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## 1 INTRODUCTORY REMARKS

The development and consolidation trend in the electricity and natural gas markets was maintained in 2008. The work aimed at strengthening the Iberian energy market also continued throughout 2008.

On the Iberian Peninsula, 2008 marked the first full calendar year of Portuguese agents' participation in the spot market of the Iberian Electricity Market (MIBEL). The favourable development of the integration of the Portuguese and Spanish markets was notable, despite the fact that only the second half of 2007 may be used for comparison, given that MIBEL started up on 1 July. That performance occurred in a highly atypical environment, specifically in relation to the development of the primary energy markets (coal, oil, natural gas), thus restricting any comparison with the recent past.

Work progressed on strengthening MIBEL, through the actions undertaken by the working parties composed of ERSE and CNE staff, established under the Council of Regulators. The aim is to implement the Regulatory Compatibilisation Plan signed by the Governments of Portugal and Spain on 8 March 2007, and the working parties' actions concerned the following matters in 2008:

- Supplier switching procedures - the work culminated in the Council of Regulators sending a proposal of harmonised procedures for switching supplier to the Portuguese and Spanish Governments in October 2008.
- The introduction of the concept of dominant Iberian operator with limitations and restrictions harmonised for the two countries. The work carried out on this issue in 2007 led to a proposal from the Council of Regulators which was submitted to the Portuguese and Spanish Governments at the start of 2008.

ERSE and CNE, under the above-mentioned Compatibilisation Plan, were tasked with preparing a document with the principles of operation and organisation of the Iberian Natural Gas Market (MIBGAS). This proposal was submitted to the Portuguese and Spanish Governments in January 2008.

A highlight in the national framework was ERSE's implementation of market supervisory mechanisms. This encompassed the creation of a supervisory unit, with the goal of contributing to the transparency and integrity of the wholesale electricity market. During 2008, ERSE worked, in its role of monitoring electricity retail market prices, on the information requirements to be established with retailers relative to the calculation and provision of the reference prices and the average prices charged. The aim of this was to promote the disclosure of information to consumers and other market agents and thus contribute to fostering market transparency.

Primary energy prices in international energy markets were very unstable in 2008, especially at the start of the year. This performance was not only unforeseen but it would also have been difficult to forecast at the time of setting the electricity tariffs to be used in the regulated market in 2008.

As regards natural gas, in 2008 ERSE prepared the first auction to offload quantities of natural gas, the intention being to provide the sector's liberalisation process with stability and offer some degree of predictability to market agents for the planning of their operations. This auction took place in February 2009.

The process to define supplier switching procedures for the natural gas sector was also initiated in 2008. This process, which essentially followed ERGEG's recommendations on good practices, aims to set down procedures that facilitate the process of supplier selection by reducing information asymmetry.

ERSE implemented a range of actions to improve the performance of the electricity and natural gas markets in 2008, the most significant in the electricity sector being: (i) the definition of mechanisms to manage congestion and allocate available capacity at the interconnections; (ii) the concept of relevant fact. In the natural gas sector ERSE extended its regulation to the Distribution, Market Supply, Buying and Selling activities, establishing the Distribution Use of Network tariffs, as well as the Market Supply tariff, Energy tariff and the resulting End User tariff.

It is significant to note, in relation to the mechanisms to manage congestion and allocate available capacity at the interconnections, that where action taken in the electricity sector is concerned, the Council of Regulators of MIBEL proposed the implementation of a mechanism to allocate physical interconnection capacity rights as established in the "Joint Rules for Contracting Capacity in the Portugal – Spain Interconnection" document. This document was published in Portugal but has not been similarly handled in Spain.

The procedure relative to the concept of relevant fact was officially established through regulation, according to which any market agent must report facts likely to influence market prices. The essential aim of this communication methodology was to reduce asymmetry in agents' access to information, and therefore to strengthen market transparency.

In general, electricity retail market concentration is found to have increased in 2008 due to the development of energy prices in the wholesale market, especially at the year's start. The tariffs of the regulated market were determined in 2007 based on general forecasts that were very different from the actual development of energy costs that was observed. This trend reversed in 2009.

A final note on 2008 refers to the developments concerning the obligations of the Public Service, as established through two laws that were published: Law no. 12/2008 of 26 February, which revised the law of essential public services and Law no. 51/2008 of 27 August, known as the labelling law.

The first enshrines the creation in Portuguese legislation of a set of mechanisms intended to protect users of essential public services, with electricity and natural gas supply specifically included among such services. The second law establishes that all market suppliers of electricity are obliged to include



information in their invoices on the origin of the electricity that they have bought and sold on to their customers, as well as the environmental impact associated with the supply of electricity.



## ACRONYMS

- ACE – Energy Consumers Support office.
- CEER – Council Of European Energy Regulators.
- CENELEC – European Committee for Electrotechnical Standardisation.
- CMVM – Securities Market Commission (Portugal).
- CNE – National Energy Commission (Spain).
- CNMV – Securities Market Commission (Spain).
- CR – Network Commercialisation Activity.
- CUR – Last Resort Supplier.
- 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.
- GUoS – Global Use of System.
- HV – High Voltage (voltage between phases greater than 45 kV and lower than, or equal to 110 kV).
- LM – Liberalised Market.
- LNG – Liquefied natural gas.
- LV – Low Voltage (voltage between phases equal to or lower than, 1 kV).
- MIBEL – Iberian Electricity Market.
- MV – Medium Voltage (voltage between phases greater than 1 kV and equal to or lower than 45 kV).
- OMEL – Operador del Mercado Ibérico de Energía – Pólo Español, S.A.
- OMI – Iberian Market Operator.
- OMIClear – Sociedade de Compensação de Mercados de Energia, S.A.
- OMIE – Spanish Iberian Market Operator (spot market).
- OMIP – Portuguese Iberian Market Operator (derivatives market).

- PDIR – RNTIAT Development and Investment Plan.
- PPA – Power Purchase Agreement.
- RAA – Autonomous Region of the Azores.
- RAM – Autonomous Region of Madeira.
- RM – Regulated Market.
- RMC – Regulations on Dispute Mediation and Conciliation.
- RND – National Electricity Distribution Network (high and medium voltage).
- RNT – National Electricity Transmission Network (mainland Portugal).
- RNTIAT – National LNG Transport, Storage Infrastructure and Terminal Network.
- RPGN – Public Natural Gas Network.
- SEN – National Electricity System.
- SNGN – National Natural Gas System.
- SpLV – Special Low Voltage (voltage between phases equal to or lower than 1 kV and subscribed demand higher than 41.4 kW).
- SQR – Quality of Service Regulations.
- SRG – Special Regime Generation.
- StLV – Standard Low Voltage (voltage between phases equal to or lower than 1 kV and subscribed demand equal to or lower than 41.4 kVA).
- TGCC – Combined-cycle gas turbines.
- TGCS – Simple cycle gas turbines.
- TSO – Transmission System Operator.
- TUoN – Transmission Use of Network.
- UAG – Autonomous LNG Unit.
- VAT – Value Added Tax.
- VHV – Very High Voltage (voltage between phases greater than 110 kV).
- VPP – Virtual Power Plants

## 2 KEY DEVELOPMENTS IN THE ELECTRICITY SECTOR AND THE NATURAL GAS SECTOR

### 2.1 WHOLESALE MARKET

Concentration in the electricity generation market fell in 2008, in terms of installed capacity and also energy generated. Decisive in driving this development was the growth of the installed capacity of special regime generation<sup>1</sup> (SRG) and the corresponding energy generated, especially from wind energy plants, this being a segment in which the incumbent does not control the majority of the market.

Furthermore in relation to generation concentration, the implementation of mechanisms to assign generation capacity allowed around 5% of the special regime's installed capacity and around 9% of the capacity of thermal power plants to be made available to new sector agents.

On the side of wholesale market demand, the unfavourable evolution of free market supply inevitably led to the increased concentration of market purchases by last resort suppliers. Spot contracts continue to constitute the main means of trading electricity, in the case of Portugal.

2008 was, in terms of market integration, the first full calendar year of Portuguese agents' participation in the spot market. Therefore, comparisons can only be made with the second half of 2007. It is possible to note, despite such limitation, that the integration of the Portuguese and Spanish market improved slightly (lower average values of price spread and a lower number of hours relative to market splitting). It should, however, be noted that market development in 2008 was highly atypical, especially in relation to the performance of the primary energy markets (coal, oil and natural gas). This fact curbs any comparisons that may be carried out with the recent past.

From a regulatory perspective, the liberalisation of wholesale and retail markets demonstrated the need to complement the manifestly ex-ante regulation that has underpinned ERSE's intervention with a form of regulation tending to an ex-post approach, through the implementation of market supervision mechanisms. Hence, market supervision competences for the electricity sector and the natural gas sector were strengthened, with the following being the main areas of intervention:

- Wholesale market;
- System services market;
- Markets associated with managing infrastructure congestion;

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<sup>1</sup> 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.

- Retail market.

This option sought to play a role in strengthening the transparency and integrity of the electricity wholesale market.

The electricity wholesale market developed favourably in 2008, which caused the reduction of overall concentration of electricity generation. Nonetheless, a high degree of concentration remains in the electricity market, therefore the implementation of additional measures to foster competition and promote transparency should follow on from the improvements already obtained - in particular the joint working parties set up by ERSE and CNE focused on MIBEL, which resulted in the development of mechanisms to disclose information to the market and the regulatory convergence work concerning the Iberian Electricity Market (MIBEL):

- Supplier-switching procedures.
- Methods for calculating access tariffs.
- The introduction of the concept of dominant Iberian operator with harmonised limitations and restrictions for the two countries.
- Creation of the MIBEL site.
- Study on the operation of MIBEL.

The key developments in relation to the natural gas sector are: the beginning of the implementation of market mechanisms, by means of the assignment of natural gas, in the first auction, held in 2009, with delivery in the 2009-2010 gas year. This procedure will continue for the next two years. On the other hand, ERSE and CNE prepared a document with the operating and organisational principles of the Iberian Natural Gas Market (MIBGAS) yet to be set up. The main points of that document were: the harmonisation of natural gas market supply licences, convergence in relation to the structure of access tariffs, and joint planning of the Iberian natural gas system.

## **2.2 RETAIL MARKET**

### **2.2.1 ELECTRICITY SECTOR**

#### **MARKET DEVELOPMENT**

The development of the retail market in 2008 is marked by a fall in the share of the liberalised segment of electricity consumption, mainly due to the evolution of energy prices of the wholesale market and regulated end consumer supply tariffs, as described below.

Lastly, the swapping of supplier was galvanised by the growth in the number of residential customers in the liberalised market that moved from the regulated market and by the significant return of industrial customers to the regulated market, which led to a reorganisation of the retail market structure proper.

#### END USER TARIFFS

As regards the development of tariffs for the sale of electricity to end users, mainland Portugal experienced the following nominal change from 2007 to 2008, broken down by voltage and supply type:

**Table 2-1 - Nominal change to end user tariffs, 2008-2007**

|                          | Variation 2008/2007 |
|--------------------------|---------------------|
| <b>End-user Tariffs</b>  | <b>2.9%</b>         |
| NV End-user              | 3.0%                |
| VHV End-user             | 3.9%                |
| HV End-user              | 3.9%                |
| MV End-user              | 2.7%                |
| LV End-user              | 2.9%                |
| SpLV End-user            | 2.5%                |
| StLV > 20,7 kVA End-user | 2.7%                |
| StLV < 20,7 kVA End-user | 2.9%                |
| PL End-user              | 3.9%                |

### 2.2.2 NATURAL GAS SECTOR

#### MARKET DEVELOPMENT

No large industrial customer has opted to swap natural gas supplier, despite the fact that the natural gas market has been open for such consumers since the start of the year. This ensured that retail market concentration remained unchanged from 2007 to 2008.

Nevertheless, the process to define the supplier switching procedures for the natural gas sector was set in motion in 2008 and the procedures were approved in 2009. These procedures essentially follow ERGEG's recommendations on good practices and their aim is to facilitate the process of supplier selection by reducing information asymmetry.

**END USER TARIFFS**

The following table indicates the change in end user sales tariffs for the 2008-2009 gas year<sup>2</sup>, compared with the prices in force in the second quarter of 2008.

**Table 2-2 - Nominal change to end user tariffs, 2008-2009**

| <b>End-user Tariffs</b>  | <b>Variation (%)</b> |
|--|----------------------|
| <b>Total Variation</b>   | <b>-1.3%</b>         |
| Consumption > 2 000 000 m <sup>3</sup> /year                               | 0.6%                 |
| 10 000 m <sup>3</sup> /year < Consumption < 2 000 000 m <sup>3</sup> /year | -3.9%                |
| Consumption < 10 000 m <sup>3</sup> /year                                  | -3.4%                |

ERSE was made responsible, under temporary measures, for ratifying the sales tariffs of supplies of natural gas, particularly the End User Sales tariffs, to be in force during the first and second quarters of 2008.

In the second gas year, i.e. 2008-2009, ERSE extend regulation to the activities of Natural Gas Distribution, Natural Gas Supply and Natural Gas Buying and Selling, establishing the tariffs for Distribution Use of Network, as well as the Supply Tariff, Energy Tariff and the resulting End User Tariff.

## **2.3 INFRASTRUCTURE**

### **2.3.1 ELECTRICITY SECTOR**

#### **ACCESS TARIFFS**

The method for calculating the grid access tariffs remained unchanged in 2008.

#### **INVESTMENT IN DIRECT LINES (ARTICLE 22)**

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

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<sup>2</sup> A gas year runs from 1 July to 30 June of the following year.



**ALLOCATION OF INTERCONNECTION CAPACITY**

The allocation of capacity under MIBEL during 2008 was exclusively based on the market splitting mechanism implemented in the day market. No specific auction of capacity was carried out, as had been planned.

In terms of congestion, the number of hours when interconnections were at 100% use fell. Also of note was the convergence trend of average prices in Portugal and Spain, with an annual average spread of EUR 5.5/MWh. Despite that trend, interconnection capacity was still saturated around 62% of the time, as indicated in the following table.

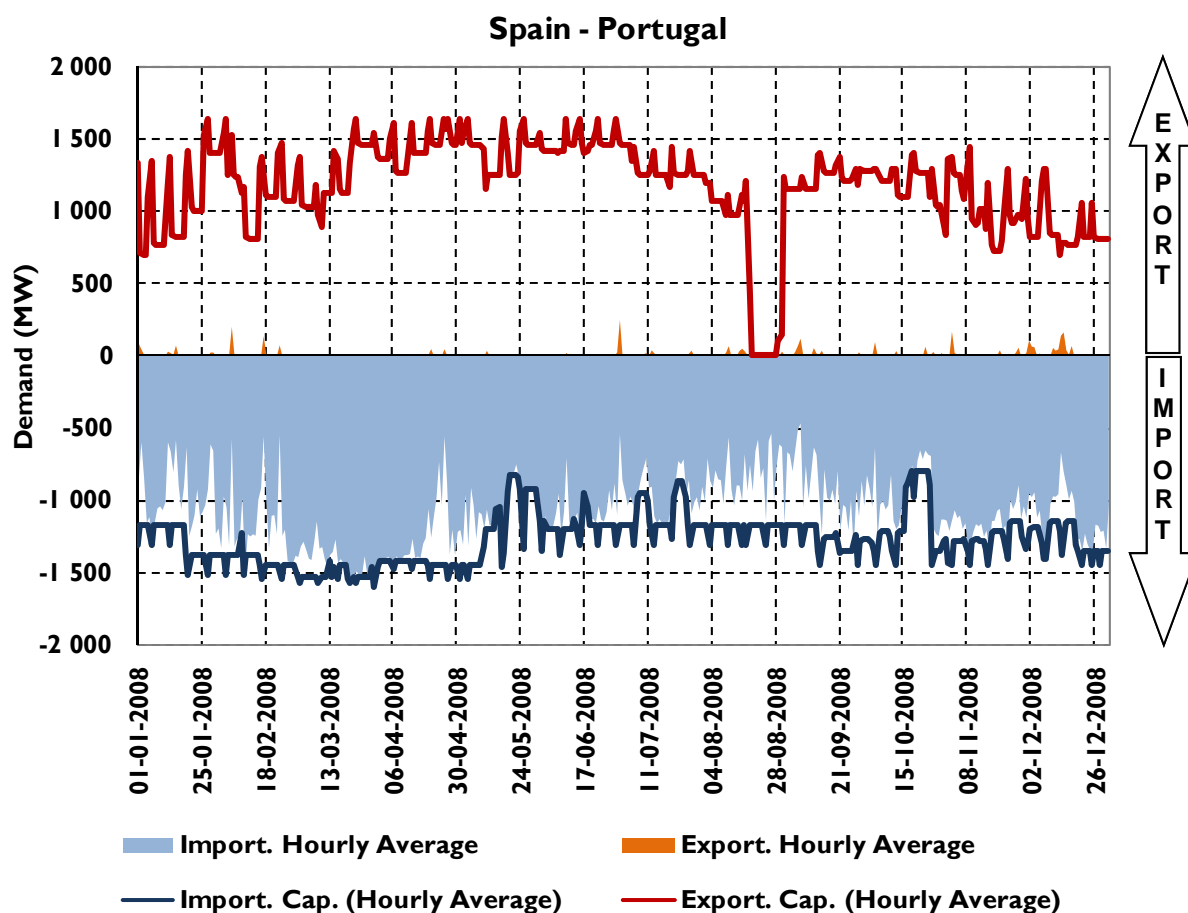
**Table 2-3 - Monthly development of congestion in the Portugal-Spain interconnection, in 2008**

| Month                   | Congestion |                  | Price differential<br>(EUR/MWh) |
|-------------------------|------------|------------------|---------------------------------|
|                         | no. hours  | % hour per month | Average                         |
| January                 | 300        | 40               | 4.18                            |
| February                | 362        | 52               | 4.33                            |
| March                   | 504        | 68               | 6.46                            |
| April                   | 492        | 68               | 6.31                            |
| May                     | 534        | 74               | 5.86                            |
| June                    | 522        | 73               | 6.23                            |
| July                    | 486        | 65               | 4.93                            |
| August                  | 349        | 47               | 2.23                            |
| September               | 289        | 40               | 2.75                            |
| October                 | 478        | 64               | 6.68                            |
| November                | 597        | 83               | 10.02                           |
| December                | 529        | 71               | 6.61                            |
| <b>Average for Year</b> |            | <b>62</b>        | <b>5.50</b>                     |

Source: ERSE, OMEL

The following figure illustrates how the available capacity of the Portugal-Spain interconnection was used, in both directions.

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



Source: ERSE, OMEL

The number of congestion hours was still quite significant, despite falling in comparison with 2007. It is expected, in the medium-term, that the strengthening of generation capacity that is planned for Portugal, associated with new international interconnections and the internal reinforcement of the transmission network, will allow current gaps to be closed and foster competition among market agents and galvanise MIBEL.

### 2.3.2 NATURAL GAS SECTOR

#### ACCESS TARIFFS

The tariff scheme established by ERSE for the 2007-2008 gas year (July 2007 to June 2008) was amended in accordance with the provisions set forth in the Tariff Regulation published in September 2006.

On 15 June 2007, ERSE established the High Pressure Infrastructures and Networks Access Tariffs (LNG terminal, high-pressure transport network and underground storage), valid for the period from 1 July 2007 to 30 June 2008.

ERSE approved on 15 June 2008, in addition to the above-mentioned High-Pressure Access Tariffs, the Tariffs for Use of the Medium and Low-Pressure Distribution Networks, all valid for the period from 1 July 2008 to 30 June 2009.

The Access Tariff for the High-Pressure Network is the sum of the Transmission Use of Network tariff and the Global Use of System tariff associated with the coordination and technical management of the National Natural Gas System.

#### **INTERCONNECTION USE AND CAPACITY**

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. This situation is sufficient in itself to make the establishment of an Iberian-wide natural gas wholesale market difficult.

#### **INVESTMENT (ARTICLE 22)**

The investment in strengthening the underground storage capacity of natural gas at Carriço continued during the period under analysis, through the construction of the TGC-4 cavern.

The scheme for accessing the infrastructure of the National Natural Gas System 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 very recent in Portugal and its capacity by far exceeds current requirements. Accordingly, no congestion has been recorded in the National Natural Gas System (SNGN) infrastructure. Notwithstanding that fact, the legislative framework in force includes mechanisms for allocating available capacity in the SNGN infrastructure and it envisages the possibility of congestion occurring, establishing the use of market mechanisms for such situations.

## **2.4 REGULATION/UNBUNDLING**

### **2.4.1 ELECTRICITY SECTOR**

#### **ROLE OF THE TSO IN THE MARKETS**

The participation of REN<sup>3</sup> in the day and intraday markets, in the capacity of Technical Manager of the System, encompasses the provision of information to the market operator and agents on load forecasts, interconnection capacities, programmes, the disaggregation of generation and the availability of information on fact is likely to influence market functioning.

REN is responsible for management and settlement of the system services market (secondary and tertiary reserves and technical restrictions).

#### **DEVELOPMENTS CONCERNING THE UNBUNDLING OF TSO AND DSO ACTIVITIES**

The operator of the national electricity transmission network in mainland Portugal is independent – in terms of assets – of all other electricity sector activities. The distribution system operator, which is part of the EDP group, is legally independent of the other companies in that group, specifically those operating in electricity generation and supply.

The regulatory revision that took place in 2008 established new provisions aimed at strengthening independence vis-à-vis the distribution system operators' exercise of their activities. Distribution system operators, besides being obliged to have a Code of Conduct that guarantees independence, impartiality and prohibits discriminatory conduct, also have to have a distinct image and keep an independent internet site.

### **2.4.2 NATURAL GAS SECTOR**

#### **ROLE OF THE TSO**

The legislative framework in force envisages the exchange of natural gas in the balance zones, these being the National Natural Gas Transport Network, the LNG terminal and the underground natural gas storage infrastructure. Accordingly, the operators of the above-mentioned infrastructure must be notified of market agents' activities in the wholesale market, taking into consideration the transfer of amounts of natural gas held in their infrastructure.

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<sup>3</sup> REN – Rede Eléctrica Nacional, 100% owned by REN – Redes Energéticas Nacionais, SGPS, SA.

Transactions are currently made through bilateral agreements between market agents, given the lack of organised natural gas markets.

#### **INDEPENDENCE OF NETWORK OPERATORS**

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

The operators of the National Natural Gas Transport Network, the LNG terminal and the underground natural gas storage infrastructure that are part of the REN group have been independent in operational, legal and ownership terms, of market agents since 2006. Consequently, an independent entity has taken over the planning of SNGS infrastructures.

## **2.5 SECURITY OF SUPPLY**

### **2.5.1 ELECTRICITY SECTOR**

#### **NEW INVESTMENTS**

Special regime generation has undergone significant growth in recent years (its share of the supply for consumption has grown from 8% to 23% in the last 6 years), and this trend is expected to continue, in line with the strengthening of installed capacity in combined cycle power plants and hydroelectric power plants (a national plan to build 10 new hydroelectric power plants by 2020 has been approved).

Significant investment projects in the transmission network include those in North and Central Portugal intended to handle special regime generation (wind energy), as well as the building and renovation of sub-stations to reinforce supply security and service quality in the Greater Lisbon and Greater Porto regions.

#### **DIVERSIFICATION OF ENERGY SOURCES AND ORIGINS**

In 2008, the electricity consumed was supplied in the following proportions: natural gas (24%), import balance (19%), fuel oil (2%), coal (21%), hydroelectric (11%) and special regime generation (23%).

The capacity margin, which is defined as the difference between installed generation capacity and the maximum peak load for the year was 37% in 2008, as opposed to 35% in 2006 and 2007 and 30% in 2004. See section 5.1.1. "2008 Overview" for more detailed information.

## 2.5.2 NATURAL GAS SECTOR

### NEW INVESTMENTS

REN submitted the PDIR<sup>4</sup> for ministerial approval in 2008. That plan envisages a new interconnection, the strengthening of the LNG terminal through the building of a third reservoir and the substantial reinforcement of the underground storage capacity through the building of 6 new caverns. The fundamental aspects that steered the solutions presented in the PDIR were the coverage of the growth in demand for natural gas in the SNGS, which is envisaged for the short and medium term, the creation of more appropriate conditions for market agents to use the infrastructures and the substantial growth of supply security.

## 2.6 GENERAL CONCLUSIONS

### DIRECTIVES IN FORCE

The transposition of Directives 2003/54/EC and 2003/55/EC was fully undertaken in Portugal.

A number of general conclusions for the three areas can be made with regard to 2008: (i) the unbundling of activities; (ii) the integration of markets and the fostering of competition; (iii) the strengthening of the Iberian energy market in the context of the creation of the European Union's internal energy market.

(i) In relation to the unbundling of activities:

- a) In the electricity sector, the operator of the national electricity transmission network is independent, in terms of assets, of the other electricity sector activities, and the operator of the distribution network, forming part of the EDP group, is legally independent of the other companies of that group;
- b) In the natural gas sector, even though Portugal has been granted derogation in relation to Directive 2003/55/EC, the infrastructure operators have already complied with the unbundling of activities established in said Directive. Furthermore, the operators of the National Natural Gas Transport Network, the LNG terminal and the underground natural gas storage infrastructure that are part of the REN group are independent, in terms of ownership, of market agents.

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<sup>4</sup> RNTIAT Investment and Development Plan (PDIR), encompassing the National Natural Gas Transport Network, the LNG terminal and the underground storage of natural gas.

(ii) In relation to market integration and fostering competition:

In the electricity sector

- a) The positive performance in reducing the degree of concentration in the electricity generation activity, due to the growth in SRG generation as a result of the heavy investment in such forms of generation.
- b) The reduction of free market supply on the demand side, which led to the increased concentration of market purchases. This fact reflects the decline of the liberalised segment of the retail market, mainly due to the anti-cyclical development of wholesale market energy prices and the regulated end user supply tariffs, which have since been set at the end of 2007.
- c) The introduction of generation capacity assignment mechanisms.
- d) The implementation of market supervision mechanisms by ERSE with the aim of strengthening the transparency and integrity of the electricity wholesale market.
- e) The positive development of MIBEL in terms of integration of the Portuguese and Spanish markets, which is measured by the difference in price and by the number of hours of market splitting. The allocation of capacity in MIBEL during 2008 was exclusively implemented by market splitting in the day and intraday market.

Noteworthy in the natural gas sector is the start of the implementation of market mechanisms to allocate the amounts of natural gas acquired under take-or-pay contracts, in order to provide an incentive for new agents to join the market.

(iii) A number of steps were taken in relation to the construction of the internal energy market and as a result of regional initiatives:

- a) The work of regulatory harmonisation under the Council of Regulators was continued, with the aim of strengthening MIBEL and following the commitments made in the Plan on the Regulatory Harmonisation of the Energy Sector in Portugal and Spain, signed by the governments of both countries.
- b) ERSE and CNE have prepared a document with the operating and organisational principles of the yet to be set up Iberian Natural Gas Market (MIBGAS). The main points of that document are explained in point 2.1.

### **THE 3RD PACKAGE**

ERSE actively participated in the work of CEER/ERGEG concerning the development of the 3rd package on the internal energy market.

It is significant to state in this regard 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 system operators from the natural gas operators, which, as stated above, are separated legally and in terms of assets from the other companies operating in other activities of those sectors.

In terms of the increased autonomy of the regulators envisaged in the new directives, ERSE would emphasise its expectations concerning the strengthening of its independence through the implementation of management autonomy in budget execution as well as the consolidation of the fines and penalty scheme; this has already been attributed, but it can only be exercised through a specific legal instrument which is still in the approval phase with the competent bodies.



### **3 REGULATION AND PERFORMANCE IN THE ELECTRICITY MARKET**

#### **3.1 REGULATION MATTERS**

##### **3.1.1 MECHANISMS FOR CONGESTION MANAGEMENT AND ALLOCATING AVAILABLE CAPACITY AT THE INTERCONNECTIONS**

There were no changes in the management model for the interconnections between Portugal and Spain as compared to 2007, and the interconnection capacity was allocated solely through a market splitting mechanism implemented in the MIBEL daily and intraday markets.

It may be recalled that MIBEL officially started operations on 1 July 2007. It is based on a single daily market (OMEL) which underpins the Joint Management Mechanism for the Portugal-Spain Interconnection. This is regulated by the rules and principles set forth in the legal/regulatory ordinances below:

- EC Regulation 1228/2003 of the European Parliament and the Council and Decision 2006/77/EC which amends its annex.
- Access to Grids and Interconnections Regulations (RARI).
- Procedures Manual for the Joint Management Mechanism for the Portugal-Spain Interconnection.
- Joint Rules for Contracting Capacity in the Portugal-Spain Interconnection.

In the wake of government requests from the two countries the Council of Regulators proposed the implementation of a mechanism to allocate physical interconnection capacity rights by holding explicit capacity auctions in a time frame preceding the daily time frame. This proposal was not accepted by the Spanish government.

##### **3.1.2 REGULATION OF TRANSMISSION AND DISTRIBUTION NETWORK COMPANIES**

###### **3.1.2.1 ELECTRICITY GRID ACCESS TARIFFS**

###### **PROCEDURES AND METHOD FOR CALCULATING ELECTRICITY GRID ACCESS TARIFFS**

ERSE is responsible for preparing and publishing the Tariff Regulations which establish the method used to calculate the tariffs and prices, and the regulation of allowed revenue. The approval of the Tariff Regulations is preceded by a public consultation and an opinion report from the Tariff Board.

The tariff fixing process and its scheduling are likewise instituted on a regulatory basis.

With a view to providing the context for the tariff calculation the tariff system currently in use in Portugal is now described in brief.

The Grid Access Tariffs are charged to all electricity consumers for the use of the infrastructures. 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 operate as market agents (i.e. customers that buy energy directly in the market and are responsible for managing their scheduling imbalances).

The existence of last resort suppliers results in the application of End User Tariffs to their customers. These tariffs are calculated by adding to the Grid Access Tariffs the Supply Tariff and the Energy Tariff. These last two tariffs reflect the commercial management costs incurred by last resort suppliers and the energy supply costs incurred by them to supply their customers – either in organised markets or in the context of bilateral agreements subject to prior approval by ERSE.

#### **ELECTRICITY SECTOR TARIFFS AND REGULATED ACTIVITIES**

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

Each regulated activity has its own approved tariff, as follows: Global Use of System, Transmission Use of Network, Distribution Use of Network in HV and MV, Distribution Use of Network in LV, Supply of Networks, Energy, Supply.

Tariff prices are established in each activity in a way that, on the one hand, their structure adheres to the marginal or incremental costs structure and, on the other, enables the recovery of allowed revenue generated by each activity.

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

#### **TARIFF ADDITIVITY APPLIED TO GRID ACCESS TARIFFS**

The grid access tariff 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. The access tariff prices for each billing variable are determined by adding up the corresponding tariff prices by activity.

Customers that have chosen their supplier in the market pay the grid access tariffs and freely negotiate their purchase of energy with their supplier.

Calculation of end user tariffs charged by the last resort supplier to its customers is based on the tariffs by activity included in grid access, plus the Energy Tariff and the Supply Tariff.

Insofar as the tariffs that compose the sum are based on marginal costs, this helps avoid cross-subsidisation between customers. The closer the prices of such tariffs are to the marginal costs, the closer one comes to an efficient allocation of resources.

This tariff calculation methodology allows for a detailed knowledge of all 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. The transparency in defining tariffs resulting from the implementation of such a system is especially important to customers who have no experience in choosing a supplier, particularly those less well-informed.

#### **FORMS OF REGULATION**

At the start of a new 3-year regulation period (2009-2011), ERSE decided to re-examine the regulation model for the transmission system operator, bearing in mind the pros and cons of the model currently in use and the interest in creating incentives to promote greater efficiency in this operator. Accordingly, a change was made from a yearly-based rate of return and accepted costs model to an incentive model.

The following changes were introduced: (I) a regulation formula for operating costs was adopted that considers a revenue cap for existing operating costs at the start of the regulation period and reference costs adapted to the company's level of activity in the current period, (II) an incentive to efficient investment in the transmission network through the use of reference prices in the valuing of new equipment to be incorporated into the network, (III) an incentive to increasing the availability of the National Electricity Transmission System, and (IV) an incentive to keeping equipment in operation at the end of its useful life.

At the same time an incentive to new investment was introduced in the new regulatory period via a rate of return on differentiated fixed assets. Thus, new investments that are valued at reference prices are remunerated (nominal capital cost before tax) at a rate 1.5% higher than the return established for the rest of the transmission system operator's assets.

The distribution system operator will continue to be regulated by incentives: (I) incentive for efficient cost management (price cap), (II) incentive to improve service quality, (III) loss reduction incentive, and (IV) environmental performance incentive.

The efficiency factor fixed for controllable operating costs of 3.5% per year for the 2009-2011 regulatory period took into consideration an economic efficiency analysis of the costs for the 14 network areas of the network distribution operator itself with a view to minimising costs.

In the Autonomous Regions of the Azores and Madeira changes were undertaken at the start of the new regulation period (2009-2011) in the way the electricity distribution activity was regulated. Regulation is now implemented by calculating allowed revenue by price cap.

One should note that, as a way of incorporating the effects of volatility in the financial markets into companies' capital costs, the rate of return on assets of the distribution and transmission system operators is indexed to the average yield from Portuguese 10-year treasury bonds.

#### REVENUE FROM INTERCONNECTION CONGESTION

In 2008 the revenue from congestion of the Portugal - Spain interconnections arising from zone price differences after the market splitting amounted to 64 million euros, as shown in the table below.

**Table 3-1 - Monthly development of congestion rents in 2008**

| Month     | Congestion |               | Average price PT | Average price SP | Average price differential | Import (SP->PT) | Export (PT->SP) | Congestion rents |
|-----------|------------|---------------|------------------|------------------|----------------------------|-----------------|-----------------|------------------|
|           | no. hours  | % hours month | (€/MWh)          | (€/MWh)          | (€/MWh)                    | (MWh)           | (MWh)           | (million €)      |
| January   | 300        | 40            | 74.40            | 70.22            | 4.18                       | 718 701         | 5 930           | 3.9              |
| February  | 362        | 52            | 72.86            | 68.53            | 4.33                       | 784 610         | 7 165           | 4.3              |
| March     | 504        | 68            | 65.46            | 59.00            | 6.46                       | 1 041 655       | 0               | 7.2              |
| April     | 492        | 68            | 62.48            | 56.18            | 6.31                       | 901 046         | 941             | 6.6              |
| May       | 534        | 74            | 62.14            | 56.28            | 5.86                       | 773 238         | 445             | 5.0              |
| June      | 522        | 73            | 64.57            | 58.34            | 6.23                       | 785 244         | 3 150           | 5.8              |
| July      | 486        | 65            | 73.12            | 68.19            | 4.93                       | 734 891         | 1 920           | 4.2              |
| August    | 349        | 47            | 72.33            | 70.10            | 2.23                       | 610 916         | 3 742           | 2.5              |
| September | 289        | 40            | 75.78            | 73.03            | 2.75                       | 648 062         | 7 542           | 2.7              |
| October   | 478        | 64            | 76.45            | 69.77            | 6.68                       | 772 421         | 1 297           | 5.9              |
| November  | 597        | 83            | 76.55            | 66.53            | 10.02                      | 879 824         | 1 016           | 9.6              |
| December  | 529        | 71            | 63.71            | 57.11            | 6.61                       | 827 996         | 6 807           | 6.6              |
|           |            |               |                  |                  |                            |                 |                 | 64               |

Source: ERSE, OMEL

#### 3.1.2.2 QUALITY OF SERVICE

Both the Tariff Regulations and Quality of Service Regulations contain provisions for regulating continuity of supply in mainland Portugal. As regards the quality of service of electricity supply in the Autonomous Regions, the respective regulations applicable to Madeira and the Azores were published in 2004.

### **INCENTIVE FOR IMPROVING CONTINUITY OF SUPPLY**

The Tariff Regulations provide for an incentive for continuity of supply, the effect of which is reflected in the revenue allowed for the MV and HV distribution system operator.

The value of the incentive to continuity of supply in the MV network in mainland Portugal depends on the value of energy not distributed annually and is determined via a mechanism established in the regulations.

In 2007 the value of non-distributed energy corresponds to an incentive (premium) of 107 605.65 euros.

### **CONTINUITY OF SUPPLY IN 2008**

The following is a characterisation of the transmission and distribution networks in terms of continuity of supply, using three indicators for each system (transmission and distribution) determined for 2008:

- TIE - Equivalent Interruption Time: an indicator that applies to the transmission network. It expresses the system's interruption time given by the quotient between the energy not supplied and the average probably annual capacity.
- TIEPI – Interruption Time Equivalent to Installed Capacity: an indicator that applies to the MV distribution network. It gives an indication of the duration of the interruption of the installed capacity in transformer stations. It is given by the quotient between the sum of the products of installed capacity realised by the length of each interruption and the total installed capacity.
- SAIDI – System Average Interruption Duration Index: an indicator that applies to the transmission and distribution networks. It is given by the quotient between the sum of the interruption times at all delivery points and the total number of delivery points.
- SAIFI – System Average Interruption Frequency Index: an indicator that applies to the transmission and distribution networks. It is given by the quotient between the sum of the number of interruption times at all delivery points and the total number of delivery points.

Table 3-2 shows the continuity of supply indicators for mainland Portugal in 2008. The transmission network indicators are determined on the basis of all interruptions at the delivery points (DPs) and the distribution network indicators take all interruptions in excess of 3 minutes into consideration.

**Table 3-2 - Continuity of supply indicators for mainland Portugal, 2008**

| Voltage level   | Continuity of service indicator | Planned interruptions | Unplanned interruptions |
|-----------------|---------------------------------|-----------------------|-------------------------|
| Transmission    | TIE (min)                       |                       | 1.35                    |
|                 | SAIFI                           |                       | 0.22                    |
|                 | SAIDI (min)                     |                       | 1.26                    |
| MV Distribution | TIEPI (min)                     | 0.3                   | 111.85                  |
|                 | SAIFI                           | 0.01                  | 2.88                    |
|                 | SAIDI (min)                     | 0.59                  | 165.6                   |
| LV Distribution | SAIFI                           | 0.02                  | 2.82                    |
|                 | SAIDI (min)                     | 2.07                  | 162.67                  |

Note: Provisional figures

Source: REN, EDP Distribuição

Although provisions have been made for payment of compensation to customers for non-compliance with individual continuity standards, the relevant information for 2008 has not yet been provided by the distribution system operator.

Table 3-3 shows the continuity of supply indicators for the main islands of the Autonomous Region of the Azores. Interruptions in excess of 3 minutes were taken into consideration in determining the indicators.

**Table 3-3 - Continuity of supply indicators for the main islands in the Autonomous Region of the Azores by transmission and distribution system, 2008**

| Island          | Voltage level   | Continuity of service indicator | Planned interruptions | Unplanned interruptions |  |
|-----------------|-----------------|---------------------------------|-----------------------|-------------------------|--|
| São Miguel      | Transmission    | TIE (min)                       | 33.6                  |                         |  |
|                 |                 | SAIFI                           | 1.0                   |                         |  |
|                 |                 | SAIDI (min)                     | 47.4                  |                         |  |
|                 | MV Distribution | TIEPI (min)                     | 76.20                 | 141.25                  |  |
|                 |                 | SAIFI                           | n.a.                  | n.a.                    |  |
|                 |                 | SAIDI (min)                     | n.a.                  | n.a.                    |  |
|                 | LV Distribution | SAIFI                           | n.a.                  | n.a.                    |  |
|                 |                 | SAIDI (min)                     | n.a.                  | n.a.                    |  |
|                 | Terceira        | Transmission                    | TIE (min)             | 3.6                     |  |
| SAIFI           |                 |                                 | 0.67                  |                         |  |
| SAIDI (min)     |                 |                                 | 18.6                  |                         |  |
| MV Distribution |                 | TIEPI (min)                     | 155.00                | 199.87                  |  |
|                 |                 | SAIFI                           | n.a.                  | n.a.                    |  |
|                 |                 | SAIDI (min)                     | n.a.                  | n.a.                    |  |
| LV Distribution |                 | SAIFI                           | n.a.                  | n.a.                    |  |
|                 |                 | SAIDI (min)                     | n.a.                  | n.a.                    |  |
| Pico            |                 | Transmission                    | TIE (min)             | 10159.2                 |  |
|                 | SAIFI           |                                 | 3.5                   |                         |  |
|                 | SAIDI (min)     |                                 | 135.0                 |                         |  |
|                 | MV Distribution | TIEPI (min)                     | 116.1                 | 488.08                  |  |
|                 |                 | SAIFI                           | 1.06                  | 8.34                    |  |
|                 |                 | SAIDI (min)                     | 152.62                | 527.37                  |  |
|                 | LV Distribution | SAIFI                           | 0.86                  | 7.66                    |  |
|                 |                 | SAIDI (min)                     | 112.99                | 470.4                   |  |

Note: Provisional figures

Source: EDA

There were 1628 recorded instances of non-compliance with individual continuity of supply standards in 2008 which affected around 1% of EDA customers. The relevant information was still being studied at the time this report was being compiled.

Table 3-4 shows the continuity of supply indicators for the islands of the Autonomous Region of Madeira. Interruptions in excess of 3 minutes were taken into consideration in determining the indicators.

**Table 3-4 - Continuity of supply indicators for the islands in the Autonomous Region of Madeira, 2008**

| Island          | Voltage level   | Continuity of service indicator | Planned interruptions | Unplanned interruptions |
|-----------------|-----------------|---------------------------------|-----------------------|-------------------------|
| Madeira         | Transmission    | TIE (min)                       | 6.59                  | 23.82                   |
|                 |                 | SAIFI                           | 0.73                  | 3.7                     |
|                 |                 | SAIDI (min)                     | 48.08                 | 79.6                    |
|                 | MV Distribution | TIEPI (min)                     | 25.05                 | 70.25                   |
|                 |                 | SAIFI                           | 0.45                  | 3.93                    |
|                 |                 | SAIDI (min)                     | 38.83                 | 94.97                   |
|                 | LV Distribution | SAIFI                           | 0.34                  | 4.99                    |
|                 |                 | SAIDI (min)                     | 0.52                  | 1.72                    |
|                 | Porto Santo     | Transmission                    | TIE (min)             | 58.8                    |
| SAIFI           |                 |                                 | 1.5                   | 3.5                     |
| SAIDI (min)     |                 |                                 | 35.0                  | 70.25                   |
| MV Distribution |                 | TIEPI (min)                     | 36.22                 | 252.65                  |
|                 |                 | SAIFI                           | 1.92                  | 6.33                    |
|                 |                 | SAIDI (min)                     | 38.43                 | 260.59                  |
| LV Distribution |                 | SAIFI                           | 1.83                  | 7.77                    |
|                 |                 | SAIDI (min)                     | 0.53                  | 5.05                    |

Note: Provisional figures

Source: EEM

Some instances of non-compliance with the individual continuity of supply standards were registered for customer installations in the Autonomous Region of Madeira in 2008. The relevant information was still being studied at the time this report was being compiled.

### 3.1.2.3 BALANCING

In 2008 the compensation service for electricity generation and consumption imbalances was operated in accordance with the secondary and tertiary regulated markets, as had happened in the 2nd half of 2007.

In its role as Technical System Manager, REN selects the offers submitted by the agents that represent the least total cost.

For each generation and consumption unit, and for each time period, the imbalance energy is calculated as the difference between the energy delivered or received and the energy of the corresponding contracting programme.

In each time period, the account adjustment mechanism takes two types of imbalance into account for each scheduling unit: imbalances by excess and imbalances by default.

Table 3-5 shows the causes of each type of imbalance in accordance with the function of each scheduling unit.



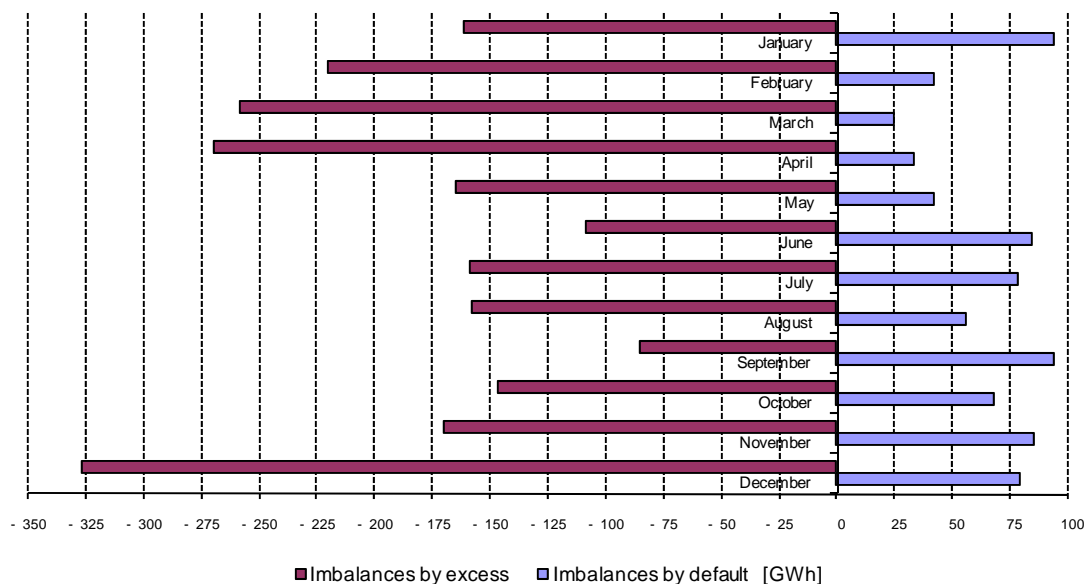
**Table 3-5 - Types of imbalance, by function**

| Function   | Cause  |  |
|--|--|--|
|  | Excess   | Default  |
| Consumers that are market agents or purchase for pumping | Consumption less than the hourly purchasing programme  | Consumption more than the hourly purchasing programme  |
| Generators or commercial agents                          | Emissions higher than the hourly sales programme   | Emissions lower than the hourly sales programme  |
| Suppliers  | Sum of the consumption by customers and hourly sales programmes less than the sum of the hourly purchase programmes                                    | Sum of the consumption by customers and hourly sales programmes more than the sum of the hourly purchase programmes                                      |
| Last resort supplier                                     | Market consumption (customer consumption minus the energy purchased directly from special regime generators) less than the hourly purchasing programme | Market consumption (customer consumption minus the energy purchased directly from special regime generators) higher than the hourly purchasing programme |

Using the current methodology, the valuation of the imbalances in each hour corresponds exactly to the variable regulation costs to be paid to the agents that solve the imbalance by their participation in the regulation markets.

The imbalances were aggregated for each balance area, as established in the System Manager's Procedures Manual.

Figure 3-1 shows the development in imbalance energies throughout 2008. It represents both imbalances by default and imbalances by excess.

**Figure 3-1 - Development in imbalances (2008)**

Source: REN

Table 3-6 shows the total annual value of imbalance energies by excess and default, as well as their respective valuation. One should note that the imbalances are valued directly from the mobilised regulation energy costs actually calculated. The average annual imbalance per unit was EUR 47.93/MWh and EUR 90.91/MWh for imbalances by excess and by default, respectively.

**Table 3-6 - Total annual imbalance and unit values (2008)**

|                                    | Unit  | Value       |
|------------------------------------|-------|-------------|
| Imbalance by excess                | MWh   | 2 227 939   |
| Valuation of imbalances by excess  | EUR   | 106 787 328 |
| Unit imbalance by excess           | €/MWh | 47.93       |
| Imbalance by default               | MWh   | 781 073     |
| Valuation of imbalances by default | EUR   | 71 006 636  |
| Unit imbalance by default          | €/MWh | 90.91       |

Source: REN

### 3.1.3 SEPARATION OF NETWORK OPERATORS

Transmission and distribution system operators comply with the activities unbundling criteria established in Directive 2003/54/EC, which has already been transposed into Portuguese law.

In addition to complying with the criteria for unbundling activities established in Directive 2003/54/EC and domestic legislation the Tariff Regulations establish that all regulated companies must adopt accounting unbundling for each of the respective activities mentioned above, as if these were autonomous entities, so that balance sheets and profit and loss statements can be prepared for each of them. This information is submitted to ERSE on a yearly basis, both in terms of real figures and forecasts and estimated figures for the next years or the current one. The real figures for each regulated activity must be audited and be accompanied by a report produced by an independent firm of auditors.

Since it began its operations, ERSE has never found any serious case of refusal to voluntarily provide information, or the provision of defective information.

Each network operator in Portugal is analysed in the points that follow.

### 3.1.3.1 TRANSMISSION SYSTEM OPERATOR

#### **UNBUNDLING OF ACTIVITIES**

The operator of the national electricity transmission network in mainland Portugal (REN) is independent, in terms of assets, of the other electricity sector activities.

In legal terms REN, Rede Eléctrica Nacional, is autonomous vis-à-vis the power generation and supply operators. Since 2007 it has been part of the REN, Redes Energéticas Nacionais; SGPS group, which holds 100% of its share capital.

In performing its functions the transmission system operator distinguishes between the following activities:

- Electricity transmission.
- Global system management, which includes the functions of System Manager and Settlement of Accounts.

The above unbundling of activities and functions is ensured in terms of accounting and organisation.

The list of potentially sensitive business information obtained while performing the above functions is approved by ERSE.

#### **CODES OF CONDUCT**

The Commercial Relations Regulations establish that those responsible for System Management and Account Settlement must be independent in relation to each other and independent of any other agents in performing their duties. These regulations further establish that the transmission system operator shall

prepare Codes of Conduct for those responsible for performing the functions of System Operator and Settlement of Accounts, to secure the independence, impartiality, exemption and responsibility of their acts.

The above Codes of Conduct correspond to the conformity programme established in article 10, paragraph 2 d) of Directive 2003/54/EC. The Commercial Relations Regulations state that mandatory internal audits shall be carried out every year with a view to checking that the principles and rules established by the Codes of Conduct are correctly enforced. The results of these audits are sent to ERSE.

#### **CORPORATE IMAGE OF THE TRANSMISSION SYSTEM OPERATOR**

As a company that is independent of the other activities carried out in the electricity sector in legal terms and in terms of assets, REN uses its own logotype. REN has its own website on the Internet ([www.ren.pt](http://www.ren.pt)) to provide information on activities assigned to the company.

#### **3.1.3.2 DISTRIBUTION SYSTEM OPERATORS**

##### **ACTIVITY UNBUNDLING**

The main DSO (distribution system operator) is EDP Distribuição, the exclusive holder of distribution in medium- and high-voltage in virtually the entire territory of mainland Portugal. Ten other small operators also provide low-voltage distribution, ensuring electricity distribution to approximately 30 000 customers.

EDP Distribuição is a legally autonomous within the EDP Group. Its share capital is 1005 held by Grupo EDP – Energias de Portugal SA, which also owns electricity generation and supply companies.

Small low voltage electricity distributors undertake unbundling only in accounting terms, as established by law. These distributors also perform CUR functions in their local geographical areas and they must ensure the supply of electricity to all consumers who may request it, applying the regulated tariffs and prices regime.

As far as accounting unbundling is concerned, the rules of the Tariff Regulations described above apply.

##### **CODE OF CONDUCT**

The Commercial Relations Regulations establish that EDP Distribuição must prepare a Code of Conduct containing the rules governing the independence, impartiality, exemption and responsibility of its acts.

The company should employ an independent external auditor to check compliance with the Code of Conduct and the effectiveness of the procedures and systems in place so as to ensure the independence and impartiality of its performance vis-à-vis the other players.

ERSE approves the criteria for selecting the entities responsible for the audits, of which a report is forwarded to ERSE each year.

The small electricity distributors mentioned above do not have to ensure activity unbundling, or prepare Codes of Conduct.

#### **CORPORATE IMAGE OF DISTRIBUTION SYSTEM OPERATORS**

Another issue that needs to be improved is the corporate image of the distribution system operator, which is frequently associated with the corporate image of the EDP Group, which owns companies operating as electricity generators and suppliers, as mentioned earlier. This amounts to a lack of transparency that is bad for the image of impartiality and neutrality which should be associated with the distribution system operator.

As regards the company website, EDP Distribuição established its own website in 2008: ([www.edpdistribuicao.pt](http://www.edpdistribuicao.pt)).

#### **SHARED SERVICES**

There is a standing relationship, in commercial and financial terms, between EDP Distribuição and other EDP Group companies, involving a large number of transactions.

Since 2003 EDP Distribuição has submitted a report drafted by an independent firm of auditors which certifies that the said transactions with EDP Group companies are consistent with the Portuguese law on transfer prices.

#### **3.1.3.3 AUTONOMOUS REGIONS OF THE AZORES AND MADEIRA**

##### **ACTIVITY UNBUNDLING**

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

The Autonomous Regions of the Azores and Madeira were granted an extension to 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, in other respects they observe the rules established in the Tariff Regulations.

### CORPORATE IMAGE OF GRID OPERATORS

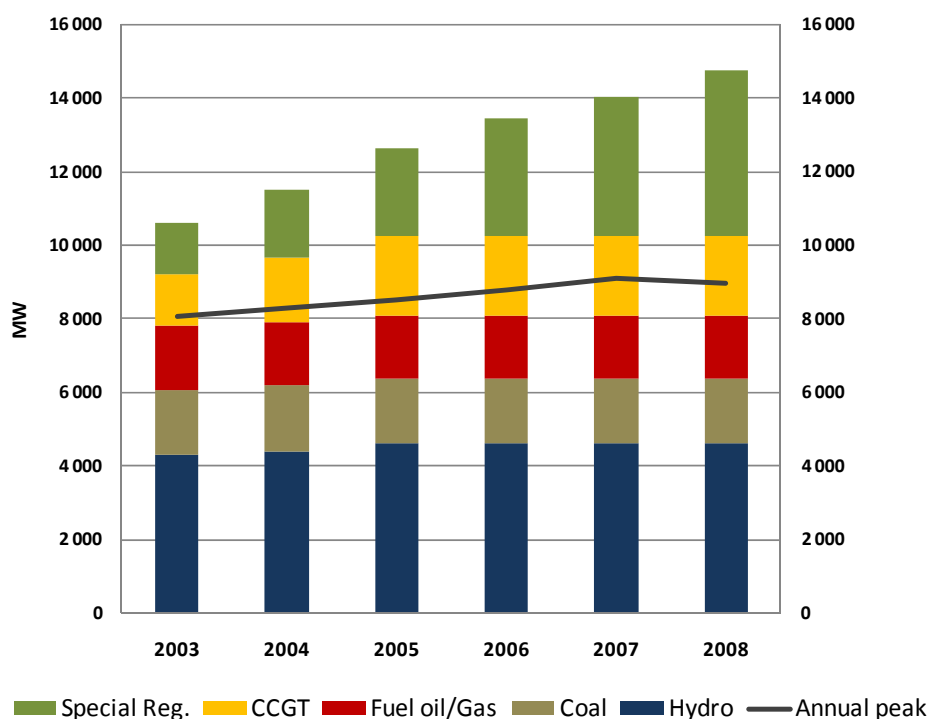
Both EDA and EEM have their own web-sites on the Internet, respectively [www.eda.pt](http://www.eda.pt) and [www.eem.pt](http://www.eem.pt).

## 3.2 COMPETITION

### 3.2.1 CHARACTERISATION OF THE WHOLESALE NATURAL GAS MARKET

Figure 3-2 shows the installed capacity in Portugal in the past 6 years, including special regime generation (SRG).

**Figure 3-2 - Characterisation of electricity generation capacity in Portugal by type of installed capacity**



Source: REN

The composition of the Portuguese electricity generation capacity has seen two major changes in the last 6 years:

- There has been a marked increase in SRG installed capacity.
- In the standard generation regime segment (thermal and large hydropower) the make-up also changed with the increase in the natural gas units (CCGT).

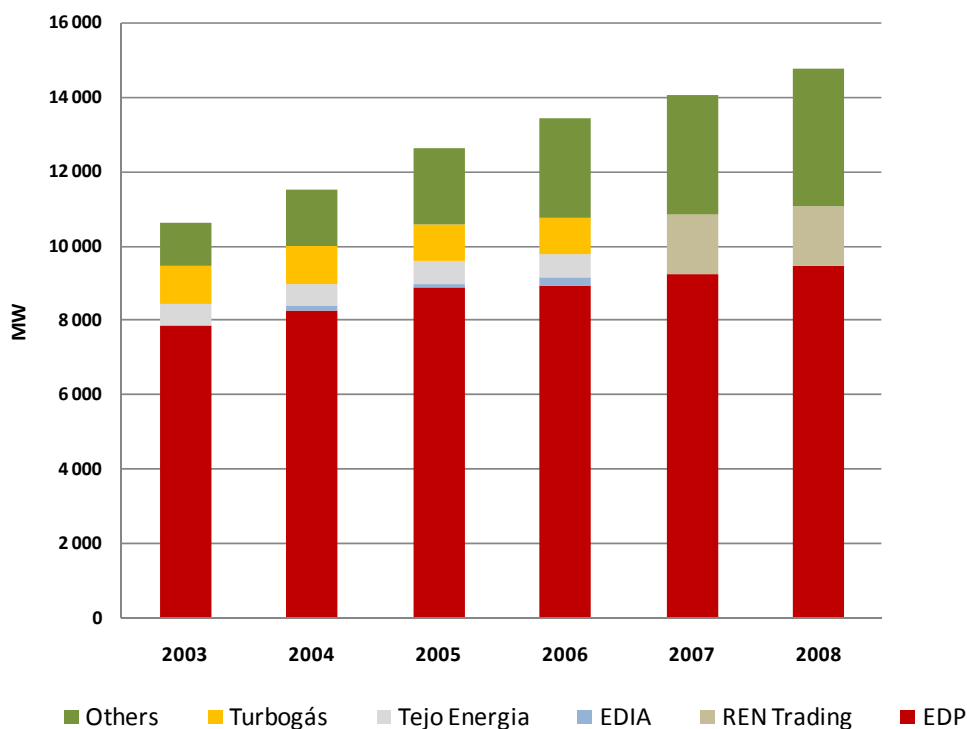
Detailed information on the installed capacity can be found in Chapter 5.

The trend for the annual peak shows there is a significant margin between the annual highest peak and the installed capacity within the electricity generation capacity. But an important part of the installed capacity depends on hydro and wind power technologies which, by their very nature, are associated with a high degree of uncertainty.

The increase in installed capacity related to special regime power plants, especially in wind farms, is significantly accentuating the volatility of operating the installed capacity in the other primary energy units. This is because the return from special regime power plants is ensured administratively and it is guaranteed that their power is fed into the transmission and distribution networks.

As with the characterisation of the installed capacity for electricity generated by technology, so the division of the installed generation capacity by holding or management company, as shown in Figure 3-3.

**Figure 3-3 - Characterisation of electricity generation capacity in Portugal by agent and installed capacity**

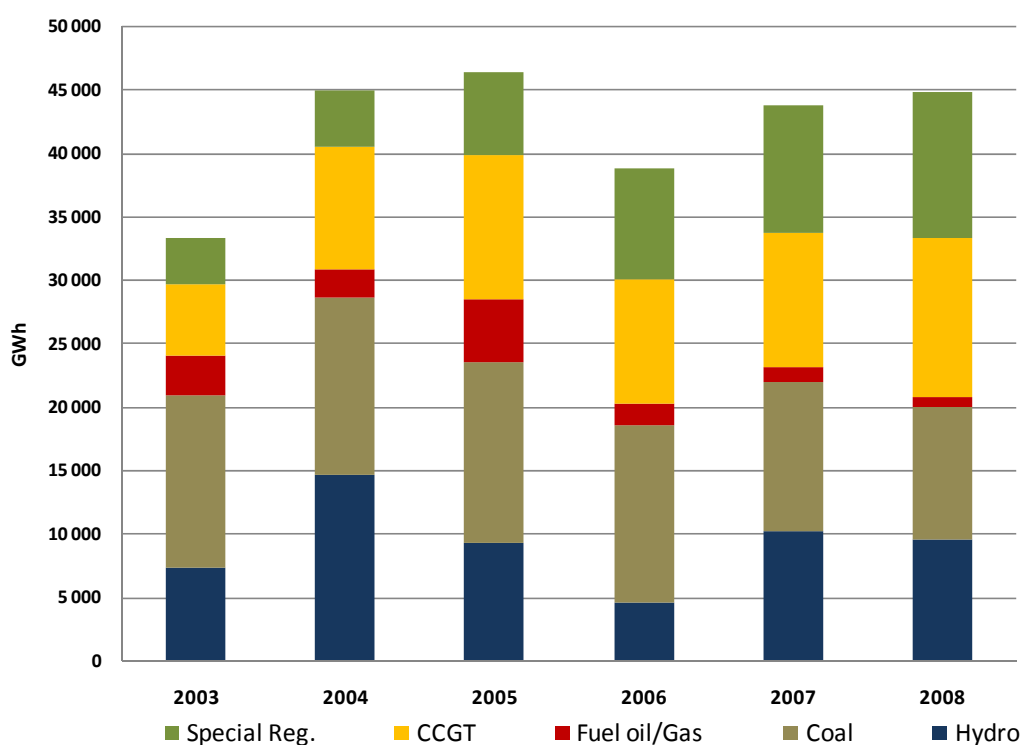


Source: REN

Although still significant, the EDP Group share in the installed capacity has been falling, largely thanks to the growth in the SRG segment in which EDP has a minority position. In the six years between 2003 and 2008 the EDP share in the total installed capacity declined by around 9%.

The division of electricity generation by technology and special regime in the past six years is shown in Figure 3-4. This figure clearly shows the growth of special regime and CCGT generation. But the volatility of hydropower generation is also clear, reflecting the hydrological conditions in each year.

**Figure 3-4 - Characterisation of the installed electricity generation capacity in Portugal by type of generation and energy produced**



Source: REN

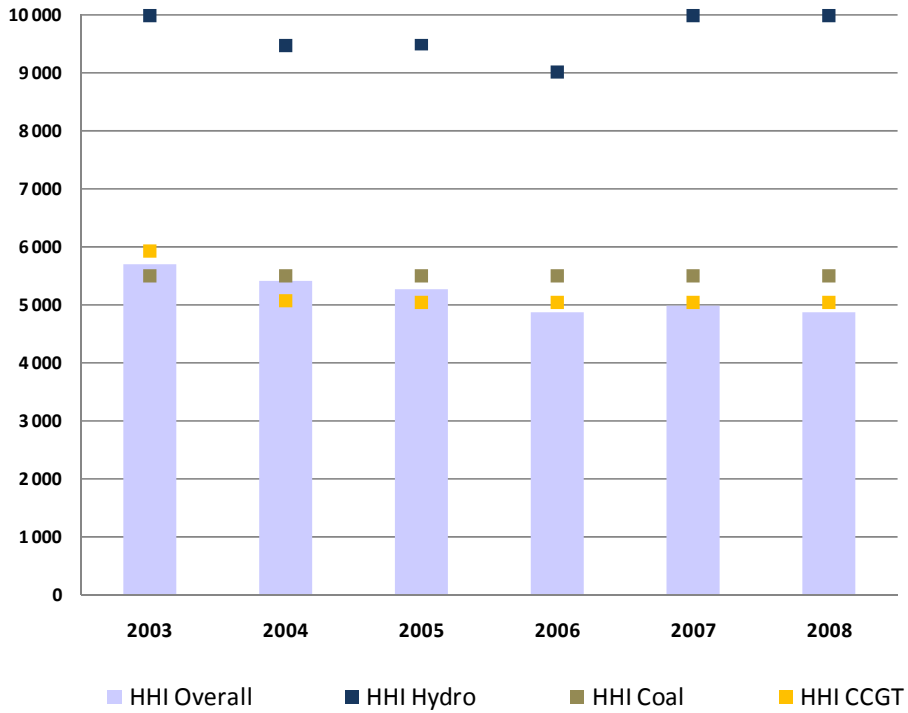
SRG grew significantly between 2003 and 2008 and accounted for around 25% of energy generated in 2008, whereas in 2003 it was just 11%. Wind power generation grew very considerably and accounted for around half the special regime generation in 2008, which is nearly four times as much as in 2003.

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 3-5, which gives the Hirschman-Herfindahl Index (HHI), which measures market concentration. The HHI figures for installed capacity show a slight growth between 2003 and 2008 in the overall concentration of capacity supply in the Portuguese system, particularly via the above-mentioned increase in SRG capacity. It is evident that the hydropower segment



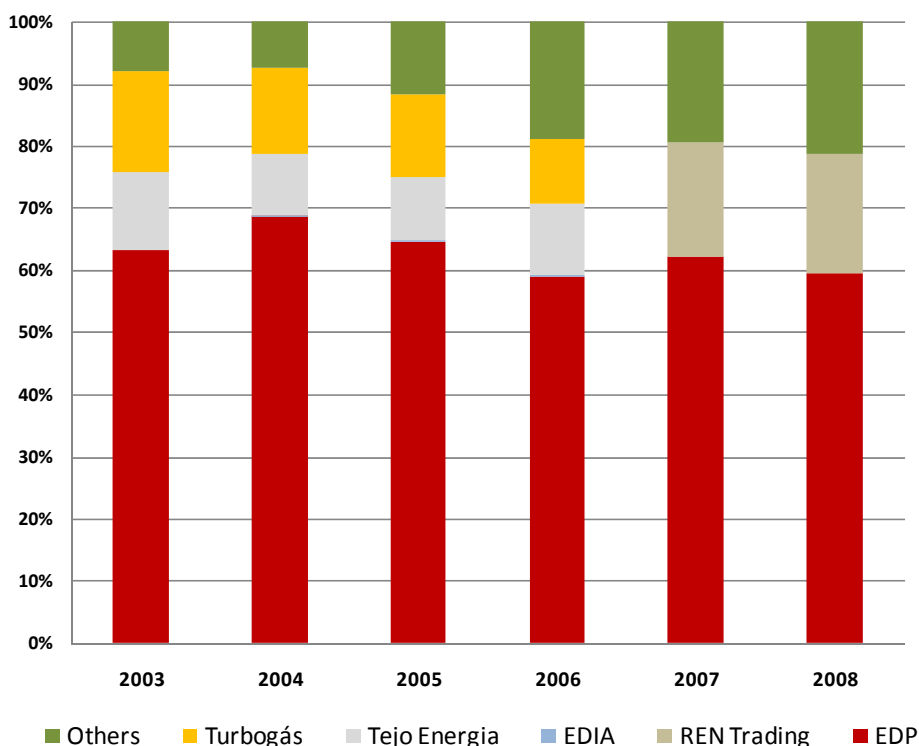
is more concentrated than the coal and CCGT segments (the oil-fired generation figures are similar to those for hydropower, which is held solely by the EDP Group).

**Figure 3-5 - Concentration in generation relative to installed capacity**



Electricity generation share by agent is shown in Figure 3-6.

Figure 3-6 - Electricity generated by agent

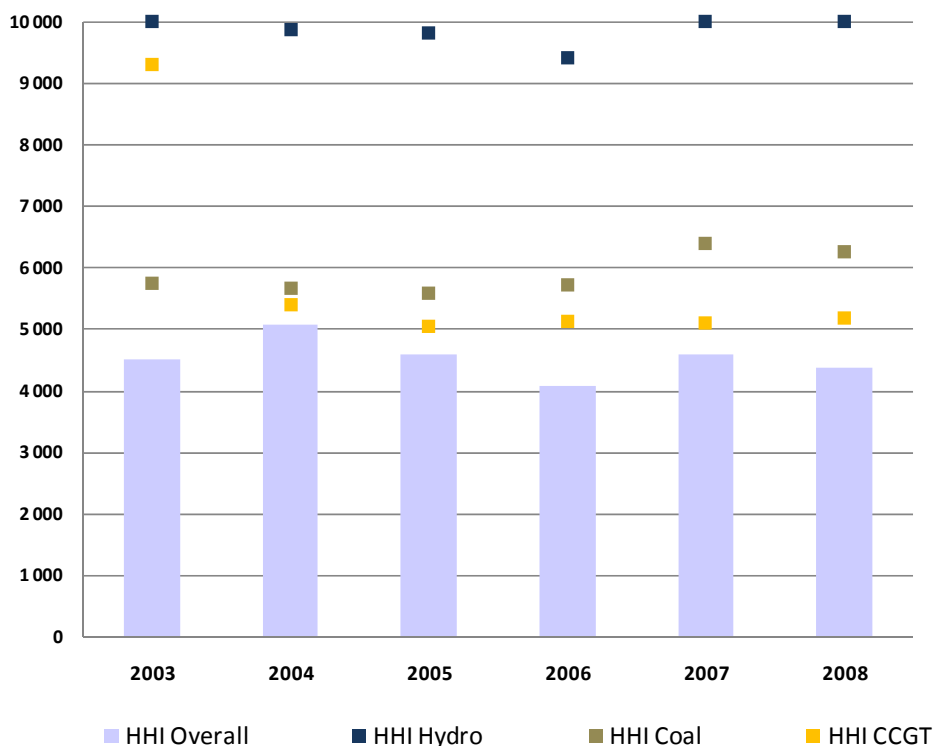


Source: REN, prepared by ERSE – does not include figures for imported energy

In terms of energy generated, the share produced by the incumbent, EDP, fell between 2003 and 2008. This fall is basically due to the relative increase in the input from the special generation regime to the overall amount generated. EDP is not dominant in this segment. As far as other technologies are concerned, although the EDP group did increase its share to some extent this was not enough to offset the loss of global share dictated by the development of the relative weight of SRG.

The concentration indicators for electricity generation given in Figure 3-7 show that, overall, in 2008 generation was less concentrated compared with 2007 or at the start of the period analysis (2003), though it is higher than the lowest figure recorded in the 6-year period (2006). Other factors in the slight drop in corporate concentration was the weakening of concentration in the CCGT segment (in favour of the incumbent, which gained market share) and, more clearly, the SRG, which increased in terms of global generation and saw the incumbent (EDP) reduce its specific share in this type of regime.

Figure 3-7 - Concentration of electricity generation



The impact of the virtual power plant auctions conducted from 2007 was not considered in this analysis of concentration in terms of 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. On the whole, the effect of these auctions on corporate concentration would be to give lower concentration figures.

At the same time it should be remembered 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). Thus 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.

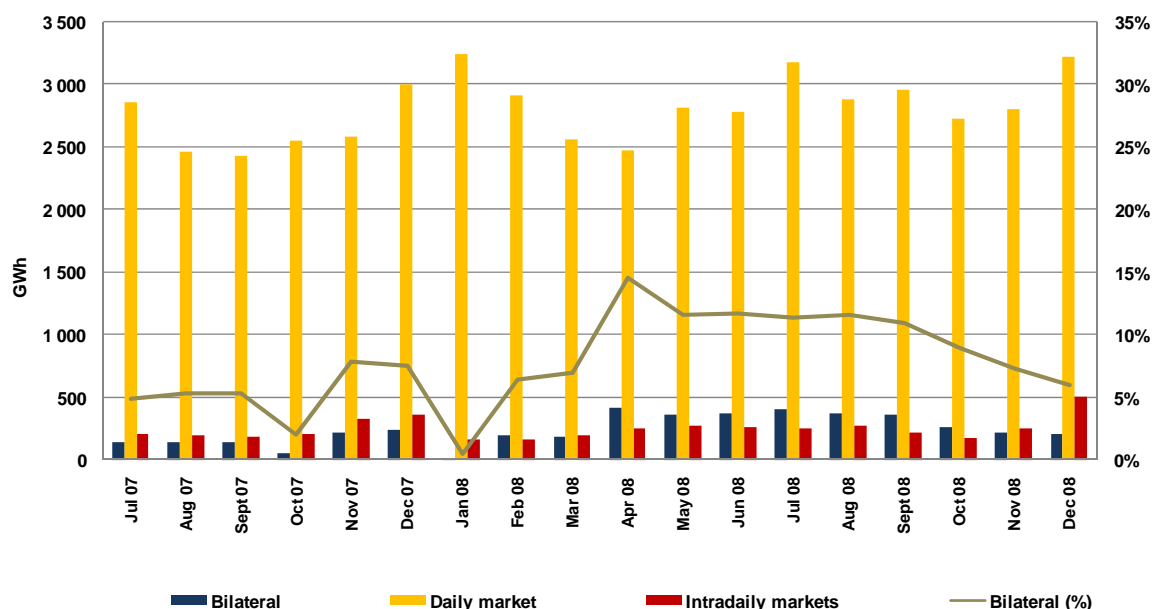
Spot market (daily and intraday markets) trading in Portugal is much higher than that achieved in bilateral contracts, as shown in Figure 3-8. There is no commercially available interconnection capacity for the agents to underwrite apart from that allocated to the daily market.

There is no commercially available interconnection capacity for the agents to underwrite apart from that allocated to the daily market. It is convenient, 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) The products are deliverable in 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 3-8 - Division of energy supplies between markets**



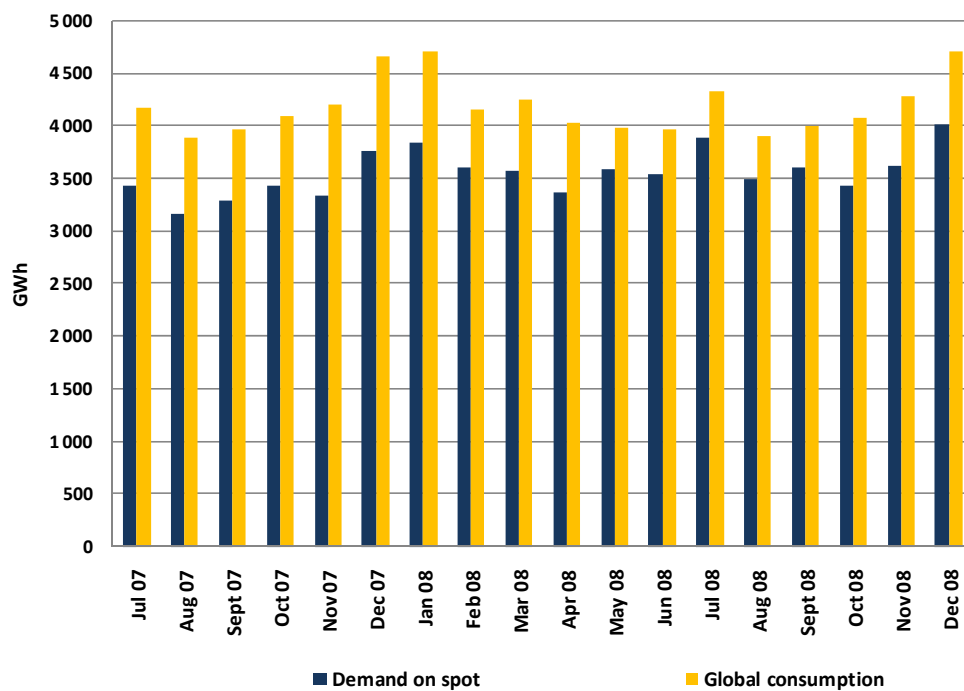
Source: REN/OMEL

For Portugal, 2008 was the first full calendar year in which market agents participated in the organised market, in both the futures and the spot markets. This dynamic was involved in the consolidation of MIBEL.

In relation to the structure of spot market contracts, 2008 was notable for:

- On the demand side, the Portuguese agents, including the last resort suppliers (CUR), targeted most of their demand at the spot market. In the case of CUR 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 targeted their supply at the spot market.

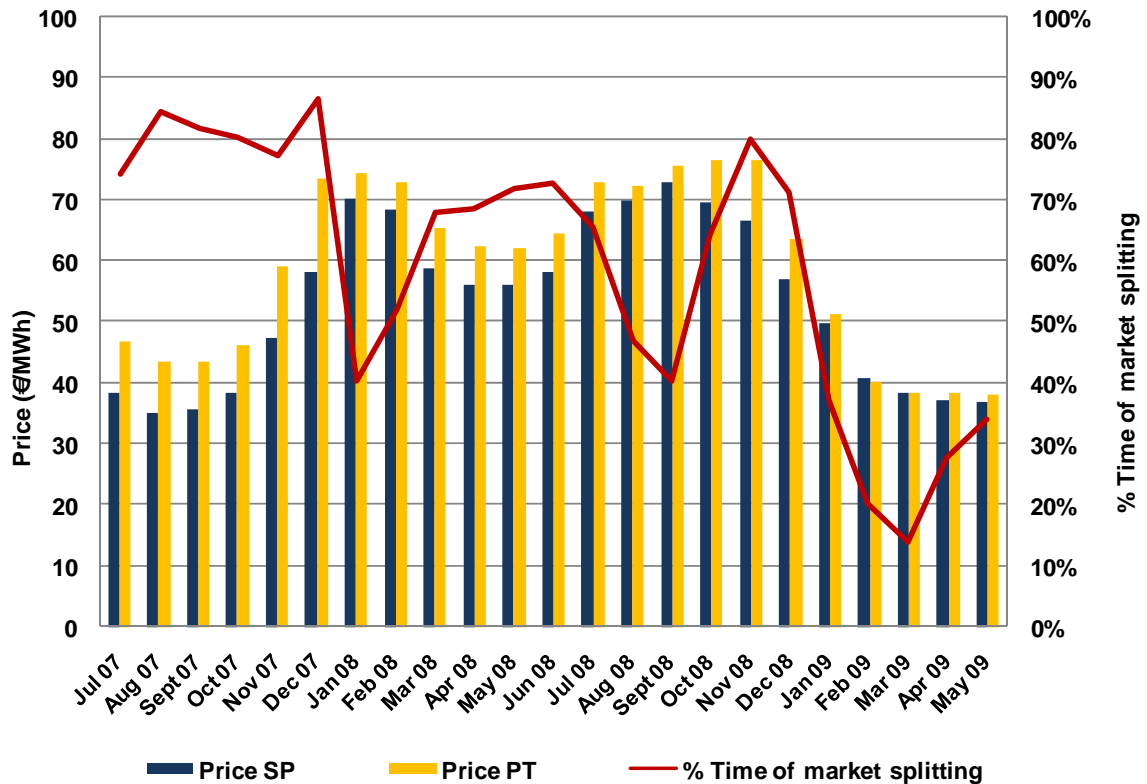
The figures for both the spot market demand and overall consumption in mainland Portugal are given in Figure 3-9 which shows that most consumption is met by purchases in that market.

**Figure 3-9 - Spot market demand and total monthly consumption**

Source: REN/OMEL

The price formed on the spot market is the same for Portugal and Spain unless interconnection congestion makes it necessary to apply the market splitting mechanism. Figure 3-10 shows the prices in Portugal and Spain and the percentage of market splitting time. A reduction in the spreads between the two countries can be seen from the start of MIBEL, and a reduction of the time of market splitting.

Figure 3-10 - Spot market price and market splitting time



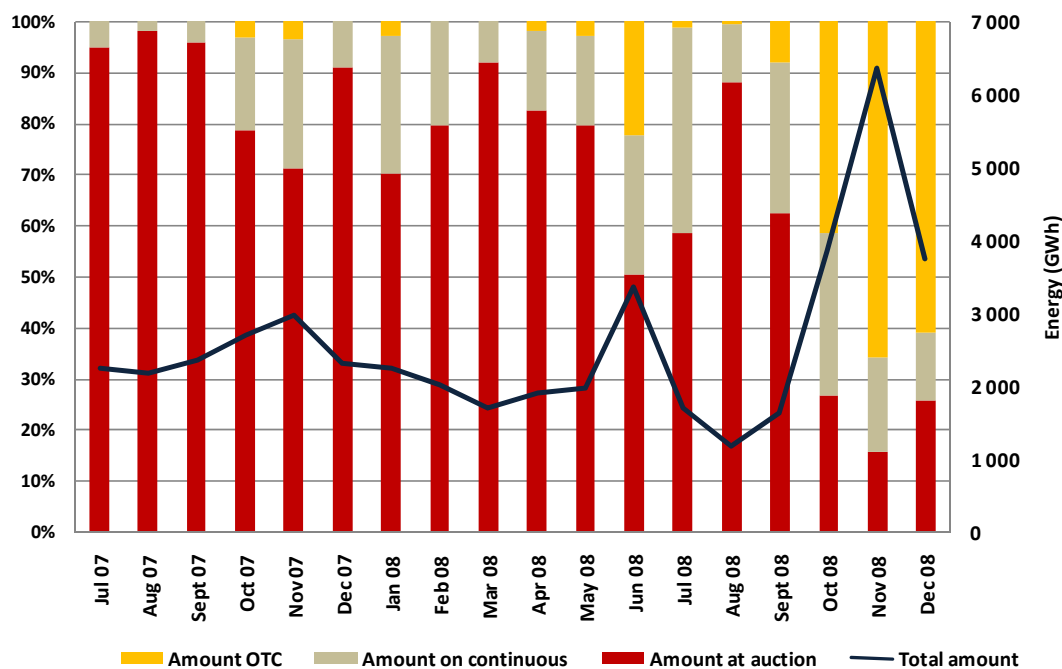
Source: OMEL

The global futures market for Portugal and Spain amounts to about 60% of the scale of consumption in mainland Portugal, which expresses the still low liquidity level in this contract segment.

The Figure 3-11 presents the amounts recorded on the MIBEL organised futures market, and the trend for OTC transactions to increase significantly at the end of 2008 is clear.

The global futures market for Portugal and Spain amounts to about 60% of the scale of consumption in mainland Portugal, which expresses the still low liquidity level in this contract segment.

Figure 3-11 - Amounts in the MIBEL futures market



Source: OMIP

One should note that the last resort supplier in Portugal must purchase 10% of its needs at mandatory auctions, in the context of the futures market.

### 3.2.2 CHARACTERISATION OF THE RETAIL MARKET

In mainland Portugal the retail market is based on the co-existence of a public system (MR) with regulated tariffs practised by CUR and a market-driven system in which the energy is freely contracted (ML). 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 CUR 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 3-7 characterises 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 for 2008, i.e. they provide the basis for determining the tariffs for 2008.

**Table 3-7 - Characterisation of demand by type of supply**

| Type of supply     | Energy (GWh)  | Number of Customers |
|--------------------|---------------|---------------------|
| <b>VHV</b>         | <b>1 600</b>  | <b>23</b>           |
| <b>HV</b>          | <b>5 908</b>  | <b>205</b>          |
| <b>MV</b>          | <b>15 186</b> | <b>22 756</b>       |
| <b>LV</b>          | <b>25 493</b> | <b>6 088 786</b>    |
| SpLV               | 3 652         | 32 485              |
| StLV (PL included) | 21 841        | 6 056 301           |
| <b>Total</b>       | <b>48 187</b> | <b>6 111 770</b>    |

Note: PL - Public lighting

#### TARIFF ADDITIVITY APPLIED TO END-USERS

The End-User tariffs charged to customers by the CUR are given by adding together the grid access tariffs and the energy and supply tariffs practised by the CUR. 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 applicable by the last resort supplier makes it possible to prevent cross-subsidization between:

- Monopoly activities (i.e. grid activities) and market activities (supply and sale of electricity).
- Customers of the last resort supplier with different consumption profiles.
- Customers of the last resort supplier and market-driven customers.
- Last resort suppliers and market suppliers.

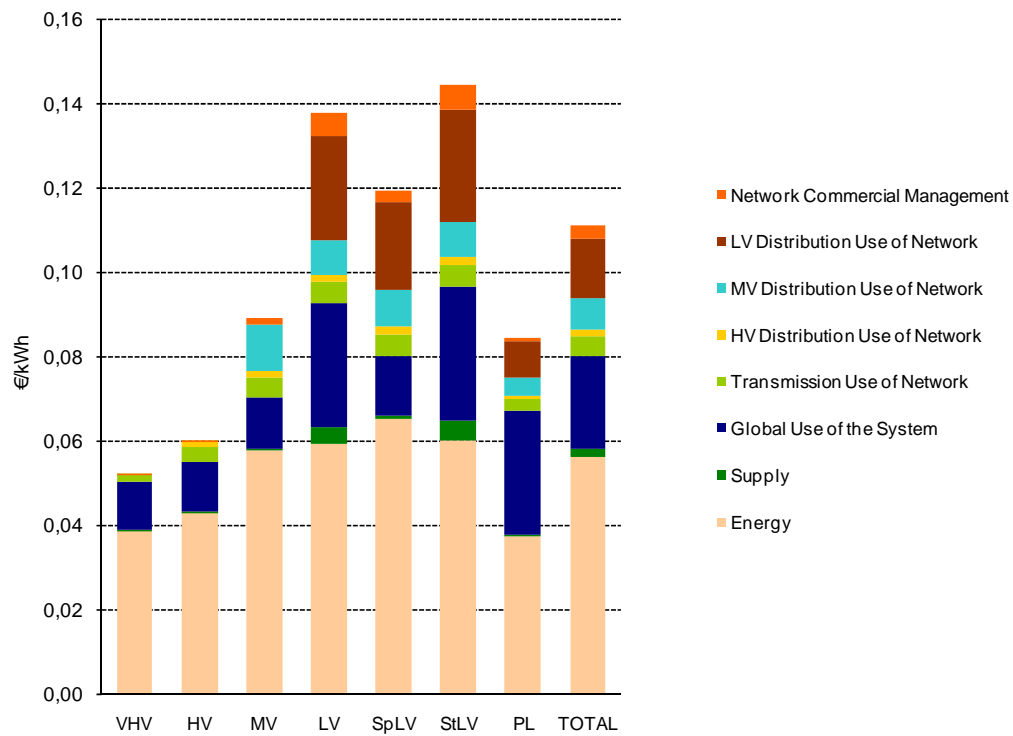
Moreover, cross-subsidization is prevented by having tariffs that compose the sum based on marginal costs – in terms of structure – and on total costs – in terms of level. This also induces an efficient resource allocation.

#### AVERAGE PRICE STRUCTURE OF END-USER TARIFFS PRACTISED BY THE LAST RESORT SUPPLIER IN 2008

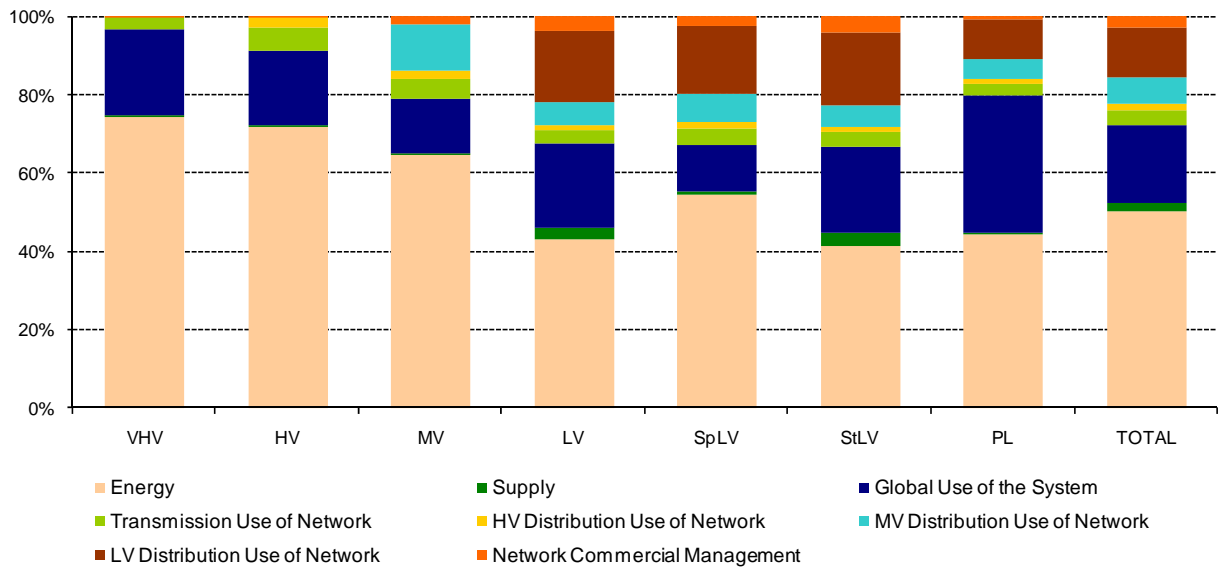
The figures below give the breakdown and structure for each voltage level, by regulated activity, of the average price of the End-User tariffs practised by the CUR.



**Figure 3-12 - Average price structure of End-User tariffs practised by the last resort supplier in 2008**



**Figure 3-13 - Average price structure of End-User tariffs practised by the last resort supplier in 2008**



**END-USER TARIFFS PRACTISED BY THE LAST RESORT SUPPLIER BETWEEN 1998 AND 2008**

The table below shows the End-User Tariffs practised in Portugal since 1998. The figures include the application of quarterly adjustments to VHV, HV and MV which came into force between 2002 and 2005.

**Table 3-8 - End-User tariffs practised by the last resort supplier, by voltage level**

| Tariffs | 1998    | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | Variation 2008/1998 |      |
|---------|---------|------|------|------|------|------|------|------|------|------|------|---------------------|------|
| VHV     | real    | 100  | 87   | 85   | 82   | 73   | 70   | 71   | 78   | 78   | 82   | 83                  | -17% |
|         | nominal | 100  | 90   | 90   | 90   | 83   | 83   | 86   | 97   | 100  | 108  | 112                 | 12%  |
| HV      | real    | 100  | 87   | 84   | 81   | 75   | 73   | 74   | 80   | 81   | 85   | 86                  | -14% |
|         | nominal | 100  | 90   | 89   | 90   | 86   | 86   | 89   | 100  | 104  | 112  | 116                 | 16%  |
| MV      | real    | 100  | 87   | 84   | 82   | 78   | 76   | 77   | 81   | 85   | 86   | 86                  | -14% |
|         | nominal | 100  | 90   | 89   | 90   | 89   | 89   | 93   | 101  | 109  | 114  | 117                 | 17%  |
| SpLV    | real    | 100  | 93   | 90   | 87   | 86   | 86   | 85   | 86   | 95   | 97   | 97                  | -3%  |
|         | nominal | 100  | 95   | 95   | 96   | 98   | 100  | 103  | 105  | 119  | 125  | 128                 | 28%  |
| StLV    | real    | 100  | 93   | 90   | 87   | 87   | 86   | 86   | 86   | 85   | 88   | 88                  | -12% |
|         | nominal | 100  | 95   | 95   | 96   | 99   | 101  | 103  | 106  | 107  | 113  | 116                 | 16%  |

Under the agreement signed on 18 January 2008 by Portugal and Spain with reference to the setting up of MIBEL the end of the end-user tariffs was established, as follows:

- From 1 January 2010 only low voltage customers will be charged a regulated last resort tariff.
- From 1 January 2011 only low voltage customers with contracted power below 50 kVA will have the possibility of being charged a regulated last resort tariff.

This agreement was approved by Resolution of the Assembly of the Republic no. 17/2009 of 16 January.

**METHODOLOGY FOR GATHERING REFERENCE PRICES AND AVERAGE PRICES PRACTISED IN THE RETAIL MARKET**

The role of ERSE is to monitor the retail electricity market and to inform consumers and other market 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 like INE and EUROSTAT is highly important for the players in the electricity sector.

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

So, in 2007 and 2008, ERSE worked jointly with the various suppliers to make contacts and collect opinions about the implementation of a method to give information about prices that would lead to greater market transparency.

In the wake of this preparatory work ERSE was able to approve, in 2009, the Order "Monitoring reference prices and average prices 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.

### **SIMULATORS**

In order to encourage the updating and provision of information to electricity consumers about the reference prices practised on the liberalised market and the computer tools to help consumers choose a supplier ERSE's website contains 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.

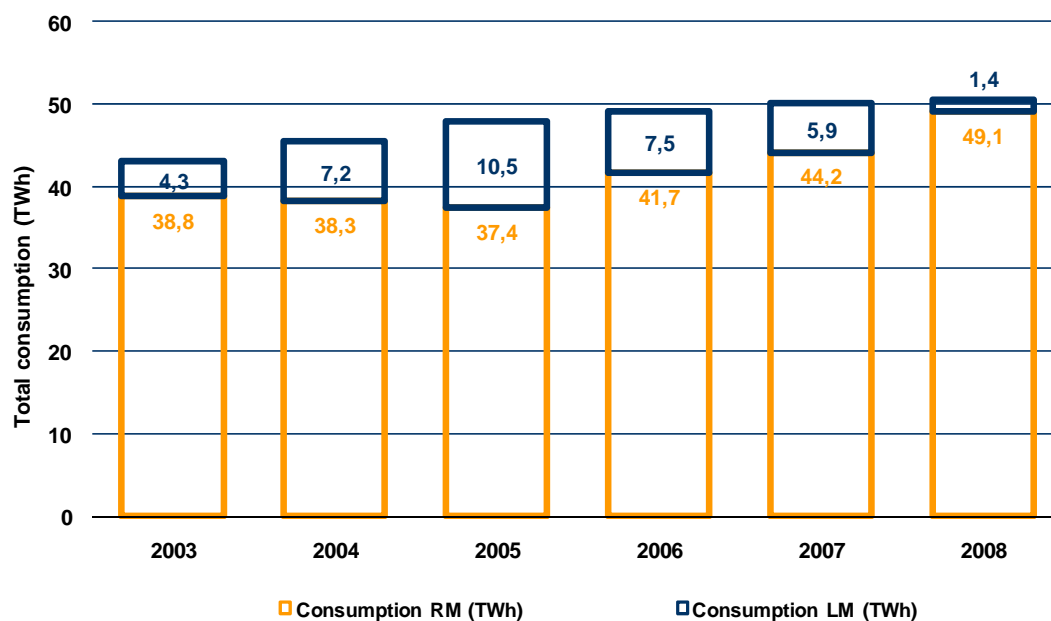
- Simulation of power to subscribe.
- Price comparison simulator for StLV supplies in mainland Portugal.
- Billing simulator for VHV, HV, MV and SpLV electricity in mainland Portugal.
- Billing simulator for MV and SpLV electricity in the Autonomous Region of the Azores.
- Billing simulator for HV, MV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

The Portuguese market was opened up in stages and the process was completed in 2006, when it was opened up to all customers.

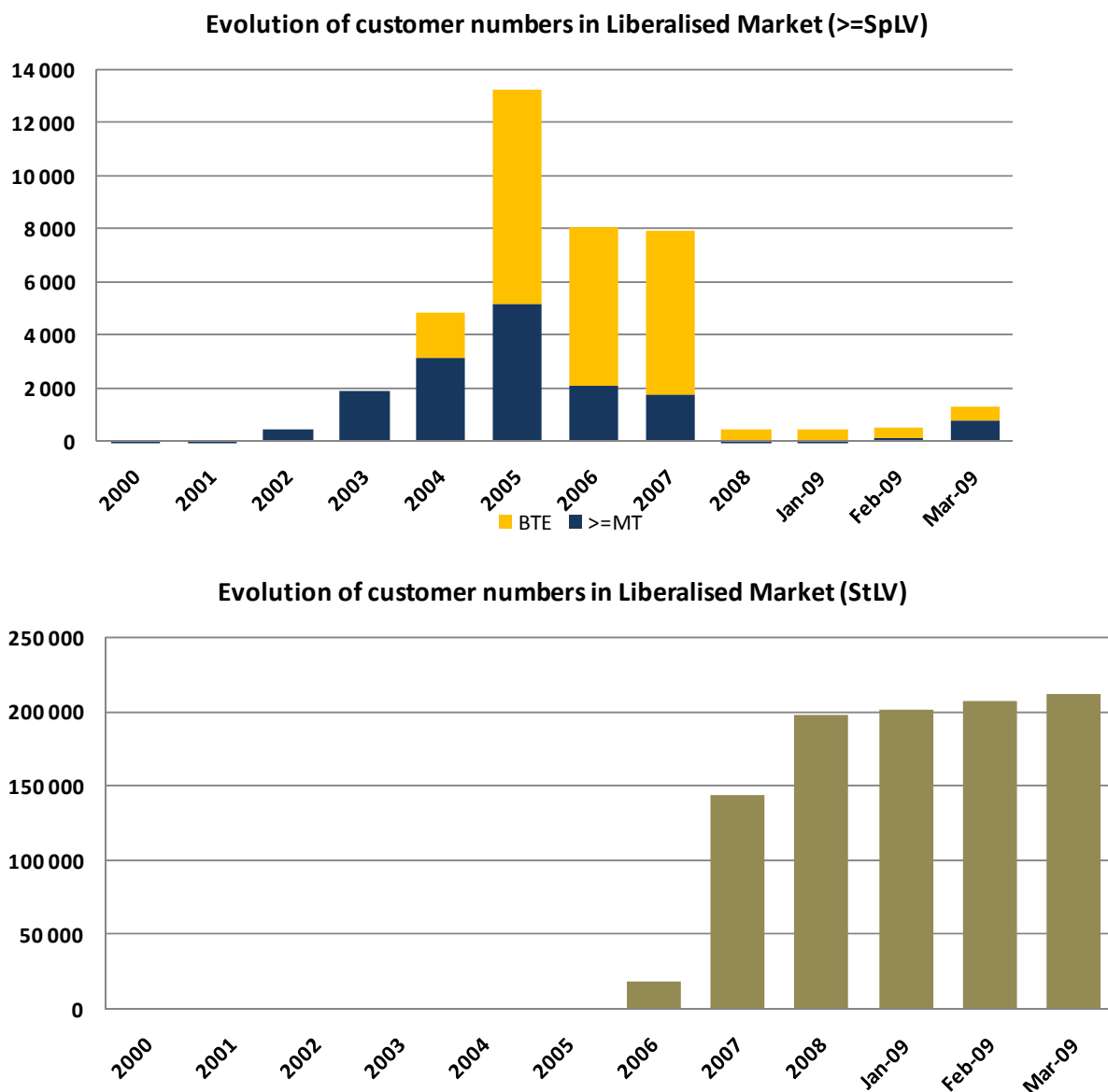
The evolution of the LM in Portugal has not been linear, with a number of factors restricting its functioning.

**Figure 3-14 - Division of consumption between the regulated and liberalised markets**

Source: REN

In 2008 the LM in Portugal was virtually residual, a situation explained by the differences in energy prices in the LM and RM. The last resort tariffs in force in 2008 were calculated at the end of 2007, based on the best forecasts at the time from both the regulated companies and ERSE, and, in line with regulatory best practices, no tariff deficit was defined ex-ante.

But the sharp increase in the price of oil from the end of 2007 was not reflected in the last resort tariffs and this led to significant mismatches between the level of costs included in the last resort electricity prices and the costs actually incurred by the suppliers operating on the LM. This caused almost all the customers to return to the RM, apart from household customers (StLV).

**Figure 3-15 - Evolution of the Liberalised Market in mainland Portugal (no. of LM customers)**

The expansion of the LM in terms of the total number of customers was solely due to the entry of household customers, for whom liberalisation started in September 2006. For the other voltage levels the migration of MV customers to the RM from 2006 to 2008 is visible. The LM saw a marked and steady recovery in the first quarter of 2009.

It is also useful to consider that, in terms of market structure, the regulated supply of electricity in Portugal has been ensured since 2007 by one entity: EDP – Serviço Universal, SA, legally independent of the distribution system operator, whose activity is considered separately and is subject to mandatory segregation of information.

### 3.2.3 MEASURES FOR PROMOTING COMPETITION

#### 3.2.3.1 DEFINITION OF THE CONCEPT OF RELEVANT FACT

Following from what was established in the Commercial Relations Regulations, the Settlement of Accounts Manual<sup>5</sup> explains the concept of relevant fact. This concept is based on the notion that some events can affect market price formation, especially on the spot market where a substantial amount of the contracting for Portugal has been taking place. Any market agent – generator, buyer or network operator – must inform Settlement of Accounts about anything that may influence market price formation, and that entity must give this information to the market.

The basic reason for having a method to report facts capable of influencing the market price is to reduce unequal access to information among the various agents, and so to strengthen market transparency both for contracting purposes (by the various agents) and for the purposes of market supervision.

Among the facts considered capable of influencing price formation, which can be found in the regulatory framework, are:

- Unplanned unavailability in the standard generation power plants.
- Last minute changes to planned maintenance schedules for standard generation power plants.
- Problems linked to the supply of or access to primary energy, for thermal power plants, or constraints on the use of hydropower potential in the case of hydroelectric power plants.
- Changes to suppliers' purchasing programmes, if on a large enough scale.
- Changes to the interconnection capacity available for commercial purposes.
- Unavailability of transmission and distribution lines that affect a substantial part of consumption.

The methodology for reporting relevant facts has been fully implemented, and they can be reported via the website<sup>6</sup> of the transmission system operator (REN) as the entity charged with operationalising system management and settlement of accounts.

#### 3.2.3.2 VIRTUAL POWER PLANT (VPP) AUCTIONS

Virtual power plant auctions are a market device for purchasing an option to buy electricity generated in power plants which have been allowed to release capacity. This option is acquired for a marginal price (premium) which is paid by the purchasers of capacity at auction for all the hours of the period considered

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<sup>5</sup> A duty of the system manager, this is designed to ensure, in a simplified way, the management of imbalances and settlements in light of the contracting programmes reported.

<sup>6</sup> Available at <http://www.mercado.ren.pt/Informa/Paginas/default.aspx>.

and for each individual block of 1 MW transacted, with a strike price being payable if the option is exercised for each of the said energy blocks. The strike price should reflect the variable costs of the power station releasing the capacity under the VPP auction.

The format of the auctions is based on rules approved beforehand by the government, which also lays down the amounts of electricity generation capacity to be placed for trading for the purchase of the electricity option by the buyer.

The VPP auction trading complies with the approved rules and a uniform price mode (marginal price) is followed which is applied to all the participants whose bids are chosen

OMIClear is the key counterparty in the auction and the clearing house of operations closed by auction, and so it will proceed with the billing for each month in each quarter placed for auction.

In 2008, when capacity from REN Trading and EDP Produção was placed for auction, the capacity underlying each VPP auction to be held was granted for quarterly and monthly periods. Regarding the auctions held in 2008, the first (VPP3) was on 16 January 2008 and related to the second, third and fourth quarters of the year (quarterly products) and to February and March that year (monthly products). The second (VPP4) was on 7 March and related to the second and third quarters of 2008, and was incremental in character. Both auctions complied with the placing of power at base charge.

OMIClear is the key counterparty in the auction and the clearing house of operations closed by auction, and so it will proceed with the billing for each month in each quarter placed for auction.

Table 3-9 summarises the third capacity release auction held in Portugal (VPP3, first auction of 2008).

**Table 3-9 - Summary of VPP3**

| Auction date                   | VPP3                      |           |         |         |         |
|--------------------------------|---------------------------|-----------|---------|---------|---------|
|                                | 16-01-2008                |           |         |         |         |
| Product/delivery period        | Fev.-2008                 | Mar.-2008 | Q2-2008 | Q3-2008 | Q4-2008 |
| Type of product                | Base charge               |           |         |         |         |
| Capacity released by           | 50% EDP + 50% REN Trading |           |         |         |         |
| Strike price (€/MW)            | 56.00                     | 56.00     | 56.00   | 56.00   | 56.00   |
| Closing marginal price (€/MW)  | 12.69                     | 5.89      | 1.05    | 4.78    | 2.85    |
| Total strike price (€/MW)      | 68.69                     | 61.89     | 57.05   | 60.78   | 58.85   |
| Capacity bid for (MW)          | 300                       | 300       | 300     | 300     | 300     |
| Capacity placed (MW)           | 300                       | 300       | 300     | 300     | 300     |
| No. of hours                   | 696                       | 743       | 2 184   | 2 208   | 2 209   |
| Equivalent energy placed (MWh) | 208 800                   | 222 900   | 655 200 | 662 400 | 662 700 |

Source: REN/OMIP

OMIClear is the key counterparty in the auction and the clearing house of operations closed by auction, and so it will proceed with the billing for each month in each quarter placed for auction.

Table 3-10 summarises the fourth capacity release auction (VPP4, second auction of 2008). The total capacity available for bidding was placed, in both auctions.

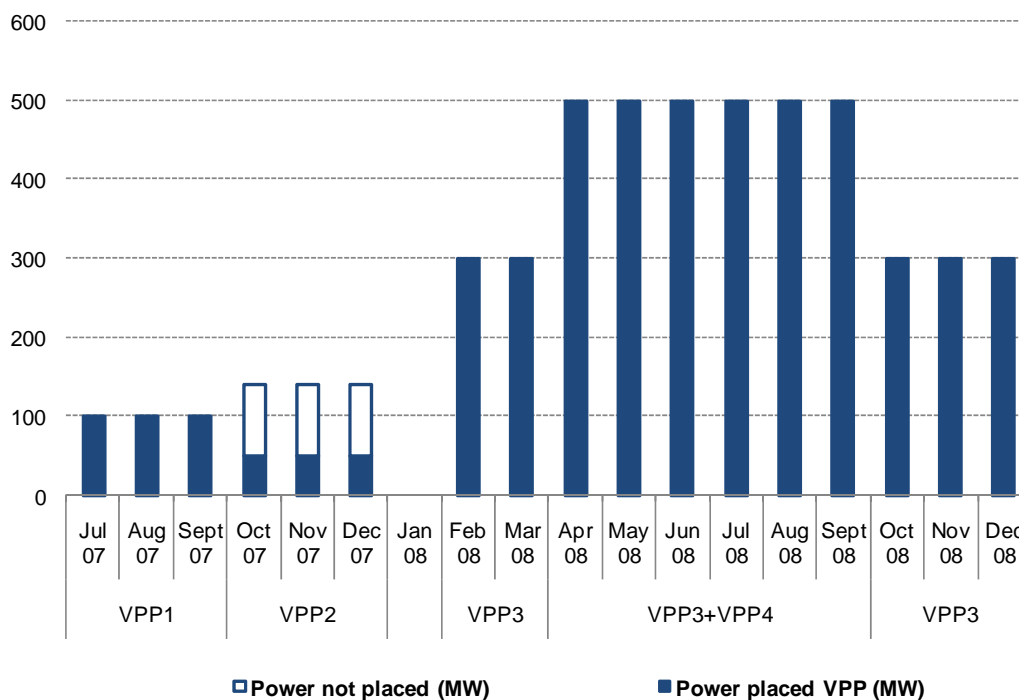
**Table 3-10 - Summary of VPP4**

|                                | VPP4                      |         |
|--------------------------------|---------------------------|---------|
| Auction date                   | 07-03-2008                |         |
| Product/delivery period        | Q2-2008                   | Q3-2008 |
| Type of product                | Base charge               |         |
| Capacity released by           | 50% EDP + 50% REN Trading |         |
| Strike price (€/MW)            | 56.00                     | 56.00   |
| Closing marginal price (€/MW)  | 4.69                      | 5.80    |
| Total strike price (€/MW)      | 60.69                     | 61.80   |
| Capacity bid for (MW)          | 200                       | 200     |
| Capacity placed (MW)           | 200                       | 200     |
| No. of hours                   | 2 184                     | 2 208   |
| Equivalent energy placed (MWh) | 436 800                   | 441 600 |

Source: REN/OMIP

The outcome of the capacity release auctions can be seen in the comparison between the amounts of capacity made available for bidding and the amounts of capacity actually purchased by the agents. The placement of capacity reflects the balance of agents' expectations regarding market energy prices and those at auction. So the VPP2, at the end of 2007, only saw 50 MW placed of the 140 MW up for bidding and the other auctions secured the placing of all the power made available.



**Figure 3-16 - Capacity placed in the VPP auctions**

Source: REN/OMIP

On the whole the entities that acquire capacity at auction can choose one of three options:

- Not to designate the capacity acquired;
- To fully or partly designate the capacity acquired to deliver the energy under a bilateral contract;
- To fully or partly designate the capacity acquired to deliver the energy on the daily market.

An appraisal of the capacity release auctions that were held in 2008 shows that, as there were two major objectives in holding the auctions – to decentralise the wholesale market and to promote access to energy to new entrants into the supply segment – the arbitrage between the auctions and the organised market led to an effective reduction in the concentration of the wholesale market. Most of the agents taking part in the VPPs did not choose the option of allowing access to energy to supply the portfolios of incoming suppliers, a possibility under the auction rules.

### 3.2.3.3 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 classifies or could be classified as an operation towards market concentration. This also applies to the electricity sector. In such cases, the opinion issued by the Competition Authority 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 notified cases involving entities from the energy sector.

In 2008 the Competition Authority issued two decisions regarding operations notified by entities involved in the electricity sector, calling on ERSE to issue the respective opinion reports. These decisions can be consulted on the Competition Authority's website<sup>7</sup> and the respective texts generally refer to the opinion issued by ERSE.

The two transactions considered and decided upon in 2008 related to business concentration operations in which the main generation operator (EDP) was involved. One operation was related to an acquisition in the special generation regime in mainland Portugal and the other to the inclusion in the generation portfolio of a special regime hydropower plant (the Alqueva project).

In the first case (acquisition of SRG) the relevant market is either not fully open to liberalisation or its prices fixing is governed by a specific legal framework.

In the second case, the imposition of measures to reduce the adverse impact on competition of the concentration operation led the Competition Authority to rule that another hydroelectric power station owned by EDP should be assigned to a third operator via a tendering procedure. This meant that from April 2009 the group comprising the Aguieira and Raiva power plants would be run by Iberdrola (winner of the tender) for 5 years.

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<sup>7</sup> <http://www.concorrenca.pt>

## 4 REGULATION AND PERFORMANCE OF THE NATURAL GAS MARKET

### 4.1 REGULATION MATTERS

#### 4.1.1 MECHANISMS FOR CONGESTION MANAGEMENT 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 nomination processes for the said infrastructure.

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

Nominations 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 nominated by the market players must be accounted for according to the forecast portfolio consumption.

Checking mechanisms have been linked to the scheduling and nomination 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 nominated capacities after the checking mechanisms have confirmed the global feasibility of all scheduling and nomination requests. If such feasibility is not confirmed, then the congestion management mechanism described comes into play.

The market players should be sequentially involved in scheduling until nomination 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 are not confirmed in the subsequent scheduling processes are again made available to the market players (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 no. 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 nomination processes.

The congestion management mechanism is activated whenever the overall scheduling and nomination 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 mechanism for resolving congestion applies to specific points in the infrastructure and safeguards two fundamental principles:

- Allocation of capacity shall be based on 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 TARIFFS FOR ACCESS TO NATURAL GAS INFRASTRUCTURE

###### **PROCEDURES AND METHODOLOGY FOR CALCULATING ACCESS TO NATURAL GAS INFRASTRUCTURE TARIFFS**

In 2007 ERSE began to establish tariffs for each regulated activity in the natural gas sector. In accordance with Decree-Law no. 140/2006 of 26 July 2006, in the first gas year of 2007-2008 the ERSE regulation work covers the establishment of the following tariffs: Transmission Use of Network, Use of LNG Reception, Storage and Regasification Terminal and Use of Underground Storage.

In the second gas year, i.e. 2008-2009, ERSE extended its regulation to the activities of Buying and Selling Natural Gas, Distribution and Supply of Natural Gas, establishing the Energy tariff, the Distribution Use of Network Tariff, Supply Tariff, and the resulting End User Tariff.

Tariff calculations must comply with the calculation methodology previously established in the Tariff Regulations. Natural gas tariffs are established once a year and adjusted on quarterly basis. The tariffication process – including its timeframe, is also laid down in the regulations.

The following brief characterisation of the 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 infrastructure 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. 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 last resort suppliers is backed up by the existence of End-User Tariffs applicable to their customers. These tariffs are calculated by adding to the Grid Access Tariffs the Supply Tariff and the Energy tariff. These last two tariffs reflect the commercial management costs incurred by last resort suppliers 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 revenue allowed 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 Medium Pressure Network, Distribution Use of Low Pressure Network, Energy and Supply.

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

#### **GRID ACCESS TARIFFS**

Customers wishing to use the natural gas infrastructure, 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 by activity.

Customers that chose their supplier in the market pay the grid access tariffs and freely negotiate their purchase of natural gas with their supplier.

Calculation of end user tariffs charged by the last resort supplier to its customers is based on the tariffs by 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**

The forms of economic regulation of the various activities associated with the infrastructure of the natural gas sector are set forth in the Tariff Regulations.

ERSE's economic regulation varies, and therefore the procedures used to determine the regulation parameters also differ, depending on the type of activity.

As a rule regulation by accepted costs applies to all regulated activities. But in the case of the four leading companies' distribution of natural gas the accepted costs are based on nominal operating costs, by customer, ascertained in the period preceding the start of the regulation of this activity.

Furthermore, in the infrastructure management activities (apart from underground storage) the capital cost, i.e. costs arising from the remuneration of assets considered for regulatory purposes and the amortisation of such assets, are 'smoothed' for the concession period.

Cost-of-capital smoothing, for each year of concession, is the result of the multiplication of a constant unit capital cost by the amounts of natural gas that will predictably be processed in the framework of the activity. In a markedly young sector, cost-of-capital smoothing helps to share the costs related to infrastructure (i.e. amortisation and remuneration of assets), the capacities of which are not yet fully used, among present and future consumers.

In rate of return regulation the main regulation parameter is the cost-of-capital rate, taken to be the rate for remunerating the asset base accepted for regulation. This parameter is calculated at the beginning of each regulation period. The calculation method is based on the Capital Asset Pricing Model (CAPM). Infrastructure management activities, apart from the distribution of natural gas, attracted a nominal rate of 8%, before tax. A nominal pre-tax rate of 9% applies to the distribution of natural gas.

The regulation period established for regulated natural gas activities is three gas years. The first period is currently running. It began on 1 July 2007 and will end on 30 June 2010. In the case of the activities related to distribution system operators and last resort natural gas suppliers, regulation only began in July 2008, meaning that the first regulation period will only be two years.

#### 4.1.2.2 QUALITY OF SERVICE

The Quality of Service Regulations for the natural gas sector are applied by ERSE and came into force in July 2007. The information in this report relates to the 2007-2008 gas year.

The Quality of Service Regulations for the natural gas sector envisages 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 supplies to customers.

##### LNG Terminal

Continuity of supply provided by the LNG terminal is characterised in Average delay of LNG tank truck loading, based on 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 tanker unloading (h): quotient between the sum of the delays and the total number of delayed unloadings.
- Average real 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 natural gas for the transmission network.

**Table 4-1 - Characterisation of quality of service of the LNG terminal, gas year 2007-2008**

|   | Quarter                               |                                      |                                      |                                      | Annual<br>(July 2007 –<br>June 2008) |
|---|---------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
|   | 1 <sup>st</sup><br>Jul – Sept<br>2007 | 2 <sup>nd</sup><br>Oct – Dec<br>2007 | 3 <sup>rd</sup><br>Jan - Mar<br>2008 | 4 <sup>th</sup><br>Apr – Jun<br>2008 |                                      |
| Number of unloadings from LNG tankers               | 7                                     | 10                                   | 10                                   | 8                                    | 35                                   |
| Number of tank truck loading operations             | 440                                   | 622                                  | 623                                  | 463                                  | 2148                                 |
| Average real time for unloading LNG tankers (hh:mm) | 17:58                                 | 25:18                                | 18:17                                | 19:07                                | 20:25                                |
| Average delay for unloading LNG tankers (hh:mm)     | 0:00                                  | 51:22                                | 0:00                                 | 0:00                                 | 51:22                                |
| Average real time for loading LNG tankers (hh:mm)   | 1:42                                  | 1:43                                 | 1:32                                 | 1:34                                 | 1:37                                 |
| Average delay for loading LNG tankers (hh:mm)       | 0:41                                  | 1:03                                 | 0:25                                 | 0:30                                 | 0:49                                 |
| Compliance with the NG injection assignments (%)    | 100                                   | 100                                  | 100                                  | 100                                  | 100                                  |

Source: REN Atlântico, Terminal de GNL, SA

#### Natural gas transmission network

Continuity of supply of the 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/point of departure): 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.

No interruptions occurred in the 2007-2008 gas year, so the figures for the general continuity indicators were zero.

#### Distribution networks

Continuity of the supply to the distribution networks is given in Table 4-2 by means of the three indicators established for the 2007-2008 gas year:

- Average number of interruptions by customers: 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 by 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 quality of service of the distribution networks, gas year 2007-2008**

|  | Network operator | Number of interruptions | Average number of interruptions per 1000 customers (interruption/1000 customers) | Average duration of interruptions per customer (minutes/customer) | Average duration of interruptions (minutes/interruption) |
|--|------------------|-------------------------|--|---|--|
| Annual figures (2007-2008 gas year)        | Setgás           | 6 875                   | 53   | 17  | 313  |
|  | Portgás          | 2 744                   | 15   | 3   | 177  |
|  | Beiragás         | 219                     | 7  | 1   | 105  |
|  | Tagusgás         | 205                     | 10   | 3   | 289  |
|  | Duriensegás      | 148                     | 9  | 1   | 111  |
|  | Dianagás         | 30                      | 9  | 59  | 6 480  |
|  | Sonorgás         | 0                       | 0  | 0   | 0  |
|  | Medigás          | 0                       | 0  | 0   | 0  |
| Half-yearly figures (January to June 2008) | Lisboagás GDL    | 30 866                  | 68   | 19  | 296  |
|  | Lusitaniagás     | 2                       | 0.01   | 0.001   | 87   |

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

## SUPPLY PRESSURE

In the 2007-2008 gas year the distribution system operators 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. it lasted the entire gas year or only for a fixed period of time.

The pressure levels recorded for all the distribution networks show that there is no abnormal situation occurred nor was there any non-compliance with any regulatory or contractual pressure specification at any of the monitoring points.

### 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. If a market player violates the

maximum and minimum stock limits allocated to it in the transmission network, this 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 are established following a proposal to be made by the transmission system operator, in the context of its global technical management of the system. The imposition of penalties on market agents does not exonerate them from their obligation to correct individual imbalances.

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 operator in its role as global technical manager of the system. 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 in its role as global technical manager of the system.

#### 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 operators and 11 last resort retailers. Only four of these retailers 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.

ERSE embarked on a series of actions to encourage the effective unbundling of activities. These actions were designed to implement codes of conduct intended to ensure that the infrastructure operators observe the criteria of independence and neutrality with respect to the market agents.

In addition to observing the criteria for unbundling activities as established in Directive 2003/54/EC and domestic law, the Tariff Regulations issued by ERSE establish that all regulated companies must adopt accounting unbundling for each of the respective activities mentioned above, as if these were autonomous entities, so that balance sheets and income statements may be obtained for each of them. This information is submitted to ERSE on yearly basis, in terms of both real values and forecasts and estimates for the next years or the current year. The real values for each regulated activity must be audited and have a report attached produced by an independent firm of auditors.

Each of the system operators in Portugal is analysed with respect to the points below.

#### 4.1.3.1 LNG RECEPTION, STORAGE AND REGASIFICATION TERMINAL OPERATOR

The LNG Reception, Storage and Regasification operator – REN Atlântico – is independent, in terms of assets and the other activities in the natural gas sector, and engages in its business on a public service concession basis. The terms of its concession contract were established by Council of Ministers Resolution no. 106/2006 of 3 August. REN Atlântico is the successor to Transgás Atlântico, a GALP group company that had operated this activity since its incorporation in 2004 (the year operations began).

REN Atlântico is 100% owned by REN – Redes Energéticas Nacionais, SGPS, SA.

#### 4.1.3.2 UNDERGROUND STORAGE OPERATORS

There two operators active in the area of underground storage – REN Armazenagem and Transgás Armazenagem. This activity is operated on a public service concession basis and the terms of both concession contracts were laid down in Council of Ministers' Resolutions no. 107/2006 and no. 108/2006, both of 3 August 2006.

Transgás Armazenagem is 100% owned by Galp Gás Natural, SA. REN Armazenagem is 100% owned by REN – Redes Energéticas Nacionais, SGPS, SA.

#### 4.1.3.3 NATURAL GAS TRANSMISSION SYSTEM OPERATOR

The natural gas transmission activity is carried out on a public service concession basis by the operator REN Gasodutos. This company is legally independent, in legal and assets terms, of the distribution and supply activities in the natural gas sector. The terms of the concession contract were established in Council of Ministers Resolution no. 105/2006 of 3 August. REN Gasodutos signed the concession contract with the Portuguese government for a period of 40 years on 26 September 2006.

In carrying out its functions, the transmission system operator has unbundled the following activities:

1. Natural gas transmission.

## 2. Global Technical Management of the System.

The above-mentioned activities developed by the company are unbundled in terms of accounting and organisation.

REN Gasodutos is 100% owned by REN – Redes Energéticas Nacionais, SGPS, SA.

### 4.1.3.4 NATURAL GAS DISTRIBUTION SYSTEM OPERATORS

The natural gas distribution business is carried out on a public service concession basis. There are six concession holders: Beiragás, Lisboagás, Lusitaniagás, Portgás, Setgás and Tagusgás, and five licensed operators: Dianagás, Dourogás, Duriensegás, Medigás and Paxgás.

As of July 2007, the regional distribution concessionaires and the local distribution licence holders with more than 100,000 customers also began to supply gas through legally independent companies, as determined in Decree-Law no. 140/2006 of 26 July. The companies established separately were Portgás, Lisboagás, Setgás and Lusitaniagás.

In performing their allotted tasks, the natural gas distribution system operators must unbundle the following activities:

- Natural gas distribution.
- Access to the RNTGN.

The companies have already unbundled the above-mentioned activities in terms of organisation and accounting.

## 4.2 COMPETITION

### 4.2.1 CHARACTERISATION OF THE WHOLESALE NATURAL GAS MARKET

The Portuguese market is supplied with natural gas through long-term take-or-pay contracts. The main suppliers of natural gas are Algeria and Nigeria.

However, the legal framework for the sector, i.e. that created by the laws published during 2006, has since established both the unbundling of activities and the operation of the sector on a market-driven basis. Hence, some of the natural gas acquired under the take-or-pay supply contracts can be placed on the market through auctions to offload quantities of natural gas.

In 2008 ERSE prepared the first auction to offload quantities of natural gas, as described below. The auction was held in February 2009. The intention was to provide the sector's liberalisation process with stability and offer some degree of predictability to market agents for the planning of their operations. ERSE plans to hold similar auctions in the next two years.

#### 4.2.2 CHARACTERISATION OF THE RETAIL NATURAL GAS MARKET

##### **TARIFF ADDITIVITY APPLIED TO END-USERS**

As explained above, the End-User tariffs charged to customers by the last resort supplier (CUR) are given by adding together the grid access tariffs and the energy and supply tariffs.

This method of determining the tariffs that can be applied by the CUR makes it possible to prevent cross-subsidisation between:

- Monopoly activities (i.e. developed by the grid and other infra-structures) and market activities (supply and sale of natural gas).
- Customers of the last resort supplier with different consumption profiles.
- Customers of the last resort supplier and market-driven customers.
- Last resort suppliers 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 TARIFFS**

The figures that follow give the details of the average price structure of End User tariffs by the various tariffs of which they are composed: Energy tariff, Transmission Use of Network tariff, Global Use of System tariff, Distribution Use of Network tariff and Supply tariff.

Figure 4-1 - Average Price of End User tariffs in 2008-2009

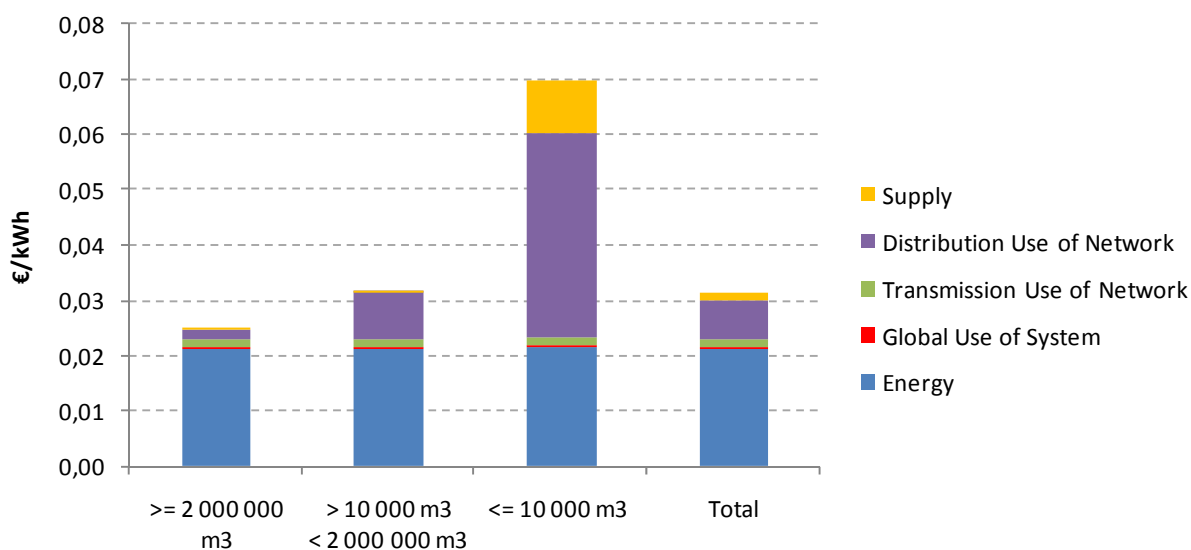
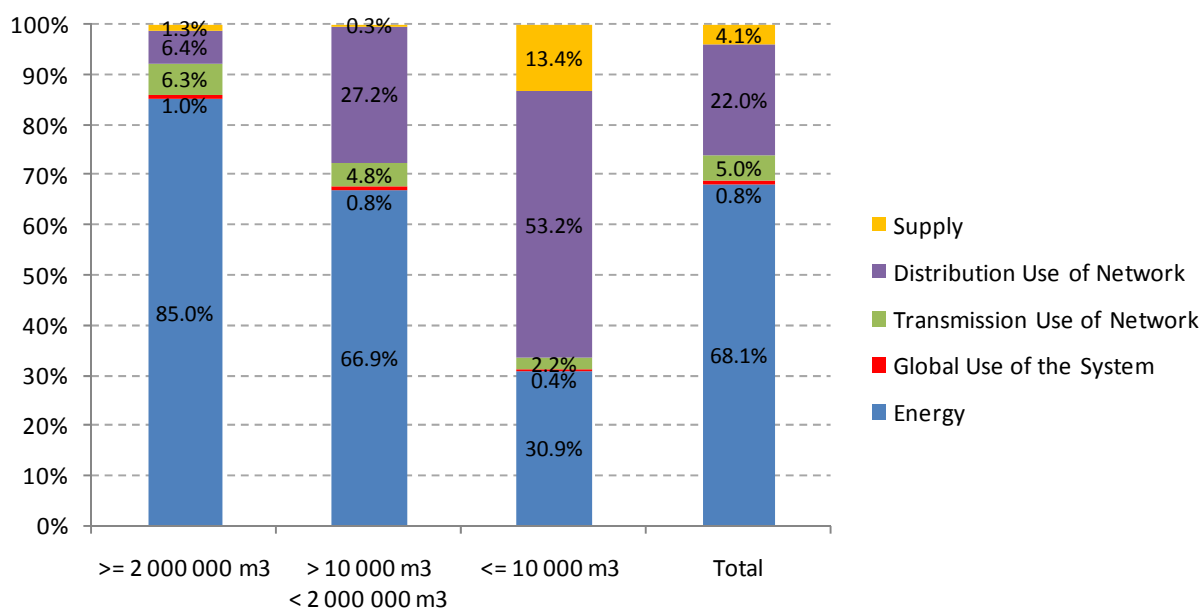


Figure 4-2 - Structure of average end-user tariff price in 2008-2009



## MARKET LIBERALISATION

The timeline for the opening of the market defined in Decree-Law no. 140/2006 of 26 July 2006 establishes that the following can freely choose their supplier on the dates indicated:

- All special regime producers, from 1 January 2007.
- All customers with an annual consumption in excess of 1 million m<sup>3</sup> (n), from 1 January 2008.

- All customers with an annual consumption in excess of 10 000 m<sup>3</sup> (n), from 1 January 2009.
- All customers, from 1 January 2010.

Thus, during 2008 the market was open for power stations and large industrial consumers. However, during the year no changes of suppliers were made in these segments.

The eligible customers can choose between the following natural gas contracting modalities:

- a) Signing a natural gas supply contract with suppliers in the liberalised market.
- b) Signing a natural gas supply contract with last resort suppliers.
- c) Contracting natural gas in the organised markets or through bilateral contracting in the case of customers with market agent status.

Management of the supplier switching process is allocated to the operator of the national transport network (REN Gasodutos), whereby the switching procedures and deadlines are approved by ERSE.

Taking into account the fact that from January 2010 onwards all natural gas customers will have the right to choose their supplier and that, as of 1 January 2009, smaller-sized industrial customers could also do, it was necessary to operationalise the supplier switching procedures. Accordingly, ERSE received from the national transport network operator a first proposal for those procedures in 2008, which were then published in March 2009.

Pursuant to the regulations in force, customers have the right to switch suppliers up to four times in every period of 12 consecutive months and no charge may be made for the change of supplier.

The suppliers are entities that carry out this activity in accordance with the licence or registration issued by the Directorate General for Energy and Geology.

The last resort supplier activity is regulated, with the tariffs and prices practised by the last resort suppliers being approved by ERSE.

The prices practised by market-regime suppliers are free.

Customers that opt for supply in the liberated market can later choose to contract their natural gas supply with the last resort supplier.

### 4.2.3 MEASURES FOR PROMOTING COMPETITION

#### 4.2.3.1 CONCENTRATION OPERATIONS AND RELATIONS WITH THE COMPETITION AUTHORITY

In the context of the respective legal obligations, the Competition Authority must be notified of business operations that is classified or may be classified as concentration operations. This also applies to the natural gas sector. In such cases, the opinion of the Competition Authority must be drawn up taking into account the legal obligations of cooperation and coordination with the regulatory body for the sector. For this reason, ERSE is called upon to give its formal opinion in situations of such notification involving bodies from the energy sector.,

In the course of 2008 the Competition Authority issued two decisions on notified operations by entities operating in the natural gas sector, with ERSE being asked to issue the respective opinion reports. These decisions are available for consultation on the Competition Authority's website.

Of the two operations in the natural gas sector on which decisions were reached in 2008, one had to do with the reorganisation of the sector, with the transfer of the transport network operator assets to one of the distribution system operators. This transfer was related to the need to reallocate the assets in the sector taking into account the implementation of the unbundling of activities defined in the Directive and the legal framework in force. The second operation had to do with the acquisition of exclusive control of one of the distribution and last resort retail companies (Portgás) by an EDP group company (EDP Gás), which already had a majority share in the former, meaning that there was so substantial change in terms of organisation and competition in the sector.

#### 4.2.3.2 NATURAL GAS AUCTIONS

With the aim of dynamising the natural gas market liberalisation process and, thus, fostering competition in the sector, ERSE decided to implement auctions of quantities of natural gas, allowing for the provision of gas to the market-regime suppliers and to eligible consumers that deem it beneficial to acquire natural gas through such auctions.

To this end, the Regulations on the Commercial Relations in the Natural Gas Sector (Art. 60) establishes that GALP Gás Natural, as an SNGN supplier, must carry out annual natural gas auctions in 2009, 2010 and 2011 to the amount of 300 million m<sup>3</sup> (n)/year.

The establishment of the definitive terms and conditions for the auction in the gas year 2009-2010 resulted from a prior consultation by ERSE of those entities that had shown interest in taking part in the auction in advance, on the basis of an initial bid presented by Galp Gás Natural itself.



In December 2008 ERSE approved the terms and conditions for the auction (of 300 million m<sup>3</sup> (n)) for the period from 1 July 2009 to 30 June 2010.

Participation in the auction for 2009/2010 was permitted only to market-regime suppliers and eligible customers (at the time customers with an annual consumption in excess of 10 000 m<sup>3</sup> (n)); they were allowed to purchase maximum amounts of 90 million m<sup>3</sup> (n) and 1.2 times the consumption recorded for the last twelve months respectively.

Special regime power stations and all entities either totally or effectively controlled by the GALP Group were excluded from these auctions.

The auction was held on 10 February 2009, with the placement of all the auctioned quantity. The entity responsible for the technical execution of the auction was OMIP.



## 5 SECURITY OF SUPPLY

### 5.1 ELECTRICITY

#### 5.1.1 BRIEF CHARACTERISATION OF 2008

Electricity consumption continued the growth trend shown the previous year, with a change of 1.0% (1.1% after correction for temperature and number of work days).

The year 2008 was the 5th consecutive year in which hydroelectric power capacity was below average, with a hidraulicity index of 0.56 being registered. The hydroelectric power stations covered 11% of consumption, while thermal power stations accounted for 47%. The deliveries from Special Regime Producers were up 14% over 2007, reaching 23% of total national consumption.

The exchanges with Spain were the highest ever, with the import balance supplying 19% of the energy consumed.

In 2008 there were no alterations to the installed capacity in special Regime thermal or hydro power stations. The total installed capacity for the special regime was 718 MW, corresponding to 98 MW for thermal generators, 5 MW for hydraulic generators, 576 MW for wind generators, 37 MW for photovoltaic generators and 2 MW for wave-based energy.

In the National Transport Network, one can highlight the entry into service of the Vila Pouca de Aguiar and Macedo de Cavaleiros substations, which are part of the new 220 kV line in the Trás-os-Montes interior. These investments are important for improving quality of service and reinforcing the capacity of reception of energy from renewable sources in the region.

The new substations at Frades (Vieira do Minho) and Carvoeira (Torres Vedras) also went into service. Both are important for receiving new wind energy production. The Carrapatelo switching station was amplified, with the introduction of 220/60 kV transformation, thus giving the substation the capacity to receive wind energy at the 60 kV level.

In terms of service quality, the Equivalent Interruption Time was 1.3 minutes.

The breakdown of electricity generation by energy source is shown in Table 5-1.

**Table 5-1 - Breakdown of generation**

|                | 2008 | 2007 | 2006 | 2005 | 2004 |
|----------------|------|------|------|------|------|
| Gas            | 24%  | 21%  | 20%  | 24%  | 21%  |
| Import balance | 19%  | 15%  | 11%  | 14%  | 14%  |
| Fuel oil       | 2%   | 2%   | 3%   | 10%  | 4%   |
| Coal           | 21%  | 23%  | 28%  | 30%  | 31%  |
| Hydro          | 11%  | 19%  | 20%  | 9%   | 20%  |
| Special Regime | 23%  | 20%  | 18%  | 13%  | 10%  |

Source: 2008 data obtained from REN (Technical Data 2008)

Table 5-2 shows how consumption needs were met by the respective generation types.

**Table 5-2 - Consumption supply**

|                    | 2008<br>(GWh) | 2007<br>(GWh) | Change<br>(%) |
|--------------------|---------------|---------------|---------------|
| HYDRO GENERATION   | 6436          | 9522          | -32           |
| THERMAL GENERATION | 23797         | 23424         | 2             |
| SPECIAL REGIME     | 11551         | 10156         | 14            |
| IMPORT BALANCE     | 9431          | 7488          | 26            |
| HYDROPOWER PUMPING | 639           | 540           | 18            |
| TOTAL CONSUMPTION  | 50574         | 50050         | 1             |

Source: 2008 data obtained from REN (Technical Data 2008)

The maximum power demanded of the public network was 8959 MW on 2 December, which is approximately 150 MW less than the maximum value registered in December 2007 and inverts the growth trend observed in recent years.

The trend in maximum annual peak demand is presented in Table 5-3.

**Table 5-3 - Maximum annual peak demand**

| Year | Day    | Power (MW) | Change (%) |
|------|--------|------------|------------|
| 2008 | 2-Dec  | 8959       | -1.66      |
| 2007 | 18-Dec | 9110       | 3.48       |
| 2006 | 30-Jan | 8804       | 3.24       |
| 2005 | 27-Jan | 8528       | 3.38       |
| 2004 | 09-Dec | 8249       | 2.52       |

Source: 2008 data obtained from REN (Technical Data 2008)

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

**Table 5-4 - Installed capacity**

|                                   | 2008<br>(MW) | 2007<br>(MW) | Change<br>(MW) |
|-----------------------------------|--------------|--------------|----------------|
| HYDROPOWER PLANTS                 | 4578         | 4578         | 0              |
| THERMAL POWER PLANTS              | 5820         | 5820         | 0              |
| Coal                              | 1776         | 1776         | 0              |
| Fuel oil                          | 1476         | 1476         | 0              |
| Fuel oil / Natural gas            | 236          | 236          | 0              |
| Diesel                            | 165          | 165          | 0              |
| Natural gas                       | 2166         | 2166         | 0              |
| SPECIAL REGIME INSTALLED CAPACITY | 4518         | 3800         | 718            |
| Thermal generators                | 1463         | 1365         | 98             |
| Hydro generators                  | 379          | 374          | 5              |
| Wind generators                   | 2624         | 2048         | 576            |
| Photovoltaic generators           | 50           | 13           | 37             |
| Wave energy generators            | 2            | 0            | 2              |
| TOTAL                             | 14916        | 14198        | 718            |

Source: REN (Technical Data 2008)

Table 5-5 shows the evolution in the installed capacity and the maximum demanded power.

**Table 5-5 - Capacity margin**

|                       | 2008<br>(MW)  | 2007<br>(MW)  | 2006<br>(MW)  | 2005<br>(MW)  | 2004<br>(MW)  | 2008/2004<br>Change<br>(%) |
|-----------------------|---------------|---------------|---------------|---------------|---------------|----------------------------|
| Total installed power | 14196         | 14041         | 13621         | 12821         | 11708         | 1.21                       |
| Thermal               | 5820          | 5820          | 5852          | 5851          | 5460          | 1.07                       |
| Hidro                 | 4578          | 4582          | 4582          | 4582          | 4386          | 1.04                       |
| Special Regime        | 4518          | 3639          | 3187          | 2388          | 1862          | 2.43                       |
| Maximum annual power  | 8959          | 9110          | 8804          | 8528          | 8249          | 1.09                       |
| Capacity margin       | 5237<br>(37%) | 4931<br>(35%) | 4817<br>(35%) | 4293<br>(33%) | 3459<br>(30%) | 1.51                       |

Source: 2008 data obtained from REN (Technical Data 2008)

## 5.1.2 NETWORK PLANNING AND INVESTMENT IN GENERATION

### NEW INVESTMENTS IN GENERATION

In terms of new investments planned in special regime generation, there were no alterations to the situation in the previous year. The observations made in the report for that year remain valid as far as the evolution of the existing power plant network is concerned, both in terms of new groups and in terms of the declassification of existing ones.

With respect to the targets fixed for special regime generation there were no changes either, and the targets presented in last year's report remain valid for 2010.

As for as the special regime generation remuneration system is concerned, the price is established by the government and depends on the technology and the diagram of delivery to the network. The charge<sup>8</sup> resulting from this initiative is covered by the Global Use of System tariff.

<sup>8</sup> Calculated as the difference between the price paid to special regime generation and the average price paid in the market or by bilateral contracting.

## 5.2 GAS

### 5.2.1 BRIEF CHARACTERISATION OF 2008<sup>9</sup>

Demand for natural gas in 2008 was up 9.7% over the year 2007, with an increase of 11.7% being registered for the period 2005 to 2008. Demand for natural gas in the electricity market in 2008 rose by 18.2% as compared to the previous year, surpassing the demand registered in 2005 after two years of a drop in demand. In 2008 a considerable increase of 5.7% in the demand for natural gas was also registered in the Regional Distribution segment along with stagnating figures in the Large Customer segment.

The demand for natural gas by segment since 2005 is shown in the following table:

**Table 5-6 - Trend in demand for natural gas**

|                                    | 2008 | 2007 | 2006 | 2005 | Change<br>2008-2007<br>[%] | Change<br>2008-2005<br>[%] |
|------------------------------------|------|------|------|------|----------------------------|----------------------------|
| <b>Electricity market [TWh]</b>    | 25.3 | 21.4 | 20.1 | 23.3 | 18.2                       | 8.6                        |
| <b>Large-scale Industry [TWh]</b>  | 18.9 | 18.7 | 17.7 | 16.9 | 1.1                        | 11.8                       |
| <b>Regional distribution [TWh]</b> | 9.3  | 8.8  | 8.1  | 7.7  | 5.7                        | 20.8                       |
| <b>Total demand [TWh]</b>          | 53.5 | 48.9 | 45.9 | 47.9 | 9.4                        | 11.7                       |

Source: REN Gasodutos

### 5.2.2 SECURITY OF SUPPLY IN THE NATIONAL NATURAL GAS SYSTEM

Decree-Law no. 140/2006 of 26 June establishes 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 contracts for supply of natural gas.
- Development of interruptible demand.

<sup>9</sup> The analysis in this point is based on a time frame from January to December of each year.

- 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

Pursuant to Decree-Law no. 140/2006 of 26 July, the market agents operating in Portuguese territory are obliged to establish and maintain security reserves which may be no less than 15 days of non-interruptible consumption by the special regime electricity generators and 20 days of the remaining non-interruptible consumption levels.

The security reserves are first and foremost established in natural gas storage facilities located on Portuguese territory, except where bilateral agreements provide for the possibility of creating security reserves in other countries. The latter situation requires the express authorisation of the minister responsible for energy.

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

#### 5.2.2.2 UNDERGROUND STORAGE OF NATURAL GAS

In simplified terms, the underground natural gas storage infrastructure consists of four underground caverns built in natural salt formations that use one single surface station. The RNTIAT Development and Investment Plan (PDIR) provides for the construction of a further five underground caverns.

Table 5-7 presents the useful storage capacities of the caverns in the underground storage facility at Carriço, as well as the capacity for injection of natural gas into the RNTGN in 2008.



**Table 5-7 - Useful storage capacity and capacity of injection into the RNTGN in 2008**

| Underground cavern                    | Storage capacity [m <sup>3</sup> ] | Capacity of injection into the RNTGN [m <sup>3</sup> (n)/h] |
|---------------------------------------|------------------------------------|---|
| <b>TGC-3</b>                          | 530 000                            | 300 000   |
| <b>TGC-5</b>                          | 470 000                            |   |
| <b>TGC-1S</b>                         | 360 000                            |   |
| <b>TGC-4<br/>(under construction)</b> | 550 000                            |   |

Source: Transgás Armazenagem

### 5.2.2.3 LNG TERMINAL

Security of supply and the need to diversify natural gas supply sources led to the decision to build an LNG terminal in Sines in the late 1990s. The infrastructure went into operation in early 2004 and now has a maximum LNG storage capacity of 240 000 m<sup>3</sup>, a nominal capacity of injection into the RNTGN of 600 000 m<sup>3</sup>(n)/h and a maximum injection capacity of 900 000 m<sup>3</sup>(n)/h.

The activity at the Sines LNG terminal in 2008 in terms of the number of LNG tankers unloaded and number of LNG tank trucks filled is presented in Table 5-8.

**Table 5-8 - LNG terminal activity – unloading of LNG**

|  | 2008 | 2007 | 2006 | 2005 | Change<br>2008-2007<br>[%] | Change<br>2008-2005<br>[%] |
|--|------|------|------|------|----------------------------|----------------------------|
| <b>Total number of LNG tankers received</b>              | 35   | 35   | 28   | 23   | 0                          | 52                         |
| <b>Total LNG unloaded [Mm<sup>3</sup><sub>GNL</sub>]</b> | 4.6  | 4.6  | 3.46 | 2.88 | 0                          | 60                         |
| <b>Total number of LNG tank trucks filled</b>            | 2097 | 2265 | 1618 | 1059 | -7.4                       | 90                         |

Source: REN Atlântico

The number of LNG tankers that Transgás Atlântico received and unloaded in 2008 was the same as the previous year. However, the number of LNG tankers registered represents an increase of 52% over 2005, translating to an increase of 60% in the total LNG unloaded at the terminal.

As far as LNG tank trucks are concerned, there was a slight decrease in numbers in relation to 2007, reversing the trend of previous years. The total quantity of LNG shipped represented only 2% of the total energy handled by the terminal.

The PDIR, submitted by the REN group for approval by the minister responsible for the area of energy, provided for a substantial increase in the reception, storage and regasification capacity of the Sines LNG terminal through the adaptation of the jetty for unloading larger-sized LNG tankers, the construction of the third LNG tank (with a useful volume 150 000 m<sup>3</sup> LNG), the expansion of the nominal injection capacity into the RNTGN to 1 350 000 m<sup>3</sup>(n)/h and the increase of flexibility and operational safety of the infrastructure.

#### 5.2.2.4 IMPORT AND DIVERSIFICATION OF SUPPLY SOURCES

The amount of natural gas that entered into the National Natural Gas Transport Network in the year 2008 was 53.9 TWh (4.53 bcm<sup>10</sup>), of which 0.5 TWh (0.039 bcm) were in transit. The maximum natural gas import capacity by gas pipeline is 8.95 bcm, which shows that capacity is currently available for rapid development of the sector.

In 2008 the natural gas entered the transmission system at the Sines LNG terminal connection point (57%) and the international connection point at Campo Maior (43%). The natural gas processed in Sines and conveyed through the Campo Maior interconnection comes mostly from Nigeria and Algeria respectively, on the basis of existing-long term natural gas supply contracts.

Table 5-9 presents the RNTGN natural gas balance in for the years 2008, 2007 and 2006.

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<sup>10</sup> 1 bcm (billion cubic meters) = 10<sup>9</sup> m<sup>3</sup>.

Table 5-9 - RNTGN gas balance

|                                   | 2008        | 2007        | 2006        | Change<br>2008-2007<br>[%] | Change<br>2008-2006<br>[%] |
|-----------------------------------|-------------|-------------|-------------|----------------------------|----------------------------|
| <b>GAS ENTERING [TWh]</b>         | <b>53.9</b> | <b>51.1</b> | <b>51.7</b> | 5.5                        | 4.3                        |
| <b>Interconnections [TWh]</b>     | 23.4        | 18.3        | 27.8        | 28                         | -15.8                      |
| • Domestic market                 | 23.0        | 16.4        | 23.4        | 40.2                       | -1.7                       |
| • Transit                         | 0.5         | 1.9         | 4.4         | -73.7                      | -88.6                      |
| <b>LNG terminal [TWh]</b>         | 30.1        | 31.5        | 23.1        | -4.3                       | 30.3                       |
| <b>Storage - extraction [TWh]</b> | 0.3         | 1.3         | 0.8         | -74.8                      | -62.5                      |
| <b>GAS LEAVING [GWh]</b>          | <b>53.9</b> | <b>51.3</b> | <b>51.9</b> | 5.1                        | 3.8                        |
| <b>GRMS [TWh]</b>                 | 53.0        | 48.5        | 45.9        | 9.4                        | 15.5                       |
| <b>Storage – injection [TWh]</b>  | 0.4         | 0.9         | 1.5         | -52.9                      | -73.3                      |
| <b>Interconnections [TWh]</b>     | 0.5         | 1.9         | 4.55        | -75.4                      | -89.0                      |
| • International market            | 0           | 0           | 0.15        | ---                        | -100                       |
| • Transit                         | 0.5         | 1.9         | 4.4         | -75.4                      | -88.6                      |

Source: REN Gasodutos

#### 5.2.2.5 LONG-TERM SUPPLY CONTRACTS

Galp – Gás Natural, S.A., a Galp Energia group company, is the holder of the long-term take-or-pay contracts for the supply of natural gas.

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

The following is a summary of the main characteristics of the supply contracts.

#### NATURAL GAS PURCHASE CONTRACT WITH SONATRACH

This contract establishes the obligation, on the part of Sonatrach, to supply specific quantities of natural gas to Transgás, now known as Galp Gás Natural, as well as Galp Gás Natural's obligation to acquire and pay for those quantities, whether they are used or not. Sonatrach is obliged to ensure an annual supply 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**

There are three contracts for the purchase of LNG from Nigerian LNG, Limited. They were signed for a period of 20 years.

The quantity of LNG established in the first of these contracts is 0.42 bcm, with the supplies having begun in 2000. Deliveries can be made in Huelva, Cartagena or Sines.

The quantity of LNG contracted in the second contract is 1 bcm. The supplies began in 2002.

The quantity of LNG contracted in the third contract is 2 bcm, with supplies beginning in 2006. The deliveries can be made at any terminal on the Spanish Mediterranean coast or in Sines.

### **DEFINITION AND IMPLEMENTATION OF EMERGENCY MEASURES**

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

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 LEGISLATIVE OCCURRENCES

The year 2008 saw the publication of two laws with very important consequences in matters of public service obligations. One was Law no. 12/2008 of 26 February, which revised the law on essential public services, and the other was Law no. 51/2008 of 27 August, which is known as the labelling law.

- **Essential public services law** – Law no. 23/96 of 26 July added to Portuguese law a set of mechanisms aimed at protecting the user of essential public services, which expressly include electricity and natural gas supply services. The publication of Law no. 12/2008 reiterated and reinforced some of the consumers' rights with respect to these essential services, of which one can highlight the following aspects:
  - Placement of the burden of proof on the providers of the essential public service providers.
  - Better definition of the rules in matters of termination (limitation and lapse) of the rights of the essential public service providers.
  - Anchoring of the right to the monthly billing regularity.
  - Time limit for payment of bills fixed at 10 working days.
  - Extension, to 10 days, of the minimum period of warning of the interruption of supply.
  - Establishment of suspensive effect on deadlines for the filing of legal action when alternative dispute resolution methods are used for disputes arising from supplier-consumer relations.

The business relations regulations applicable the electricity and natural gas sectors were altered in 2008 to include the rules described above.

- **Labelling law** – Law no. 51/2008 made it mandatory for all electricity suppliers to include the following information in their bills:
  - The origin of the electricity they purchased and sold to their customers (as a percentage).
  - The environmental impacts associated with the supply of electricity.

Labelling has two fundamental objectives:

- Informing consumers about the product they consume, with special reference to the primary energy resources used in generating electricity and the environmental impacts associated with the supply.
- Making it possible for consumers to differentiate between electricity suppliers and thus fostering competition in the market.

Even before publication of the labelling law, though it was in 2008, ERSE drew up and broadcast a recommendation on the issue. The recommendation, which took the subsequent publication of the labelling law into account, proposes to the suppliers a uniform format and calculation method for the information to be provided pursuant to the applicable legislation and regulations to allow a comparative analysis of the various suppliers. The ERSE recommendation on labelling is available for consultation on the ERSE website, [www.erse.pt](http://www.erse.pt).

## 6.2 SOCIAL TARIFF

In Portugal there is a tariff option, known as the Social Tariff, which is exclusively for electricity consumption at permanent residence addresses in which it is also possible to carry out a professional activity but where the contracted power is 2.3 kVA and the annual consumption may not exceed 400 kWh. The Social Tariff represents a discount in the price for the contracted power that corresponds to ¼ of the price for the same potência in the “Simple Tariff” option.

In mainland Portugal there were 3 799 electricity customers using the Social Tariff in 2008.

## 6.3 LAST RESORT SUPPLIERS

The last resort suppliers are entities that have a licence for the sale of energy issued by the Directorate General for Energy and Geology, which comes with public service obligations, guaranteeing, in particular, the supply to those consumers that request it that do not opt for any other supplier in the market.

All prices practised by the last resort suppliers are fixed by ERSE as a result of the regulations governing their activities. The government, by means of specific legislation, appoints the last resort suppliers and defines their functions in the electricity and natural gas sectors.

In the natural gas sector we have two last resort supplier categories: the wholesale and the retail last resort supplier. The wholesale last resort supplier is obliged to guarantee the supply of natural gas to the retail last resort suppliers and to large corporate customers with an annual natural gas consumption of 2 million m<sup>3</sup> (n) or more that do not exercise their right of eligibility. The last resort retailers have an obligation to supply natural gas to consumers with an annual consumption of less than 2 million m<sup>3</sup> (n).

Natural gas consumers that consume no more than 10 000 m<sup>3</sup> (n) will only be able to freely choose their supplier from 1 January 2010 onwards. Until that date the obligation will remain for the consumer to purchase gas from the last resort supplier that holds the licence for the geographic area in which the respective natural gas installations are located.

## **6.4 INTERRUPTIONS IN SUPPLY**

Interruptions in the supply of electricity or natural gas for reasons imputable to the customer can only take place after the distribution system operator sends a written warning of interruption with at least 10 days' advance notice in relation to the date on which an interruption is to take effect. Exceptions are cases of the transfer of energy to third parties or failure to comply with rules regarding the safety of persons and goods.

The written interruption warning must indicate the reason for the interruption, the ways in which the customer can avoid it, the conditions for the re-establishment of supply and the prices in force for the interruption and reconnection services.

In mainland Portugal in 2008 there were 341 580 electricity supply interruptions for reasons imputable to the customer. In the natural gas sector, in the same time period and in mainland Portugal, the number of interruptions for reasons imputable to the customer was 31 602.

## **6.5 GENERAL CONTRACTUAL TERMS AND CONDITIONS**

### **6.5.1 NATURAL GAS SUPPLY CONTRACTS BETWEEN LAST RESORT RETAILERS AND CUSTOMERS WITH AN ANNUAL CONSUMPTION OF 10 000 M<sup>3</sup> (N) OR LESS**

Law no. 12/2008 made significant amendments to the law on essential public services, which were incorporated into the Commercial Relations Regulations for the natural gas sector.

These regulations stipulate that ERSE is responsible for approving the general terms and conditions relating to the natural gas supply contracts to be signed by the last resort retailers and customers with an annual consumption of up to but not exceeding 10 000 m<sup>3</sup> (n), which took place in 2007.

However, taking into account the new rules on commercial and contractual relations introduced by Law no. 12/2008, ERSE approved a number of alterations to the general contractual terms and conditions referred to in the preceding paragraph and re-published them in August 2008.

### **6.5.2 NATURAL GAS SUPPLY CONTRACT BETWEEN THE LAST RESORT WHOLESALER AND THE LAST RESORT RETAILERS**

The wholesale natural gas last resort supplier is called upon to ensure, as a priority, the supply of natural gas to the retail last resort suppliers. In turn, the last resort retailers are obliged to purchase their natural gas from the last resort wholesaler, again as a priority, thus helping to maintain the overall balance of the SNGN.

In March 2008 ERSE approved the general terms and conditions to be included in the supply contracts to be signed by the last resort wholesale and last resort retail suppliers. The approval by ERSE of these general contractual terms and conditions is founded on the public interest that underlies the guarantee of supply of natural gas, while at the same time trying to obtain legal security and non-discrimination between the parties to the commercial relations identified.

### **6.5.3 CONTRACT FOR THE USE OF THE NATURAL GAS DISTRIBUTION NETWORK**

The commercial relations between the suppliers and infrastructure operators is defined in contracts for the use of said infrastructures to which the former require access.

Pursuant of the Regulations on Access to Networks, Infrastructures and Interconnections in the natural gas sector, the general contractual terms and conditions for the use of the infrastructures and the natural gas transport and distribution networks are approved by ERSE. In this context, following a joint proposal by the distribution system operators and consultation with the other market agents, in January 2008 ERSE approved the general contractual terms and conditions governing access to the natural gas National Distribution Network by the supplier and other market agents.

## **6.6 END USER TARIFFS**

### **ELECTRICITY**

The regulated End User tariffs are offered by the last resort supplier to all electricity consumers. All consumers that opt for a market supplier may return to the last resort tariff at any given moment without the need for any specific return clause.

The last resort supplier tariffs are approved and published by the regulator, which determines the allowed revenue for the activities of energy supply and last resort supply. The last resort tariffs are equal to the sum of the network access tariffs (applicable to all consumers regardless of the supplier) and the energy and marketing costs. The level of the last resort tariff prices is presented in Chapter 3.

The regulated costs of the supply of electricity by the last resort supplier reflect estimated values for the conditions in the wholesale market. In the context of international agreements, the last resort supplier is obliged to contract part of its energy in the futures market and another part in quarterly auctions. The best forecasts as to the evolution of the costs in the wholesale market in the coming year are taken into account when the regulated last resort tariffs are fixed each year.

The last resort supply activity is regulated by ERSE. Accordingly, the regulator must ensure the economic and financial viability of the last resort supplier in efficient operating conditions.



## NATURAL GAS

The regulated end user sales tariffs are offered by the last resort suppliers to all end consumers of natural gas. Consumers that opt for a market supplier may return to the last resort tariff at any given moment without the need for any specific return clause. Special regime power plants (with the exception of small generators and cogeneration plants) do not have access to the last resort supplier tariff.

The last resort supplier tariffs are approved and published by the regulator, which determines the permissible income for the activities of energy supply and last resort commercialisation. The last resort tariffs are equal to the sum of the network grid access tariffs (applicable to all consumers regardless of the supplier) and the energy and supply costs. The level of the last resort tariff prices is presented in Chapter 4.

The regulated cost for the supply of natural gas for the last resort suppliers reflect the estimates for the conditions of last resort supply, which are essentially contained in long-term supply contracts with the generators. The annual fixing of the regulated last resort tariffs takes into account the best forecasts for the evolution of the supply costs in these contracts in the coming year. On a quarterly basis the last resort tariffs applicable to end users with an annual demand in excess of 10 000 m<sup>3</sup> are revised so as to reflect the real development in terms of supply costs.

The last resort supply activity is regulated by ERSE. Accordingly, the regulator must ensure the economic and financial viability of the last resort supplier in efficient operating conditions.