gas supply for customer-related facts the customer can only be imposed after a prior warning has been given, in writing, sent by the distribution system operator at least 10 days before the date on which interruption will occur, except where energy has been assigned to third parties or rules relating to the safety of people and property are breached.

The notification of interruption must state the respective reason, how the customer can prevent it, the conditions for re-establishing supply and the current charges for interruption and re-establishment of service.

There were 433 000 interruptions to the electricity supply for customer-related facts in mainland Portugal in 2009. In the natural gas sector, in 2009, there were about 44 000 interruptions to supply in mainland Portugal, for customer-related facts.

6.4 GENERAL CONTRACTUAL TERMS AND CONDITIONS

The general terms and conditions for electricity supply agreed with an LRS must contain the minimum information approved by the regulator. The general terms and conditions to be included in natural gas supply agreements entered into by an LRS and customers whose annual consumption is less than 10 000 m^3 must also be approved by the regulator. Furthermore, the general terms and conditions of contracts to use networks and infrastructure in the electricity and natural gas sectors must likewise by approved beforehand by the regulator. No changes were made to the contractual terms and conditions in force in 2009.

6.5 END USER TARIFFS

ELECTRICITY

The regulated End User tariffs are offered by the LRS to all electricity consumers. In addition, consumers which opt for a market supplier can return to the regulated End User tariff at any time, when there is no return clause.

The regulated End User tariffs are approved and published by the regulator, which determines the allowed revenue for energy supply and the last resort supply.

The regulated costs of supplying electricity incurred by the LRS reflect the estimated wholesale market conditions. Under international agreements, the LRS must acquire part of the energy on the futures market and another part in quarterly auctions. The best forecasts for the costs in this wholesale market in the next year are considered when the annual regulated last resort tariffs are fixed.

ERSE regulates the last resort supply activity. The regulator should thus ensure the economic and financial viability of the LRS in efficient operating conditions.

NATURAL GAS

The regulated End User tariffs are offered by the LRS to natural gas retail consumers. In addition, consumers which opt for a market supplier can return to the regulated End User tariff at any time, when there is no return clause. Standard regime electricity generators (not including the small generators and co-generation plants) cannot be covered by the LRS tariff.

The LRS tariffs are approved and published by the regulator, who determines the allowed revenue for energy supply and the last resort supply.

The regulated costs for supplying natural gas incurred by the LRS reflect the estimated conditions for last resort supply, which are mainly contained in long-term supply agreements with the generators. The best forecasts for the supply costs in these agreements in the next year are considered when the annual regulated last resort tariffs are fixed. The regulated last resort tariffs applicable to retail consumers whose annual consumption is more than 10 000 m^3 are reviewed quarterly to reflect the real trend in supply costs.

ERSE regulates the last resort supply activity. The regulator should thus ensure the economic and financial viability of the LRS in efficient operating conditions.