CNMC

COMISIÓN NACIONAL DE LOS MERCADOS Y LA COMPETENCIA

# SPANISH ENERGY REGULATOR'S NATIONAL REPORT TO THE EUROPEAN COMMISSION 2017

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## 1. Foreword

The year 2016 witnessed intense activity in the context of European energy regulation and, at national level, regarding the process of completion of the Iberian gas market.

In November 2016 the EC launched the so called "Clean Energy Package" which aims at providing a strong market pull for new technologies, setting the right conditions for investors, empowering consumers, making energy markets work better and helping the EU meet the climate targets agreed at the Paris climate conference.

The coming months will represent a unique opportunity for both Member States and European institutions to negotiate and approve new regulatory measures that should deliver liberalised, integrated, sustainable and secure energy markets for the benefit of all energy consumers.

"Clean Energy for All Europeans" constitutes a very ambitious legislative proposal which covers energy efficiency, renewable energy, the design of the electricity market, security of electricity supply and governance rules for the Energy Union regarding the energy system. In this context, EU National Regulatory Authorities agree that regulation must be flexible, promoting competition and innovation, and we welcome the EC's efforts to restore price signals to markets through scarcity pricing, to integrate RES into the electricity market and to maximise cross-border transport capacity.

At the same time, however, regional cooperation has received new impetus in the Energy Union Strategy, more as part of the "permanent" Internal Energy Market design than as a stepping-stone towards it. In this context, it is fair to look back and acknowledge the key role played by the EC and ACER in the promotion of regional and EU-wide market integration. The CNMC is proud to be contributing to this process in several ways:

- Hosting the gas regulatory Forum (Madrid Forum).
- Chairing the ACER/CEER Electricity Working Group, which during 2016 mainly focused on the implementation of the Capacity Allocation and Congestion Management Guideline towards the electricity market integration.
- Leading the South region of the Gas Regional Initiative, where the focus is on the implementation of the Network Codes and, more generally, on market integration towards the completion of the Internal Gas Market.
- Monitoring and boosting further integration in MIBEL.

In this regionalisation process it is important to mention the progress achieved in the creation of the Iberian gas market last year.

The Iberian natural gas and LNG market comprises the Spanish and Portuguese gas systems, with nearly 7.5 million consumers and above 400 TWh of total consumption. Neither gas system has significant gas production of their own, which implies that virtually all NG consumed in Iberia is imported, either via pipeline or via LNG tankers.

It is well known that the 1998 Spanish Hydrocarbon Act was amended in 2015 by Act 8/2015, which among other things set up an organised natural gas market that facilitates the entry of new marketers and fosters competition. It also appoints a new single operator which manages

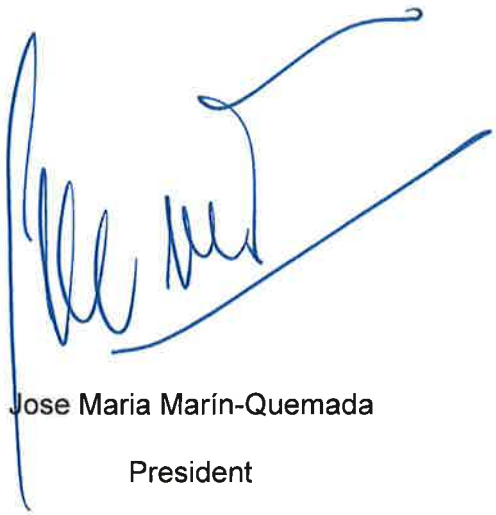
the gas hub. Accordingly, the Organised Gas Market has a platform for trading in gas products to be delivered at the Virtual Balancing Point and other local points in the gas system for different time horizons. Therefore, all shippers, distributors, retailers and direct consumers may buy or sell gas via these products according to their commitments and needs. Likewise, and pursuant to the Code on the balancing network, the Technical Manager of the gas system participates in the Organised Gas Market in order to purchase or sell the gas required to enable it to perform its balancing actions and ensure the viability of the programmes.

In 2016 some additional regulatory measures have been approved in order to increase market liquidity. These measures have ensured the availability of daily price quotes, and have also increased de trading volume in MIBGAS products.

Regarding the electricity market, a number of necessary regulatory measures were approved during the first half of 2016 in order to complete the remuneration models for the activities of electricity transmission and distribution. The corresponding provisions that set the recognised cost of these activities for the year 2016, which were calculated for the first time by applying their respective new remuneration models, were also approved.

With this in mind, 2016 can be considered as the first year in which the new regulatory framework of the electricity sector has been fully implemented following the reform of the regulation initiated in 2013 with the approval of Royal Decree-Law 9/2013, which adopted urgent measures to guarantee the financial stability of the electricity system.

The new regulatory framework was consolidated following the publication of Act 24/2013 of the Electricity Sector, which repeals Act 54/1997 with the exception of some of its additional provisions, and through the regulatory development of Act 24/2013 during the last three years. Therefore, international cooperation and the regional integration of the electricity and natural gas markets in the Iberian Peninsula are priorities in the governance of both sectors and in the actions undertaken during the year, aimed at ensuring better conditions for producers/operators and consumers. The coming year will present as many challenges as the previous one, but I am confident that our regulatory actions, in cooperation with our European counterparts, will deliver significant benefits to energy consumers in Spain and throughout Europe.



Jose Maria Marín-Quemada

President

## 2. Main developments in the gas and electricity markets

### 2.1. Electricity market

- Regulatory changes

No major changes to the high level regulation of the power sector were approved in 2016; among detailed, lower level dispositions, the following are deemed the most significant:

Royal Decree 56/2016, of 12th February partially transposes Directive 2012/27/EU, of 25th October, on energy efficiency, namely as relates to energy audits, efficiency promotion in heating & cooling systems and certification of energy services companies. Closely related, Ministerial Order IET/359/2017, of 17th March, set compulsory contributions to provide for the energy efficiency national fund, with a target saving rated above 3 TWh for 2016.

As regards distribution and transmission, Ministerial Orders IET/980/2016 and IET/981/2016 were approved in June, by which remuneration for said activities was respectively set at approximately 5.162 and 1.709 millions of euros. Also Order IET/1451/2016 established the percentages by which power companies involved in production and supplying activities support their share of the cost of the so-called 'bono social' (reduced price for vulnerable consumers).

- Market developments

Cross border balancing exchanges between Portugal and Spain, and between Spain and France under the BALIT platform increased again in 2016 —especially concerning exports of balancing energy from the Spanish system to the neighbouring ones— thus increasing the efficiency of the balancing market in the region. Building on this positive experience, the TERRE (Trans European Replacement Reserve Exchange) project has been developed as a pilot initiative for the interexchange of cross-border Replacement Reserve (RR). In 2016, the TERRE project progressed through its design phase under the legal scope of a Memorandum of Understanding (MoU) and Non-Disclosure Agreement (NDA), included in a public consultation launched in March.

Concerning the wholesale power market, in 2016 183.97 TWh were sold in the Spanish zone of the organised day-ahead spot market, while in the intraday market, 28.21 TWh were sold in the Spanish zone. Moreover, during 2016 bilateral contracts represented 30% of the sold energy in the daily programme (PBF: Functioning Base Programme).The weighted average spot market price was 48,51 €/MWh (significantly lower than previous year; the average in the first five months laid below 29 €/MWh). The daily market price has represented in Spain 84% of the final price. Since February 2016, also renewable generators may qualify to participate in balancing markets, which has enhanced competition in this segment.

As for the retail market, in May 2016 CNMC approved its report on the regulated commercial margin allowed as part of the so-called 'voluntary price for small consumers', which is applied to more than 12 millions of customers (42% of the ones entitled to such regulated price). The roll-out of smarts meters reached in 2016 a 75% coverage (full deployment expected by end of 2018).

As regards security of supply, the levels of generation available and demand remained stable in 2016. In the short and medium term, the expectation is that enough resources will be available to cover demand.

## 2.2. Gas market

In 2016, the Spanish gas demand increased a 2,1%, to 321.009 GWh. From 2008 to 2014, the gas demand felt a 33%, mainly for the decrease in gas consumption for electricity generation. In 2015 gas demand increased for first time since 2008, and in 2016 it increased for the second consecutive year since 2008. It should be noted that gas demand did not increase in all sectors: electricity generation with natural gas (-2,6%) remain similar to the previous year; the industrial consumption of gas increased a 3,2%, mainly as a result of a recovery of industrial activity. Finally, the household consumption increased a 3,3% in 2016, as a result of lower temperatures in the last quarter of 2016 and the increase of 86.800 new gas consumers.

Gas import prices decreased drastically in the first half of 2016, continuing the decrease started in 2015. A majority of long term contract are oil-indexed and gas prices track oil with a time lag of several months, so their effects are further observable in 2016. It is worth mentioning the significant decrease in LNG re-exports from Spanish LNG terminals: 2 operations performed accumulated a total of 1,2 TWh, which means a 7,7% of the volume re-exported the previous year. The Asian Spot LNG price, that might influence the Spanish gas price, kept close to European markets during the first half of the year 2016, but then Asian price increased in June and remained 4-6 €/MWh above the European prices which also increased since September. At retail market, household prices followed this trend rising at the end of the year, and the switching rate increased up to 12,5 %.

Regarding the regulatory aspects, the main developments in the Spanish gas markets in 2016 were the creation of a gas exchange and the implementation of the balancing network code.

- Creation of a gas exchange (MIBGAS)

Act 8/2015, dated May 21st, amending the Gas Act (Act 34/1998, dated October 7th, of the hydrocarbons Sector), established the implementation of a gas exchange and appointed MIBGAS S.A. as the Iberian gas market operator. The MIBGAS' shareholders include the TSOs of Spain and Portugal (ENAGAS and REN), and the Electricity Market operators from both countries (OMEL and OMIP).

In October 2015, the Royal Decree 984/2015 was approved, which regulates the principles of the gas exchange, where users can buy and sell gas through free and anonymous transactions. In development of this Royal Decree, Decision of the Ministry of Energy, dated 4th December 2015, approved the detailed rules of functioning of the gas exchange.

Finally, trading activity at the MIBGAS gas exchange started on December 16th 2015.

Based on the principles of the Gas Target model, MIBGAS has a platform for trading gas products to be delivered at the Spanish Virtual Balancing Point (PVB) for different time horizons. All shippers, retailers and big consumers may buy or sell gas via these products according to their commitments and needs. Likewise, and pursuant to the balancing network code, the Technical Manager of the Gas System is able to participate in MIBGAS market in order to

purchase or sell the gas required to enable it to perform its balancing actions and ensure the viability of the grid.

Trade in the market is organised into Trading Sessions, with the possibility of trading one or more products at each Session. In turn, a session may involve two types of trading: auction or continuous market. Each session's details are specified by means of a Market Resolution. There are currently two types of sessions:

- Daily Trading Session, with trade in Daily Product, Month-Ahead Product and Balance of Month Product.
- Intraday Trading Session, with trade in Intraday Product.

In order to foster liquidity in the Spanish gas market, the Secretary of State for Energy, also approved a Decision, dated December 23rd, which develops the procedure to buy operational gas, establishing its acquisition by the Technical Manager of the Gas System through daily purchases of gas in the MIBGAS market.

Other liquidity measures have been adopted during 2016:

- Resolution of 6th June 2016 established the purchase of the cushion gas in MIBGAS through the Day Ahead, Balance of the Month and Month Ahead products, and the purchase of the heel gas through Within Day and Day Ahead products, taking into account the estimation of daily needs published by the system operator and MIBGAS.
- Circular 2/2015 established the rules of balance in the transmission network, and allows the System Operator to make balancing actions (purchase or sell) in the products Within Day and Day Ahead (D+1) to keep the system balanced.
- At the end of 2016, MIBGAS made an announcement in order to establish the service of Market Maker for the first half of 2017. The Resolution with the assignation of this service was approved in January 2017.

The volume negotiated at MIBGAS has increased along the year 2016 mainly due to the different liquidity measures described above that have also attracted new agents to the market and also following the implementation of the balancing network code, which allow no tolerance in the daily balance of shippers.

All the spot market prices and volumes are published at MIBGAS website (www.mibgas.es) in a daily basis.

In the near future, MIBGAS exchange will include also trading products at the Portuguese balancing point.

- Implementation of European Gas Network codes

CNMC approved the Circular 2/2015, dated 22th July, establishing balancing rules in the transmission network of the gas system.

This Circular regulates the balance methodology for gas transmission networks, including procedures for calculating imbalances and their charges, as well as the rules for nominating the use of infrastructures and procedures for providing users information related to their balance.

The new balancing regime established by Circular 2/2015 was fully implemented in Spain by October 2016.

Related to network users' balance, main changes are the followings:

- The network users are responsible to balance their balancing portfolios every gas day.
- The network users are balanced at the beginning of the gas day (imbalanced equal to zero), daily imbalance quantity is not cumulative.
- The network users have several resources available to balance their balancing portfolios every gas day: information about their gas demand, possibility of hourly re-nomination of their inputs and off-takes of gas until three hours before the end of gas day, possibility to buy or sell gas to balance in MIBGAS (gas exchange).
- Daily imbalance charges are indexed to MIBGAS including a penalty. Imbalance charge is the largest value between marginal price of the balancing actions of ENAGAS-GTS and the weighted average price plus an adjustment of 2,5%.

Related to system balancing, main changes are the following:

- ENAGAS-GTS will undertake balancing actions only if the stock of gas in the transmission system can affect its normal operation o when it is necessary to end the day with a certain stock of gas.
- The transmission system operator shall undertake balancing actions through purchase and sale of short term standardised products on MIBGAS.
- Priority order to purchase and sale of short term standardised products on MIBGAS is the following: title transfer products, locational products, temporal products, and temporal locational products. ENAGAS-GTS will prioritise the use of intraday products over day ahead products.
- The transmission system operator provides network users with estimates of their demand of gas in the gas day y allow re-nomination until three hours before the end of the gas day.

Regarding the analysis of the balancing actions as a measure to increase liquidity in the organized market, it is worthy to highlight that the performances of ENAGAS-GTS are framed in bands of stock of the transmission network that establish when ENAGAS-GTS must perform actions from balancing. These values are published in the Resolution of the General Directorate of Energy Policy and Mining, dated 28 September 2016, to approve Procedure PD-18 "Technical parameters that determine the normal operation of the transmission network and balancing actions at the Virtual Balancing Point (PVB).

When the stock of gas transmission network stands at the band of surveillance, ENAGAS-GTS can perform balancing actions, taking into account not only the level of stock at that time, but also the future forecast and MIBGAS situation. When the stock level is placed in the alert band, the ENAGAS-GTS must perform balancing actions in any case.

Since 1st October until December 31, ENAGAS-GTS has made balancing actions 22 days by a total amount of 743 GWh (636 GWh of gas purchases and 107 GWh of gas sales), through intraday and daily products.

It is significant the increase of liquidity in MIBGAS from 1st October 2016, day of implementation of Balancing network code: more shippers went into MIBGAS buying or selling.

- Other regulatory reforms

The Royal Decree 984/2015, approved by the Government, introduced also changes regarding network access which have been developed in 2016:

- Enagas-GTS has developed a single platform to contract capacity to the Spanish system (not applicable to interconnections with Europe, already sold in PRISMA).
- Access contracts have been adapted to standard capacity products (annual, quarterly, monthly, daily, intra-day), all throughout the system.
- Guarantees have been developed for imbalances and access contracts. The market operator (MIBGAS) manages all the gas system guarantees.

## 3. The electricity market

### 3.1. Network regulation

#### 3.1.1. Unbundling

TSO certification

Act 3/2013 sets forth that CNMC will be in charge of the certification procedure as foreseen by the Directives. In Spain, there is a single TSO for electricity: Red Eléctrica de España (REE).

On 4th November 2011, REE submitted a notification requesting to be certified. The Spanish NRA dealt with the certification procedure and submitted a preliminary decision to the EC on 28th March 2012 proposing the certification of REE as an Ownership Unbundled TSO. REE was certified on 19th July 2012. Following the certification of the Spanish TSO, CNMC monitors the compliance with the certification requirements. In 2014, CNMC issued a monitoring report in order to assess the compliance with the conditions of the certification of REE as OU TSO.

Article 11 of Directive 2009/72/EC (certification with regard to third countries and the corresponding implications on security of supply) is not applicable since REE is not controlled by persons from a third country.

The current legislative framework set forth in the Act 24/2013 of the Power Sector represents the consolidation of the single TSO model in the Spanish System.

By Law, REE SAU is the subsidiary for regulated activities within the REE Group, the holding company being Red Eléctrica Corporación S.A. REE SAU cannot own any shares in companies involved in the generation of electricity or in supply. REE SAU is exclusively dedicated to

system operation, management of the transmission grid and transmission. This subsidiary holds all the assets necessary to carry out the activities and assumes all related contracts. On top of the general legal and functional unbundling requirements between regulated and unregulated activities within the group, there are further functional unbundling and accounting separation requirements between SO activities, management of the transmission grid and other activities.

Furthermore, in order to guarantee the independence of the system operator, the Law limits share capital ownership in REE. These equity limits are applicable to the holding company that owns 100% of the regulated activities subsidiary.

Thus, a single person or society cannot, directly or indirectly, own more than 5% share capital or use more than 3% of voting rights. For electricity companies, the limit goes down to 1% of voting rights. The State, via SEPI, must hold at least 10% share capital.

At the date of preparation of this report, the significant shareholders of REC (RED ELECTRICA CORPORACION, S.A.) are those shown in the following table, according to public information of CNMV:

| RED ELÉCTRICA CORPORACIÓN, S.A. Significant shareholders | % Direct shareholding | % Indirect Shareholding |
|---|---|---|
| Sociedad Estatal de Participaciones Industriales (SEPI) | 20,00 | |
| TCI FUND MANAGEMENT LIMITED | | 4,99 |
| THE CHILDREN'S INVESTMENT MASTER FUND | | 3.954 |

*Table 1. Relevant stakeholders in RED ELÉCTRICA CORPORACIÓN S.A.*

*Source: CNMV*

DSO unbundling

Article 12 of the new Act of the Power Sector (Act 24/2013, of 26th December) (former article 14 of repealed Power Sector Act, Act 54/1997), sets forth unbundling requirements for DSOs in line with the Directive 2009/72.

Most of the unbundling requirements were introduced in the Spanish legislation in 2010. DSOs are permitted to belong to a group that undertakes other activities including: power generation, electricity recharging services (for electric vehicles) and selling electricity provided that a separate company performs the regulated activities (the so-called legal unbundling).

In addition, functional unbundling for DSOs is required. This includes management separation and measures relating to effective decision-making rights, in accordance with the 2003 and 2009 Directives.

Between 2010 and 2016, vertically-integrated companies have implemented their compliance programmes (code of conduct for unbundling activities) and submitted required reports on the unbundling measures to the Spanish NRA and to the Ministry.

Act 3/2013 has introduced an explicit and clear function for CNMC consisting of monitoring the functional unbundling among the activities of generation, transmission, distribution and supply in the electricity sector.

Since 2008 CNMC is monitoring the implementation of unbundling measures, including those foreseen in the Royal Decree-Law 13/2012:

- The appointment of the compliance officer of the Distribution System Operator;
- Those measures taken to ensure vertically integrated distribution system operators shall not, in their communication and branding, create confusion in respect of the separate identity of the supply branch of the vertically integrated undertaking and;
- Those measures taken to ensure that staff responsible for the management of distribution system operator does not participate in the company structures of the integrated electricity undertaking which is responsible for the day-to-day operation of transmission of electricity.

It should also be mentioned that at the end of 2016 it has ended the transitory period granted to small distribution companies to comply with legal unbundling requirements set in the Act 3/2013 as well as in previous electricity laws. It affected approximately 330 distributors.

### 3.1.2 Technical functioning

Balancing services

Act 3/2013 entitled CNMC to monitor the provision of balancing services. In Spain, balancing is a market-based activity comprising secondary reserve (both regulation of capacity and energy), tertiary reserve (energy), load-generation deviations management and constraints management.

The cost recovery for balancing services is designed in a way that provides appropriate incentives for market participants to balance their scheduled injection and consumption. Market participants (including renewable generators) that are imbalanced have to cover the costs incurred to balance the system on the basis of a dual imbalance charge.

**SYSTEM ADJUSTMENT SERVICES IN THE SPANISH PENINSULAR ELECTRICAL SYSTEM (GWh)**

| | 2015 | | 2016 | | Δ % 2016/2015 | |
|---|---|---|---|---|---|---|
| | Upwards | Downwards | Upwards | Downwards | Upwards | Downwards |
| Supply guarantee constraints | - | - | - | - | - | - |
| Supply guarantee constraints Technical constraints [1] | 6.283 | 178 | 11.834 | 180 | 88,3 | 1,2 |
| Additional Upward Power Reserve [2](GW) | 2.109 | - | 1.996 | - | -5,3 | - |
| Secondary reserve availability [3] (MW) | 685 | 511 | 682 | 509 | -0,5 | -0,5 |
| Secondary reserve usage | 1.366 | 1.193 | 1.530 | 1.012 | 12,0 | -15,1 |
| Tertiary reserve | 3.126 | 1.627 | 2.557 | 1.553 | -18,2 | -4,5 |
| Deviation management service | 2.214 | 549 | 1.183 | 465 | -46,6 | -15,2 |
| Real time constraints [4] | 519 | 1.152 | 390 | 645 | -24,7 | -44,0 |

*Table 2. System Adjustment Services in the Spanish Peninsular Electrical System (years 2015-2016)*

*Source: REE*

Network security and reliability rules

CNMC reports on 'Operational Procedures' (O.P.'s) dealing with security and reliability rules, specifically the ones included in 'Series 1' (1.1 to 1.6, thus establishing criteria on admissible loads, voltage / reactive power control, frequency / regulation capacity reserve, black-start capabilities, etc.).

Act 3/2013 entitled CNMC to monitor the compliance with network security and reliability rules. As for transmission service quality index, their measured values and reference limits are determined by Royal Decree 1955/2000, namely: non-supplied energy (ENS), mean interruption time (TIM, equal to ENS over average load in the system) and grid availability index (ID). The

[1] Technical constraints applied to 'Base Functioning Programme' as established by system Operational Procedure 3.2 (P.O.3.2).
[2] Total annual additional upward reserve, in GW.
[3] Average available hourly capacity, in GW.
[4] Includes energy re-dispatches through the submarine DC interconnection between Peninsular and Balearic Electrical Systems.

following table shows last available data regarding TIM and ENS, for the peninsular system and for Canary and Balearic Islands.

| | ENS (MWh) | | | TIM (minutes) | | |
|---|---|---|---|---|---|---|
| | Peninsula | Balearic Islands | Canary Islands | Peninsula | Balearic Islands | Canary Islands |
| 2003 | 466 | | | 1,10 | | |
| 2004 | 1.250 | | | 2,80 | | |
| 2005 | 549 | 242 | 825 | 1,18 | 22,31 | 51,09 |
| 2006 | 936 | 46 | 180 | 1,94 | 4,12 | 10,67 |
| 2007 | 757 | 326 | 281 | 1,52 | 28,73 | 16,03 |
| 2008 | 574 | 7 | 1.043 | 1,15 | 0,64 | 58,94 |
| 2009 | 437 | 39 | 1.679 | 0,91 | 3,41 | 96,89 |
| 2010 | 1.571 | 9 | 4.090 | 3,17 | 0,77 | 241,68 |
| 2011 | 280 | 39 | 17 | 0,58 | 3,54 | 1,02 |
| 2012 | 133 | 7 | 224 | 0,28 | 0,68 | 13,25 |
| 2013 | 1.156 | 81 | 72 | 2,47 | 7,50 | 4,38 |
| 2014 | 204 | 13 | 148 | 0,44 | 1,21 | 9,04 |
| 2015 | 53 | 29 | 150 | 0,11 | 2,66 | 9,08 |
| 2016 | 78 | 0 | 457 | 0,16 | 0,03 | 27,44 |

*Table 3. ENS (energy not supplied) and TIM (average interruption time in minutes)*
*Source: REE*

The following figures show the evolution of ENS and TIM since 2003 in the peninsular system.

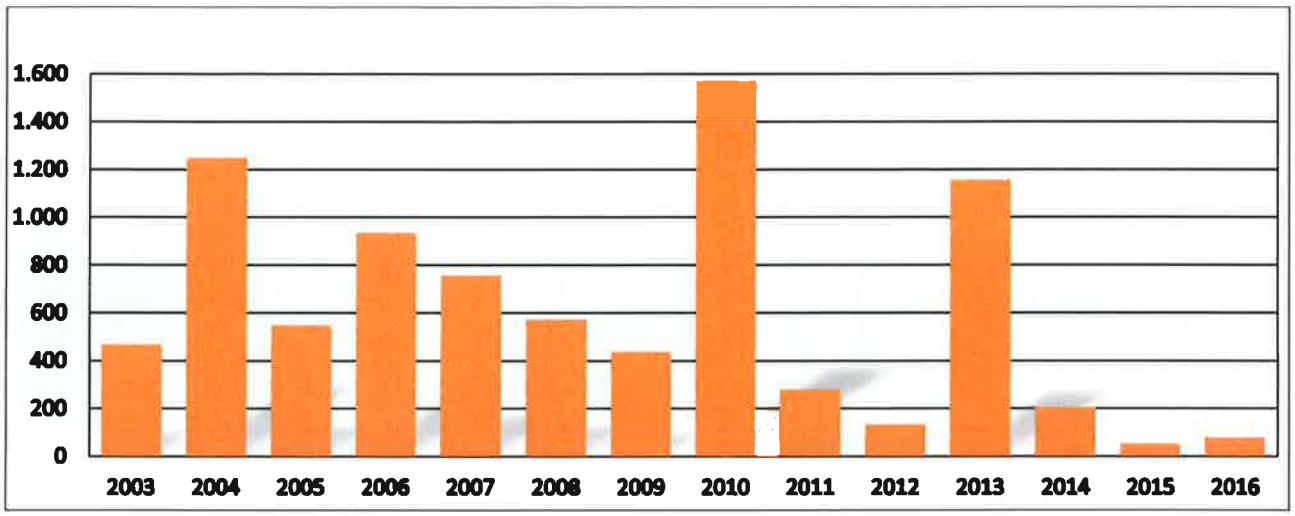



*Figure 1. ENS (energy not supplied) due to events in the transmission network until 2016 (MWh). Peninsular System*

*Source: REE*

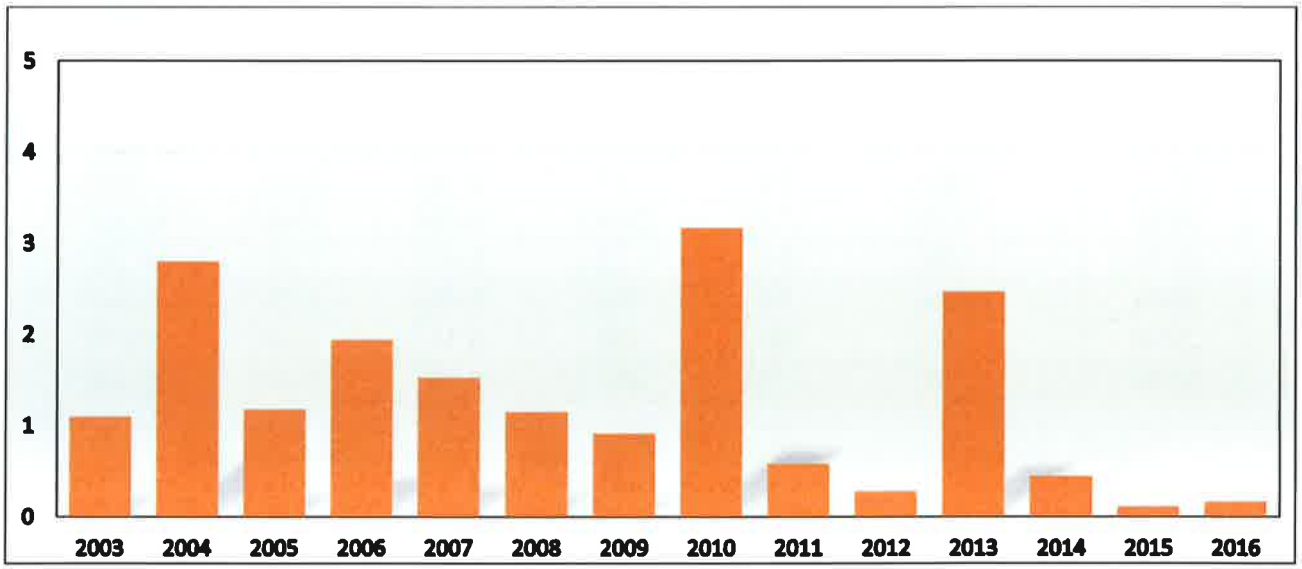



*Figure 2. TIM (minutes) due to events in the transmission network until 2016. Peninsular System*

*Source: REE*

Regarding grid availability index (ID), the value for the peninsular system was 98.32% in 2016. In the Canary and Balearic Islands ID was 98.09% and 96.92%, respectively.

Act 24/2013 of the Power Sector (article 14) lays down the foundations for the remuneration system for various activities aimed at the supply of electricity. It establishes that the remuneration for the activities will be set by regulations based on objective, transparent and non-discriminatory criteria that provide incentives to increase the efficiency of the management, the economic and technical efficiency of the activities and the quality of the electricity supply.

In this sense, one of the objectives of Royal Decree 1048/2013 is to establish the methodology for determining the amount of remuneration to be paid to companies engaged in electricity distribution activities in order to guarantee the suitable provision of the service, while providing incentives to improve the quality of supply and to reduce losses on the distribution grids with uniform standards throughout the country and at a minimum cost for the system. On May 19th, 2016, CNMC approved the report about the proposal of remuneration to be paid to companies engaged in electricity distribution activities, including an incentive to improve the quality of supply according to the methodology established in Royal Decree 1048/2013. That incentive is calculated taking into account quality of service standards in distribution through two main indexes, TIEPI and NIEPI, which measure, respectively, the time and number of supply interruptions (in terms of equivalent power interrupted).

Monitoring time taken to connect and repair

This monitoring duty has been assigned to CNMC by Act 3/2013.

As regards the "time to connect", this is regulated by Royal Decree 1955/2000 (article 103); maximum allowed time varies depending on voltage level and on whether network extensions are needed in order to accomplish the connection. The shortest deadline is five days for low voltage supplies that do not need network extension. According to DSOs' data, the average actual time taken to connect domestic consumers was 4.15 days. Furthermore, in the case of consumers that have been previously disconnected due to fraud or non-payment, reconnection should be effective the day after the payment of the amount due is effective.

During the current distribution regulatory period (2016-2019), new information requirements for reporting and monitoring times taken to connect and repair are currently under discussion. New information will be required to DSOs concerning network equipment and periods during which it is out of service due to connections, repairs or outages.

In relation to the transmission grid, the System Operator is obliged to declare the time that their facilities are out of service on an individual basis. These data are audited by independent firms which certify the adequacy of the information reported with respect to the collection in the databases of the TSO or companies with transmission assets.

Monitoring safeguard measures

The legal provisions set up by Act 3/2013 reinforced the competences of the Government in this regard and entitled CNMC to ensure the compliance of duties by owners and managers of the transmission and distribution networks.

In this sense, in the case of transmission activities, the remuneration methodology established in Royal Decree 1047/2013, of December 27, 2013 provides for economic incentives, which can have a positive or negative sign, for improving the availability of the facilities and other goals. In the case of distribution, the remuneration methodology approved by Royal Decree 1047/2013 includes some incentives, which can have a positive or negative sign, for improving the quality of supply, reducing losses, combating fraud, innovating technology and other goals.

Renewable energies regulatory framework

The Power Sector Act (24/2013) abolished the distinction between Special and Ordinary Regimes. Therefore these concepts disappeared from the Spanish regulation. Renewables, cogeneration and waste participate in the market like any other technology, and complementary revenue will be granted in order to compensate for their higher costs. This complementary revenue is computed in a way that would allow for an appropriate rate of return in a so-called 'reference facility', taken as an epitome for each type of plant, taking into account technology and commissioning date and, in some cases, location, fuel, storage capability, etc. According to the Power Sector Act, renewables keep priority access and priority dispatch (all market conditions being equal and subject to technical requirements for the safe operation of the system). Furthermore, renewables remain responsible for their imbalances.

The Royal Decree 413/2014 of 6 June regulates the new remunerative scheme for electricity generation based on RES, cogeneration and waste: the complementary revenue's main driver is capacity installed. The 'investment remuneration term' (Rinv) is therefore defined in (€/MW) and is aimed at providing for the part of capital expenditure (CapEx) deemed not recoverable via income from energy sale at market prices. For those technologies where market price is deemed also insufficient so as to cover regular operational expenditure (OpEx), an 'operation remuneration term' (Ro) defined in (€/MWh) is also provided. Plants located in non-peninsular territories, where conventional production costs are substantially higher than in mainland Spain, are eligible for an additional 'investment incentive term' (Iinv), again in (€/MW), proportional to expected savings with regard to present average production costs in that particular territory.

'Full (and half) regulatory periods' are defined to last six and three years, respectively. Only regulatory lifetime (in years) and standard investment rate (in €/MW) are established once and for all for each 'reference facility'. Adjustments linked to the evolution of power market prices departing from their expected average values are fine-tuned every three years (in the case of cogeneration and waste, assumed fuel prices reviewed at least once a year). The rest of parameters —included the above mentioned remunerative terms and the estimated rate-of-return, which is linked to the 10-year sovereign bond plus 300 basis points— are subject to revision every full regulatory period (i.e. every six years).

The Ministerial Order IET/1045/2014 of 16 June establishes the remunerative parameters for the more than 1.300 'reference facilities' the order itself defines. This disposition, combined with the Royal Decree 413/2014 and the Royal Decree-law 9/2013, has economic effects since July 2013.

The Royal Decree 900/2015 of 9 October established the economic and technical conditions of self-consumption (regulation applies also to non-renewable based self-consumption). Since a number of system costs are paid in proportion to energy consumed (the so-called *volumetric* component of the tariff), the Decree foresees a charge on energy instantaneously self-consumed to recover such costs. Two types of self-consumption are defined: 'type 2' applies whenever the generator is independently registered as a stand-alone producer, although its

production is injected via a consumer's private, internal grid; 'type 1' applies if just a consumer exists (which happens to have an adjoining generation facility). Type 1 self-consumers are not allowed to sell surplus energy, although exemptions are granted to those with contracted power up to 10 kW or located in off-shore (non-peninsular) systems[5].

In accordance with aforementioned Royal Decree 413/2014, the support scheme for new RES generation plants must be granted by a tendering process. Hence, on the 14th of January 2016 the first RES auction was conducted in Spain including volumes for wind (500 MW) and biomass (200 MW) technologies. CNMC was designated as supervisor of the process; participants bid a discount, in percentage, on the financial support to be granted in terms of [€/MW installed]. The final result of the tender was a zero support scheme level for both technologies, which involves that these plants will get their revenues exclusively from sales to the power wholesale market, and there is no regulated additional cost for the system derived from the auction. However, new future challenges are open: provided certain RES-based plants are viable without incentives, the design of the wholesale market is more than ever a critical point for their profitability, as well as connection and access processes needed to guarantee an orderly, gradual increase in the deployment of new RES plants.

### 3.1.3 Network tariffs for connection and access

The Spanish Power Sector Act, 24/2013, dated December 26th, modifies the access tariff system, previously determined by the former Power Sector Act 54/1997. In line with the provisions of Directive 2009/72/EC, the new framework establishes a differentiation between network tariffs, aimed at recovering transmission and distribution costs, and those charges recovering the rest of regulated costs, such as subsidies to renewables and cogeneration.

According to Act 24/2013, article 16 defines that CNMC is responsible for elaborating the methodology for the calculation of transmission and distribution network tariffs, in accordance with transparent, non-discriminatory and cost-reflective criteria and the Government will elaborate a methodology relating to the other charges mentioned in the previous paragraph.

However, the above, fourth additional transitory provision of Act 24/2013 establishes that until the Spanish Government develops the methodology of charges, these will be paid by consumers through the access tariffs.

In July 2014, CNMC approved the methodology for electricity transmission and distribution network tariffs. This methodology is based on the efficient allocation of transmission and distribution costs to electricity consumers and producers. The network tariff structure is the result of the allocation methodology.

Act 32/2014, of 22 December, on Metrology, modifies the Power Sector Act, 24/2013, setting that the legal authority to establish the structure and conditions applicable to the access tariffs for transmission and distribution networks corresponds to the Government.

[5] A reduced charge is applied to Mallorca-Menorca subsystem in the most expensive Time-of Use period (out of the existing six ones).

In this way, Royal Decree 1054/2014 introduced a new voltage division for access tariffs for six periods determined in Royal Decree 1164/2001, of 26 October, establishing tariffs for accessing the electricity transmission and distribution networks. According to this new regulation the 6.1 tariff, which covered voltages from 1 kV to those less than 36 kV, was divided into a first level for voltages greater than or equal to 1 kV and less than 30 kV and another level for voltages from 30 kV to less than 36 kV.

The regulatory changes introduced by Act 32/2014 mean that the CNMC methodology passed in July 2014 is not in force currently.

### 3.1.4 Cross-border issues

Access to cross-border infrastructure, including the procedures for the allocation of capacity and congestion management

Circular 2/2014 of CNMC establishes since 12th of March 2014 the terms and conditions for access to cross-border electricity infrastructures and the methodology for cross border balancing exchanges Regulation of cross border exchanges, according to Order IET/107/2014 and Act 3/2013.

This framework establishes a first step in the implementation of the target models for long term, day-ahead and intraday cross-border capacity allocation connecting the Iberian market (Spain and Portugal) with the rest of Europe. The methodology considers long term capacity allocation through a European platform, day-ahead market coupling and balancing exchanges (performed through the BALIT platform).

In the context of day-ahead capacity allocation, after the full coupling with NWE on 13th May 2014 Spain and Portugal are now part of the PCR project that serves as the base for the common day-ahead electricity market in the EU target model.

During 2016 and 2017 several proposals from NEMOS (Nominated Electricity Market Operator) have been submitted to national regulatory authorities (NRAs) as requested by Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a Guideline on Capacity Allocation and Congestion Management (CACM GL): algorithm, products, maximum and minimum prices, intraday cross-zonal gate opening and closure times, congestion income distribution, market coupling operation functions, day ahead firmness deadline. Also other methodologies have been submitted by TSOs (transmission system operators): fall-back methodologies in case of decoupling, common grid model, generation and load data provision and capacity calculation methodology and intraday capacity pricing.

As regards to intraday capacity allocation, implicit continuous allocation will be implemented in both borders, in the context of the so-called XBID project, where the Iberian NEMO, which is the Iberian Electricity spot Market Operator (OMIE) participates. The go live of this platform is foreseen by first quarter of 2018.

In February 2017 OMIE, REE and REN launched a common proposal for complementary auctions for the Spanish-Portuguese bidding zone border, as a hybrid model of continuous trading through the XBID. Competent regulatory authorities CNMC and ERSE will launch a public consultation, and a later request for amendment in order to get a final proposal compliant with CACM guideline.

In the context of long term capacity allocation, current regulatory framework is based on the CNMC approval in November 2015 of the EU Harmonised Auction Rules for long-term capacity allocation in both IPE (interconnection Portugal-Spain) and IFE (interconnection France-Spain), "IFE rules version 4" that regulate intraday capacity allocation in IFE and the Shadow Auction rules (fall-back for day-ahead market coupling in IFE).

During April 2017, the TSOs of South West Europe Region (SWE) have launched (according to Commission Regulation (EU) 2016/1719, of 26 September 2016, establishing a guideline on forward capacity allocation) a set of proposals for new version of Harmonised Allocation Rules for long-term transmission rights, the establishment of a Single Allocation Platform (SAP), and the design of Long Term Transmission Rights on SWE (South West Europe), for the Portuguese – Spanish bidding zone border (annual, quarterly and monthly base products) and for the French – Spanish bidding zone border (annual and monthly base products).

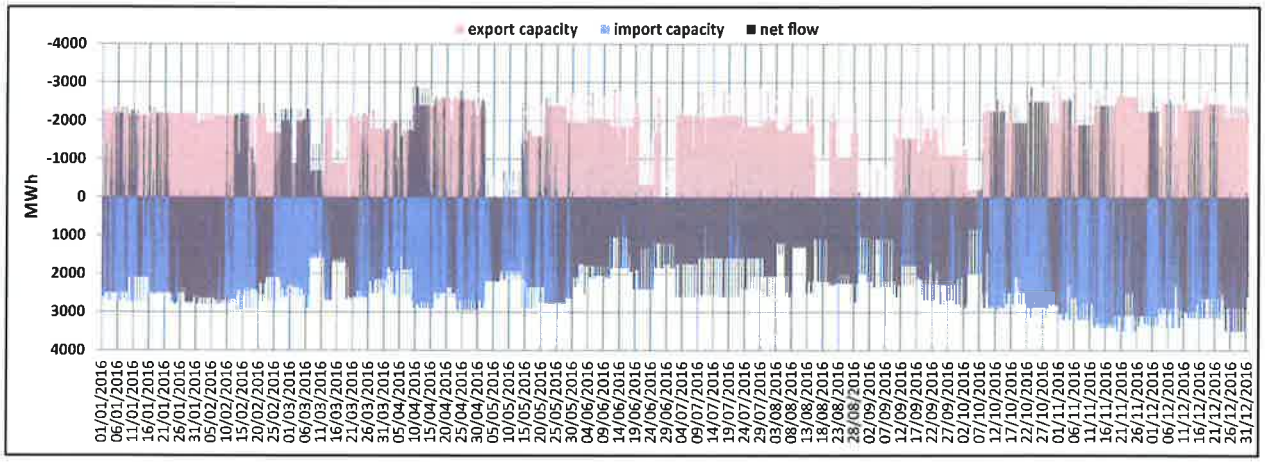



*Figure 3. Exchange capacity and market matched energy between France and Spain in day ahead trading in 2016*

*Source: CNMC*

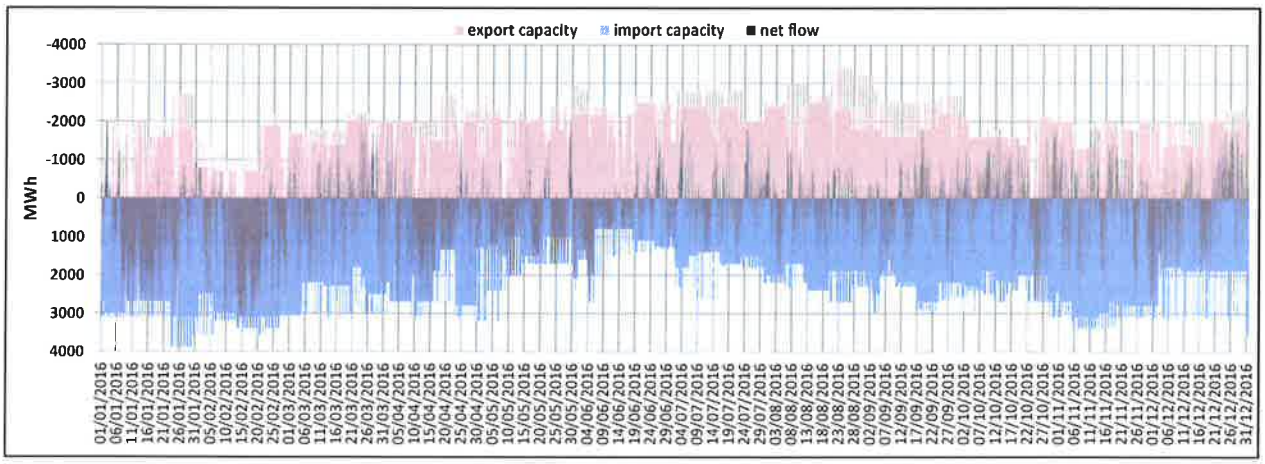



*Figure 4. Exchange capacity and market matched energy between Portugal and Spain in day ahead trading in 2016*

*Source: CNMC*

| MWh | export capacity | import capacity | export | import |
|---|---|---|---|---|
| saldo ES-PT | -16.939.503 | 21.000.350 | -1.897.324 | 6.550.727 |
| saldo ES-FR | -17.145.379 | 21.316.141 | -4.068.910 | 12.587.421 |
| saldo ES-MR | -6.704.050 | 4.745.200 | -2.310.422 | 0 |

*Figure 5. Exchanged capacity and market matched energy in ES-PT and ES-FR bidding zone borders in day ahead trading 2016*

*Source: CNMC*

In 2016, the following auctions for selling FTR-options were performed:

| | Price (€/MWh) | Quantity (MW) |
|---|---|---|
| **Contracts (period)** | 10 March 2016 | |
| FTR P-E Q2-16 | 0,05 | 300 |
| FTR E-P Q2-16 | 0,04 | 300 |
| FTR P-E Q3-16 | 0,04 | 100 |
| FTR E-P Q3-16 | 0,04 | 100 |
| **Contracts (period)** | 14 June 2016 | |
| FTR P-E Q3-16 | 0,04 | 200 |
| FTR E-P Q3-16 | 0,10 | 200 |
| FTR P-E Q4-16 | 0,11 | 100 |
| FTR E-P Q4-16 | 0,08 | 100 |
| **Contracts (period)** | 15 September 2016 | |
| FTR P-E Q4-16 | 0,12 | 200 |
| FTR E-P Q4-16 | 0,05 | 200 |
| FTR P-E YR-17 | 0,07 | 100 |
| FTR E-P YR-17 | 0,08 | 100 |
| FTR P-E Q1-17 | 0,08 | 100 |
| FTR E-P Q1-17 | 0,10 | 100 |
| **Contracts (period)** | 13 December 2016 | |
| FTR P-E Q1-17 | 0,05 | 200 |
| FTR E-P Q1-17 | 0,10 | 200 |
| FTR P-E Q2-17 | 0,06 | 100 |
| FTR E-P Q2-17 | 0,10 | 100 |
| FTR P-E YR-17 | 0,08 | 100 |
| FTR E-P YR-17 | 0,10 | 100 |

*Table 4. Results of the auctions FTR-options PT-ES*
*Source: OMIP*

Cross-border balancing exchanges

The exchanges under the BALIT platform were successfully extended to Portugal and Spain as from June 2014. Under this platform, bilateral TSO-TSO exchanges of balancing energy between neighboring systems (i.e. Portugal – Spain or Spain – France) are carried out. The volumes exchanged have increased in 2016 considerably compared to the volumes exchanged in the previous year, especially concerning exports of balancing energy from Spanish system to its neighbors.

| | (from/to) Portugal | (from/to) France |
|---|---|---|
| Import (MWh) | 36.150 | 19.300 |
| Export (MWh) | 175.800 | 217.600 |
| **Total exchanged energy (MWh)** | **211.950** | **236.900** |

*Table 5. Balancing energy exchanged with neighbouring systems in 2016 (MWh)*

*Source: REE*

In the future, a new regional solution is expected to enhance the experience of the current BALIT bilateral solution. The TERRE (Trans European Replacement Reserve Exchange) project is a pilot initiative for cross-border Replacement Reserve (RR) exchanges. It has been set up to support the implementation of the Guideline on "Electricity Balancing" (EB GL) and involves several TSOs from UK to Italy.

In 2016, the TERRE project progressed through its design phase under the legal scope of a Memorandum of Understanding (MoU) and Non-Disclosure Agreement (NDA). The TERRE project design was positively evaluated by the stakeholders and the NRAs in a public consultation launched by March 2016. At present, the TERRE project is in the implementation phase, which includes the development of the common RR platform, the follow-up of the local implementation by the participants, and the preparation for the parallel testing and the Go-live.

Monitoring technical co-operation between European Union and third-country TSOs

This monitoring has been incorporated as a new duty for CNMC by means of Act 3/2013. In this regard, CNMC monitors exchanges between the Spanish and Moroccan systems in accordance to the existing provisions included in the Spanish legislation. It is worthy to note that Morocco is synchronized to the continental European transmission system through the interconnection with the Spanish system.

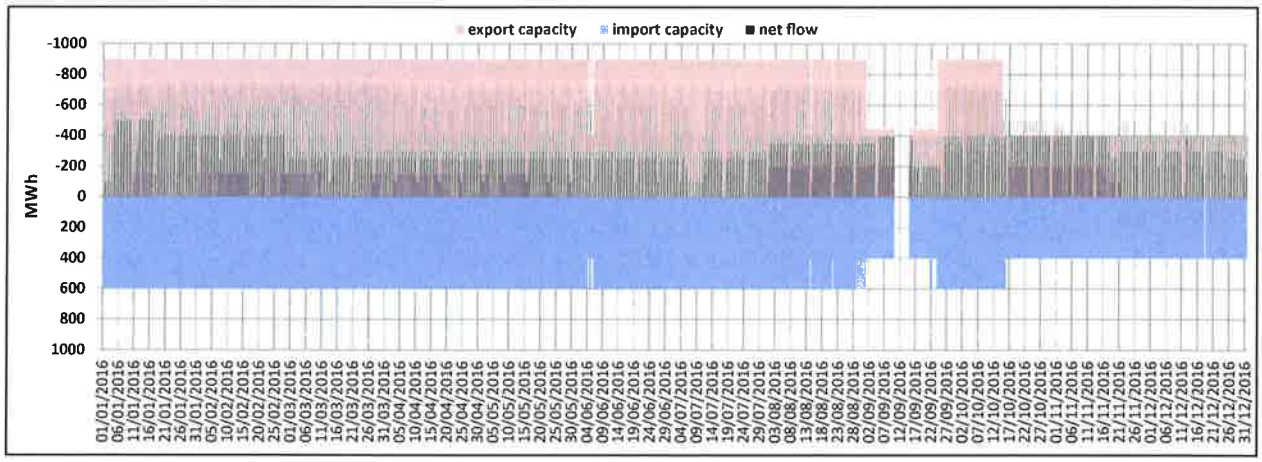



*Figure 6. Exchange capacity and market matched energy between Spain and Morocco in2016*

*Source: CNMC*

Monitor TSO investment plans in view of TYNDP

This competence has been transposed by Act 3/2013. However, the Spanish NRA already monitored the investment plan of the TSO on a regular basis.

The Act 24/2013, of the Power Sector, establishes the basics of electricity planning incorporating tools to link the level of investment to the situation of the economic cycle, and the principles of economic sustainability. Annual investment limits are established in addition to the possibility of a special review of it from unexpected events affecting the efficiency, security and safety; as well as the necessary coordination of network planning with urban planning.

In addition, the Royal Decree 1047/2013, in its Articles 11 to 14, provides quantification and monitoring of these annual investment plans and their consistency with the National long term Plan.

As regards the connection between the EU and national long term network development plans, an assessment of consistency between the EU-wide TYNDP 2014 and the Spanish national plan was carried out in the framework of ACER. In addition, CNMC participated in the ACER Opinion on the TYNDP 2014 which includes considerations concerning Spain.

The national long term network development plan currently in force was subject to CNMC's report on April 2015 and covers the period 2015-2020, as well as some investments with a longer lead time (2022) in order to encompass the infrastructures included in the TYNDP 2012 and 2014.

Cooperation

Act 3/2013 has incorporated this duty as one of CNMC's objectives. CNMC has a firmly established cooperation with the NRAs of France and Portugal on cross-border issues, especially in the context of the MIBEL and the SWE region. Besides, CNMC cooperates with all

NRAs of the EU in the context of CEER, the ACER Regulation as well as other relevant Regulations such as REMIT and the Network Codes.

### 3.1.5 Compliance

Compliance of regulatory authorities with binding decisions of the Agency and the Commission

Royal Decree-Law 13/2012 obliges the Spanish NRA to comply with and put into practice those pertinent and binding decisions issued by ACER and the EC. Throughout 2016, there weren't any binding decisions issued by the EC or ACER towards the Spanish NRA.

Compliance of transmission and distribution companies, system owners and electricity undertakings with relevant Community legislation, including cross-border issues

CNMC ensures compliance of transmission and distribution system operators and, where relevant, system owners, as well as of any electricity undertakings, with their obligations under Royal Decree-Law 13/2012, the Act 24/2013 of the Power Sector or any other legal provision, including cross-border issues.

Following the certification of the Spanish TSO (the final decision was issued on 19 July 2012) CNMC monitors the compliance with the certification requirements. As far as NC/GL compliance is concerned, CNMC is working on the formal implementation of CACM GL provisions together with the rest of the NRAs and monitors the obligations of the Spanish TSO and the NEMO designated in Spain in this context.

## 3.2 Market Functioning

### 3.2.1 Wholesale markets

#### 3.2.1.1 Monitoring the level of prices, the level of transparency, the level and effectiveness of market opening and competition

The duties contained in article 37(1) (i) and (j) of Electricity Directive have been transposed by the Act 3/2013.

- Spot market

The wholesale (spot) market in Spain is made up of an organised part and a non-organised part. The organised market is structured around a day-ahead market followed by six intraday auctions. The day-ahead spot market is coupled with Portugal since July 2007 and with the NWE region since 13th May 2014. 183.97 TWh were sold in the Spanish zone of the organised day-ahead spot market in 2016 while in the intraday market, 28.21 TWh were sold in the Spanish zone. The non-organised part consists of physical bilateral contracts, whose economic terms and conditions are agreed between the signing parties (which are not known by CNMC but whose nomination has to be notified to the Market Operator). During 2016 bilateral contracts represented 30% of the sold energy in the daily programme (PBF: Functioning Base Programme).

- Prices

In 2016, the weighted[6] average spot market price was 48.51 €/MWh (smaller than previous year). The daily market price has represented in Spain 84% of the final price, the capacity payments a further 6%, and the solution to technical restrictions, the secondary regulation and other technical operation processes accounted for 6%, while payments to demand-side management (interruptible demand) accounted for 4%.

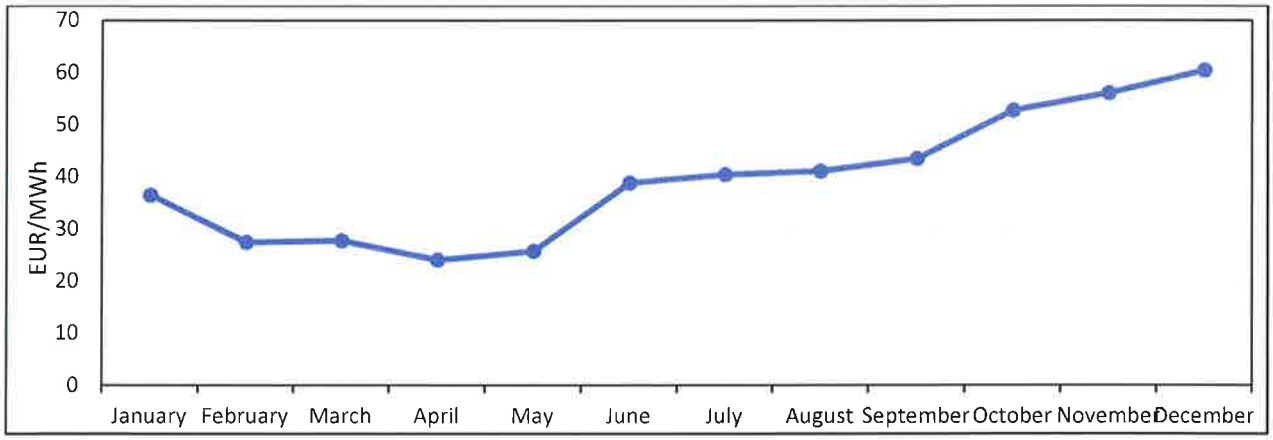



*Figure 7. Spanish electricity day-ahead spot market prices in 2016 (monthly average)*

*Source: OMIE*

- Transparency

Spot market prices (day-ahead and intraday) are published at OMIE website (www.omie.es) a few hours after the auctions are finished. Three months later, the names of the suppliers are published.

- Effectiveness of competition

The Iberian spot market is very liquid; it gathers nearly 1000 agents. Competition can be analysed through several indicators. In the case of Spanish day-ahead market, prices in 2016 were higher than the average European spot market prices. This is due to several factors, namely the G-charge (0.5 €/MW) and national taxes imposed on generation which are internalised by market participants in their sell bids.

The level of competition is higher in the day-ahead and intraday markets than in balancing and technical constraints markets. In the latter the opportunities to exercise market power are higher given that the more flexible resources are a small share of the overall installed generation

[6] Including different market sessions, plus balancing and reserves costs.

capacity. However, since February 2016, renewable generators can qualify to participate in balancing markets which is positive for competition.

In the last years, coal and hydro power plants are usually the marginal technologies that set the price. The owners of the power plants with these technologies show a rather high level of concentration. Combined cycles are only setting the price in moments of high demand. Finally, the fact the interconnection capacity with France has been doubled as from October 2015 has a positive effect on competition, in particular for the day-ahead market.

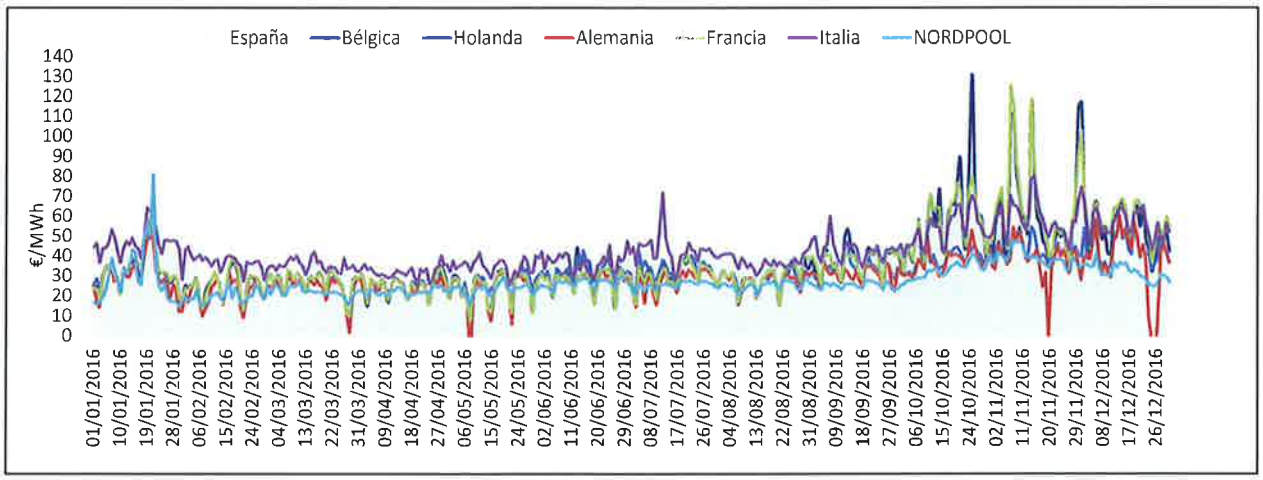



*Figure 8. European electricity day-ahead market prices in 2016*

*Source: European PX*

- Balancing market

As for concentration in the balancing market, the tables below show the evolution of market shares by company for secondary reserve (regulation capacity), tertiary reserve and deviations management (both up- and downwards, respectively):

| | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|
| **Endesa** | 34,2% | 32,2% | 34,5% | 32,5% |
| **Iberdrola** | 25,0% | 24,9% | 22,8% | 22,0% |
| **Gas Natural Fenosa** | 21,2% | 21,9% | 17,6% | 15,0% |
| **EDP** | 8,3% | 8,0% | 9,6% | 10,1% |
| **Viesgo** | 6,0% | 7,9% | 7,2% | 10,3% |
| **Others** | 5,3% | 4,9% | 8,3% | 10,1% |

*Table 6. Secondary reserve (regulation capacity) market shares (years 2013-2016)*

*Source: CNMC, REE*

| | 2013 | | 2014 | | 2015 | | 2016 | |
|---|---|---|---|---|---|---|---|---|
| | Downwards | Upwards | Downwards | Upwards | Downwards | Upwards | Downwards | Upwards |
| **Endesa** | 28,5% | 28,2% | 29,8% | 30,3% | 35,2% | 31,1% | 29,4% | 26,3% |
| **Iberdrola** | 38,5% | 34,7% | 37,7% | 32,3% | 34,3% | 28,4% | 33,4% | 30,4% |
| **Gas Natural Fenosa** | 12,5% | 22,9% | 11,5% | 23,1% | 8,0% | 24,5% | 12,0% | 23,6% |
| **EDP** | 4,9% | 4,8% | 4,1% | 4,4% | 4,8% | 4,8% | 7,1% | 5,7% |
| **Viesgo** | 11,0% | 6,6% | 13,6% | 6,4% | 14,2% | 7,7% | 10,9% | 8,8% |
| **Others** | 4,5% | 2,9% | 3,3% | 3,4% | 3,5% | 3,5% | 7,1% | 5,3% |

*Table 7. Tertiary reserve plus deviation management market shares (years2013-2016)*

*Source: CNMC, REE*

- The OTC market

The OTC traded volumes in 2016 (169.7 TWh) increased 21.2% compared to 2015 (140 TWh). Figure 8 shows the evolution of the OTC traded volumes since year 2007. The significant reduction in 2015 and 2016 with respect the traded volumes in the previous years can be related to several factors like the abandonment of the CESUR auctions and the reliance on the day-ahead spot market by reference retailers selling under the PVPC regime, or the potential impact of MiFID II in terms of requirements to energy trading companies.

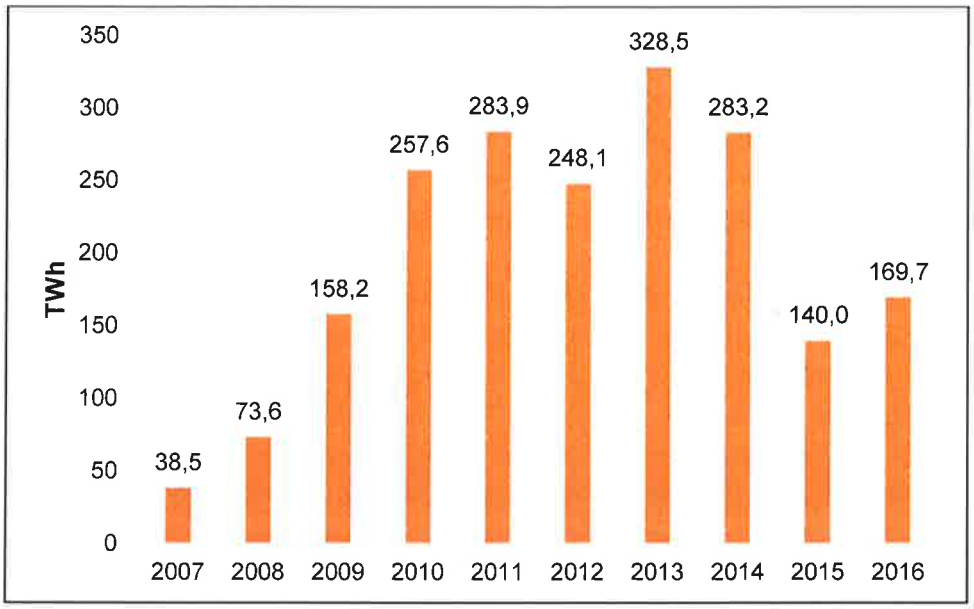



*Figure 9. Accumulated OTC volume traded in one year (TWh) (2007 to 2016)*

*Source: CNMC with data from brokers*

- Prices

The Spanish OTC market ("Over The Counter") is a non-organized bilateral market, in which traders (usually by means of a broker), trade forward contracts with cash settlement. Hence, according to article 2.3 of the Securities Market Law, they have to be considered as financial instruments. In the Spanish market, the supervision of the financial contracts traded in the OTC market is under the scope of the MiFID II and MiFIR[7] and the Securities Market Law[8], and thus of the Spanish Securities Markets Commission (*Comisión Nacional del Mercado de Valores, CNMV*).

Therefore, it is necessary to focus the supervision of this market with a coordination perspective between CNMV and CNMC. In this sense, the Directive 2009/72/EC indicates in its recital 39 the necessary cooperation between energy market regulators and financial market regulators in order to enable each other to have an overview over the markets concerned.

[7] MiFID II: Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU.

MiFIR: Regulation (EU) No 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Regulation (EU) No 648/2012.

[8] Act 24/1988.

In the scope of the cooperation between regulatory agencies, Regulation (EU) Nº 1227/2011, of 25 October 2011, on Wholesale Energy Market Integrity and Transparency (REMIT) states explicitly as necessary in its Recital 29 that *"national regulatory authorities, competent financial authorities of the Member States and, where appropriate, national competition authorities should cooperate to ensure a coordinated approach to tackling market abuse on wholesale energy markets which encompasses both commodity markets and derivatives markets".*

The improvement of the supervision of the OTC market is also under the scope of application of REMIT. This Regulation, aiming to improve the market integrity and transparency of the wholesale energy markets, specifies that the wholesale energy markets "*encompass both commodity markets and derivative markets*", that "*include, inter alia, regulated markets, multilateral trading facilities and over-the-counter (OTC) transactions and bilateral contracts, direct or through brokers*", and that the "*price formation in both sectors is interlinked*".

Although CNMC has limited information over OTC power transactions (volumes and transaction prices, through the information voluntarily submitted by the main brokers), by means of the Collaboration Agreement between the Spanish NRA and the Spanish Securities Market Commission (CNMV), signed on 3 July 2012, CNMC can ask CNMV data about OTC transactions regarding the supervision of wholesale energy markets in the context of investigations into potential market abuses[9].

CNMC has access to all data traded/registered in OMIP-OMIClear, by means of the existing cooperation procedures between the members of the MIBEL Regulatory Council.

Under REMIT, CNMC will have access to relevant information held by ACER which it has collected in accordance with paragraph 1 (transactions, including orders to trade) of Article 8. In this sense, according to article 12.2 of Commission Implementing Regulation (EU) Nº 1348/2014, on 7 October 2015 started data reporting of contracts executed at organised market places[10], including matched and unmatched orders. Details of contracts concluded outside an organised market places started on 7 April 2016.

- Transparency

CNMC publishes monthly supervisory reports of the electricity forward markets in Spain with aggregated data from all the existing forward market mechanisms and trading venues (i.e. OTC

[9] This was made possible by the Sustainable Economy Act, whose 5th final disposition modified the Securities Market Law, enabling the information exchange between CNMV and the entities composing the MIBEL Regulatory Council.

[10] According to article 2.4 of Commission Implementing Regulation (EU) Nº 1348/2014, "organised market place" or "organised market" include electricity and gas exchanges, brokers and other persons professionally arranging transactions, and trading venues as defined in Article 4 of Directive 2014/65/EU of the European Parliament and of the Council (MiFID II).

market, the futures markets managed by OMIP and by EEX, and the cleared volumes in the clearing houses (OMIClear, BME Clearing and EEX-European Commodity Clearing (ECC)[11]).

- Effectiveness of competition

So far there has been limited information available regarding the volume of transactions conducted in OTC markets, as well as for the physical bilateral contracts (particularly contracts between companies of the same group).

According to Commission Implementing Regulation (EU) Nº 1348/2014, the NRAs will have access to transactions, including orders to trade, to be submitted by the market participants (as previously commented, data reporting of traded data on organised market places, and capacity and use of electricity and natural gas facilities, started on 7 October 2015), as well as financial data, the latter by means of the MoU ACER-ESMA[12]. This will allow CNMC to perform an integrated supervision.

The power futures markets (OMIP and EEX) and OTC volumes registered, cleared and settled by Clearing Houses

In the context of the MIBEL Regulatory Council, Spanish NRA supervised the futures market managed by OMIP[13], in co-ordination with the other members of the MIBEL Regulatory Council. Such a market started on 3rd July 2006. The rules of this market are registered on the Portuguese Securities Market Commission (Comissão do Mercado de Valores Mobiliários, CMVM).

The energy traded in the continuous market of the MIBEL futures market managed by OMIP during year 2016 amounted to 19.5 TWh[14], higher than in the previous year (15.4 TWh in 2015). The OTC volumes cleared and settled by OMIP clearing house (OMIClear) increased also in 2016 (36.7 TWh) compared to 2015 (31 TWh).

[11] Since the beginning of 2014, the base load futures whose underlying price is the Spanish spot price ("FTB" contracts), with financial settlement, can be registered, cleared and settled in EEX-European Commodity Clearing (ECC). Likewise, the base load futures whose underlying price is the German/Austrian spot price and the base load futures whose underlying price is the French spot price, with financial settlement, can be registered, cleared and settled in OMIP-OMIClear. Also since 15 February 2015, Spanish power futures and options can be traded in the European Energy Exchange (EEX).

[12] MoU ACER-ESMA concerning the consultation and cooperation regarding their regulatory responsibilities in relation to EU wholesale energy markets, signed on 18 July 2013.

[13] *Operador do Mercado Ibérico de Energia SGMR, S.A.* (Iberian Energy Market Operator, Portuguese side).

[14] Additionally, 5.7 TWh were traded through OMIP auction mode for selling renewable energy in Portugal, 8.8 TWh for selling FTR-options (auction of electricity interconnection capacity between Spain and Portugal) and 0,3 TWh for buying Mini Swap SPEL Solar Products, in which ENDESA, the auction promoter, bought Mini Swap SPEL Solar Products (these products allow solar producers to reduce the risk by hedging the energy price).

The energy traded in the continuous market of the European Energy Exchange (EEX)[15] during year 2016 amounted to 7.3 TWh, much larger than in the previous year (0.61 TWh in 2015). The OTC volumes cleared and settled by EEX-European Commodity Clearing (ECC) amounted to 64.3 TWh in 2016, also much larger than in the previous year (21.7 TWh in 2015).

BME Clearing is active in Spain since 21 March 2011 for OTC clearing of Iberian power derivatives. The accumulated cleared volume during year 2016 in BME Clearing reckons 24.1 TWh, a bit higher than in the previous year (24 TWh in 2015).

Figure 10 shows the trading evolution (in terms of energy traded) in the MIBEL futures market (OMIP auctions and OMIP continuous market), in the EEX market, the volumes traded in the OTC market, and the part of such volumes registered in OMIClear[16], BME Clearing and EEX-European Commodity Clearing (ECC).

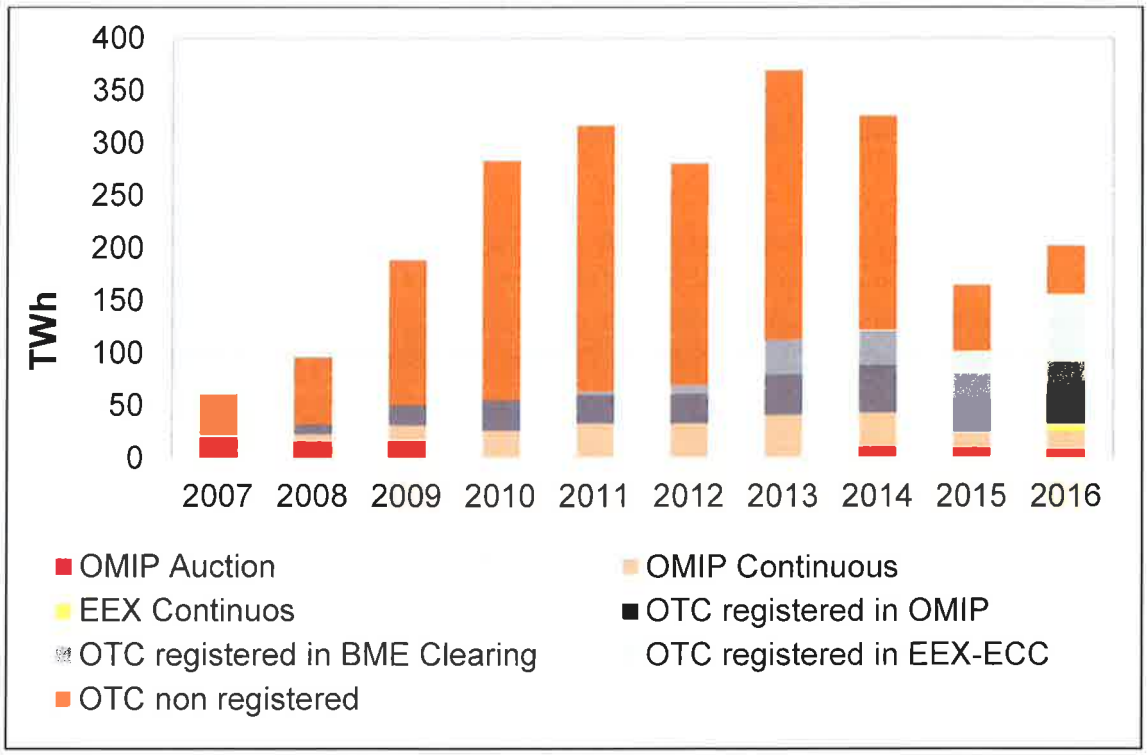



*Figure 10. Evolution of accumulated traded volumes per year in OMIP auctions and continuous market and EEX market, and OTC volumes registered in OMIClear, BME Clearing and EEX-European Commodity Clearing (ECC) (TWh)*

*Source: Brokers, OMIP-OMIClear, Bolsas y Mercados Españoles (BME) and EEX-ECC*

- Prices

[15] Since 15 February 2015, Spanish power futures and options can be traded in the European Energy Exchange (EEX).
[16] Sociedade de Compensação de Mercados de Energia.

Figure 11 shows the daily evolution of the Spanish electricity spot (day ahead) and futures prices during 2016. For the spot price, the daily average published by OMIE is considered. For the futures prices, settlement prices published by OMIP are used. The prompt month, quarter and year contracts ("M+1", "Q+1" and "Yr+1" respectively) for the base load futures whose underlying price is the Spanish spot price ("FTB" contracts) are shown. The volatility of the spot prices is much larger than the volatility of the futures prices, due to the strong renewable penetration. The annual average price for the spot price in 2016 (39.67 €/MWh) is lower than the average settlement prices for the futures contracts whose underlying price is the Spanish spot price in 2016 in their whole trading horizon (43.13 €/MWh for the prompt month contract, 43.42 €/MWh for the prompt quarter contract and 42.31 €/MWh for the prompt year contract). The futures contracts showing larger volatility in the next figure are the monthly contracts, fluctuating between 27.5 €/MWh and 59.9 €/MWh.

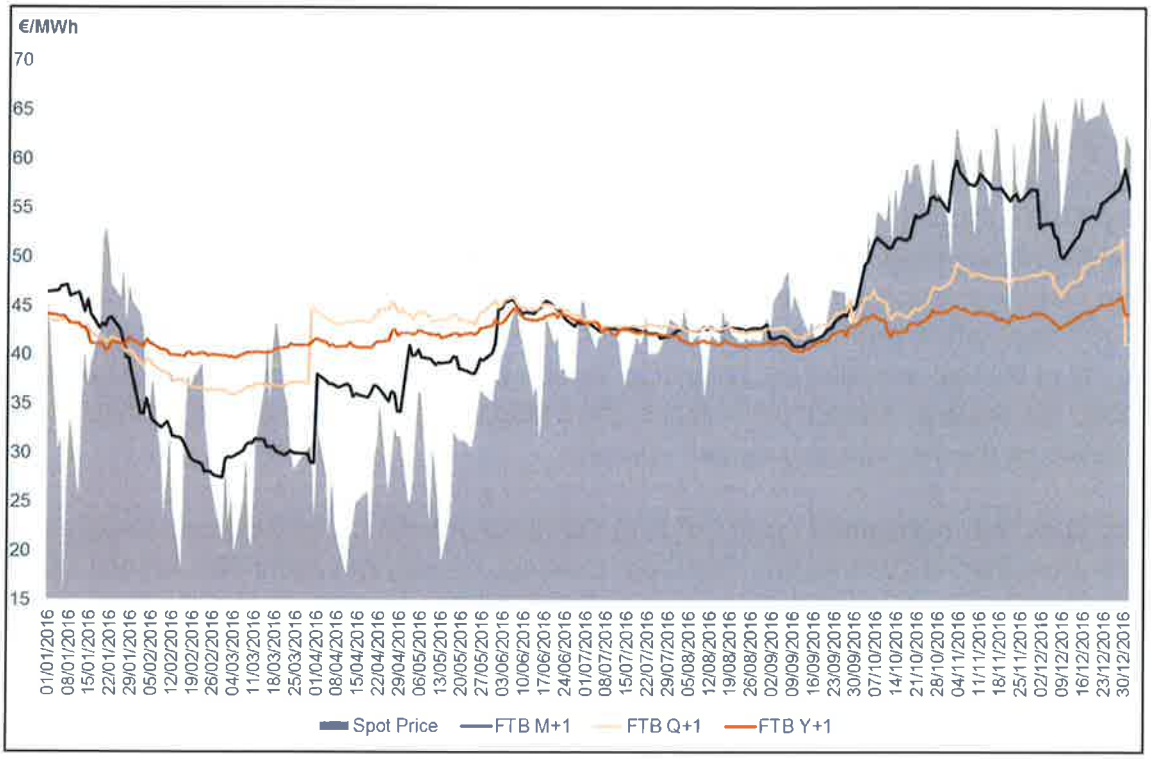



*Figure 11. Evolution of daily spot prices and prompt month, quarter and year ("M+1", "Q+1" and "Yr+1" respectively) futures prices (€/MWh) during year 2016*

*Source: OMIE and OMIP-OMIClear*

- Transparency

The following sources provide information regarding post-trade transparency. They are available by the existing clearing houses and the power futures market operator:

- Historical aggregated data per contract regarding settlement prices, best bid and offer, traded and cleared volumes, and open interest by OMIP-OMIClear, as well as daily market bulletins with the key statistics of the trading sessions and information of any special event (e.g. market maker agreements, new trading member, renewable regime

auctions in Portugal, FTR auction related to the Portugal-Spain electricity interconnection, etc.).
- Historical aggregated data per contract regarding settlement prices, cleared volumes and open interest by BME Clearing.
- Historical aggregated data per contract regarding settlement prices, traded and cleared volumes and open interest by EEX-ECC.

- Effectiveness of competition

The amount of registered members in OMIP, in BME Clearing and EEX-ECC grows steadily, in the third case at a faster pace.

At the end of 2016, there were 67 trading members registered in OMIP (61 trading members in 2015) and 126 (123 trading members in 2015) in BME Clearing. EEX attracts trading participants from all over Europe to trade on its platform. In total, 246 participants are admitted to trading at EEX (233 in 2015).

Regarding OMIP Trading highlights in year 2016: (i) OMIP reached a total screen trading (i.e. auction and continuous) volume of 34.4 TWh[17] increasing more than 15% compared to 2015; (ii) OMIP and OMIClear launched French and German power futures available both for exchange trading, OTC registration and clearing and (iii) ERSE (Energy Portuguese regulator) designated OMIP as the entity that operates the balancing auction platform for the procurement of products that enable the actions needed to balance the Portuguese National Network Natural Gas Transportation by the transmission system operator.

Regarding OMIClear highlights in year 2016: (i) OMIClear reached a total cleared volume of 72 TWh, 17% more than in 2015 and (ii) OMIClear clearing volumes represent 43% of total cleared volumes on Iberian power keeping its predominance in Iberia.

Regarding Market Making highlights in OMIP: Endesa, EDF Trading and Axpo Iberia. Apart from Endesa that joined in this role last year, the other two entities have been assuming the Market Maker role for several years, which shows their trust in this market.

Regarding BME Clearing highlights in year 2016: (i) increase in number of participants (from 123 to 126 participants) and registered operations (+4,3%) versus year 2015; (ii) BME Clearing registered 24.1 TWh in 2,632 trades, compared to 23.1 TWh in 3,378 trades in 2015; and (iii) 17 new participants joined BME Clearing and 102 participants registered trades during 2016.

Regarding EEX-ECC highlights in year 2016: (i) the energy traded in the continuous market of the European Energy Exchange (EEX) during year 2016 amounted to 7.3 TWh, much larger than in the previous year (0.6 TWh in 2015); and (ii) the OTC volumes cleared and settled by EEX-European Commodity Clearing (ECC) amounted to 64.3 TWh in 2016, much larger than in

[17] 19.5 TWh in OMIP continuous market and 14.9 TWh in OMIP auction (5.7 TWh were traded through OMIP auction mode for selling renewable energy in Portugal and 9.2 TWh for selling FTR-options).

the previous year (21.7 TWh in 2015). EEX-ECC became the number one cleared trading venue for Spanish power if trading in OMIP auction is not taken into account.

Monitoring the occurrence of restrictive contractual practices

The Royal Decree-Law 13/2012 reinforced this duty. As a consequence, CNMC is entitled to analyse specific cases following a complaint of the affected party. Furthermore, CNMC can address this issue on its own initiative as competition authority.

Respecting contractual freedom with regard to interruptible supply contracts and with regard to long-term contracts

Act 3/2013 has incorporated this duty as one of CNMC's functions. CNMC intervenes after the receipt of a complaint as regards breaches of contractual freedom. This activity is performed under the framework of market monitoring activities.

In case some demand has to be curtailed, there is a regulated service provided on a voluntary basis by some consumers called "interruptible demand". The revenue regime for this service was revised in 2013 by Order IET/2013/2013, of 31st October. This revision took place considering the low demand and high penetration of renewable generation.

In the new regime, the service providers' selection and the revenue level are fixed through an auctioning mechanism. The first auction, for 2015, took place in November-December 2014. 3.020 MW of interruptible demand were assigned, with a total cost of 508 million €.

### 3.2.2 Retail market

The Act 24/2013 of the Power Sector and the Royal Decree 216/2014 modified the regime of the last resort supply and introduced the so called "voluntary price for small consumers" (known by the acronym in Spanish: PVPC) for consumers below 10 KW. As from 1st January 2014, the last resort regulated tariff for small consumers disappears. Instead, small consumers can opt to be supplied at the voluntary price for small consumers (PVPC). According to this new regulation, as from 1st April 2014, last resort tariffs are only available to: i) vulnerable consumers and ii) consumers that not having the right to be supplied under the regime of voluntary price for small consumers, do not have a free market supply contract in force.

The mentioned Royal Decree establishes the methodology for calculating the voluntary price for small consumers. These prices include the energy cost (price resulting in the spot market and ancillary services during the period), the applicable access tariffs and other charges such as the regulated margin of the reference supplier.

CNMC was mandated to prepare a report with the methodology to determine the regulated margin. On May 2016, this report was approved by CNMC and margin was calculated by the CNMC from the information required to retail companies in the electricity (and gas) sector, and includes commercialization costs (billing, collection, customer service, structure costs, between others).

On November 2016 the Royal Decree 469/2016 was approved, which amended Royal Decree 216/2014, and established the new methodology for calculating PVPC. The methodology defined in Royal Decree 469/2016, aims to recognize the costs to carry out the supply activity made by an efficient and well-managed company, taking as reference the costs of the three most efficient companies, as long as these represent a market share of at least 40 percent, or a higher number of marketers to reach that quota. It also recognizes a remuneration for the exercise of supply activity. Finally, the values for the new regulated margin cost for the period 2014 - 2018 were established in the Ministerial Order ETU/1948/2016.

The "reference suppliers" have the obligation to apply these prices to the small consumers that wish to be supplied with a variable price. Additionally, the reference suppliers must offer a (not regulated) fix price for one year. The idea is that some consumers may wish to have an ex-ante fix price instead of an ex post variable price.

In 2008, the Government approved the Substitution plan for all Spanish residential meters (up to 15 kW contracted power) for new smart metering devices before the end of 2018. As result of the meter replacement plan at the end of December 2016, 75% of new meters are already installed, compared to 70% foreseen in the plan.

The Resolution of 2nd June 2015 of the Secretary of State for Energy approved the Operational Procedures necessary to start issuing bills to customers equipped with smart meters based on hourly consumption and hourly prices. The first bills of this kind were issued on October 2015. This model provides a dynamic price signal to small customers and consequently, a way to implicitly participate in the market by shifting consumption to the hours of the day where energy is cheaper.

In 2016, the number of customers supplied under the PVPC regime by reference suppliers is decreasing more slowly than in previous years (below the threshold of 10 kW) and at the end of 2016 it was 12.205.238 (42% of the consumers entitled).

#### 3.2.2.1 Monitoring the level of prices, the level of transparency, the level and effectiveness of market opening and competition

As mentioned in 3.2.1.1, the duties contained in article 37(1)(i) and (j) of Electricity Directive have been incorporated as functions of CNMC by Act 3/2013.

- Prices

At retail level, CNMC monitors retail prices through the commercial offers that are published in CNMC's price comparison tool and through the "Circular" CNE 2/2005. By this Circular, suppliers are officially requested to submit a declaration of the average invoice charged to each type of customer (according to the access tariff group). The results of this monitoring are published in CNMC's retail electricity market report which is published regularly[18].

CNMC has developed a number of tools for empowering consumers, available on the web: a price comparison tool (PCT) to compare electricity and gas offers, and a tool for checking the electricity bill for those consumers under the regulated tariff.

CNMC price comparison tool aims to improve the transparency of retail markets. In this web based price comparison tool, suppliers' public commercial offers for low voltage consumers are disclosed. CNMC monitors the conditions of the offers included in the comparison tool and the results are published in an annual report.


*Figure 12. - Sample of commercial offers for a domestic consumer*

*Source: CNMC website*

[18] See "Informe de supervisión del mercado minorista de electricidad año 2014" published the 8th of October, 2015. The 2016 report will be published soon.

The tool for checking the electricity bill gives consumers who have opted for PVPC and have smart meter, the ability to check their bill, besides the financial impact of their electricity consumption depending on the access costs plan chosen between the general tariff, the night tariff and the super-valley tariff (electric vehicle) and depending on the load contracted.


*Figure 13. - Tool for checking the electricity bill*

*Source: CNMC website*

- Transparency

The duty contained in article 37(1) (u) of Electricity Directive has been transposed in the Spanish legislation. CNMC has been granted the power to impose all reasonable measures necessary to attain the objective of ensuring a high quality of service and the compatibility of the exchange data processes needed to switch suppliers (amongst other objectives set forth by the law).

Pursuant to the third transitional provision of the Act 24/2013 of the Power Sector, since the 1st of July, 2014, the CNMC functions on switching include, among others, promotion and monitoring of switching data flows among distribution and supplier companies, proposal of improvements on switching procedures, data analysis of switching data, access to Data Bases of supply points from Distribution Companies and deliver copy of these Data Bases to the suppliers companies.

The Act 24/2013, in line with the Directive 2009/72, introduced a general timeframe of 21 days for the switching process in electricity. According to this new piece of legislation, future specific regulations will establish the switching mechanisms and conditions to bill the supplies. In general the deadline of 21 days for switching is met by the large majority of the switching requests. In 2016, more than 99% of the activated switching requests complied with this legal deadline. This law establishes as well the final closure account following any change of electricity no later than 42 days after the change has taken place. Furthermore, the Royal Decree 216/2014 establishes that when interventions in the user's facilities are not needed, the consumer may request the switching process to be completed within 15 days, when the meter is read or by a specific date chosen by the consumer.

During 2015, around 1.3 million consumers abandoned the last resort supply (PVPC taking into account data collected from the five major Spanish distribution companies) in favour of the free market. In 2015, the subscriber switching maintained high rates, almost 11.2% where 4.8% of which belongs to switching from the last resort supplier to free market.

During 2016, 0.9 million consumers moved from the last resort supply in favour of free market. In 2016, the switching rate slightly decreased with respect to 2015 to a value 11.0%. Switching from the last resort supply to free market represents  movements within the liberalised market 6.8% and movements from the free market to the last resort supply 1%.

As shown in the table below, the evolution of the switching rate during 2010-2016 has followed an increasing trend, topping 13.0% in 2013, and as seen before decreasing slightly in 2014 through 2016. The number of failed switches rises in 2014, after a five year decreasing trend.[19]

| ELECTRICITY SWITCHING DATA 2010 – 2016[1]* | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **2010** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** |
| **Domestic switching rate** | 6.61% | 10.04% | 11.63% | 12.56% | 11.75% | 10.72% | 10.59% |
| **Nº domestic customers** | 26,555,315 | 26,645,921 | 26,740,386 | 26,844,788 | 27,976,345 | 28,090,488 | 28,229,217 |
| **Total switching rate** | 7.42% | 10.61% | 12.07% | 12.96% | 12.12% | 11.12% | 11.03% |
| **No. all customers** | 27,406,461 | 27,505,927 | 27,593,863 | 27,684,136 | 28,825,462 | 28,937,000 | 29,085,625 |
| **% failed switches** | 8.20% | 5.98% | 5.48% | 5.23% | 6.44% | 8.24% | 10,43% |

*Table 8. Electricity Switching 2010-2016*

*Source: CNMC, OCSUM*

[19] See "Informe anual de supervisión de los cambios de comercializador – 2016" published the 25th of May, 2017.

- Effectiveness of competition

Act 3/2013 granted CNMC the power to supervise the degree of competition in the energy markets at wholesale and retail level.

During 2016, the degree of concentration increased, breaking with the declining tendency.

At the end of 2016, and based on the information provided by the five biggest Spanish distribution companies, the markets shares of the largest companies were as follows:

- Market share of the three largest companies in the whole retail market by volume: 71%
- Market share of the three largest companies in the non-household sector by volume: 65%
- Market share of the three largest companies in the market for households by metering points: 92%

Monitoring the occurrence of restrictive contractual practices

The Royal Decree-Law 13/2012 reinforced this duty. As a consequence, CNMC is entitled to analyse specific cases following a complaint of the affected party. Furthermore, CNMC can address this issue on its own initiative as competition authority. CNMC also provides guidance to suppliers and consumers through a set of recommendations regarding contractual practices.

Respecting contractual freedom with regard to interruptible supply contracts and with regard to long-term contracts

Act 3/2013 has incorporated this duty as one of CNMC's functions. CNMC intervenes after the receipt of a complaint as regards breaches of contractual freedom. This activity is performed under the framework of market monitoring activities.

### 3.2.2.2. Recommendations on supply prices, investigations and measures to promote effective competition

Recommendations on supply prices

CNMC has the power to issue recommendations on supply prices according to Act 3/2013. In 2016, there was not any recommendation on this topic.

Furthermore, pursuant to article 3 of the Directive 2009/72, *"Member States may impose on undertakings operating in the electricity sector, in the general economic interest, public service obligations which may relate to security, including security of supply, regularity, quality and price of supplies and environmental protection".*

As explained at the beginning of section 3.2.2, as from 1st April 2014, the system of end-user price regulation has changed. The Royal Decree 216/2014 establishes the methodology for calculating the so-called "voluntary price for small consumers", which reflects spot market prices during the consumption period and includes the applicable access tariffs and other charges. The "reference suppliers" have the obligation to apply these end-user prices. For more information on public service obligations, see chapter 5.

Report on investigations carried out, main results and possible measures adopted

CNMC launched in May 2014 an investigation on electricity suppliers for potential anticompetitive behaviour, in particular on communication campaigns to consumers and advertisements that may be confusing or biased with the aim to influence consumer decisions with regard to the different modalities of electricity supply.

CNMC is investigating certain suppliers for different reasons, such as non-compliance with market and system operation rules or non-compliance with customer protection provisions established by the Law.

According with article 7 point 32 of Act 3/2013, CNMC should "*Inspect the fulfillment of the requirements of the natural gas and electric energy suppliers…*". Several procedures regarding the breaching of consumer protection provisions were solved during 2016 and first half 2017, imposing penalties by a total amount of 1.540.000€.

Also during this period a procedure for anti-competitive practices has been initiated against the lasts resort suppliers of two incumbents in the energy market.

Report on tariff deficit

From 2000 to 2013, the revenues in the Spanish Electricity System have not been sufficient to cover system's costs. Accordingly, a subsequent deficit has arisen (the "Tariff Deficit").

The origin of the electricity tariff deficit, the evolution of access cost and tariffs and the financial mechanisms are detailed in the National Report 2012. In 2013 the Government carried out an integral reform of the Electricity System in Spain, with the aim of correcting the electricity tariff deficit and guaranteeing electricity supply at the lowest possible price for the consumer.

As a result of the reform, the sector's costs and revenues are back in balance and the year 2014 ended with a surplus of 550.3 million (+469.3 million euros in 2015).

The electricity system´s total debt up to the 31st December 2016 is EUR 23.1 billion euros. This includes 2013 tariff deficit securitization that was performed in December 2014. 79.9% of the total debt (EUR 18.4 billion) has been securitized through FADE, having the bonds issued by FADE being guaranteed by the Kingdom of Spain. The remaining 20% has been assigned to

banks and securitization vehicles (SPV). There are no longer tariff deficit credit rights in the utilities balance sheets.

## 3.3 Security of supply

Implementation of safeguard measures

No safeguard measures had to be taken throughout 2016.

### 3.3.1 Monitoring balance of supply and demand

Monitoring of security of supply

CNMC follows up of the available generation capacity in order to know if demand coverage problems are possible in the electricity and gas sectors. In this context, we can conclude that there is enough generation capacity available to cover the peak demand in the coming years.

The electricity consumption on the Spanish peninsular system was 249,980 GWh in 2016, 0.64% higher than in 2015. Discounting the effects of temperature and labour patterns, the annual demand has remained at the same level as in 2015, compared to a growth of 1.6% registered in 2015 and the fall of 0.1% registered in 2014 for the same concept.

The evolution of overall annual growth of consumption, from 2012 to 2016, is shown below:

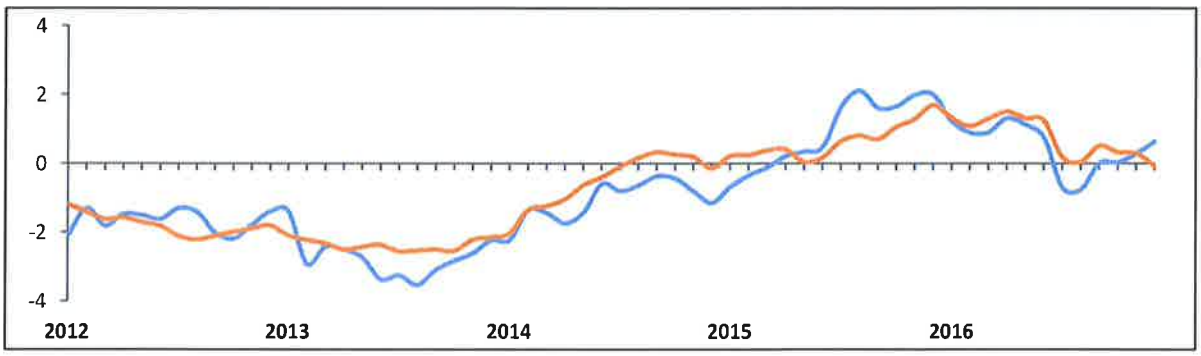



*Figure 14. Rolling annual consumption growth in % in the Spanish peninsular system (blue: non-adjusted; orange: labour-and-temperature adjusted)*

*Source: REE*

The yearly maximum for hourly average demand was reached on 6th September with 40,144 MWh. This value was 10.5% lower than the historical maximum registered in 2007.

Installed capacity in generating facilities on the peninsular system showed a slight decrease of 0.9% during 2016 compared to the previous year, reaching a total of 105.31 GW. Most of the reduction in installed capacity is due to the closure of several coal plants, which has meant a total decrease of 932.2 MW. Variations in other technologies have been null or not very significant, except photovoltaic solar that registered a slight increase of 0.3%.

Current generation fuel mix and expected developments

The following chart and table show the shares by technology of installed generation capacity in the Spanish national system (mainland and extra-peninsular) in 2016.

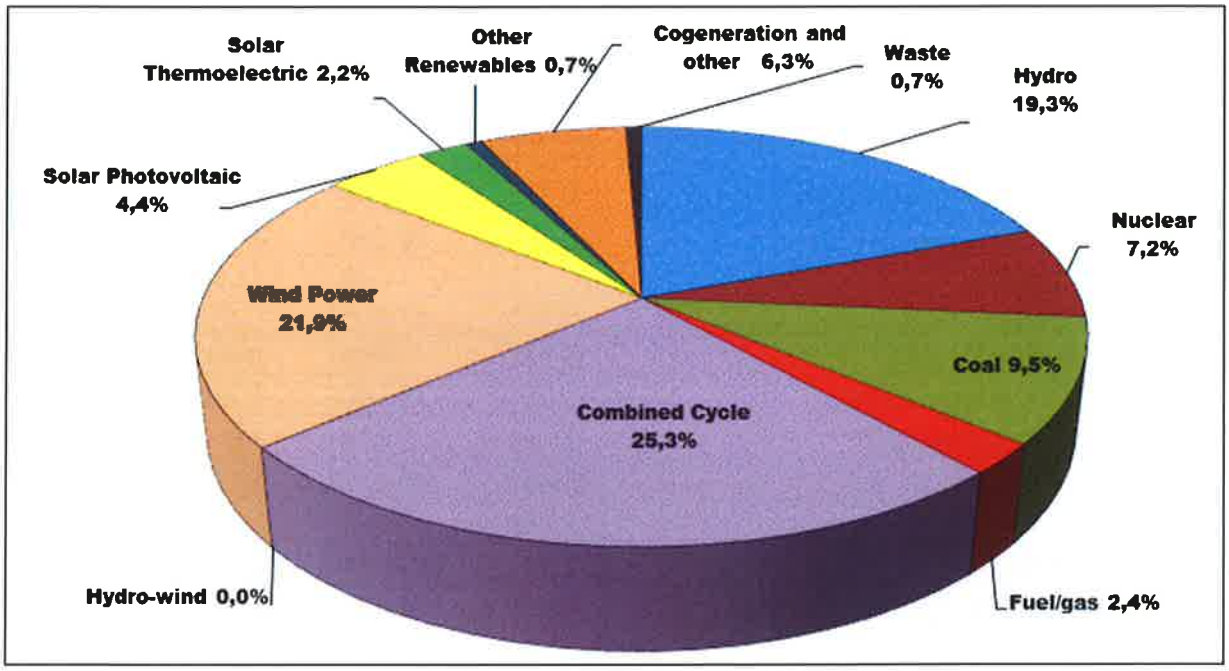



*Figure 15. Installed generation capacity in the Spanish national system at the end of 2016*

*Source: REE*

| Tecnology/Generation capacity (MW) | 2015 | 2016 | Δ % 2016/2015 |
|---|---|---|---|
| Hydraulic | 20,353 | 20,353 | 0.0% |
| Nuclear | 7,573 | 7,573 | 0.0% |
| Coal | 10,936 | 10,004 | -8.5% |
| Fuel+gas (conventional) | 2,490 | 2,490 | 0.0% |
| Combined Cycle (CCGT) | 26,670 | 26,670 | 0.0% |
| Hydro-wind | 11 | 11 | 0.0% |
| Wind power | 23,020 | 23,056 | 0.2% |
| Solar Photovoltaic | 4,663 | 4,674 | 0.2% |
| Solar Thermoelectric | 2,300 | 2,299 | 0.0% |

| | | | |
|---|---|---|---|
| Other Renewables (1) | 747 | 748 | 0.1% |
| Cogeneracion and other | 6,728 | 6,644 | -1.2% |
| Waste | 754 | 754 | 0.0% |
| **TOTAL** | **106,245** | **105,276** | -0.9% |

*(1) Biogas, biomass, wave energy, geothermal.*

*Table 9. Installed generation capacity structure in the Spanish national electricity system*

*Source: REE*

In 2016, total demand of power generation (including mainland and no-peninsular demand) increased around 0.8% reaching 265.009 GWh, which was covered as follows:

| Balance of Spanish electric energy system (GWh) | 2015 | 2016 | Δ % 2016/2015 |
|---|---|---|---|
| Hydraulic | 31.221 | 39.171 | 25,5% |
| Nuclear | 54.755 | 56.099 | 2,5% |
| Coal | 52.789 | 37.491 | -29,0% |
| Fuel+gas (conventional) (1) | 6.497 | 6.765 | 4,1% |
| Combined Cycle (CCGT) (2) | 29.291 | 29.260 | -0,1% |
| Hydro-wind | 9 | 18 | 111,6% |
| Wind power | 48.115 | 47.695 | -0,9% |
| Solar Photovoltaic | 8.243 | 7.965 | -3,4% |
| Solar Thermoelectric | 5.085 | 5.060 | -0,5% |
| Other Renewables(3) | 3.184 | 3.426 | 7,6% |
| Cogeneracion | 25.449 | 25.817 | 1,4% |
| Waste | 3.298 | 3.392 | 2,9% |
| **Net production** | **267.936** | **262.161** | **-2,2%** |
| Pumped storage consumption | -4.520 | -4.819 | 6,6% |
| International Exchanges (4) | -133 | 7.667 | -- |
| **Total demand** | **263.283** | **265.009** | **0,7%** |

*(1) Generation from auxiliary generation units is included in the Balearic Islands' electricity system.*
*(2) Includes operation in open cycle mode.*
*(3) Biogas, biomass, wave energy, geothermal.*
*(4) Positive value: importer balance; negative value: exporter balance. Values of increments not calculated when the exchange balances have different sign.*
*Note: Consumption in generation corresponding to hydro, nuclear, coal, fuel/gas and combined cycle production has been netted in each of the corresponding amounts incorporated in the table above.*

*Table 10. Balance of the Spanish electricity system*

*Source: REE*

### 3.3.2 Monitoring investment in generation capacities in relation to SoS

Duties and powers of the regulatory authority

The Spanish regulator follows-up the coverage of demand in the electricity and gas sectors, including the investment on new generation capacities (as well as decommissioning).

In this context, the installed power capacity on the peninsular system decreased compared to the previous year and closed 2016 at 100,088 MW, 916 MW (0.9 %) less than in December 2015, which has meant a change of trend after a long time with growth. The largest variation recorded was that of coal technology, which decreased its contribution by 932 MW, due to the closure of several coal power stations. The remaining technologies had no power variations or the variations were little significant in 2016, as in the case of solar photovoltaic technology that registered a light increase of 0.3%.

Operational network security

The System Operational Procedures 1.1. to 1.6 and 2.1. to 2.5 are dedicated to operational network security uses.

Investment in interconnection capacity for the next 5 years or more

- Interconnection with France

On 20th February 2015, the Santa Llogaia – Baixàs power line, which doubles the interconnection capacity between France and Spain, was commissioned. It became operational in October 2015. INELFE, the company jointly and equally owned by Red Eléctrica and its French counterpart, RTE, finalised the construction of the 400 kV electricity interconnection between Spain and France (Santa Llogaia - Baixàs) across the Eastern Pyrenees. In the section which crosses the border, approximately 70 km in length, the line is underground and operated in Direct Current, which required the construction of converter stations, one at each end of the line.

The construction of this new interconnection, classified as a top priority by the European Union, allows the interconnection capacity between both countries to be increased from 1,400 to 2,800 MW (around 6% of the maximum Spanish electricity demand), and it permits the integration of a higher volume of renewable energy production. Similarly, this new line will guarantee the power supply in the province of Girona.

Furthermore, a new subsea interconnection through the Gulf of Biscay has been selected as a PCI too. Furthermore, this project is mentioned as a key project for security of supply in the EC communication "European Energy Security Strategy" published on 28th May 2014.

The Presidents of Spain and France through a joint declaration (Madrid, 4th March 2015) affirmed their commitment to increase the French-Spanish interconnection in order to reach the 10% interconnectivity target (as far as Spain is concerned) by 2020. For that purpose, the French and Spanish TSOs made proposals for new projects through the Pyrenees which are being analysed.

- Interconnection with Portugal

The cross border capacity between Portugal and Spain reached 2.400 MW in 2012 and 2.700 MW in May 2014. The interconnection project between Northern Portugal and Spain has been selected as a PCI.

More complementary projects will be completed in the coming years.

- Interconnection with the Balearic Islands

The power interconnection HVDC-250 kV between mainland Spain and the Balearic Islands started to operate on the 14 of August 2012. It involves a high voltage submarine interconnection composed of three cables (one of them being a return cable) 237 km in length. In 2016 this cable has transmitted 21.4% of total demand of the Balearic islands (1.25 TWh). Also in 2015 the first circuit of the new Mallorca-Ibiza interconnection was laid down; it's an alternate current cable at 132 kV with a 118 km underwater section.

Expected future demand and envisaged capacity for the next 5 years and 5-15 years (Article 7 Directive 2005/89/EC)

Based on the expectations contained in the National Network Development Plan, for the period 2015-2020 there is a high uncertainty about the evolution of the expected demand. However, due to the demand reductions in the last years and a suitable installed capacity, no demand coverage problems are expected.

The expected Spanish Mainland peak demand for 2020 under different conditions is as follows:

| Year | Electricity consumption (TWh) | | |
|---|---|---|---|
| | Lower Scenario | Central Scenario | High Scenario |
| 2020 | 273,1 | 277,7 | 284,9 |

*Table 11. Expected evolution of consumption (TWh) for the Spanish Mainland for 2020.*

*Source: Ministry of Energy, Tourism and the Digital Agenda and REE.*

Below is shown the energy balance of the mainland electricity system expected for 2020, corresponding to the upper scenario of evolution of demand, with average hydrological situation, for the analysed generation scenario and considering an average wind power output.

| Balance of Spanish electric peninsular system (GWh) | 2020 |
|---|---|
| Hydraulic (large) | 30,220 |
| Nuclear | 59,670 |
| Coal | 44,690 |
| Fuel+gas | — |
| Combined Cycle (CCGT) | 49,790 |
| Hydraulic (small) | 6,620 |
| Wind power | 61,310 |
| Solar Photovoltaic | 9,840 |
| Solar Thermoelectric | 6,560 |
| Renewable Thermal | 7,310 |
| Cogeneration and other | 35,350 |
| **Total production** | **311,360** |
| Consumption in generation | -7,920 |
| Pumped storage consumption | -6,020 |
| International Exchanges (1) | -12,500 |
| **Total demand** | **284,920** |

(1) Including Peninsula-Balearic Islands' link

*Table 12. Balance of Spanish electric peninsular system (GWh) for 2020*

*Source: Ministry of Industry, Energy and Tourism and REE*

| Peak demand (MW) | Winter | | Summer | |
|---|---|---|---|---|
| | Lower Scenario | High Scenario | Lower Scenario | High Scenario |
| 2019 | 46,300 | 47,900 | 42,600 | 44,000 |
| 2020 | 47,300 | 49,000 | 43,600 | 45,100 |

*Table 13. Expected Peak Demand (MW) for the Spanish Mainland in the period 2019-2020, according to National Network Development Plan 2015-2020*

*Source: Ministry of Energy, Tourism and the Digital Agenda, REE and CNMC*

As regards the envisaged capacity to be installed, main additions are expected among RES-based technologies, mainly wind and solar PV, with another near 4.8 GW and 1.4 GW respectively, by 2020. On the other hand, the generation groups in the "20.000 hours of functioning plan"[20] have carried out the actual disconnection of the electrical system in 2015, as had been committed. Besides, in 2016 it will be necessary for large combustions units (coal) to make the necessary investments to comply with Directive 2010/75/UE of the European Parliament and of the Council on industrial emissions. Consequences are unpredictable but some of them could be decommissioned.

In the following table the expected installed generation capacity for Spanish Mainland in the period 2019-2020, according to National Network Development Plan 2015-2020, is shown:

| Generation capacity (MW) | 2019 | 2020 |
|---|---|---|
| Hydraulic (large) | 15,288 | 15,288 |
| Pumped hydro | 3,770 | 3,770 |
| Nuclear | 7,865 | 7,865 |
| Fuel+gas (conventional) | — | — |
| Coal | 10,270 | 10,270 |
| Combined Cycle (CCGT) | 19,272 | 19,272 |
| Hydraulic (small) | 2,267 | 2,300 |
| Wind power | 26,850 | 27,650 |
| Solar Photovoltaic | 5,790 | 5,790 |
| Solar Thermoelectric | 2,300 | 2,300 |
| Renewable thermal | 1,201 | 1,254 |
| Cogeneration and other | 7,340 | 7,390 |
| **TOTAL INSTALLLED CAPACITY** | **102,213** | **103,149** |
| Winter available capacity | 51,710 | 51,860 |
| Summer available capacity | 52,420 | 52,540 |

*Table 14. Expected installed and firm available capacity installed in winter and summer (period 2019-2020), according to National Network Development Plan 2015-2020*

*Source: Ministry of Energy, Tourism and the Digital Agenda and REE*

[20] According to art 4.4 a) of the Large Combustion Plant Directive, the existing plants may be exempted from their inclusion in the national emission reduction plan if the operator of the plant undertakes, in a written declaration to the competent authority, not to operate the plant for more than 20 000 operational hours starting from 1 January 2008 and ending no later than 31 December 2015.

Note that expected available capacity does not match expected installed capacity since, for security reasons, some restrictive assumptions about the availability of installed capacity are taken into account in order to calculate reserve margin rate.

For the assessment of the reliability of demand coverage, the Demand Coverage Index has been used traditionally as a parameter. It is calculated as the ratio of the net power available from the generator equipment and the average hourly peak demand provided, in winter and summer respectively (not considered international exchanges in the peak demand). A minimum of 1,1 is accepted as a figure that adequately guarantees coverage of the system demand in extreme situations, given the need to have operating reserves, possible restrictions on the transmission network, errors in forecasting or additional risks. Therefore, under the assumptions made in the analysis by the TSO, it does not provide any additional power to meet peak demand in the high demand scenario considered, as shown in the following tables.

| Reserve margin rate Winter | 2019 | | 2020 | |
|---|---|---|---|---|
| | Lower demand scenario | High demand scenario | Lower demand scenario | High demand scenario |
| Winter available capacity | 51,710 | 51,710 | 51,860 | 51,860 |
| Peak demand (MW) | 46,300 | 47,900 | 47,300 | 49,000 |
| **Demand Coverage Index (IC)** | **1.12** | **1.08** | **1.10** | **1.06** |

| Reserve margin rate Summer | 2019 | | 2020 | |
|---|---|---|---|---|
| | Lower demand scenario | High demand scenario | Lower demand scenario | High demand scenario |
| Summer available capacity | 52,420 | 52,420 | 52,540 | 52,540 |
| Peak demand (MW) | 42,600 | 44,000 | 43,600 | 45,100 |
| **Demand Coverage Index (IC)** | **1.23** | **1.19** | **1.21** | **1.16** |

*Table 15. Expected reserve margin rate in winter and summer. Period 2019-2020, according to National Network Development Plan 2015-2020*

*Source: Ministry of Energy, Tourism and the Digital Agenda, REE and CNMC*

The above Demand Coverage Indices are calculated without taking into account the effect of the interruptible demand, since this service would be guaranteed only the following two years; if it were considered, this Index would increase.

### 3.3.3 Measures to cover peak demand or shortfalls of suppliers

Monitoring of security of supply

In case some demand has to be curtailed, there is a service provided by some consumers called "interruptible demand". In 2016, demand coverage in Spain did not experience any

relevant problem; however, some interruptible demand was curtailed because of local problems in transmission grid.

The revenue regime for this service was revised in 2013 by Order IET/2013/2013, of 31st October. This regime was reviewed in the context of other measures included in the electricity sector reform, which addressed the various activities and cost items of the electricity system, with the aim to ensure the correspondence between revenues and costs.

In the new regime, the service providers' selection and the revenue level are fixed through an auctioning mechanism. The first auction, for 2015, took place in November-December 2014. 3,020 MW of interruptible demand were assigned, with a total cost of 508 million €. The auction for 2016 took place in September 2015. 2,890 MW of interruptible demand were assigned, with a total cost of 503 million €. In November 2016 another auction has been carried out that has allocated 2,975 MW to the interruptibility service for 2017, with a total cost of 525 million €.

# 4 Gas

## 4.1 Network regulation

### 4.1.1 Unbundling

Designation and certification of transmission system operators

Act 3/2013 sets forth that CNMC will be in charge of the certification procedure as foreseen by the Directives. The Hydrocarbons Act establishes two possible models for gas TSO unbundling:

- The unbundling model, adopted for the main TSO (Enagas Transporte S.A.U.), with more than 90% of national transport pipelines) is "Ownership unbundling".
- Small gas TSOs in Spain can opt between the Ownership unbundling model and the ISO model.

Spain has already finished the certification process of TSOs. The certifications have been issued and duly notified to the European Commission by CNMC.

- Enagas Transporte S.A.U., the main TSO in Spain, has been certified under the ownership unbundling model (OU).

- Enagas Transporte S.A.U. has also been certified as Independent System Operator (ISO) model for the primary gas transmission networks owned by SAGGAS and by Enagas Transporte del Norte.

- Finally, Reganosa was certified by CNMC, in February 2014, under ownership unbundling model (OU). The CNMC resolution limits the voting rights and the appointment of members in the supervisory board of Reganosa to the two shareholders from vertically integrated undertakings (Gasifica and Sonatrach).

Following the certification of the Spanish TSO, CNMC is monitoring the compliance with the certification requirements.

TSO certification process

Regarding the main TSO, ENAGAS, requested the certification as a Transmission System Operator on 4th November 2011. The Board of the Spanish NRA, by 19th April 2012, issued a preliminary certification decision of ENAGAS according to article 63 bis of Hydrocarbons Act (Act 34/1998, of October 7th), amended by Royal Decree-Law 13/2012. Pursuant to the mentioned article 63 bis, the NRA notified the preliminary decision on the certification of ENAGAS as TSO, to the European Commission. On June 15th 2012, the EC sent its opinion on this preliminary decision. The NRA drafted its final decision on the 26th July 2012 and issued the definitive certification for ENAGAS subject to the fulfilment of certain conditions. The definitive certification was also notified to the EC.

In its meeting dated 18th April 2013, the Board of the NRA monitored the compliance of the conditions set in the definitive certification decision, resolving that ENAGAS had adopted the measures needed to fulfil the unbundling requirements. This decision adopted by 18th April 2013 was also notified to the EC.

In order to guarantee ENAGAS's independence, the Spanish law limits the share capital and the voting rights in ENAGAS. Thus a single person or society cannot, directly or indirectly, own more than 5% share capital or use more than 3% of voting rights. This limit does not apply to State ownership.

Reganosa requested the certification under the Ownership unbundling model on 31st July 2012. In its preliminary decision, the Spanish NRA, in its meeting held on 13th December 2012, rejected the certification identifying certain measures to be adopted by Reganosa to comply with ownership unbundling requirements. On February 2013, the European Commission sent its favourable opinion on this preliminary decision. Eventually, the Board of the NRA in its meeting dated 4th April 2013, issued its final decision rejecting the certification under the ownership unbundling model. Once adopted the proposed measures to comply with unbundling requirements, Reganosa requested again the certification under the Ownership unbundling model on 27th June 2013. After having issued the CNMC preliminary decision and the EC favourable opinion, the Board of CNMC issued its final decision on 4th February 2014. The definitive certification was notified to the EC. Finally, on February 2015, Reganosa was authorized and appointed as natural gas transmission system operator by Ministerial Order IET/241/2015.

Enagás Transporte, S.A.U submitted an application to be certified as Independent System Operator (ISO) of the primary gas transmission networks owned by Saggas and by Enagás Transporte del Norte, S.L. (ETN) on 21st May 2013. The Board of the Spanish NRA in its meetings dated 18th July and 31st July 2013 respectively, issued the preliminary certification decisions of ENAGAS Transporte S.A.U and proceeded to notify them to the European

Commission. After EC favourable opinions, the Board of CNMC issued its final decision on 14th and 26th November 2013, respectively, for Enagás Transporte S.A.U as ISO of the primary gas transmission networks owned by Saggas and by ETN respectively. The definitive certifications were notified to the EC. Finally, on January 2015, Ministerial Orders IET/20/2015 and IET/21/2015 approved appointment of Enagás Transporte, S.A.U. as ISO of the primary gas transmission networks owned by ETN and Saggas respectively.

DSO Unbundling

Article 63 of the Hydrocarbons Act states the current legal unbundling regulatory framework for DSOs, in line with the Gas Directive 2009/73. Most of the DSO unbundling requirements were introduced in the Spanish legislation in 2007, by the act 12/2007.

DSOs are allowed to belong to a group that undertakes supply activities, provided that a legal unbundled company performs the regulated activities.

In addition, functional unbundling for DSOs is required. This includes management separation and measures relating effective decision-making rights.

Article 63 of the Hydrocarbons Act sets forth that an annual report, setting out the internal code of conduct and the measures taken by each regulated company in order to implement the unbundling requirements should be sent to the NRA and the Ministry for approval, and shall be published.

Since 2008, vertically integrated DSO have implemented their compliance programs and submitted the required reports, on the unbundling measures they have adopted, to the Spanish NRA and to the Ministry. The process is monitored by the NRA.

The requirements to separate the identity of the supply branch from the vertically integrated undertaking, with a view to avoid confusion in their communication and branding, were transposed by Royal Decree-Law 13/2012.

The main DSOs are Gas Natural Distribución Group (69% supply points) and EDP group (12%), both vertically integrated with supplying activities. It should be mentioned the creation of 2 new ownership unbundled DSOs since 2010: Madrileña Red de Gas, with 856.161 supply points (11%), and Redexis Group, with 545.281 supply points (7%), in both cases as the result of a disinvestment in DSO grids from Gas Natural and Endesa.

Vertically integrated DSO have not been rebranded in Spain: DSOs generally use the group name but adding "distribution" as a reference to the activity of the unbundled company. CNMC is now monitoring the compliance of the rebranding obligations, analysing the relevant

information regarding this issue sent by them. As a result of this analysis, CNMC may request companies to rebrand, in case it concludes those obligations are not being fulfilled.

Act 3/2013 has introduced an explicit and clear function for CNMC to monitor the functional unbundling among the activities of the gas sector.

Hence, CNMC is monitoring the implementation of unbundling measures, including those foreseen in the Royal Decree-Law 13/2012:

- The appointment of the compliance officer of the Distribution System Operator;
- Those measures taken to ensure vertically integrated distribution system operators shall not, in their communication and branding, create confusion in respect of the separate identity of the supply branch of the vertically integrated undertaking and;
- Those measures taken to ensure that staff responsible for the management of the distribution system operator does not participate in the structures of the integrated undertaking.

### 4.1.2 Technical functioning

Network code and Spanish Gas System Operator (ENAGAS GTS S.A.U.)

The network codes and technical functioning procedures are set by the System Operation Network Code (Normas de Gestión Técnica del Sistema - NGTS), approved by the Government. The regulator CNMC only issues a non-binding report

The Hydrocarbons Act designated ENAGAS as the Spanish Gas System Operator, in order to be responsible for the operation and technical management of the network, and to ensure the continuity and security of natural gas supply and the correct coordination between access points, storage, LNG terminals, and transmission and distribution companies, with the supplying companies.

Act 12/2011 modified the Hydrocarbons Act and required ENAGAS to split the transport activity and the role of Spanish Gas System Operator into two different companies within the group. In 2012, ENAGAS approved the segregation of the company in two new companies, namely, ENAGAS TRANSPORTE, S.A.U., as TSO, and ENAGAS GTS, S.A.U., as Spanish Gas System Operator. ENAGAS GTS, S.A.U. had to implement separate accounts and functional unbundling for other activities (regasification, transmission and storage) and its staff had to sign a code of conduct to guarantee its independence from all other activities.

Network Balancing

According to Act 3/2013, CNMC is in charge of approving the methodology regarding the balancing rules.

In 2015, CNMC approved the Circular 2/2015, dated 22nd July, to establish network balancing rules, implementing Commission Regulation (EU) nº 312/2014. This Circular regulates the imbalance calculation methodology for gas transmission network, including procedures for calculating imbalances and their surcharges, the operating balance of the transmission network as well as the rules for nominating the use of infrastructures and procedures for providing users information related to their balance.

The Circular 2/2012 modifies some aspects of imbalance calculation methodology for gas transmission network that interact with other regulatory aspects which must be necessarily consistent with the content of the Circular and needed to be adapted.

The new balancing regime established by Circular 2/2015 was fully implemented in Spain by 1st October 2016.

The Act 8/2015 of 23 May 2015, amending Act 34/1998 on the hydrocarbons sector, established the implementation of an organized gas market, and gas exchange is functioning since 15 December 2015, enabling network users to balance their portfolio.

Security and reliability standards, quality of service and supply

General security of supply provisions and safeguard measures, applicable to the Spanish gas system, are explained in point 4.3 of this report.

Security of supply and quality of service standards for customers are set by the Royal Decree 1434/2002.

The customer has the right to get accessible information (guide) on correct installation handling, including safety measures, for the gas installation. As a part of maintaining safety, DSOs have the obligation to inform customers connected to their gas distribution grid every 5 years the necessity to perform a safety inspection of their gas installation.

Royal Decree 984/2015, dated 30th October, approved by the Government, has established the procedure of periodic inspections of gas reception facilities introducing some changes to promote competition. It allows doing the inspection of the gas facilities not only to DSOs but also to authorized gas fitters. The inspection process consists in checking three main safety aspects:

- Check that the installation has no gas leaks.
- Check that the gas installation has correct ventilation and correct evacuating exhaust of combustion product.
- Check that the gas installation has a correct combustion (without production of carbon monoxide) in the boiler.

To ensure that customers can use natural gas in a secure way, the DSO have also the obligation to have a telephone number and a comprehensive 24-hour attention system to cover

any gas emergency, not only in the gas distribution grid, but also covering gas emergencies at the customer' premises.

Regarding service standards, the compensation payments to customers in case of interruptions of gas supply are established in article 66 of Royal Decree 1434/2002, and range from 10% to 50% of the monthly access tariffs gas bill, depending on the duration of the interruption.

Connections to the grid

The Royal Decree 1434/2002, approved by the Government, established the deadline to respond to a customer request of connection when major works are needed. The distribution company has 6 days when no specific project is needed and 15 days when such a kind of project is required.

The detailed estimated price offer for a new gas connection is provided between 6 and 15 days. In the case of connection below 4 bar, the payment is established by regulation depending on the meter needed, the connections and the consumption of the new customer. If the connection is above 4 bars, a budget is provided.

As long as no major work is required, the Royal Decree 1434/2002 sets that once the supply request is received (from the supplier of the customer), the DSOs has a maximum deadline of six working days to start the delivery of gas (connections with minor works).

Connections with minor works include only checking the documentation (if needed), installing the gas meter, checking the security of the gas installation by the DSO and start the delivery of gas. The DSO connection tariff is set by the regulation and it is billed by the supplier.

Monitoring access to storage

According to article 7 of Act 3/2013, the CNMC monitors the access to storage. The access model to underground storage is a fully regulated-TPA.

The Order ITC/3862/2007, the Order ITC/3128/2011 and the Order IET/849/2012 established a yearly mechanism for the allocation of underground storage capacity for each annual period, from the 1st April of the current year, to the 31st March of the following one.

These are the criteria for underground storage capacity allocation:

- Firstly, the capacity is allocated to the supplying companies in proportion to their final sales in the previous year (up to 20 days of average gas demand) in order to comply with the strategic reserves imposed by Law (Booked capacity by GTS Allocation).
- The remaining capacity is allocated through an auction mechanism.
- In case there is still capacity left, it is allocated according to the agents' capacity requests communicated ENAGAS-GTS under "first-come-first-served" criteria Remaining Capacity Booked).

The general rules of the auction procedure are established by Resolution of 14 March 2008, which outlines certain aspects relating to the management of underground storage facilities of the basic network and lays down the rules for auctioning their capacity. The conditions and specific rules of the yearly auction are established every year in a Resolution of the General Directorate of Energy Policy and Mining of the Ministry of Energy, Tourism and the Digital Agenda. CNMC is the supervisory body for these auctions and the Spanish power exchange (Operador del Mercado Ibérico de Energía, Polo Español, S.A. -OMEL) [21] is the institution responsible for organising them.

The following table summarises the results of the auctions held in 2011, 2012, 2013, 2015 and 2016. During year 2014, no remaining capacity was available after the primary allocation process and therefore no auction was held.

| Auction for the allocation of underground storage capacity of natural gas | | | | | |
|---|---|---|---|---|---|
| **Type** | Multi-round ascending-price, electronic mechanism | | | | |
| **Date** | **29 March 2011** | **27 March 2012** | **26 March 2013** | **24 March 2015** | **17 March 2016** |
| **Allocated capacity (GWh)** | 8,874 | 3,822 | 960 | 1,409 | 76 |
| **Supply period** | 1 April 2011-31 March 2012 | 1 April 2012 - 31 March 2013 | 1 April 2013 - 31 March 2014 | 1 April 2015 - 31 March 2016 | 1 April 2016 - 31 March 2017 |
| **Capacity price (TPA rate added)** | 832 €/GWh per year | 4,932 €/GWh per year | 4,932 €/GWh per year | 4,932 €/GWh per year | 4,932 €/GWh per year |

*Table 16. Auctions for underground storage of natural gas: results of auctions between 2011 and 2016*

*Source: Auction administrator and the Spanish NRA*

According to Article 4 of the Order IET/849/2012, related to allocation and booking of remaining capacity, Enagas-GTS allocated 67,08 GWh of capacity in underground storage, according to the agents' capacity requests, under "first-come-first-served" criteria in 2016.

| GWh | **2016** |
|---|---|
| **Available Capacity** | **31,228** |
| Booked Capacity by GTS Allocation | 21,631 |
| Auction Mechanism | 76 |
| Remaining Capacity Booked | 67 |
| **Remaining Capacity Avalaible** | **9,454** |

[21] Through its subsidiary OMEL Diversificación S.A.U. from year 2009. This allocation methodology has been changed in 2017, and now the Technical System Manager, Enagas GTS, is responsible for the allocation of the UGS through an auction mechanism.

*Table 17. Allocation of underground.2016*

*Source: Enagas-GTS and the Spanish NRA*

### 4.1.3 Network tariffs and economic system

TPA tariffs

In Spain, the Government is currently the responsible for setting access gas tariffs and remuneration; CNMC issues a non-binding opinion to the Government before each update or tariff revision. Afterwards, access tariffs are published in the Official Spanish Journal. Every year tariffs are revised.

The tariff model for transmission applied in Spain is the entry-exit model with a single balancing area. In addition regulated tariffs for LNG terminals and underground storage are set.

According to Act 3/2013, the CNMC is responsible for elaborating the methodology to calculate tariffs and fees for transmission and distribution, regasification, storage and several services provided in the regasification terminals, in accordance with transparent, non-discriminatory and cost-reflective criteria.

The Act 8/2015 sets that the legal authority to establish the structure and conditions of the tolls and fees corresponds to the Government. Therefore, the CNMC has no competence to establish the remuneration of the regulated activities and the structure and conditions applicable to the access tariffs or the final tariff level.

The Ministerial Order IET/2736/2015 established the rates, tolls and fees for third-party access to gas installations applicable in 2016 according to the Act 18/2014.

Regulatory information on costs of regulated activities

In 2015, CNMC approved Circular 1/2015 of 22 July, which develops the regulatory information on costs relating to the regulated activities of transmission, regasification, storage and technical management of the system of natural gas, as well as transmission and operation of the electricity system.

Though this Circular, CNMC will receive information on costs of the regulated activities. Its main purpose it to get systematic information regarding the costs to consider as necessary for the proper performance of the regulated activities, both for investments in facilities with individualized remuneration (regulated assets) as to the operation and maintenance (O & M) activity. The information system will be also useful to carry out the monitoring of unbundling of activities and, in particular, accounts unbundling, to avoid cross-subsidies between these activities, as well as to calculate unit values of reference for investment and operation and maintenance of regulated assets, in order to update and compare these values among different

companies or at different locations within the same company including comparison with external references considered as good practices.

Every year before 1st July, companies must send requested information concerning regulated activities in the previous year.

### 4.1.4 Cross-border cooperation and implementation of European gas network codes

The implementation of European Network codes is considered a crucial step towards the completion of the gas internal market.

CNMC, in cooperation with other regulators, is working in a number of areas according to the priorities defined in the Work Plan for the South Gas Regional Initiative (SGRI).

The CNMC has already approved the CMP and CAM mechanisms and also approved the balancing code, fully implemented by October 2016; the interoperability network code is implemented too.

Balancing network code

CNMC approved the Circular 2/2015 dated 22nd July 2015, establishing balancing rules in the transmission network of the Spanish Gas System.

Regarding to the analysis of the balancing actions as a measure to increase liquidity in the organized market, it is worthy to highlight that the performances of the ENAGAS-GTS are framed in bands of stock of the transmission network that establish when the ENAGAS-GTS must perform actions from balancing. These values are published in the Resolution of the General Directorate of Energy Policy and Mining, dated 28 September 2016, to approve Procedure PD-18 "Technical parameters that determine the normal operation of the transmission network and balancing actions at the Virtual Balancing Point (PVB).

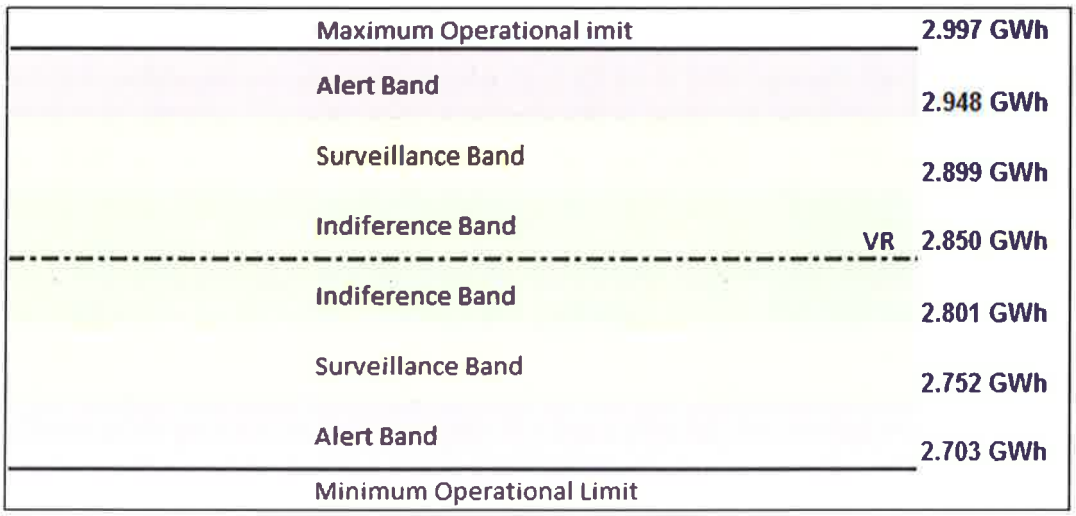



*Figure 16. Stock band to determine balancing actions*

*Source. ENAGAS*

When the stock of gas transmission network stands at the band of surveillance, the ENAGAS-GTS can perform balancing actions, taking into account not only the level of stock at that time, but also the future forecast and MIBGAS situation. When the stock level is placed in the alert band, the TSO must perform balancing actions in any case.

Thus, on October 6, the ENAGAS-GTS carried out the first act of balance buying intraday gas product, and in the whole of the last quarter of 2016, the ENAGAS-GTS has made balancing actions 22 days by a total amount of 743 GWh (636 GWh of gas purchases and 107 GWh of gas sales), through intraday and daily products.

Capacity allocation mechanisms

The European regulation has been transposed in Spain, France and Portugal resulting in a set of harmonized rules for capacity allocation in all borders.

In this regard, CNMC approved the Circular 1/2014, dated 12th February, establishing capacity allocation mechanisms (CAM) to be applied at international connections by pipeline with Europe.

With the implementation of the CAM NC, auctions in the South Gas Regional Initiative (including France, Spain and Portugal) allocated capacity at all interconnections between entry-exit systems in the whole region, in VIPs between Portugal, Spain and France (mostly bundled capacity).

According to the roadmap, different auctions for the different time horizons products were gradually introduced since March 2014, in decreasing order, until reaching day-ahead and daily products in 2015: the first coordinated mechanism to allocate capacity products pursuant to the CAM NC took place in March 2014. Nevertheless, the full implementation of the CAM NC was reached on November 2015:

- In November 2015, all the auctions included in the CAM NC have been implemented.
- A joint nomination procedure for bundled capacity providing registered network users with the means to nominate the flows of their bundled capacity via a single nomination has been implemented from November 2015 onwards in both VIP (two borders).
- Since November 2015, auctions for daily and within-day standard capacity products are offered.

Interoperability network code

In 2015, Commission Regulation (EU) 2015/703, has been approved 30 April 2015, establishing a network code on interoperability and data exchange rules. This Regulation establishes a network code which sets out rules regarding interoperability and data exchange as well as harmonised rules for the operation of gas transmission systems.

Adjacent transmission system operators must ensure that a minimum of terms and conditions detailed in Articles 6 to 12 of the code are covered by an interconnection agreement in respect of each interconnection point: rules for flow control, measurement principles for gas quantities and quality, rules for the matching process, rules for the allocation of gas quantities, communication procedures in case of exceptional events, settlement of disputes arising from interconnection agreements and amendment process for the interconnection agreement.

In December 2015, ENTSOG approved the Interconnection Agreement Template, which covers the default terms and conditions for the minimum mandatory content of an interconnection agreement. TSOs of Spain, Portugal and France have developed, according to the NRAs in the South Gas Regional Initiative, common Interconnections Agreements (IA) for the Virtual Interconnection Points (VIP) between the three countries (VIP Pirineos and VIP Ibérico). These IA were submitted to public consultation in September 2016 for a period of two months and after taking into consideration the comments received were approved and published in TSO's web pages at the beginning of 2017.

Cross-border Cooperation. CMP harmonisation in the South region

CNMC, in cooperation with ACER, NRAs and European Commission, is working on promoting the creation of a competitive, secure and sustainable internal energy market as well as the effective opening for all customers and suppliers in the Community, ensuring appropriate conditions for the effective and reliable operation of gas networks, taking into account long-term objectives.

TSOs and NRAs have worked in a coordinated way on the CMPs harmonisation in the South region. The rules for the implementation of the three mechanisms already in force (over-subscription and buy-back OSBB, capacity surrender and long term use-it-or-lose-it) have been developed.

There has been progress in the implementation of the CMP GLs in the three countries of the South GRI. The NRAs and TSOs have agreed on the details of the coordinated mechanism for over-subscription and buy-back[22].

Apart from the progress on CAM early implementation, it is also remarkable specifically the progress made by SGRI on issues such as increase interconnection capacity with the rest of Europe, increase transparency, implementation of the Directive and development of gas markets.

### 4.1.5 Compliance

[22] Specifications of communication, timelines for the additional capacity offer, calculation of trigger values, buy-back process via PRISMA, as well as the split of costs between TSOs for the buy-back procedure.

Compliance of regulatory authorities with binding decisions of the Agency and the Commission

The Spanish NRA has to comply with and put into practice those pertinent and binding decisions issued by ACER and the EC. Throughout 2016, there weren't any binding decisions issued by the EC or ACER towards the Spanish NRA.

Compliance of transmission and distribution companies, system owners and natural gas undertakings with relevant Community legislation, including cross-border issues

CNMC ensures compliance of transmission and distribution system operators and, where relevant, system owners, as well as of any gas undertakings with the relevant Community legislation, including cross-border issues.

CNMC is entitled to monitor the level of transparency and competitiveness (including of wholesale prices), and the level and effectiveness of market opening and competition at wholesale and retail levels; CNMC has the power to carry out investigations and to impose legally binding decisions.

CNMC has powers to request any information from gas undertakings. In this regard, CNMC shall issue the so-called "Circulars" that must be published in the Official State Journal, detailing and specifying the content of the information to be requested.

## 4.2 Market functioning

According to the Act 3/2013, CNMC is in charge of monitoring the level of prices, the level of transparency, the level and effectiveness of market opening and competition at the Spanish gas markets.

### 4.2.1 Wholesale markets

Wholesale market indicators

The following table summarizes the main indicators of the wholesale gas market in Spain in 2016:

| Wholesale market indicators | Year 2016 | |
|---|---|---|
| National Gas Production | 677 GWh | |
| Gas Consumption | 321.009 GWh | +2,1% |
| Import by pipeline and LNG | 58% Pipeline / 42% LNG | |
| Main origin of gas suppliers | Algeria (57%) including transit | |
| Number of origins of gas supplies | 10 | +1 |

| | | |
|---|---|---|
| Number of registered traders in Spain | 150 | 30 new traders registered in 2016 (15 unregistered) |
| Number of traders bringing gas to Spain | 23 | -3 |
| Market share of the largest entity bringing natural gas | 42,7% (Gas Natural Fenosa) | 45,4% in 2015 |
| HHI for gas imports[23] | 3635 | 3925 in 2015 |
| Gas import prices to Spain (2016 average) | 21,70 €/MWh | -6,12 €/MWh |
| Number of traders active in the wholesale market (OTC) | 77 | +10 |
| Trading volume in the OTC gas market | 433.927 GWh | -2,3% |
| Number of transactions in the OTC | 124.318 | +28,8% |
| Number of traders registered in MIBGAS exchange | 44 (end 2016) | +25 |
| Trading volumes at MIBGAS | 6.566 GWh | |
| Spot gas price at MIBGAS (Day Ahead product) | 17,02 €/MWh | 19,44 €/MWh in December 2015 |
| Number of transactions at MIBGAS | 10.607 | 10 in December 2015 |

*Table 18. Main Wholesale market indicators*

*Source: CNMC*

#### 4.2.1.1 International gas markets

One of the most notable elements of the gas market developments since 2010 is the large price differential between regional gas markets, although during 2016 prices in Europe and Asia have approached mainly in the first half of the year, and also the European markets and the American market have converged during the third quarter of the year.

[23] Calculated on the base of the gas producer countries (not calculated on the base of market share of the international gas producers, like Sonatrach)

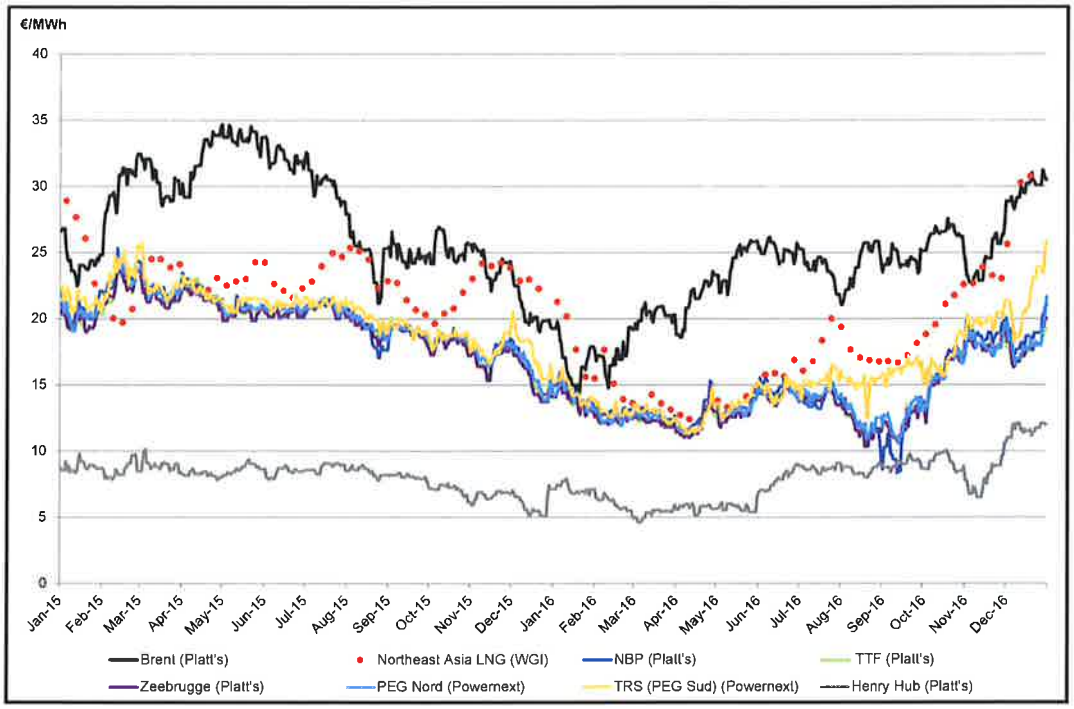



*Figure 17. Evolution of natural gas spot prices (€/MWh) (Jan 2015 - Dec 2016)*

*Source: Platts, Powernext & World Gas Intelligence*

In the US market the new production technologies have sharply reduced the costs of production of unconventional gas, lowering gas prices and decoupling gas prices compared to oil. The Japan market, whose supply is only possible through LNG, has increased its imports of LNG for electricity production from March 2011 (the tsunami crippled its nuclear power plants), thus increasing the cost of supply. In addition, several emerging countries in Asia (China and India) and South America (Brazil, Argentina, Chile) have begun to import LNG, contributing to the increase in international market prices of LNG. However, during 2016 gas prices in Europe and Asia have converged in the first half of the year, but they diverged since June because of the increase in Asian prices; the European prices have also increased since September, and this situation have affected to the American prices, which started a high increase in the month of November.

In Europe, with intermediate price levels, the existence of a network of highly interconnected gas transportation hubs allows northern and central Europe show a remarkable convergence of prices, and some decoupling on the price of oil. The less liquid southern markets, influenced by LNG marginal world price have a price differential with northern hubs, although the trend is towards convergence of prices.

In 2016, international oil and gas markets suffered major changes:

- Spot oil prices increased from 31 dollars/barrel in January to 53 dollars/barrel by the end of the year. Main attributed reasons are stronger global oil demand, especially in India, China and Europe, and a decreasing production in some non-OPEC oil producers as U.S.A. (with a fall led by tight oil production) or China.

- The situation in LNG market started to change in 2015, with the increase of production in Australia and the beginning of production in U.S.A. during 2016 (in Sabine Pass plant), and also due to the weakness of the demand in some Asian countries, like Korea. During most of 2015 and 2016, the differences between LNG prices in Asian and European markets have reduced to 2-3 €/MWh, even with equal prices during the summer of 2016, but with an increasing difference during winter due to higher demand.

- During 2016, the impact in the market of the start-up of new liquefaction plants has been limited by several delays and shutdowns for maintenance, that have affected some projects as Gorgon LNG in Australia, Sabine Pass in U.S.A. or Angola LNG plant. Moreover, Yemen LNG plant continues stopped due to the internal situation of the country. Other traditional producers as Trinidad, Nigeria and Algeria have also reduced their annual LNG production, which can be due to the decline in production in their gas fields and to the increase in their internal demand.

- In Europe, gas consumption totalled 429 Bcm (4.989 TWh) in 2016, a significant 7% increase compared to 2015 values. Despite this increase in gas consumption, prices remained flat until July, when they dropped around 30%, and since September they constantly grew until the end of the year 2016, practically doubling the prices of August.

#### 4.2.1.2 Spanish Gas import prices

Spain imports most of the gas it consumes, since its gas production is negligible; a majority of long term contract are oil-indexed. Another relevant factor that influences gas price in Spain is the importance of LNG in gas procurement (see chapter 4.3 Security of supply). The ability to arbitrate in the global LNG market makes the Spanish consumer more exposed to international prices: in recent years higher prices than in northern Europe were registered, as Spain was influenced by high LNG Asian prices.

In order to provide a price reference for gas in Spain, CNMC has developed an index of natural gas border prices, from gas imports data, which is available at CNMC website[24] based on the data provided by Customs of the Spanish Tax Agency (AEAT).

Gas import prices decreased drastically in the first half of 2016, continuing the decrease started in 2015, and reaching to minimum prices similar to July'09 prices. In the second half of 2016 prices started to increase up to a price band between 17-18 €/MWh, reflecting several months later the increase of oil prices. This has continued during the first months of 2017.

The following figure shows the evolution of natural gas prices from January 2002 to December 2016 at the border (according to this index), including LNG and natural gas introduced to Spain through pipelines from Morocco, Algeria and France.

[24] http://www.cnmc.es/es-es/energ%C3%ADa/hidrocarburosgaseosos/mercadomayorista.aspx

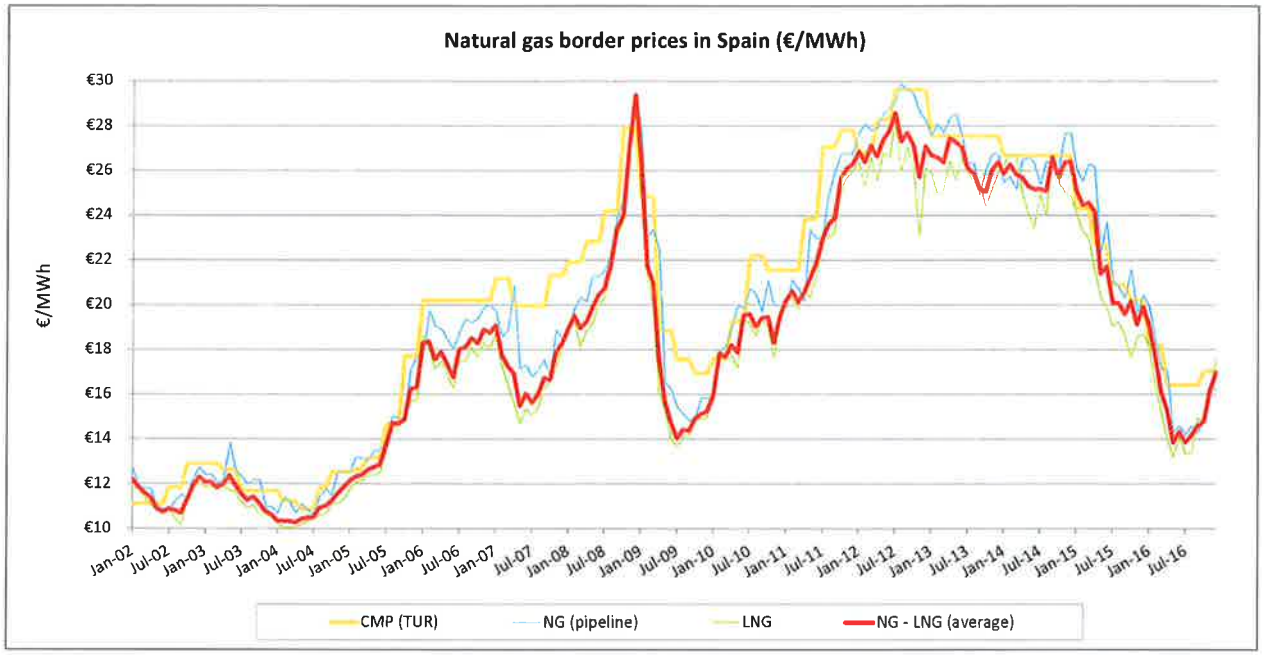



*Figure 18. Evolution of natural gas border prices in Spain (€/MWh) (Jan 2002 - Dec 2016)*

*Source: AEAT and CNMC*

The table below shows the monthly evolution of these prices in 2016 (in €/MWh), indicating than LNG imports were more competitive than pipeline imports during all the year (except in the months of September and December):

| (€/MWh) | Natural gas (pipeline) | L NG | Average Import price |
|---|---|---|---|
| Jan 2016 | 19,95 | 18,16 | 19,11 |
| Feb 2016 | 18,52 | 16,51 | 17,73 |
| Mar 2016 | 17,14 | 15,21 | 16,09 |
| Apr 2016 | 17,07 | 14,04 | 15,29 |
| May 2016 | 14,33 | 13,19 | 13,85 |
| Jun 2016 | 14,57 | 14,06 | 14,33 |
| Jul 2016 | 14,20 | 13,35 | 13,85 |
| Aug 2016 | 14,59 | 13,40 | 14,17 |
| Sep 2016 | 14,28 | 14,93 | 14,57 |
| Oct 2016 | 14,79 | 14,81 | 14,80 |
| Nov 2016 | 16,35 | 16,02 | 16,17 |
| Dec 2016 | 16,22 | 17,59 | 16,98 |

*Table 19. Natural gas border prices in Spain, 2016*

*Source: AEAT and CNMC*

#### 4.2.1.3 Spanish Wholesale markets

### a) Spanish OTC gas market (Enagas MS-ATR Platform)

Most of the gas traded in the Spanish market is negotiated in bilateral OTC transactions. The volume of gas traded on the OTC market is communicated to the system operator, in order to register the transfer of ownership, through the ENAGAS "MS-ATR platform". There are 79 active traders in this platform.

The entry of new competitors in the market is very dynamic, and the number of traders registered in Spain has continued increasing since the beginning of liberalization. In 2016, 26 new traders have been registered.

This includes the incorporation of companies involved in international gas trading as Statoil, ENI, Vitol, Koch, Gunvor, Alpic, Gasela, ArcelorMittal, Merrill Lynch, Morgan Stanley and Goldman Sachs or Gazprom, although most of them are not operating in the retail market (not making sales to final customers).

At the moment, gas is actively traded in Spain across eight balancing points: the six LNG terminals; the virtual balancing point (so called PVB) and the virtual storage point comprising the four Spanish underground storage sites in operation (Serrablo, Gaviota, Marismas and Yela).

The volume of gas traded stood at 433.927 GWh in 2016, whit a 2,3% decrease from 2015, and is a 35,0% higher than the demand of the year, with more than 10.000 transactions per month. Many of the trades are temporary swap, as the OTC market is mainly used as a tool to manage the stocks of LNG and gas balance.

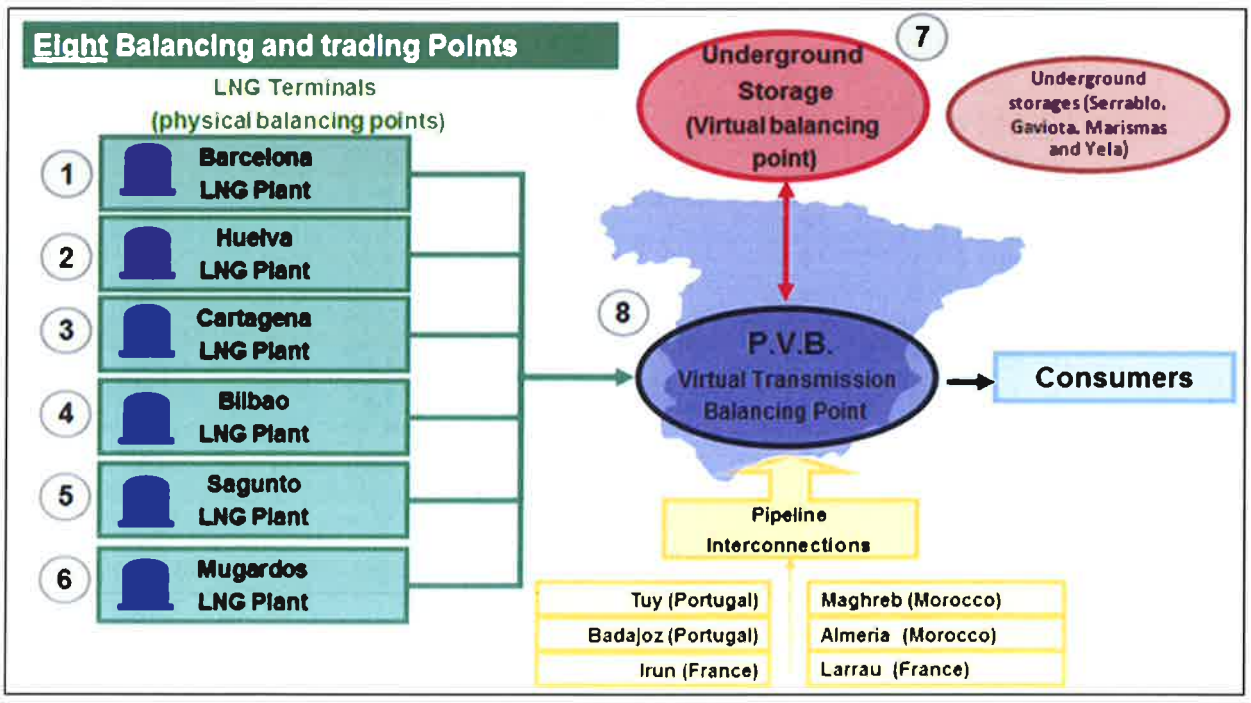



*Figure 19. Balancing and trading points*

*Source: CNMC*

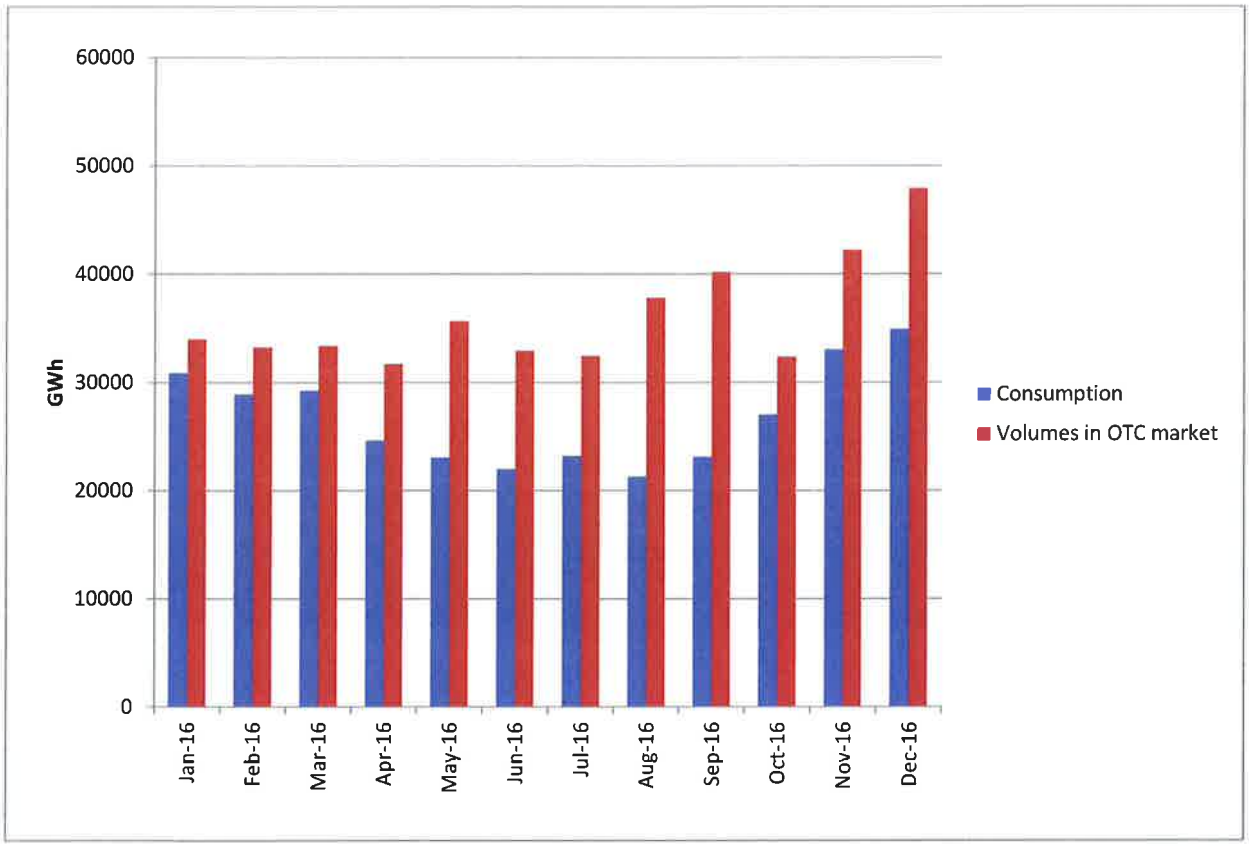



*Figure 20. Spanish OTC gas market vs consumption 2016 (GWh/month)*

*Source: ENAGAS and CNMC*

Liquidity lies mainly on the LNG terminals, which accounted for 59,7% of all OTC trade in 2016. Barcelona LNG terminal was the main trading point with 19,9% of gas trade. The PVB, which could look like an attractive virtual trading point, increased its operations since last year and it drew 39,4% of OTC trade in 2016.

| Balacing point | Traded gas 2016 (GWh) | Production (GWh) | Churn rate | Number of active traders | Market share of 3 main traders |
|---|---|---|---|---|---|
| Barcelona LNG Terminal | 86.356 | 36.346 | 2,4 | 38 | 50% |
| Huelva LNG Terminal | 61.438 | 39.680 | 1,5 | 28 | 51% |
| Bilbao LNG Terminal | 48.190 | 17.607 | 2,7 | 20 | 65% |
| Cartagena LNG Terminal | 3.583 | 11.223 | 0,3 | 14 | 80% |
| Mugardos LNG Terminal | 7.136 | 13.631 | 0,5 | 12 | 92% |
| Sagunto LNG Terminal | 52.311 | 34.873 | 1,5 | 28 | 67% |
| **Total LNG** | **259.014** | **153.360** | **1,7** | **47** | **37%** |
| Underground storage (UUSS) | 3.833 | | | 21 | 73% |
| Transmision balacing point (PVB) | 171.080 | 161.624 | 1,1 | 69 | 25% |
| **Total Spain** | **433.927** | **314.984** | **1,4** | **77** | **0,33** |

*Table 20. Main features – OTC*

*Source: ENAGAS*

Transactions in the Spanish OTC market in 2016 represented globally 1,38 times natural gas demand.

Next figures show the monthly evolution of gas traded and number of transactions – around 124.300 – registered in the Spanish OTC market in 2016.

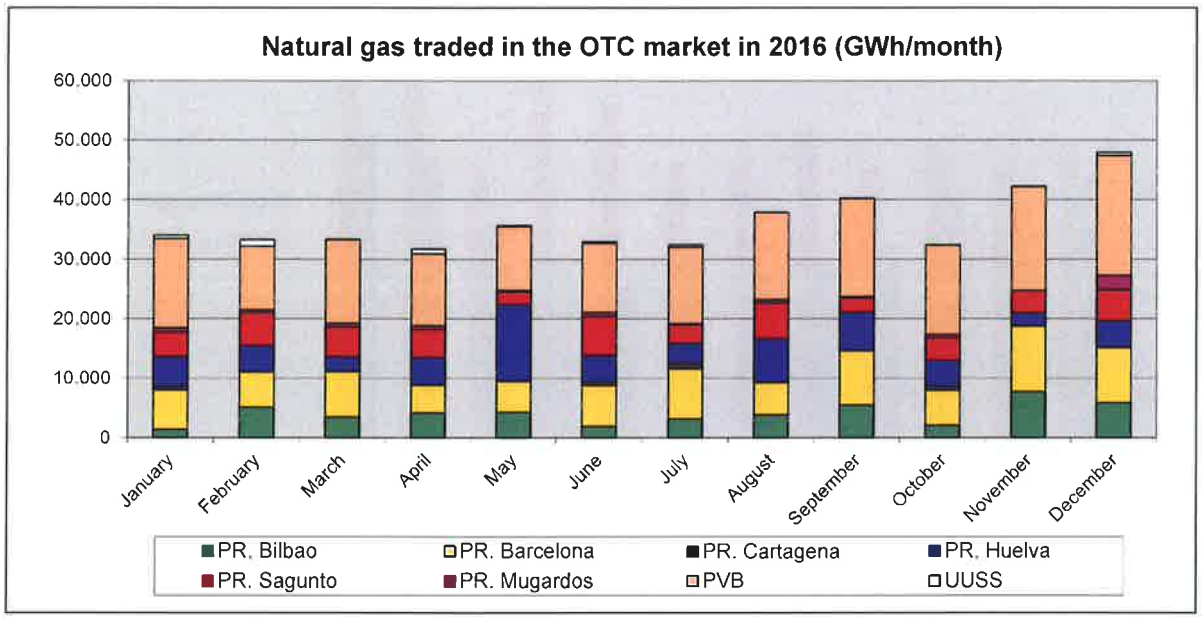



*Figure 21. Gas traded in the OTC market during 2016*

*Source: ENAGAS*

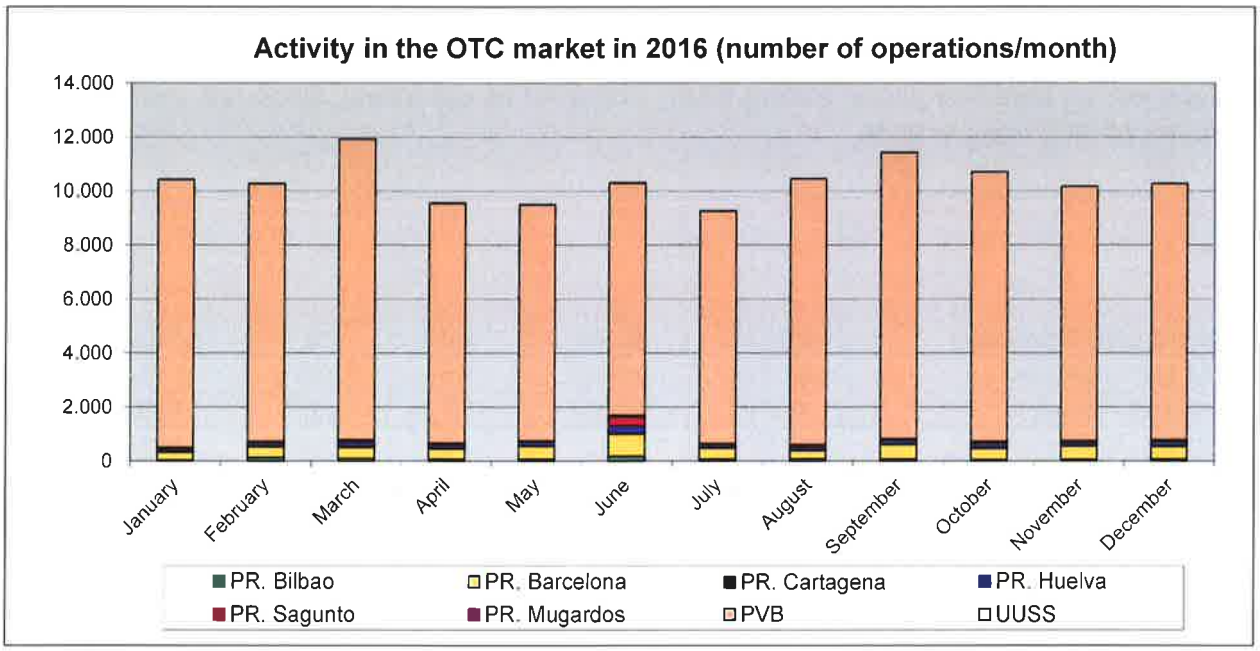



*Figure 22. Gas transactions in the OTC market in 2016 (nº Transactions/month)*

*Source: ENAGAS*

Given that the OTC platform MS-ATR allows free trading through direct gas exchanges (without a price) there is no public information available on OTC prices.

**b) Starting of a gas exchange in Spain (MIBGAS)**

Trading activity at the MIBGAS exchange started on December 16, 2015, with the negotiation of six different products for the Spanish market: Within Day, Day-Ahead (D+1, D+2, D+3), Balance of Month and Month-Ahead. The activity of the gas market during December 2015 was not very representative, with low liquidity and a minimum number of transactions: there were only 10 transactions in the 15 sessions of the month, for a total of 3.300 MWh traded. There were 19 registered agents by the end of December 2015, which have significantly increased during year 2016 reaching 44 registered agents by the end of December 2016.

In 2016 several liquidity measures in order to increase the liquidity in the market have been approved. These measures have allowed for settling a regular price and volume negotiated in some of the MIBGAS products, and they have been in summary the following ones:

- The acquisition of Operational gas, approved by Resolution of 23th December 2015. This Resolution established the purchase of the Operational gas in the opening auction for the product Day Ahead (D+1), taking into account the estimation of daily needs published by the system operator.

- The acquisition of Cushion gas and Heel gas, approved by Resolution of 6th June 2016. This Resolution established the purchase of the Cushion gas in the opening auction for the products Day Ahead (D+1), Balance of the Month and Month Ahead, and the purchase of the Heel gas in the opening auction for the products Within Day and Day Ahead (D+1), taking into account the estimation of daily needs published by the system operator and MIBGAS.

- Balancing actions to be done by the System Operator, approved by Circular 2/2015 of CNMC. This Circular established the rules of balance in the transmission network, and allows to the System Operator to make balancing actions (purchase or sell) in the products Within Day and Day Ahead (D+1).

- At the end of 2016, MIBGAS made an announcement in order to establish the service of Market Maker for the first half of 2017. The Resolution with the assignation of this service was approved in January 2017.

The next figure shows the evolution of the prices for the product D+1 in comparison with other European markets (TTF, Peg Nord, TRS). It reflects regular trading activity since January 16, 2016, due to the beginning of the acquisition of the operational gas.

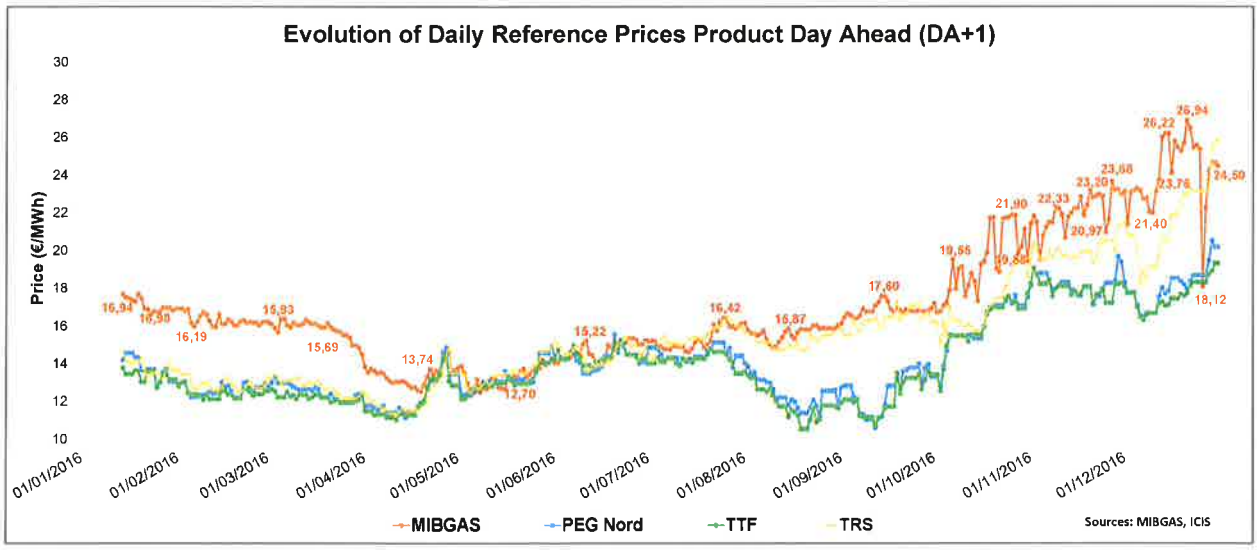



*Figure 23. Evolution of Daily Reference Prices*

*Source. MIBGAS, ICIS*

The evolution of the price for the daily product in MIBGAS (DA+1) in the year 2016 can be divided in 4 periods:

- In the first quarter of 2016, price decreased from 17 €/MWh to a minimum price in April of 12,9 €/MWh. In this period, the price is between 2 and 3 €/MWh higher than the price in the main European markets.

- From April to July, price in MIBGAS is similar to the rest of European markets, with differences lower than 1 €/MWh or near zero. There is an increasing price trend in this period, from 13 to 16 €/MWh. On the other hand, costs of long term supply decreased (they are related to Brent with a delay of 3-6 months) and LNG prices are low in the international markets.

- In the third quarter, price in MIBGAS separated from North-European markets and continued to increase; in October, prices reached levels of 20-22 €/MWh. On the contrary, European markets decreased until annual minimums in September, with prices below 12 €/MWh, so this meant a differential with MIBGAS of 6 €/MWh. The prices in those European markets started to increase later, at the beginning of winter period due to a higher gas demand, and the differential with MIBGAS decreased to 2-4 €/MWh.

- In the fourth quarter, prices at MIBGAS and the rest of European markets continued increasing, affected by a higher gas demand for electricity generation in the most part of Western Europe, due to higher carbon prices and a lower nuclear production in France. In the Spanish market MIBGAS and in the French market TRS (South France) the increase of prices was stronger, and it was due to the increase of LNG prices in the international markets and the congestion in the French transport system. Thus, the Spanish market reached his annual maximum at 26,94 €/MWh in December, being 2-4 €/MWh higher than TRS and between 4-8 €/MWh higher than Peg Nord.

This evolution of prices is reflected in the next figures, which show the spread between the Spanish market MIBGAS and the French markets (TRS and Peg Nord) in the product Day Ahead:

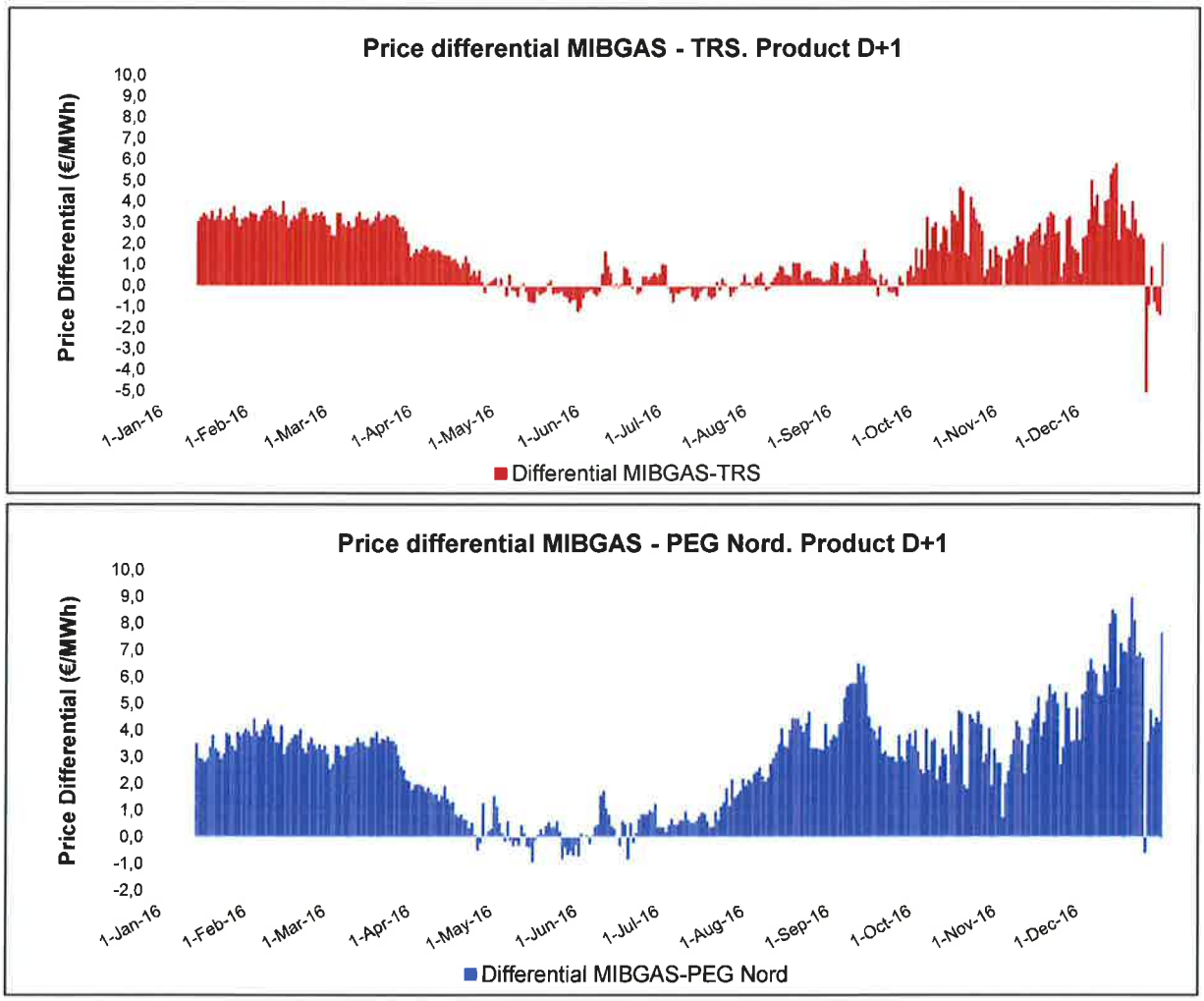



*Figure 24. Price differences with MIBGAS*

*Source: MIBGAS, ICIS*

The spread of prices between MIBGAS and Peg Nord is shown in the next figure, which reflects a concentration in the band of 3-4 €/MWh. It is remarkable that normally the interconnection between France and Spain was operating following the price differential; nevertheless in a number of days even when gas prices in MIBGAS were cheaper than PEG Nord the flow was still from France to Spain:

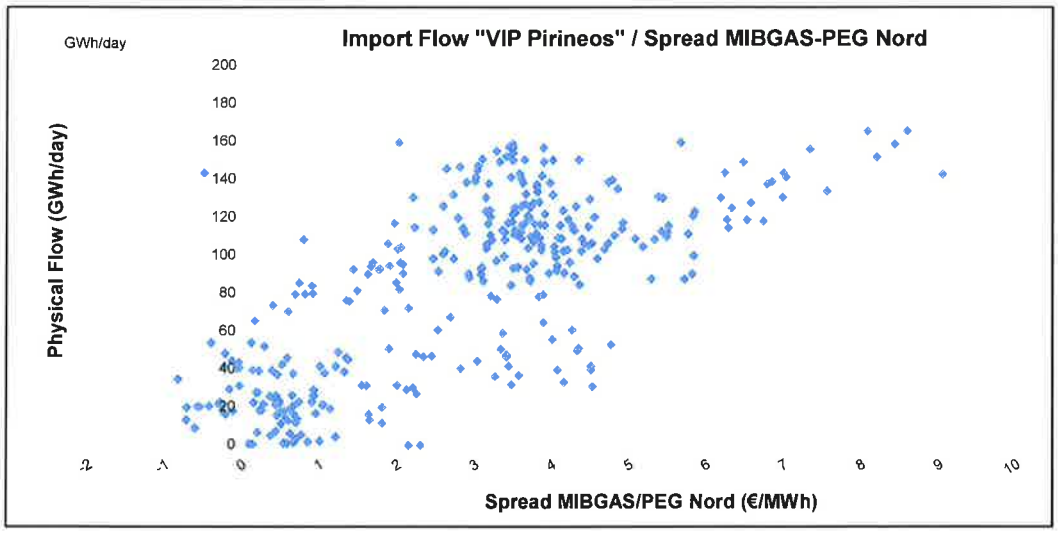



*Figure 25. Import flow VIP Pirineos.*

*Source: MIBGAS.*

The total volume negotiated at MIBGAS in 2016 was 6.566 GWh, which means an average volume of 17.989 MWh/day, and only 2,0% of the final demand in Spain. This volume was distributed in the different products available as shown in the next figure:

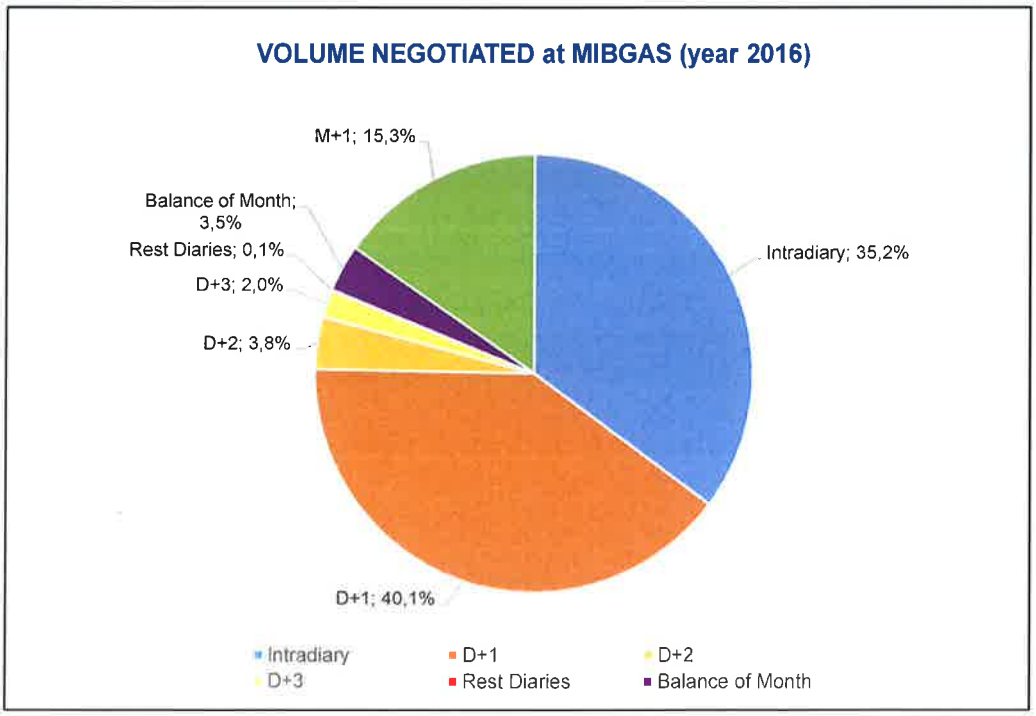



*Figure 26. Volume negotiated in different products*

*Source: MIBGAS*

The most negotiated product was the Day Ahead (D+1), with a total volume of 2.635 GWh (40,1%), followed by the Within Day, with a total volume of 2.309 GWh (35,2%), and the Month Ahead (M+1), with a total volume of 1.005 GWh (15,3%).

The montly evolution of the volume negotiated in the different products is shown in the next figure:

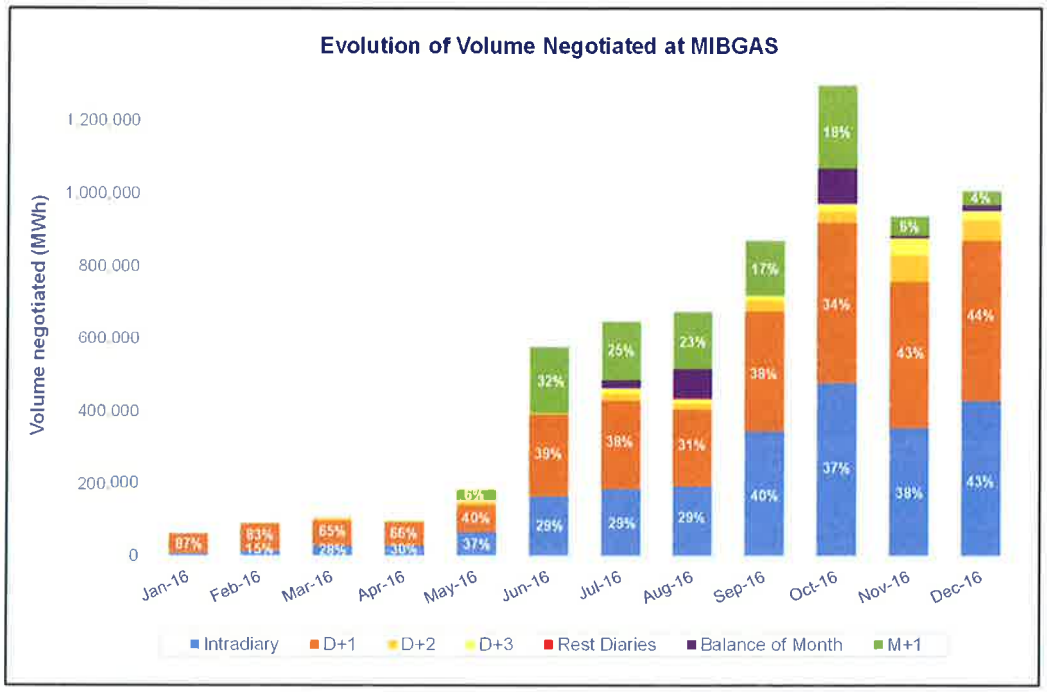



*Figure 27. Volume negotiated by product*

*Source: MIBGAS*

As it can be seen in the figure, the volume negotiated at MIBGAS has increased through the year 2016 mainly due to the different liquidity measures described at the beginning of this section, that have also attracted new agents to the market. The result was the growth of the liquidity in the Day Ahead (D+1), the Within Day and the Month Ahead products, thanks to the beginning of the regulated acquisition by the System Operator of different types of gases (Operational gas, Cushion gas, Heel gas, Balancing gas). This can also be seen in the next figure which is shows the evolution of volume negotiated by type of trade and not by product:

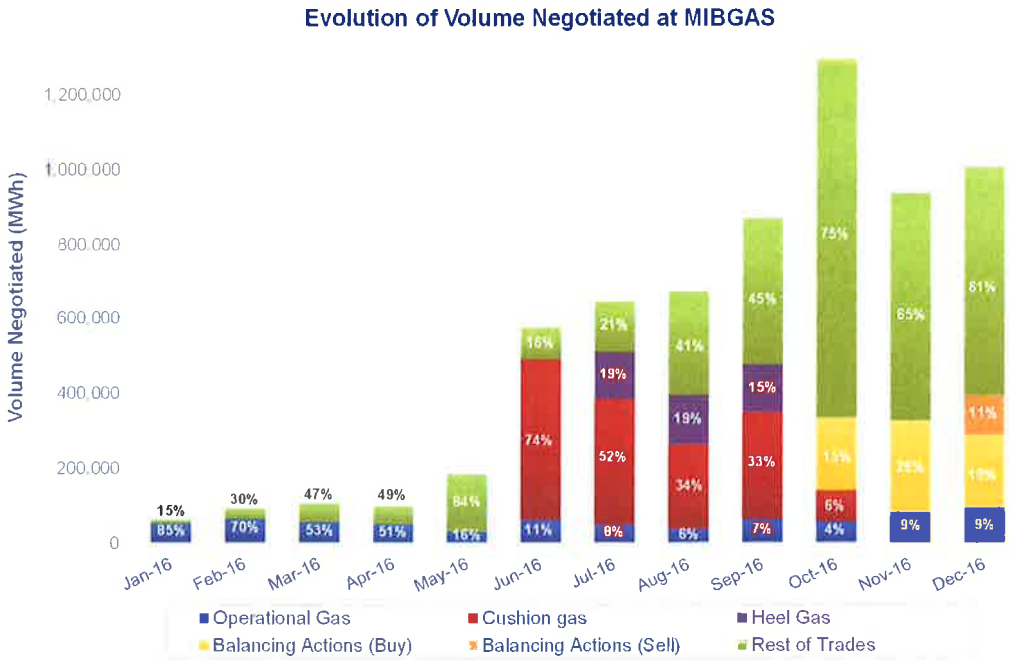



*Figure 28. Volume negotiated by type of trade*

*Source: MIBGAS*

These results show that there have been three different periods through the year:

- In the first period, from January to May, volume negotiated was very low (under 200 GWh/month), even though the beginning of the acquisition of the Operational gas set the start of regular trading activity in the market, mainly in the product Day Ahead (D+1). The trades of agents different from the System Operator started slowly, but since May they increased thanks to a higher number of registered agents operating in short-term products (Within Day).

- In the second period, from June to September, volume negotiated increased sharply thanks to the beginning of the acquisition of Cushion gas in June and Heel gas in July and a higher negotiation between agents. In this period volume negotiated reached 600-800 GWh/month.

- In the third period, from October to December, volume negotiated increased again thanks to the start of the Balancing actions made by the System Operator, but also because of the trades of shippers and as a result volumes have increased sharply. In this period volume negotiated reached 1000-1200 GWh/month.

All the spot market prices and volumes are published at MIBGAS website (www.mibgas.es) in a daily basis.

#### 4.2.1.4 Wholesale market monitoring and effectiveness of competition

Market monitoring

The Spanish NRA develops its monitoring functions of market opening and competition in wholesale and retail markets issuing periodic reports (monthly reports for wholesale markets and quarterly reports for retail markets).

Furthermore, the monthly monitoring report on wholesale market follows up the evolution of prices in the international markets to compare them with domestic gas prices.

### 4.2.2 Retail market

Retail market indicators

The following table summarizes the main indicators of the retail gas market in Spain in 2016.

| Retail market indicators | Year 2016 | Δ 2016/2015 |
|---|---|---|
| Gas Consumption | 321.009 GWh | 2,1% |
| Number of natural gas customers | 7.672.662 | 86.832 |
| Number of registered gas marketers | 150 | 15 |
| Number of retailers with sales to customers | 56 (47 groups) | 6 |
| Number of retailers with market shares >5% | 5 | = |
| Number of retailers with customer shares > 5% | 4 | = |
| Switching rate | 12,50% | +08 pp |
| Customers under regulated tariff | 22% | -1,3 pp |
| HHI in terms of sales | 2.385 | -152 |
| HHI in terms of customers | 3.766 | -143 |
| Number of supply cuts by non-payment | 57.686 | -923 |
| Evolution of the price of gas for an average consumer (9000 kWh / year), TUR-2, tax included | 602 €/year<br>6,69 cent€/kWh | -5,5% |
| Number of gas offers at Price Comparison Tool (December 2016) | 105 | 18 |

*Table 21. Main Retail market indicators*

*Source: CNMC*

Retail market structure

In 2016, the Spanish gas demand increased by 2,1%, to 321.009 GWh. From 2008 to 2014, the gas demand felt 33%, mainly because of the decrease in gas consumption for electricity generation. In 2015 gas demand increased for the first time since 2008, and in 2016 it increased for the second consecutive year since 2008.

It should be noted that gas demand did not increased in all sectors: electricity generation with natural gas (-2,6%) remain similar to the previous year; the industrial consumption of gas increased by 3,2%, mainly as a result of the recovery of industrial activity. Finally, the household consumption increased by 3,3% in 2016, as a result of lower temperatures in the last quarter of 2016 and the increase of 86.800 new gas consumers.

The figure below shows the share of supplies in the Spanish market in 2016 by company, in terms of energy volume:

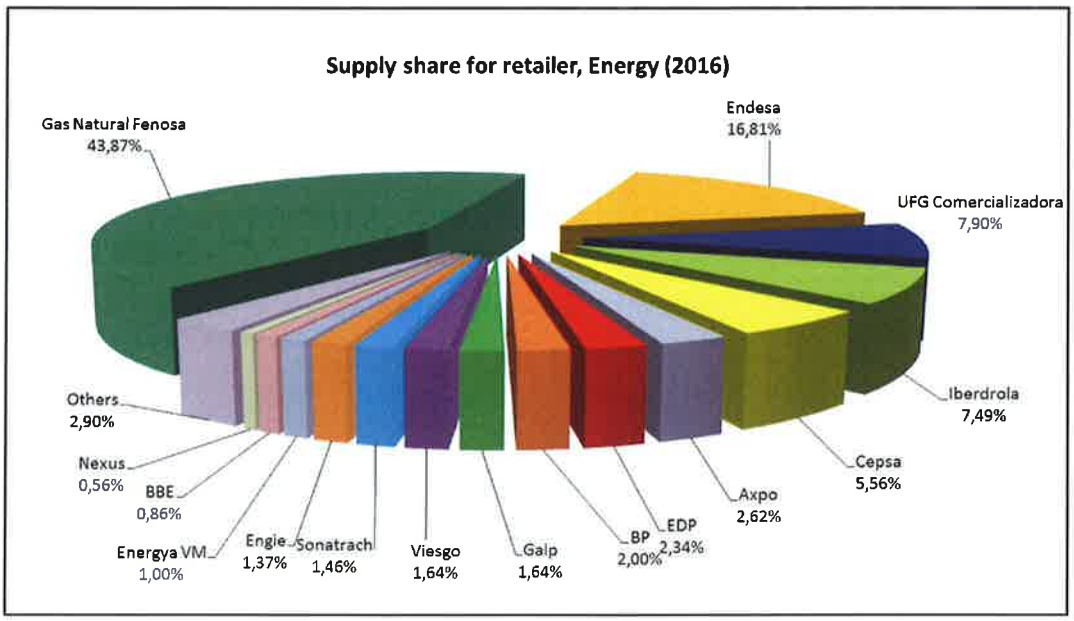



*Figure 29. Share of natural gas supplies by company (in energy volume)*

*Source: CNMC*

In December 2016, the total number of gas consumers was 7.672.662 (+86.800 consumers with regard to December 2015).

In terms of number of customers, the sharing-out of supplies at 31 December 2016 is shown in the next figure:

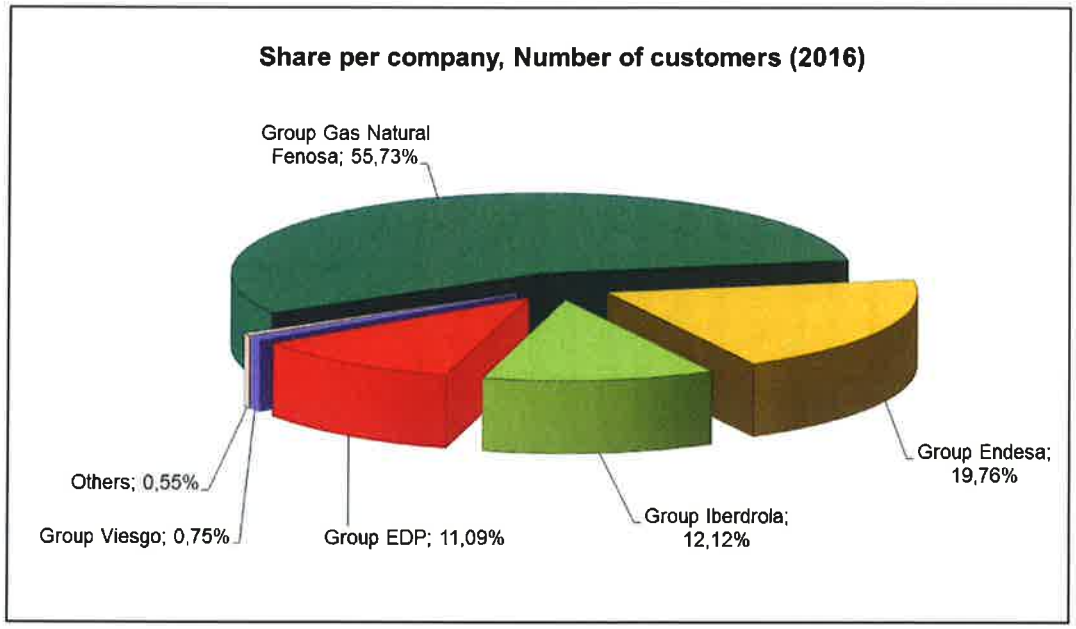



*Figure 30. Share of natural gas supplies by company (in number of customers)*

*Source: CNMC*

The natural gas consumption by end-use sectors in 2016 was as follows:

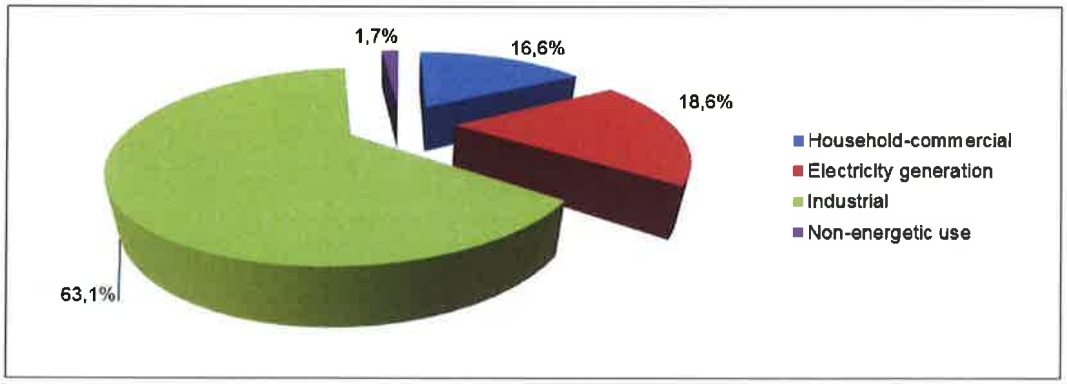



*Figure 31. Consumption of natural gas by sectors (2016)*

*Source: Sedigas*

The figure shows a very remarkable decrease in the share of gas dedicated to electricity generation, reducing its percentage down to 17,2% in 2014 from 42% in year 2008 due to the reduction in consumption link to the crisis and the increase of production with renewable energies. But in the last two years gas demand has increased up to 18,6% due mainly to the increase in industrial activity and household consumption.

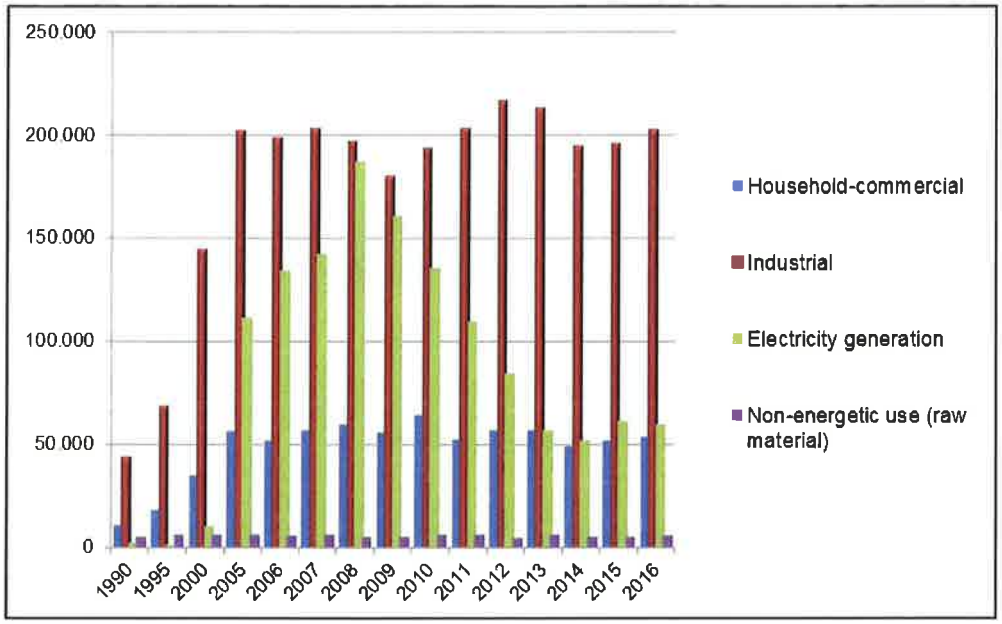



*Figure 32. Natural gas sales in Spain (GWh)*

*Source: Sedigas*

| Consumption groups (Pressure range and annual consumption) | MWh | Number of Consumers (31 Dec 2016) |
|---|---|---|
| **Group 1 ( Pressure >60 bar)** | | |
| 1.1: Consumption <= 200 GWh/year. | 1.523.108 | 26 |
| 1.2: Consumption > 200 GWh/year <= 1.000 GWh/year. | 27.586.247 | 40 |
| 1.3: Consumption > 1.000 de GWh/year. | 89.981.126 | 48 |
| **TOTAL Group 1** | 119.090.481 | 114 |
| **Group 2 ( Pressure >4 bar and =< 60 bar)** | | |
| 2.1: Consumption <= 500.000 KWh/year. | 333.793 | 680 |
| 2.2: Consumption > 500.000 KWh/year <= 5 GWh/year. | 2.944.666 | 1.403 |
| 2.3: Consumption > 5 GWh/year <= 30 GWh/year. | 13.618.033 | 1.090 |
| 2.4: Consumption > 30 GWh/year <= 100 GWh/year. | 19.183.330 | 378 |
| 2.5: Consumption > 100 GWh/year <= 500 GWh/year. | 47.098.074 | 234 |
| 2.6: Consumption > 500 GWh/year. | 34.672.563 | 34 |
| **TOTAL Group 2** | 117.850.458 | 3.819 |
| **Group 3 ( Pressure =<4 bar )** | | |
| 3.1: Consumption <= 5.000 kWh/year | 11.041.050 | 4.362.991 |
| 3.2: Consumption > 5.000 kWh/year <= 50.000 kWh/year. | 27.257.894 | 3.226.896 |
| 3.3: Consumption > 50.000 kWh/year <= 100.000 kWh/year. | 1.551.853 | 27.287 |
| 3.4: Consumption > 100.000 kWh/year <= 1 GWh/year | 17.788.060 | 47.869 |
| 3.5: Consumption > 8 GWh/year (night consumption) | 9.443.661 | 2.936 |
| **TOTAL Group 3** | 67.082.519 | 7.667.979 |
| **Group 4 ( Interrumpible )** | | |
| **(Pressure > 60 bar)** | | |
| 4.1.Consumption <= 200 GWh/year. | | |
| 4.2.Consumption ia 200 GWh/year.<= 1000 GWh/year. | | |
| 4.3:Consumption > 1000 GWh/year. | | |
| **( Pressure >4 bar and =< 60 bar)** | | |
| 4.4.Consumption <= 30 GWh/year. | | |
| 4.5.Consumption > 30 GWh/year <= 100 GWh/year. | | |
| 4.6:Consumption > 100 GWh/year <= 500 GWh/year. | | |
| 4.7: Consumption > 500 GWh/year. | | |
| **TOTAL Group 4** | 0 | 0 |
| **Non-energetic use (raw material)** | 5.750.992 | 3 |
| **LNG satellite plant for a single consumer** | 11.234.657 | 747 |
| **TOTAL** | 321.009.106 | 7.672.662 |

*Table 22. Natural gas consumption and number of consumers in 2016*

*Source: CNMC*

The previous table shows the gas consumption in the Spanish market, broken down by levels of pressure and consumption, according to the different tariff groups existing in the Spanish gas system for the characterisation of consumers.

Evolution of gas market shares

At the end of 2016, there were 150 companies registered as suppliers in the Spanish gas market. The number of suppliers in the liberalised market is shown in the next table:

| Evolution of the numbers of companies registered as natural gas suppliers | | |
|---|---|---|
| Date | Number of natural gas suppliers | Variation |
| 31/12/2009 | 40 | |
| 31/12/2010 | 49 | 9 |
| 31/12/2011 | 61 | 12 |
| 31/12/2012 | 76 | 15 |
| 31/12/2013 | 88 | 12 |
| 31/12/2014 | 120 | 32 |
| 31/12/2015 | 135 | 15 |
| 31/12/2016 | 150 | 15 |
| **Total increase since 2009** | | **110** |

*Table 23. Number of companies registered as natural gas suppliers in Spain*

*Source: CNMC*

45 of the 150 natural gas suppliers have expressed their intention to operate exclusively in wholesale and capacity markets, not supplying gas to final costumers.

Only 56 of the 105 suppliers that performs sales to final costumer declared sales in 2016. In the industrial market, the number of active companies has increased to 34 gas marketers in 2016, while the number of active competitors for householders raised to 47 retailers, fifteen more that the last year.

The market share of the retailers in the liberalised market is shown in the next figure:

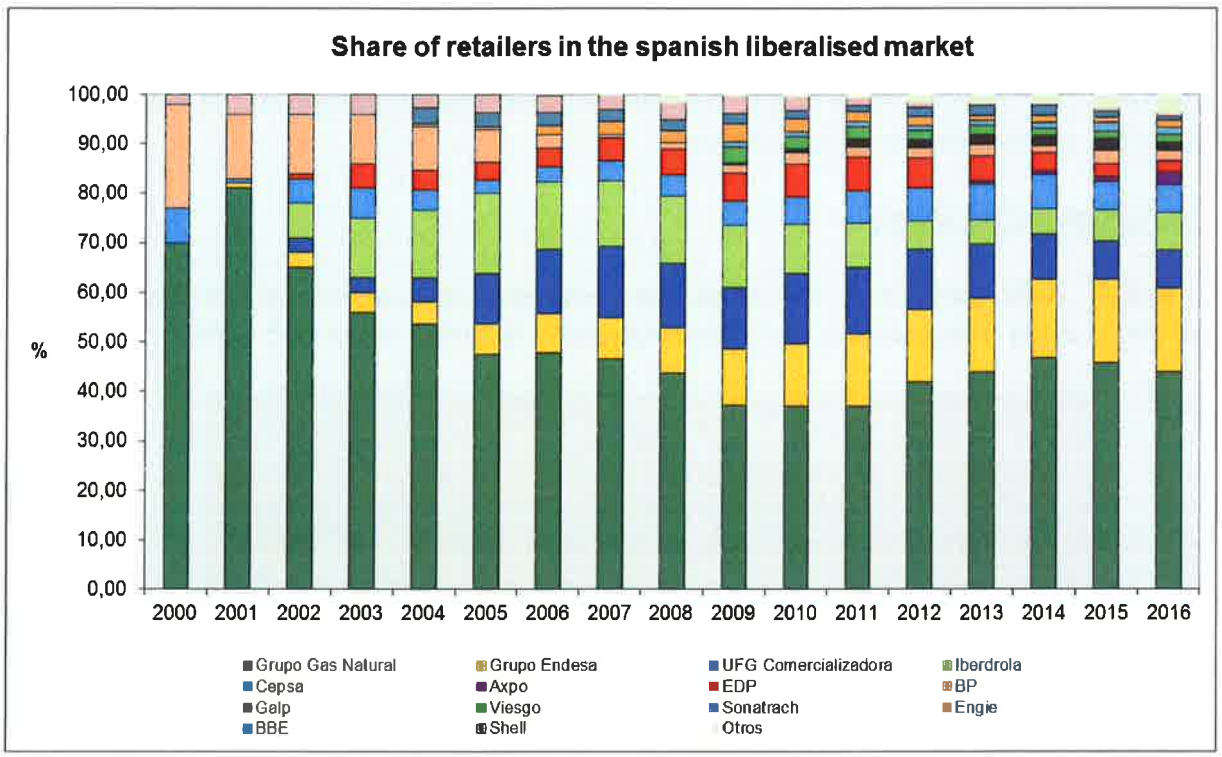



*Figure 33. Spanish retail gas market. Sharing-out in terms of energy*

*Source: CNMC*

This difference may be due to the high entry cost of the retail activity (commercial cost to contract new customers), the existence of economies of scale in managing retail customers, which benefit incumbents, and the lack of a liquid gas market, that makes difficult the entry of retailers without international gas procurement activity.

Switching rate and cuts for non-payments

The Royal Decree-Law 13/2012, of March 30th, introduced a general time limit of three weeks for the switching process in gas.

In 2011 and 2012, consumer activity gathered momentum and recorded a very high switching rate, but after that, switching rate has remained stable.

With respect to total changes supplier of natural gas, in 2016 was 955.491 changes, equivalent to 12,5% of gas customers in Spain, slightly higher than the figure of 2015 (866.571 changes).

| Gas Switching Data 2012-2016 | | | | | |
|---|---|---|---|---|---|
| | **2012** | **2013** | **2014** | **2015** | **2016** |
| Domestic switching rate | 19,36% | 11,78% | 9,95% | 11,15% | 12,50% |
| Number of domestic customers | 7.323.988 | 7.396.840 | 7.498.055 | 7.567.319 | 7.567.319 |
| **Total switching rate** | **19,32%** | **11,83%** | **9,99%** | **11,21%** | **12,50%** |
| Number of all customers | 7.398.013 | 7.470.174 | 7.548.867 | 7.617.385 | 7.617.385[25] |
| Number activated supplier's changes | 1.394.644 | 890.103 | 754.167 | 866.571 | 955.491 |

*Table 24. Gas switching data 2012-2016*

*Source: CNMC, OCSUM*

The number of natural gas supply interruptions for non-payment in 2016 was approximately of 57.686 (representing 0,75 cuts every 100 customers in the domestic market), similar to 2015 values.

DSOs

The main DSOs are Gas Natural Distribución Group (69% supply points) and EDP group (12%), both vertically integrated with supplying activities. It should be mention the creation of 2 new ownership unbundled DSOs since 2010: Madrileña Red de Gas, with 856.161 supply points (11%), and Redexis Group, with 545.281 supply points (7%), in both cases as the result of a disinvestment in DSO grids from Gas Natural and Endesa. Other small DSO is Gas Extremadura (1%). Gas Directo, which had an 0,1% of supply points in 2015, has been merged by takeover by Gas Natural Fenosa.

Regulated tariffs

Since July 2008, regulated tariffs for end-users (last resort tariff, TUR) only apply to residential consumers consuming less than 50.000 kWh/year and connected to a network at a pressure under 4 bar. There are four suppliers designated as suppliers of last resort, which supply all consumers submitted to the last resort tariff.

The number of customers supplied at regulated tariff continues the decreasing trend.

[25] According to CEER criteria, in 2016, switching rate is calculated taking the number of consumers at the beginning of the period.

By 31 December 2016, the number of consumers supplied at a free price was 6.008.531 (78,31% of all consumers), while the number of consumers supplied at the last resort tariffs was 1.664.131 (21,69% of the consumers). In volume, consumers supplied at last resort tariff represent only 2,46% of the Spanish gas market. With respect to 2015, the number of customers in the last resort tariff has been reduced by 80.000.

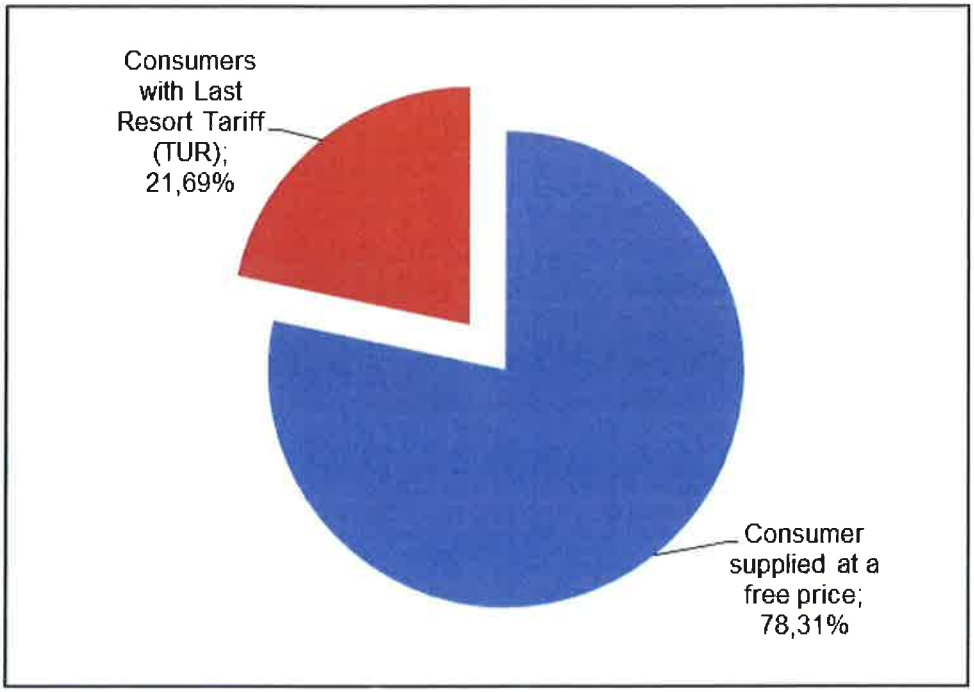



*Figure 34. Consumers at the Last Resort Tariff vs consumers at free market price*

*Source: CNMC*

Retail prices

At retail level, CNMC monitors retail prices through the commercial offers that are published in the CNMC's price comparison tool.

There is an obligation for the suppliers to communicate to CNMC all public offers of gas or electricity, including any change in tariffs to the price comparison tool. The suppliers are responsible for the data presented, as they have to send updated information.

The following figure shows the spread between maximum and minimum offers in the CNMC's price comparison tool for different natural gas -household and commercial- consumers.

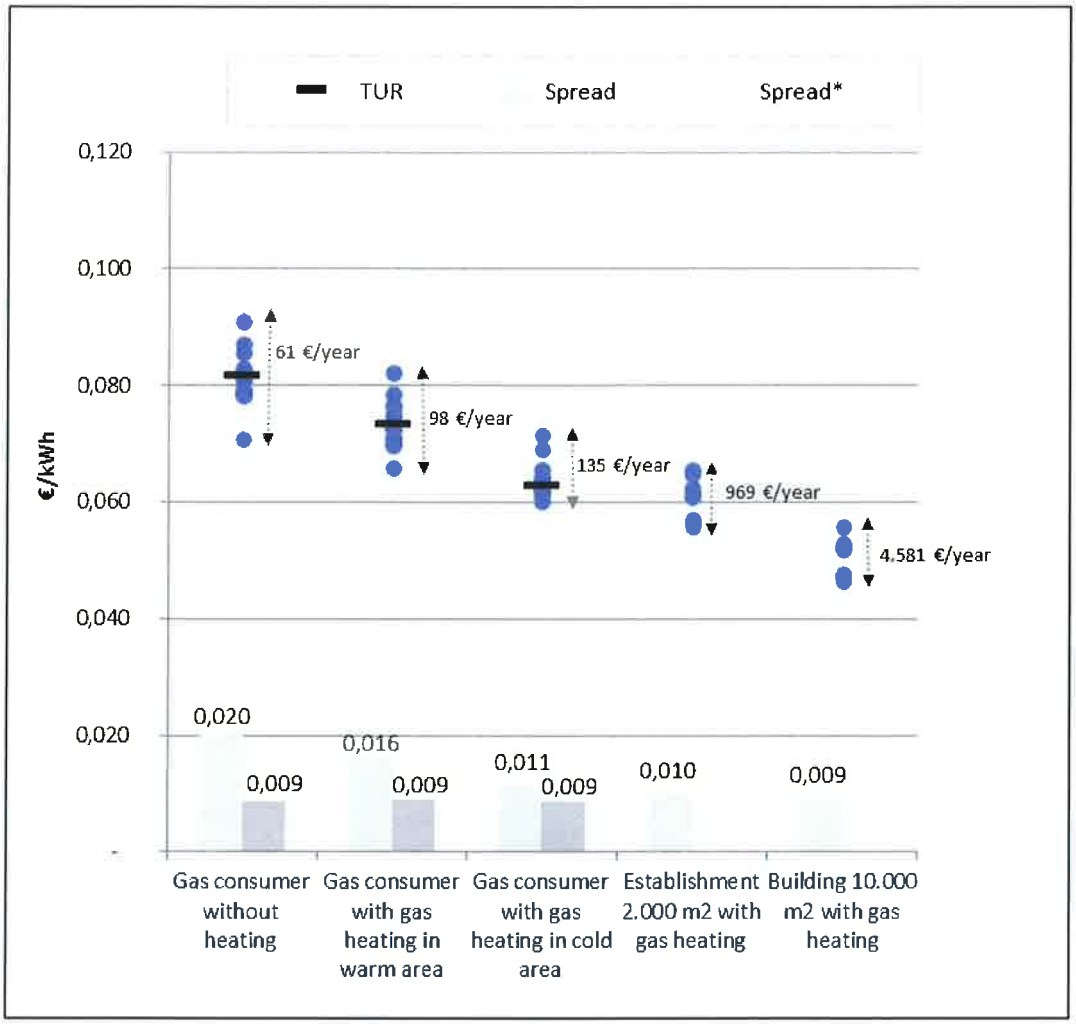



*Figure 35. Spanish retail gas market. "Spread" between maximum and minimum offer for different natural gas -household and commercial- consumers, "Spread*" without considering offers significantly out of rank (June, 2016).*

*Source: CNMC*

Regarding the offers for households (those with right to TUR, the last resort tariff), the spread between the maximum and the minimum gas offers poses a difference in turnover of between 61 €/year and 135 €/year depending on the type of consumer.

#### 4.2.2.1 Retail market monitoring and effectiveness of competition

Market monitoring

The Spanish NRA develops its monitoring functions of market opening and competition in wholesale and retail markets by issuing periodic reports (monthly reports for wholesale markets and quarterly reports for retail markets).

## 4.3 Security of supply

### 4.3.1 Monitoring origin and mix of gas imports

Domestic gas production

The domestic production of Spanish fields is marginal and reaches only 677 GWh, 0,21% of Spanish gas demand in 2016. This production comes from four gas fields. Three of them are close to depletion and they could be used as underground storages in the future. Another one, Viura, started operating in February 2015. The rest of the gas consumed in Spain is imported.

Origin and mix of gas imports

In 2016 Spain received natural gas from a total of nine different countries. Algeria was the main supplying country, with 56,7% of the gas imports, followed by Nigeria (14,5%), Qatar (7,9%), Norway (10,5%) and Peru (5,4%).

The figure below shows the mix of gas supplies to the Spanish system in 2016.

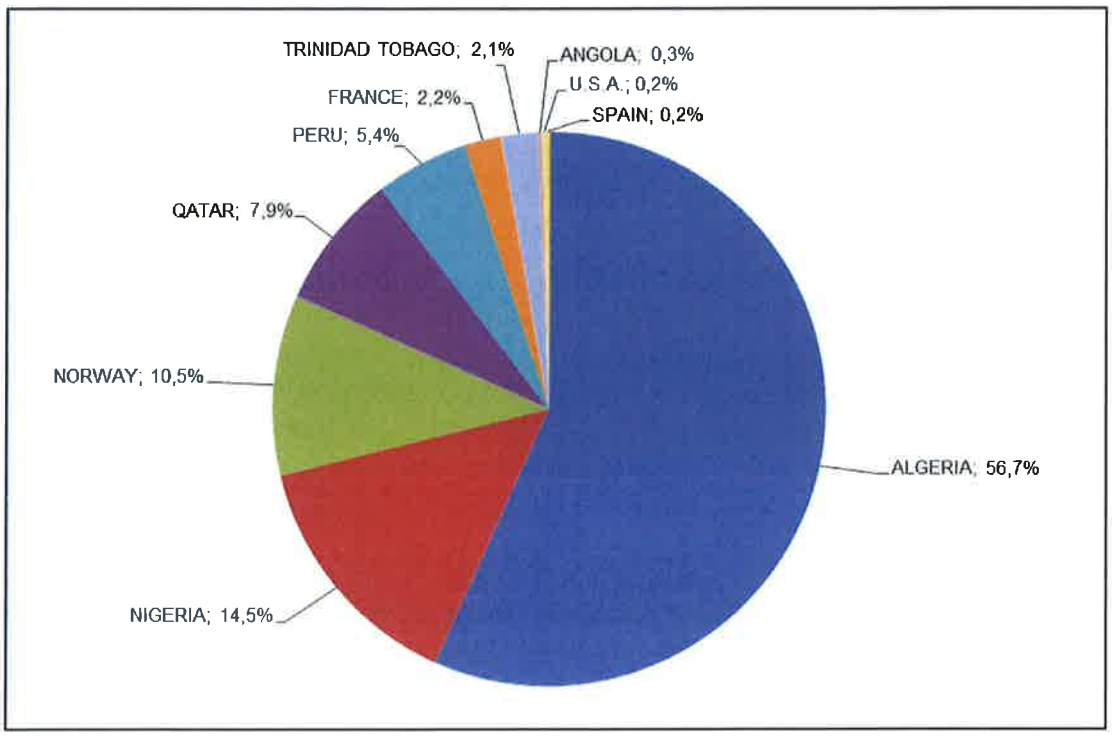



*Figure 36. Sources of gas imported to Spain in 2016*

*Source: CNMC*

This diversification in gas supplies contributes very significantly to security of supply in the Spanish system, representing a natural risk-hedging against a possible disruption of gas from a source, due to problems in infrastructure, geopolitical issues or any other reason.

Another relevant factor that influences positively security of gas supply in Spain is the importance of LNG in gas procurement (42% in 2016):

| | 2015 (GWh) | 2016 (GWh) | Annual variation (%) |
|---|---|---|---|
| Pipeline | 213.027 | 211.791 | -0,6% |
| LNG | 152.360 | 153.213 | 0,6% |
| **Total** | **365.387** | **365.004** | -0,1% |

*Table 25. Gas imports in Spain 2016 vs 2015*

*Source: ENAGAS*

LNG high presence provides the Spanish system with a high level of flexibility, favouring the access to new upstream gas sources. LNG is also functions as back-up for renewable sources.

### 4.3.2 Evolution of gas demand and gas demand scenarios

Evolution of gas demand

In 2016, the Spanish gas demand increased by 2,1%, to 321.009 GWh. From 2008 to 2014, the gas demand felt by 33%, mainly because of the decrease in gas consumption for electricity generation. In 2015 gas demand increased for first time since 2008, and in 2016 it increased for the second consecutive year since 2008.

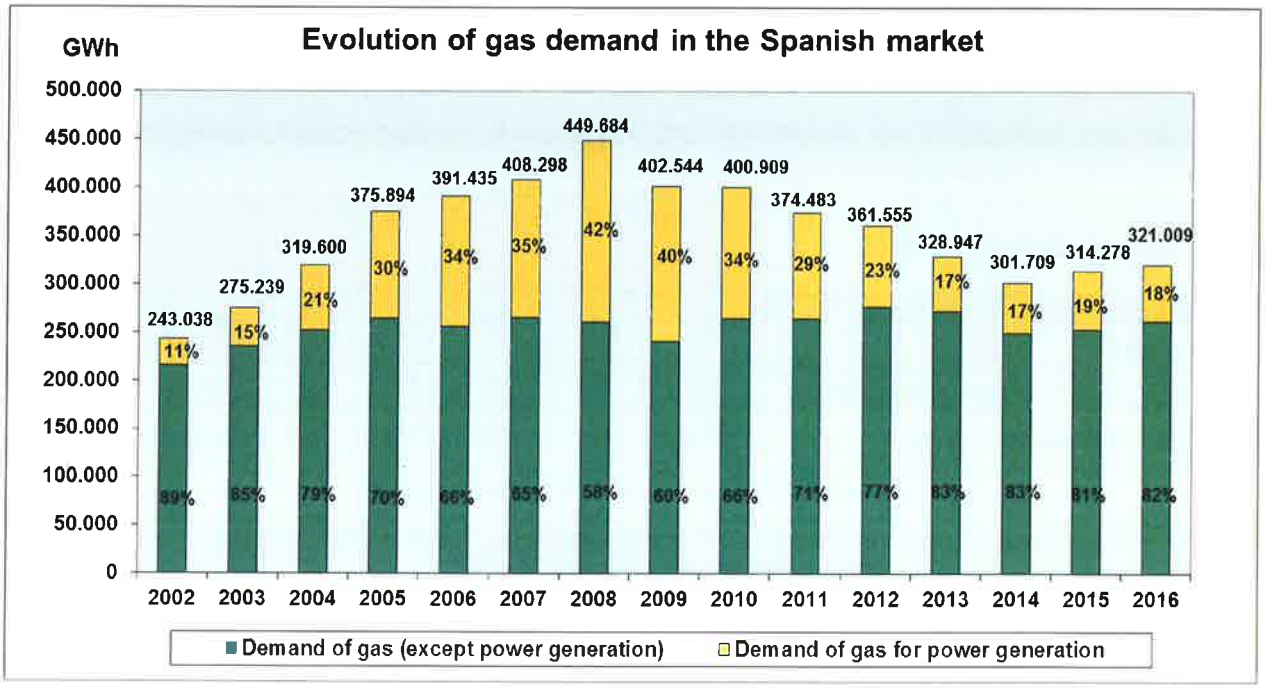



*Figure 37. Evolution of gas demand in the Spanish market (2002 - 2016)*

*Source: ENAGAS, CNMC*

In 2016, gas consumption for electricity generation decreased by 2,6%, mainly because of an increase of hydroelectric production and wind power. In this year, the industrial consumption of gas increased by 3,2%, mainly as a result of the recovery of industrial activity. Finally, the household consumption increased by 3,4% in 2016, as a result of lower temperatures in the second half of 2016 and the increase of 86.832 in the number gas consumers.

The next table shows the evolution of gas demand in the Spanish market in 2016.

| | 2015 (GWh) | 2016 (GWh) | Annual Variation (%) |
|---|---|---|---|
| Demand of gas (except power generation) | 253.415 | 262.536 | 3,6% |
| Demand of gas for power generation | 60.862 | 58.473 | -3,9% |
| **Total demand in Spain** | **314.277** | **321.009** | **2,1%** |

*Table 26. Gas demand in Spain in 2016 vs 2015*

*Source: CNMC*

Gas demand scenario

A stabilization of the gas demand with regard to the current value is expected, with a slight increase of conventional demand and the demand for electricity generation, largely because of increases in renewable sources, mainly wind power. Nevertheless, it must be noticed that demand for power generation, is difficult to forecast, as it can be affected by several annual circumstances: coal versus gas prices, generation with hydro power (depending on the level of reserves of water for hydroelectric power) and the amount of electricity produced renewable sources.

CNMC's demand forecast for the period 2016-2022 in Spain is detailed in the following table:

| Energy Demand (TWh) | 2016 (Real) | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|
| Gas demand (except power generation) | 263 | 258 | 259 | 261 | 262 | 263 | 264 |
| Gas demand for power generation | 58 | 56 | 56 | 56 | 58 | 62 | 64 |
| **Total gas demand in Spain** | **321** | **314** | **315** | **316** | **320** | **325** | **328** |

*Table 27. Forecast of annual gas demand 2017-2022*

*Source: CNMC. Report on the Forecast of the evolution of different items of income and cost of natural gas system for the period 2017-2022*

It is important to underline that expected gas demand in 2022 is still expected to be below 2005 levels, so there is no need for new internal transmission infrastructures.

### 4.3.3 Capacity of infrastructures and new investments

Six LNG import terminals are operational in the Spanish gas system, and one has been mothballed.

Spain has international gas pipeline interconnections with Morocco, Portugal and France, and a direct connection with Algeria (Medgaz).

While LNG terminals represent around 62 bcm/year of entry capacity to the transmission network, the connection from Algeria through Morocco represents 12 bcm/year of import capacity (8 bcm/year to Spain and 4 bcm/year to Portugal), the direct connection with Algeria (Medgaz pipeline) adds 8 bcm/year and the connection with France at Larrau with 7,5 bcm/year importing capacity ( 5,5 firm capacity and 2 interrumptible in the French side, and fully firm on the Spanish side) and 7,5 bcm/year exporting capacity.

A new LNG terminal is forecasted for the Canary Islands in the coming years.

#### a) Capacity of LNG import terminals

In Spain there are six LNG regasification plants. All of them are subject to regulated TPA, allowing the access to new capacity by the new entrants, which has favoured the development of gas competition in Spain.

The capacity use rate in 2016 was only 21,0% in average for the LNG plants, varying from 8% (the minimum, at Cartagena), to 33% (maximum, at Sagunto). In addition to that, there is a LNG terminal in Gijón (Musel) that is mothballed, as there is no need for this plant to be in operation with the current gas demand.

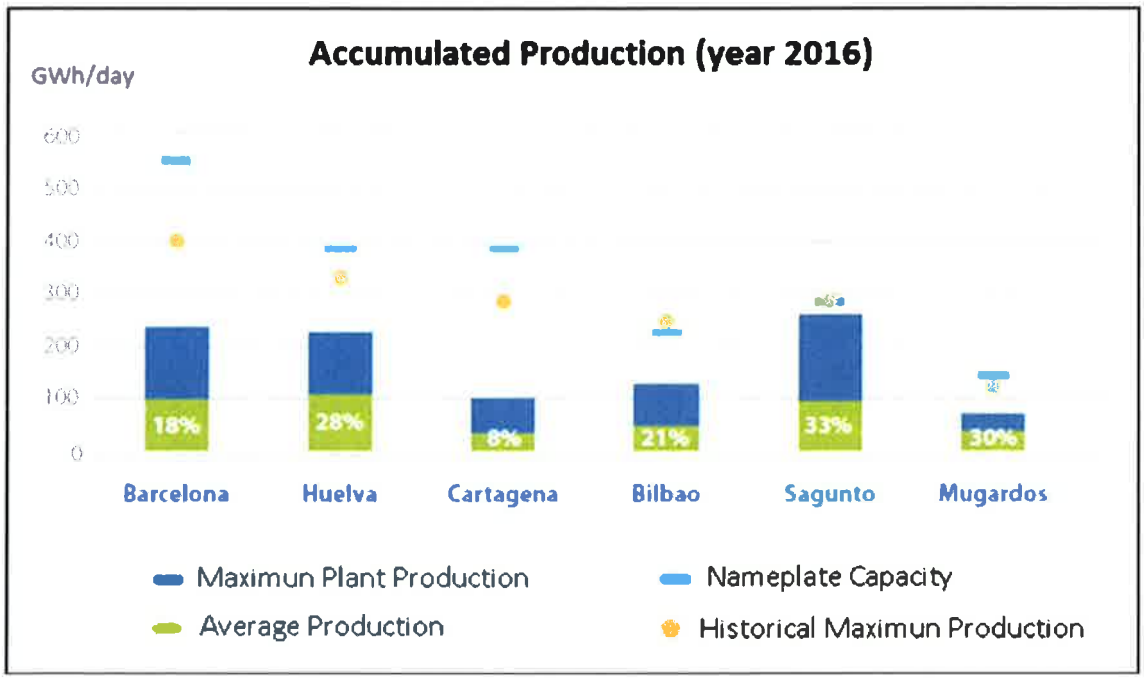



*Figure 38. Use rate of LNG terminals in 2016*

*Source: ENAGAS*

The following table shows the LNG storage and send-out capacity of each one of the six terminals:

| LNG Terminal | LNG storage capacity ($m^3$) | Send-out capacity ($m^3(n)/h$) |
|---|---|---|
| Barcelona | 760.000 | 1.950.000 |
| Huelva | 619.500 | 1.350.000 |
| Cartagena | 587.000 | 1.350.000 |
| Bilbao | 450.000 | 800.000 |
| Sagunto | 600.000 | 1.000.000 |
| Mugardos | 300.000 | 412.800 |
| **TOTAL** | **3.316.500** | **6.862.800** |

*Table 28. Capacity of LNG terminals at Dec, 31 2016*

*Source: ENAGAS*

**b) Capacity of international pipeline interconnections**

Spain has several international gas pipeline connections to other countries: to Algeria through Morocco (Tarifa) and Almeria (Medgaz), to Portugal through Tuy and Campo Maior (Badajoz), and to France through Larrau and Irún.

The current capacities of international interconnections are the following:

| Interconnection | Capacity (GWh/day) |
|---|---|
| VIP. Pirineos (ES->FR) | 225 |
| VIP. Pirineos (FR->ES) | 165 (Winter) / 175 (Summer))(*) |
| VIP. Ibérico (ES->PT) | 144 |
| VIP. Ibérico (PT->ES) | 80 |
| Tarifa (MO->ES) | 444 |
| Almería (AL->ES) | 290 |

*(*) bundled firm capacity at both sides of the border*

*Table 29. Interconnection physical capacities at 31st December 2016*

*Source: ENAGAS*

Since January 1rst, 2017, the capacity to import natural gas through the interconnection with France VIP. PYRENEES has increased by 60 GWh per day (during winter) and by 50 GWh per day during the summer (firm on the Spanish side, interruptible in the French side). This is an increase of 36%, going from the 165 GWh per day previously marketed in winter period (175 GWh per day the rest of the year) to 225 GWh per day during every month of the year.

In compliance with the code of network CAM, 60 GWh per day will be marketed as firm capacity, not coordinated, through auctions of capacity during winter (from October to March), while in the summer months will be 50 GWh per day capacity marketed as firm not coordinated, maintaining 175 GWh/day capacity sign coordinated.

**c) Storage capacity**

There are four underground storage facilities in Spain: Serrablo, Gaviota, Marismas and Yela, these two last entered in operation in 2012.

- The Serrablo gas field is located between in the province of Huesca, near the Pyrenees.
- Gaviota is an off-shore facility located near Bermeo (Vizcaya).
- Yela Underground Storage Facility is located at Guadalajara, in the central area of Spain, and is connected to Enagas' basic network by three different gas pipelines.
- Marismas, which entered in operation in 2012, is located in Huelva.

In 2016 underground storage capacity increased by 1.365 GWh due to cushion gas of Yela.

It is interesting to compare this capacity with the storage potential of LNG tanks:

| | Maximum storage capacity (GWh) |
|---|---|
| Underground storage | 31.228 |
| Tanks in LNG terminals | 22.718 |

*Table 30. Storage capacity in Spain: underground storages, LNG tanks and pipelines*

*Source: ENAGAS*

**d) Booked and available capacity**

At the end of 2016 there was available capacity in all LNG terminals. Booked TPA capacity at LNG terminals was 25% throughout the year. Contracted capacity ranges from a minimum value of 9% in Cartagena up to 38% in Mugardos.

In the pipeline interconnections, there was available capacity with Portugal in both directions. The two interconnections with Portugal (Tuy and Badajoz) are booked thought a single virtual interconnection point.

In the Maghreb pipeline, importing gas from Algeria through Morocco, the capacity was booked around 69% throughout the year. In Medgaz pipeline, capacity booked was 87%.

There was 12% of free capacity at the connection with France, with 88% of average import capacity booked during 2016 (single virtual point). Average export capacity booked in 2016 increased up to 57% (535 in 2015).

The following table shows the situation at all these pipelines interconnections, in terms of average rates of booked and available capacity during 2016:

| Entry (or exit) point | | Contracted capacity in 2016 (%) | Available capacity in 2016 (%) |
|---|---|---|---|
| Barcelona LNG terminal | | 21,0% | 79,0% |
| Sagunto LNG terminal | | 36,0% | 64,0% |
| Cartagena LNG terminal | | 9,0% | 91,0% |
| Huelva LNG terminal | | 34,0% | 66,0% |
| Mugardos LNG terminal | | 38,0% | 62,0% |
| Bilbao LNG terminal | | 26,0% | 74,0% |
| *TOTAL LNG TERMINALS* | | 25,0% | 75,0% |
| Maghreb pipeline (import) | | 69,0% | 31,0% |
| Medgaz (import) | 87,0% | 87,0% | 13,0% |
| Francia (Larrau+Irun) | 88,0% | 88,0% | 12,0% |
| | 57,0% | 57,0% | 43,0% |
| Portugal (Badajoz+Tuy) | 0,03% | 0,03% | 99,97% |
| | 86,0% | 86,0% | 14,0% |

*Table 31. Contracted and Available capacities in 2016 (LNG terminal and Interconnections)*

*Source: ENAGAS*

**e) New investments in infrastructure**

New infrastructures in 2016

This new infrastructures have entered into operation in 2016:

- Cas Tresorer-Manacor-Felanitx pipeline: Consists of two sections: the first one is 45 km long, 16 inches diameter, and the second is 14 km long, 12 inches diameter; both have 80 bar of pressure design, which connect those towns to the Mallorca's transport system.
- Villanueva del Arzobispo-Castellar pipeline: 14 km with 8 inches diameter and 59 bar of pressure design to attend supply in this area.

Future investments

The large investments made in the gas sector in recent years and the decrease in demand have already created a surplus on capacity, and an imbalance between revenues and costs, albeit much lower than the past imbalances in the electricity sector.

The Royal Decree Law 13/2012 contains some measures in order to prevent further non needed expansion: (i) a moratorium on new regasification plants; (ii) a moratorium on administrative authorisations for new gas transport pipelines and metering stations. Also, the new LNG terminal of Gijon is mothballed. Infrastructures that can still be developed are the

island gas infrastructures (new LNG terminal in the Canary Island) and gas interconnections with Europe.

Due to the actual surplus in transport and LNG infrastructures in Spain, the focus should be in developing DSO gas grids, connecting new customers to the grid and facilitating new gas uses, like marine transportation (bunkering) with LNG or compressed gas in vehicles, in order to facilitate the recovery of the gas demand.

Spain – France interconnections

It is remarkable the progress made at the Spain – France interconnection during the last years:

- The capacity at Larrau interconnection was increased up to 5,5 bcm/year in 2013 in both directions.
- The capacity at Irun/Biriatou interconnection was increased in 2 bcm/year in the Spain-France direction, reaching 7,5 bcm/year, by the end of 2015, with the compression station of Biriatou.

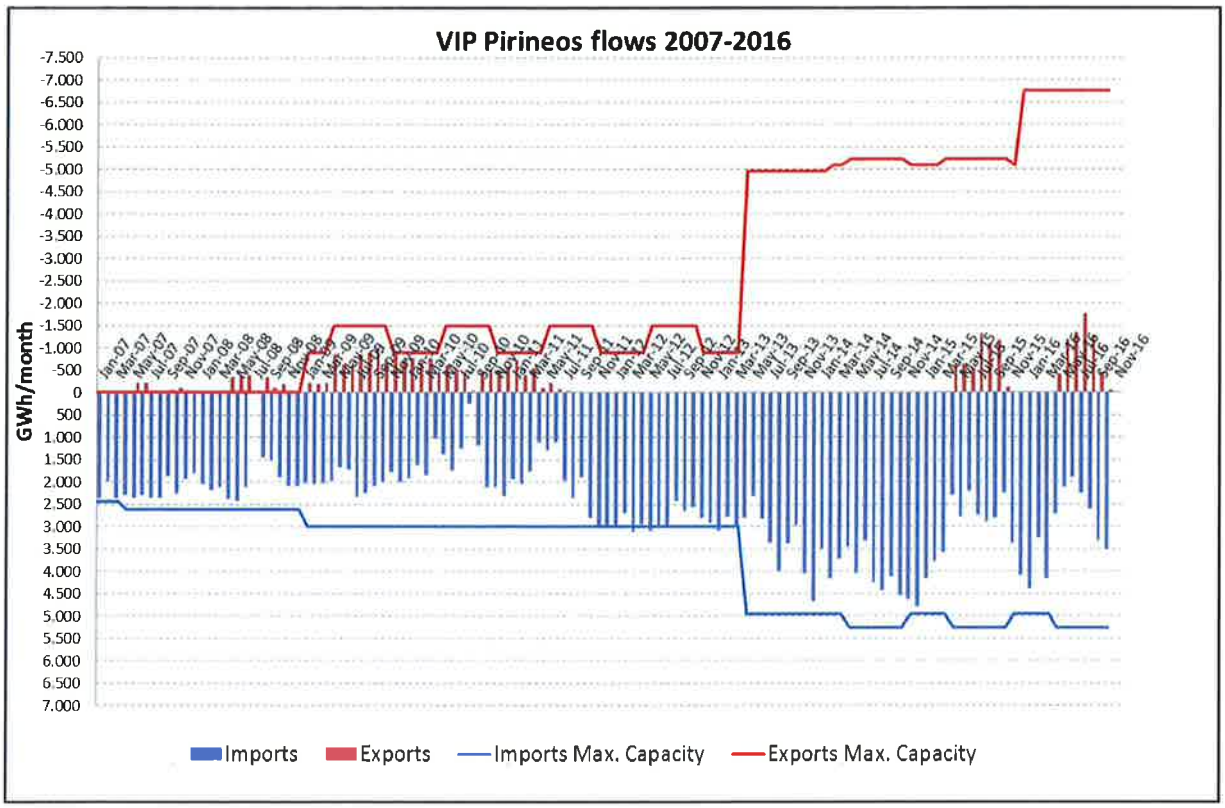



*Figure 39. Interconnection capacity between Spain and France*

*Source: CNMC and ENAGAS*

There is a project to build a new interconnection between Spain and France in the Eastern Pyrenees within the framework of the European project STEP (South Transit East Pyrenees). This project is the first step to create a third interconnection between Spain and France

(MIDCAT).

Monitoring investment plans and assessment of consistency with Community wide network development plan

CNMC monitors the investment plans of the transmission system operators with regard to the TNYDP approved by the Spanish Government. Moreover, regarding the consistency with the Community-wide network development, CNMC participates in the selection of the Projects of Common Interest, PCI process: ENTSOG Cost Benefit Analysis methodology, JRC ranking methodology, preliminary results.

CNMC, inside ACER and through the regional initiative, participates in the different gas infrastructures task forces. The evaluation of PCI will continue during the year 2016. During the process room for improvements is being detected.

### 4.3.4 Security of supply obligations and safeguard measures

Due to the growing importance of natural gas within the Spanish energy supply and virtually total external dependency ion the supply of natural gas, the Hydrocarbons Act introduced certain measures for the security of supply of gas in order to cover hypothetical events of big shortfalls at international production or interconnections facilities. For this purpose, it established the obligation of maintenance of minimum safety stocks of gas and included the need for diversification of external supplies.

These measures were developed through Royal Decree 1716/2004, and current obligations are the following:

- Suppliers and direct consumers in the market have the obligation to maintain a minimum strategic safety stock and a minimum operational stock, equivalent to 10 days of their firm sales in the previous calendar year each, 20 equivalent days.

- If all the natural gas supplies intended for national consumption coming from the same country are over 50% of total supplies, suppliers and direct consumers in the market who provide supplies for a percentage above the 7% of total supplies in the preceding calendar year, must diversify their portfolio so that their own supplies from the largest supplier country to the domestic market are less than 50%.

The peak demand can be easily supplied by an increase in the production of the six regasification plants, as they have a large excess of regasification capacity.

Safeguard measures for emergency situations

Article 101 of the Hydrocarbons Act states that the Government shall lay down the conditions for emergency situations in which the strategic reserves of natural gas may be used by those

under the obligation to maintain such reserves. For this purpose, Royal Decree 1716/2004 states emergency situations shall be those cases where due to circumstances that are out of control of one or all agents intervening in the gas system, there is a risk of shortage or scarcity of supply with regard to firm gas supplies as well as whenever the safety of people, equipment or installations or the integrity of the gas network may be affected.

Monitoring on security of supply

The competent authority to monitor the security of supply according with article 5 of Directive 2009/73/EC is the Ministry of Energy, Tourism and the Digital Agenda. CORES also monitors the strategic safety stock and diversification of supply.

The Ministry of Energy, Tourism and the Digital Agenda has published on 31 July 2012 the 1st report outlining the findings resulting from the monitoring of security of supply, according with article 5 of Directive 2009/73/EC, available here:

http://www.minetur.gob.es/energia/gas/legislacion/2012/470_resolucion_informe_seguridad_suministro_gas.pdf

On December, 19th 2012 the Ministry of Energy, Tourism and the Digital Agenda has published a Preventive Action Plan and an Emergency Plan for the Spanish Gas System for the period 2012-2014, according with ER 994/2010.

On October, 5th 2015, these plans have been updated, and the new version is available here:

http://www.minetad.gob.es/energia/gas/Legislacion/2015/940_Resolucion_DGPEM_Plan Preventivo y Plan Emergencia.pdf

## 5 REMIT

Article 46.I of the Act of the Power Sector (Act 24/2013, of 26 December) allows the Ministry of Energy, Tourism and the Digital Agenda, CNMC, and the European Commission to access during at least 5 years the data of all the transactions of the electricity supply contracts, as well as the electricity derivatives concluded with the wholesale customers and the Transmission System Operators.

Regarding the scope of Regulation (EU) No 1227/2011 on Wholesale Energy Market Integrity and Transparency ("REMIT"[26]), CNMC participates actively in the CEER and ACER Market

[26] REMIT entered into force on 28 December 2011 and the prohibitions to market participants regarding insider trading and market manipulation, as well as the obligation to publish inside information, apply to both electricity and natural gas wholesale markets.

Integrity and Transparency (MIT) Working Groups and related Task Forces[27] and the ACER REMIT Coordination Group and its Standing Committees[28].

In particular, Article 7 of the Act 3/2013 establishes the functions that the Spanish NRA shall carry out for supervising and controlling the proper functioning of the electricity and natural gas sectors. In this regard, CNMC will ensure compliance by the electricity and natural gas market participants of the provisions stated on in the European Union regulation, monitor the adequate price formation and supply conditions to end users, and guarantee the transparency and competition in the electricity sector and the gas sector. Article 27 (Inspection faculties) states that CNMC civil servant staff, duly authorized by the corresponding Director, will have the "authority agent" status and is empowered to perform inspections to enterprises for the right application of Act 3/2013. Article 29 (Sanctioning power) states that CNMC will exert its power regarding inspection and sanctioning according to the Electricity and Gas Laws. For the exercise of the sanctioning power, the due functional split between the instruction phase and the resolution phase will be guaranteed. The instruction phase will correspond to the Energy staff, and the resolution phase will correspond to the Board.

On the other hand, the provisions related to inspection, infringements, and sanctioning regime are developed in Title X of the Act 24/2013, of 26 December, of the Power Sector, and in Title VI of the Act 34/1998, of 7 October, of the Hydrocarbons Sector. In particular, infringements of REMIT are considered as a serious infringement according to article 65 of the Act 24/2013, of 26 December, of the Power Sector, and article 110 of the Act 34/1998, of 7 October, of the Hydrocarbons Sector. The sanctioning faculty corresponds to CNMC.

In addition to the market monitoring tasks performed by CNMC, market oversight reports with aggregated data and no commercially sensitive information covering both spot and derivatives markets are published.

The duty contained in article 37(1)(u) of the Directive 2009/72/EC[29] is considered within the framework of regional cooperation. In the electricity market, compatible data exchange with France and Portugal (and beyond) between TSOs and PXs happens on a regular basis. One example of that are the data submitted by REE to be published at ENTSO-E Transparency Platform website (https://transparency.entsoe.eu/).

According to article 9.2 of REMIT "*Not later than 3 months after the date on which the Commission adopts the implementing acts set out in Article 8(2), national regulatory authorities shall establish national registers of market participants which they shall keep up to date.* (...)."

[27] The CMIT WG has a Task Force called "Wholesale Energy Market" (WEM TF). The AMIT WG has two Task Forces called "Wholesale Market Surveillance" (WMS TF) and "REMIT IT Management and Governance" (RITMG TF).
[28] "Market Monitoring SC" and "Market Data Reporting SC".
[29] Article 31(1)(u): "*contributing to the compatibility of data exchange processes for the most important market processes at regional level.*"

Commission Implementing Regulation (EU) Nº 1348/2014 on data reporting implementing Article 8(2) and Article 8(6) of Regulation (EU) No 1227/2011 of the European Parliament and of the Council on wholesale energy market integrity and transparency, was adopted on 17 December 2014. As a previous step for the transaction reporting to ACER, in order to facilitate such a process, article 9 REMIT establishes the obligation for market participants entering into transactions which are required to be reported to ACER to register with the NRA in the Member State in which they are established or resident or, if they are not established or resident in the Union, in a Member State in which they are active.

On 8 January 2015, CNMC approved the Resolution creating the Spanish Register of market participants in the wholesale Energy market, complying with article 9 REMIT. The Spanish Register started operations on 15 January 2015.

In the first four months of the Spanish Register, the number of market participants registered with CNMC was reduced (around 25). Therefore, on 7 May 2015, CNMC approved the Agreement encouraging market participants active in organised wholesale energy market places to apply in advance for their registration in the Spanish Register. According to article 12 of Commission Implementing Regulation (EU) Nº 1348/2014, the registration obligation with the national regulatory authority must be done prior to 7 October 2015, if the market participants trade on organised market places (or prior to 7 April 2016 if they operate exclusively out of organised market places and such operations are subject to data reporting obligation to ACER).

On 7 October 2015 data reporting of contracts executed at organised market places started, including matched and unmatched orders, and information in relation to the capacity and use of facilities for production, consumption and transmission of electricity, and to the capacity and use of facilities for transmission of natural gas, including planned and unplanned unavailability of these facilities.

On 7 April 2016 started data reporting for transactions concluded outside organised market places and the rest of information related to the capacity and use of electricity and natural gas facilities.

On December 2016, 493 market participants (an increase of 78% compared to 2015) were registered with CNMC and the Spanish NRA has been resolved more than 400 questions related to REMIT, the registration or transaction reporting processes.

| REMIT 2016 | |
|---|---|
| Spanish Register of Market Participants and Q&A | |
| Registered market participants | 493 |
| Updates in the registration | 818 |
| Question & Answer on REMIT, registration or transaction reporting processes | 414 |

*Table 32. Spanish Register of Market Participants and Questions & Answer resolved by CNMC*
*Source: CNMC*

# 6 Consumer protection and dispute settlement in electricity and gas

## 6.1. Consumer protection

The general framework for consumers' protection was modified by the Act 3/2014 revising the text of General Act of Consumer Protection and transposing into the Spanish law the Directive 2011/83/EU of 25 October on Consumer Rights.

This new legal provision obliges traders to adopt the new set of contractual guidelines as from June 13, 2014. In this regard, it is important to mention that the legal provisions are also applicable to electricity and gas contracts. In particular, the Act 3/2014 has introduced new measures in switching for gas and electricity, setting up clear procedures when desisting from a switching request and procedures in case of non-requested switches.

In general terms, the Act 3/2014 harmonizes a set of concepts such as "consumer", "trader", "distance contract", "off-premises contracts" and "durable medium", among others.

Likewise, it is worth mentioning the strengthening of the information that must be provided to consumers before the execution of contracts. In particular, such information shall be provided in distance and off-premises contracts.

Moreover, the legal provisions on customer service, additional payments and charges for the use of certain means of payment have been also modified in this new draft of the Consumers Act.

Monitoring that consumers give effective consent to the switching of supplier and customer services are included among the tasks assigned to the Commission by the Act 3/2013. As a consequence of the supervision programs developed by this Commission thirteen sanctions (financial penalties) were imposed during 2016 to suppliers related to improper switching behaviour or defective customer services.

Consumers' tools

Concerning electricity and gas markets, additional measures have been introduced by Act 3/2013, including the Ministry taking over responsibility for information and complaint handling,

although the NRA remains in charge of other protective functions, such as handling the web-based gas and electricity price comparison tool: http://comparadorofertasenergia.cnmc.es/

As of 30 June 2016, the comparison tool counted 547 active offers of gas, electricity or dual supply from about 561 different companies.

Suppliers shall inform clients about their rights and establish a procedure in the case of complaints. Free customer information services must be made available, including free phone lines. Additionally, the Electricity Act (Act 24/2013) provides that CNMC will monitor the effectiveness and application of consumer protection measures and may issue legally binding resolutions aimed at their fulfilment.

The latest monitoring report of the retail market gas and electricity offers listed in the CNMC price comparison tool includes a leaflet with some recommendations or advices to suppliers and consumers[30] to take into account in the process of hiring of the supply of gas or electricity.

The main advice for consumers is to compare the prices and services that offer several different companies and always read the contract carefully before deciding on a new offer. It also advises consumers to use applications like the CNMC comparison tool if they find difficult to understand or compare the gas or electricity offers.

CNMC has also developed a tool for simulating the bills of those consumers eligible to opt for the Voluntary Price for the Small Consumer (for those with contracted power below 10 kW, having into account whether a recently deployed smart meter is already remotely managed or not) and the ones to be invoiced by last resort suppliers to vulnerable consumers[31].

Public service obligations

Spain maintains public service obligations through Reference Suppliers in the case of electricity and through Last Resort Suppliers in the case of gas.

a) Electricity

Small electricity customers (below 10 kW) have the right to be supplied by Reference Suppliers under the modality called "Voluntary Price for the Small Consumer" as developed by Royal Decree 216/2014. This category of customers can also choose a regular supplier in the free market.

As explained in chapter 3.2, the Voluntary Price for the Small Consumer (PVPC) changes the method whereby the price of power is calculated on the bills received by small end-consumers:

[30] These recommendations and advices are available at the CNMC Website: https://www.cnmc.es/file/174804/download.

[31] CNMC Website: https://facturaluz2.cnmc.es/

whereas this price was previously set by a quarterly auction, bills are now be based on the price of electricity in the spot market.

Red Eléctrica de España, as Spanish TSO, is responsible for managing some aspects of the "Voluntary Price for Small Consumer" (PVPC). This price is calculated daily by the Spanish TSO based on the energy prices per hour in the spot market and applying the average consumer profile.

To this end, it has developed an IT information service through which the small consumer can be fully informed of the price of electricity that will be applied in accordance with this Royal Decree. This new system let end users change their consumption patterns and improve the management of their electricity consumption.

The prices that the system operator will publish through the "Voluntary Price for Small Consumer" IT service will apply only to those consumers whose contracted power capacity does not exceed 10 kilowatts (kW) and choose this system. These prices will be applied to the electricity consumption (variable energy charge - kWh consumed) of the bill that the system operator calculates using the new approved methodology.

In this way, Red Eléctrica offers consumers who have opted for PVPC, the ability to see the financial impact of their electricity consumption depending on the access costs plan chosen between the general tariff, the night tariff or the super-valley tariff (electric vehicle).

The total of the electricity bill is completed by the inclusion of a fixed charge proportional to the power contracted by the user as well as the taxes established by current legislation.

These prices can be applied to all small consumers, whether they have smart meters with hourly metering or not. In the latter case, prices are based on the profiles that Red Eléctrica establish with the new methodology approved by the Government and is published and updated weekly on Red Eléctrica's "eSios" website.

b) Gas

Since July 1st 2009 only consumers connected to gas pipelines with a pressure equal to or smaller than 4 bar and annual consumption of less than 50.000 kWh may be supplied at last resort tariffs in the gas natural sector.

In December 2016, the following last resort suppliers are appointed:

- Endesa Energía XXI, S.A.U
- Gas Natural SUR SDG, S.A.
- Iberdrola Comercialización de Último Recurso, S.A.U.
- EDP Comercializadora Último Recurso, S.A.U.

According to Royal Decree 104/2010, customers without any energy supply contract and not eligible to be supplied at TUR, are allowed to be supplied by last resort suppliers at the regulated tariff (TUR) during one month.

The Act 12/2007 establishes the principles to be used in the calculation of last resort tariffs, which are the following:

- Single tariff for the whole country.
- Cost reflective (incomes enough to cover expenses).
- Additive structure: energy costs, access tariffs and commercialization costs.

The energy component of the last resort tariff is calculated every 3 month, using a formula including the crude oil quotation, the prices of natural gas at the TTF and NBP markets, and a commercial margin.

Vulnerable customer's definition

The concept of vulnerable customers has only been established so far for electricity customers.

The Act 24/2014 defines the vulnerable customers as the customers that fulfil social characteristics relating with his consumption and purchasing power. These customers have to pay last resort tariff instead of the voluntary price for small customers.

The above mentioned Act defines the social bonus as the difference between the last resort tariff and the voluntary price for small customers. The Royal-Decree 216/2014, dated March 28th sets up the social bonus as the 25% of the voluntary price for small customers.

Until the government develops the provision relating with vulnerable customers, the consumers (less than 1 kV) with contracted demand lower than or equal to 3 kW, a pensioner older than 60 years with a minimum pension, families where all members are unemployed and large families are considered vulnerable.

The social bonus has the consideration of public service obligation pursuant to Directive 2009/72/EC and is financed by the parent group of companies or, where applicable, companies which develop simultaneously the activities of production, distribution and sale of electricity.

As of December of 2016, 2.395.844 customers have social bonus subsidies.

Compliance with Annex 1 of the Directives 2009/72 and 2009/73

As mentioned, the Electricity Act 24/2013 introduces important provisions on customers, some of them derived from the Third Package and others proposed by the Spanish NRA. Consumer's right (from Annex 1) have also been introduced in the Gas Act by the Act 13/2012. According to the new Act:

• Consumers have the possibility to participate directly in the market.

• A deadline of 21 days for switching supplier (free of charge) is set up.

• There will be a dispute resolution procedure managed by the Ministry of Energy, Tourism and the Digital Agenda. This procedure will be transparent, simple and free of charge. Furthermore, there is the possibility of alternative resolution (arbitration) by consumer authorities.

• CNMC will monitor the effectiveness and implementation of consumer protection measures and will be competent to issue binding enforcement resolutions.

• The contractual conditions will be equitable and transparent with clear and understandable language. Customers will be protected against abusive or misleading sales procedures.

• There is the possibility to choose among different payment methods, which do not unduly discriminate between customers.

• Transparent information on energy costs shall be ensured in the bill.

• Consumption data will be available for the consumer and data can be transferred to suppliers, under consumer agreement.

• The customer will receive a settlement of the former supplier's account not later than 42 days following a switch of supplier.

• Suppliers and distribution companies will facilitate a customer service telephone number free of charge for the consumer.

• The supplier will inform the customer about the origin of the energy supplied as well as environmental impacts related.

• "Social bonus" will be a public service obligation as set forth by Directive 2009/72/CE.

• Essential supply points (including domestic consumers that need continuity in the supply for running medical equipment) cannot be disconnected.

### 6.2. Dispute settlement

Duties and powers of the regulatory authority of dispute settlement in the electricity market

CNMC is responsible for dispute settlement related to access to the transmission and distribution grids. The deadline for issuing a decision is the same that required by the Directive (2 months) as set forth by Act 24/2013 (Article 33.3). The decision is binding for the agents involved in the dispute and could be appealed directly to the Court.

On the other hand, CNMC shall act as an arbitration body in any disputes that may referred to it by agents carrying out activities in the electricity and hydrocarbon market.

In 2016, eleven disputes concerning access to the network and nine disputes related to the economic and technical management of the system were registered in CNMC.

Duties and powers of the regulatory authority of dispute settlement in the gas market

According to article 12 of Act 3/2013, the CNMC is entitled to solve disputes with regard to the contracts for third party access to the transmission and distribution networks on any terms that may be set in regulations. Moreover, CNMC is responsible for solving any disputes that may be taken to it with regard to the economic and technical management of the system and transport, including connection facilities.

The decision is binding for the agents involved in the dispute and should be appealed directly to the Court.

Additionally, CNMC shall act as an arbitration body in any dispute that may referred to it by agents carrying out activities in the electricity and hydrocarbon market.

In 2016, CNMC settled 7 disputes (conflicts) in the gas market:

- Two conflicts referred to the disagreement of several supplier with the TSO about imbalances network.
- One conflict referred to the disagreement with the denied of TSO to supply request for fault in programming and denomination.
- Two conflicts referred to the disagreement with the TSO calculation of losses.
- Two conflicts referred to third party access and tolls billing.

Customer complaints

According to article 7 of Act 312013, CNMC supervises and monitors the proper functioning of the electricity and natural gas sectors. Specifically, on paragraph 13 of article 7 it is established the duty of identifying the members of electricity and natural gas sectors whose actions cause supply deficiencies, and the proposition of necessary measures to correct them. Also, on paragraph 15 it is established that the CNMC should monitore the claims raised by consumers of electricity or natural gas.

In August 2016, CNMC approved the Circular 2/2016 in order to collect information about complaints from suppliers and distribution companies, so in next reports, better information could be provided.