



ANNUAL REPORT 2016





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EXECUTIVE SUMMARY

The year 2016 marks a further step towards a full integration of European energy markets, increasingly characterized by common and more and more harmonized trends within a shared framework of standards and principles.

The phenomenon appears to be clear in the electricity markets, whose dynamics tend to picture a unique scenario, characterized by the trend of fuels and locally shaped by regional peculiarities. The further drop in oil and gas prices, which have reached record levels during the last year, acts as a driver on continental power exchanges, favoring, on the one hand, a general consolidation of the downward trend of prices, on the other hand, a significant decrease in the traditionally existing spreads between countries.

The increased competitiveness of gas-intensive generation plants, acquired through the sharp reduction in raw material costs, represents a driving force for the creation of new dynamics characterized by more and more defined boundaries on the European electricity markets. In the North, they are outlined by an area including Germany and Scandinavia, characterized by the lowest quotations thanks to a highly renewable capacity plants (27/29 €/MWh); in the South by a Mediterranean region including France, Spain

and Italy, typically showing higher prices (37/43 €/MWh).

The high degree of integration of the European electricity market also appears to be effectively supported by exchanges synchronization mechanisms guaranteed by the market coupling. By way of example, in October 2016 and February 2017, an exceptional local event - the massive unavailability of the French nuclear plants - has put the entire European electricity system under stress, causing sudden spikes in prices everywhere. In this critical situation, the implicit allocation mechanism of cross-border capabilities has provided a fast and efficient response to supply shortages, imposing frequent inversions of flows between countries, with Italy being often an energy exporter, mainly sold by combined-cycle plants.

Fully integrated in this context, the Italian electricity market recorded a substantial stability of the overall volume traded on a spot basis on the MGP (289.7 TWh), mainly through stock exchange (70% of the total, among the highest rates ever), and a price among the minimum recorded from the launch of the regulated market, both in terms of level (42.78 €/MWh), and in terms of spreads with the neighboring

France (6 €/MWh). The inclination towards a more "European" feature is further strengthened by the analysis of the microstructure of the Italian domestic market, reflecting a further tightening of the price timing profile and a progressive reduction in zone congestions, with the price spread between Sicily and South dropped to its lowest level since 2007 after the extension of the interconnection cable and often null in the central hours of the day.

From a regulatory point of view, the European electricity market integration process is moving on two channels, on the basis of the EC Regulation No. 2015/1222 (CACM), aiming, on the one hand, to harmonize the practices and operations carried out in the field of coupling by the NEMOs - the electricity market managers designated by the competent authority (GME in Italy) - and on the other hand, to the extension, even to the intra-day context, of the implicit and synchronized allocation mechanisms of cross-border capacity, which are now all processes consolidated on a day-ahead basis.

In accordance with these perspectives, in 2016, GME participated, together with the other European NEMOs, in the development of a Joint Program for the establishment and performance of the Market Coupling Operator (MCO Plan). At the same time, within the framework of the XBID project, it promoted the implementation of an intra-day coupling model combining a continuous trading system with a complementary auctions system, already operative since June 2016 along the Italian-Slovenian border and tool necessary to ensure, in the long run, the so-called "pricing" of cross-border capacity allocated on an intra-day basis, according to a hybrid model increasingly supported by network managers and European regulators.

On the other hand, the driver of change registered in the gas sector was the transposition of the regulatory scheme set out in Regulation (EU)

No. 312/2014 - according to which the person responsible for the balancing (RdB) is required to obtain supplies prioritizing the use of spot trading, which inevitably has generated variations in market balance. Significant and predictable is the impact of the reorganization balancing of gas markets managed by GME (47.5 TWh), where, in view of the large volumes handled by the RdB, the trends consolidated over the past few years have undergone a structural breakdown, fueled by the natural shift of liquidity from PB-GAS to MP-GAS. The jump was particularly relevant for the fast-growing Intra-day spot market (MI-GAS), on which the RdB focused the activity. On the other hand, a residual but progressively increasing share of trading made by other participants was recorded.


As for the environmental markets, as a result of the closure of the exchange and trading systems of the Green Certificates and Exchange pursuant to the current legal provisions, the year 2016 showed a significant strengthening of the interest in incentive schemes promoted through the issuing of the Energy Efficiency Certificates (TEE) and Warranties of Origin (GO), as is widely demonstrated by the increase in active participants and volumes traded on their respective GME platforms.

In particular, TEE exchanges rose to 9.4 million toe (+ 7.5%), reaching their highest historic level in the market, witnessing the positive effects produced, in terms of liquidity, by the central counterpart role of GME. As for the prices, in a transitional regulatory environment towards the definition of new national energy savings targets and the approval of new guidelines for the evaluation of efficiency projects, the market showed, starting from the last quarter of 2016, an upward and highly volatile dynamic that in the long run has brought the benchmark of TEE from 160 €/toe in October to around 200 €/toe in May 2017.

Lastly, GME's careful attention focuses on the activities of monitoring the transactions carried out on its trading platforms, also carried out in coordination with the main national and community institutions competent in this field, in order to ensure the proper efficiency and transparency standard to the markets. The extent of these activities is clearly defined by the regulatory and legislative framework drawn up

by REMIT in Europe, by TIMM and by Law no. 161 of October 30, 2014 within the national borders - with the aim of ensuring the participants' compliance with insider trading and market manipulation bans and disclosure obligations of inside information and data reporting, the latter two facilitated by GME through two targeted platforms (PIP and PDR).

Chairman
and Chief Executive Officer

A handwritten signature in black ink, appearing to read "P. Pietro Maria Putti". The signature is written in a cursive, somewhat stylized script.

Prof. Pietro Maria Putti

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1.1 GOVERNANCE AND MARKETS

1.1.1 Company profile

Gestore dei Mercati Energetici S.p.A. (GME) is a joint stock company established in 2001 in the process of liberalizing the energy sector promoted by the Bersani Decree ¹.

GME, together with Acquirente Unico – AU² S.p.A. and Ricerca sul Sistema Energetico³ – RSE S.p.A. – is wholly owned by Gestore dei Servizi Energetici – GSE⁴, S.p.A., whose shares are fully held by the Ministry of the Economy and Finance (MEF).

The company operates in accordance with the guidelines of the Ministry of Economic Development (MiSE) and the legal provisions defined by the Authority for Electricity, Gas and Water (AEEGSI).

The Company, on a legal and regulatory input, has progressively expanded its range of activities from the organization of the electricity, environmental, gas and fuel markets.

A multicommodity company

Specifically, as shown in the diagram in Figure 1.1.1, within the electricity segment, GME manages the Electricity Market (ME), which is made up of the Spot Electricity Market (MPE) – which includes the Day-Ahead Market (MGP), the Intra-Day Market (MI) and the Daily Products Market (MPEG) – and the Forward Electricity Market (MTE), the Delivery of electricity derivatives platform (CDE), the latter aimed at enabling participants to pay, by physical delivery by registration on the PCE, the contracts concluded on IDEX (the electrical derivatives segment managed by Borsa Italiana SpA) and the OTC Registration Platform (PCE) for registration of forward electricity purchase/sale contracts that have been concluded off the bidding system. In the electricity sector, GME also manages the operation of the Ancillary Services Market (MSD), whose economic management is responsibility of Terna S.p.A..

Similarly, in the gas sector, GME manages the Gas Market (MGAS), which is made up of the Spot Gas Market (MP-GAS) – in turn organized in the Day-Ahead Market (MGP-GAS), the Intra-Day Market (MI-GAS), the Locational Products Market (MPL) and in the Regulated Market for the trading of gas stored (MGS) – and the Forward Gas Market (MT-GAS). In the gas sector, GME also manages the operation of the gas platform for the fulfillment of the sales obligations relating to domestic production, import and virtual storage as referred to in the Ministerial Decree of March 18, 2010 (P-GAS).

Moreover, GME organizes and manages the Environmental Markets, namely the Energy Efficiency Certificates (MTEEs) and the Guarantees of Origin for electricity from renewable energy source (P-GO), as well as the bilateral trading registration platforms.

GME was also entrusted with the task of collecting data on mineral oil storage capacities, which are crucial to the future launch of the oil market logistics platform for mineral oils and the wholesale oil products platform for the transport sector that GME is called to organize and manage pursuant to Legislative Decree 249/2012. In order to collect capacity data, GME organizes and manages the Mineral-Oil Storage Capacity

¹ Pursuant to Article 5 of Legislative Decree 79/99, i.e. "Bersani Decree".

² The company responsible for ensuring the supply of electricity to protected market customers. Following the evolution of energy markets, the Company's activities have been expanded to benefit the final consumer and markets, with the management of the Energy Consumers' Office (Sportello per il Consumatore di Energia) and the Integrated Information System. Further responsibilities have been given to the Company, within the framework of emergency oil stocks.

³ The company that carries out research activities in the electricity/energy sector, with particular reference to national public-interest projects funded by the Fund for System Research.

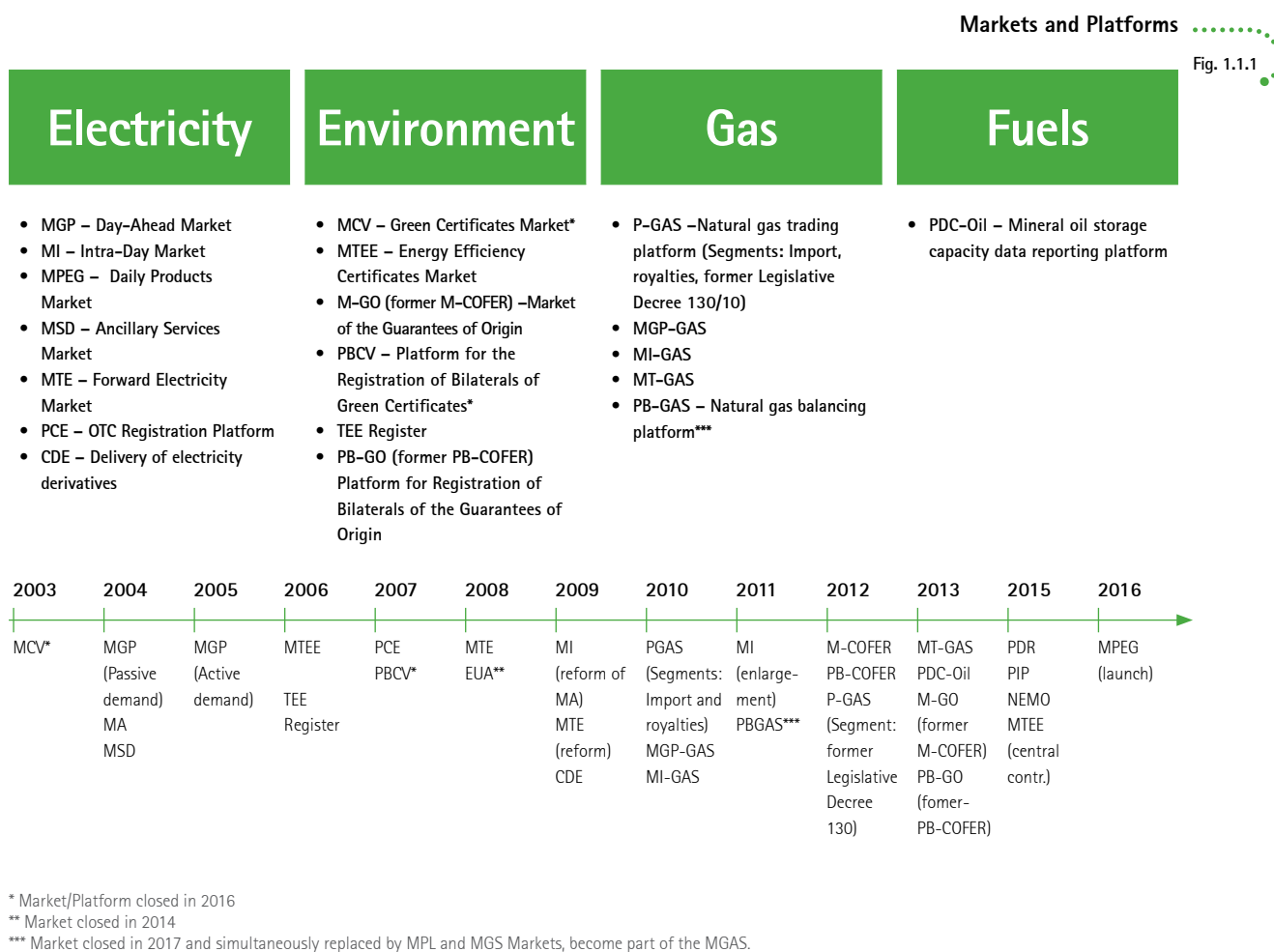
⁴ Former Gestore della Rete di Trasmissione Nazionale S.p.A., is the company that works for the promotion of sustainable development through the technical-engineering qualification and the verification of plants for renewable and high-efficiency cogeneration. It also provides subsidies for electricity produced and introduced in the network by such plants. Since 2011, GSE has been called upon to ensure measures to promote greater competition in the natural gas market.

Data Reporting Platform (PDC-oil) Disclosure Platform under which data and information related to logistic capacity are acquired, according to a "standard" collection model, approved by the Ministry of Economic Development by decree no. 17371 of May 30, 2013.

With reference to the implementation of EU Regulation no. 1227/2011, concerning the transparency and integrity of wholesale energy markets (REMIT), and the related Implementing Regulation n. 1348/2014 (Implementing Acts), GME has developed and now manages, for its market participants, two platforms for supporting same participants in fulfilling their reporting obligations to the ACER (PDR platform) and the publication of inside information (PIP platform).

Finally, pursuant to Art. 5 of Regulation (EU) No. 1222/2015 of 24 July 2015 - governing the Community guidelines on capacity allocation and management of electricity congestion - by letter of 15 September 2015 from the MiSE, upon positive opinion expressed by the AEEGSI with Resolution of 6 August 2015 no. 414/2015/l/eel, GME has been assigned the role of Italian *Nominated Electricity Market Operator* (NEMO) for the process management and coupling flows for both Day-Ahead Integrated Market and Intra-Day Integrated Market.

Figure 1.1.1. shows a brief description of the features of the aforementioned markets.



The markets managed by GME are characterized by their physical nature: all the products traded, both spots and forwards, provide for the obligation of physical delivery and access to trading to only be permitted to persons who, directly or through a mandate, have in any case the possibility of physically delivering those products. In addition, GME acts as a central counterpart on all its markets, with the exception of MSD (where the central counterpart is Terna S.p.A.), P-Gas, where the counterparts are directly linked to transactions, and registration platforms of bilateral contracts of GOs (PB-GO) and TEEs (TEE Register).

A single central counterpart for the physical markets

Considering the GME's governance:

- the rules of operation of the Electricity Market, the Gas Market and the P-GAS Bilateral Platform are defined by GME and approved by the Ministry of Economic Development, upon positive opinion of the Authority for Electricity, Gas and Water;
- the rules of operation of the Energy Efficiency Securities Market, the rules of the Platform for the Registration of Bilateral Transactions of Energy Efficiency Certificates, as well as the rules of operation of the OTC Registration Platform, are defined by GME and approved by the Authority for electricity, gas and water;
- the rules of operation of the Regulated Market and the registration platforms of bilateral contracts (GO) are prepared by GME and transmitted to the Authority for Electricity, Gas and Water for its Verification, pursuant to Resolution ARG/elt 104/11.
- the rules of operation of the Mineral-Oil Storage Capacity Data Reporting Platform (PDC-oil) are instead prepared and approved by GME.

The market regulation

Operations on the various markets managed by GME are subject to constant monitoring activity by the dedicated offices of the Company. This monitoring integrates the one carried out in support of the AEEGSI on the electricity markets, in accordance with specific resolutions. GME is also involved in the implementation of the new energy-market surveillance tasks introduced by EU Regulation n. 1227/2011 on transparency and the integrity of energy markets (REMIT). In this regard, for a more detailed description of the activities carried out under the REMIT Regulation, see paragraph 1.4.1.

Market Monitoring

The administrative body of the Company is represented by the Board of Directors, consisting of three members, appointed by the Shareholder Assembly resolution, for a maximum mandate of three fiscal years⁵. The Board of Directors is exclusively responsible for managing the company; The Managing Directors perform the necessary operations for the implementation of the corporate object.

Corporate bodies and organizational structure

Within the Board of Directors of GME, a member jointly appointed as Chairman and Chief Executive Officer has been identified. This person:

- holds the powers of legal representation of the Company and signature, and chairs the Assembly;
- calls and chairs the Board of Directors and verifies the implementation of the Board's resolutions;

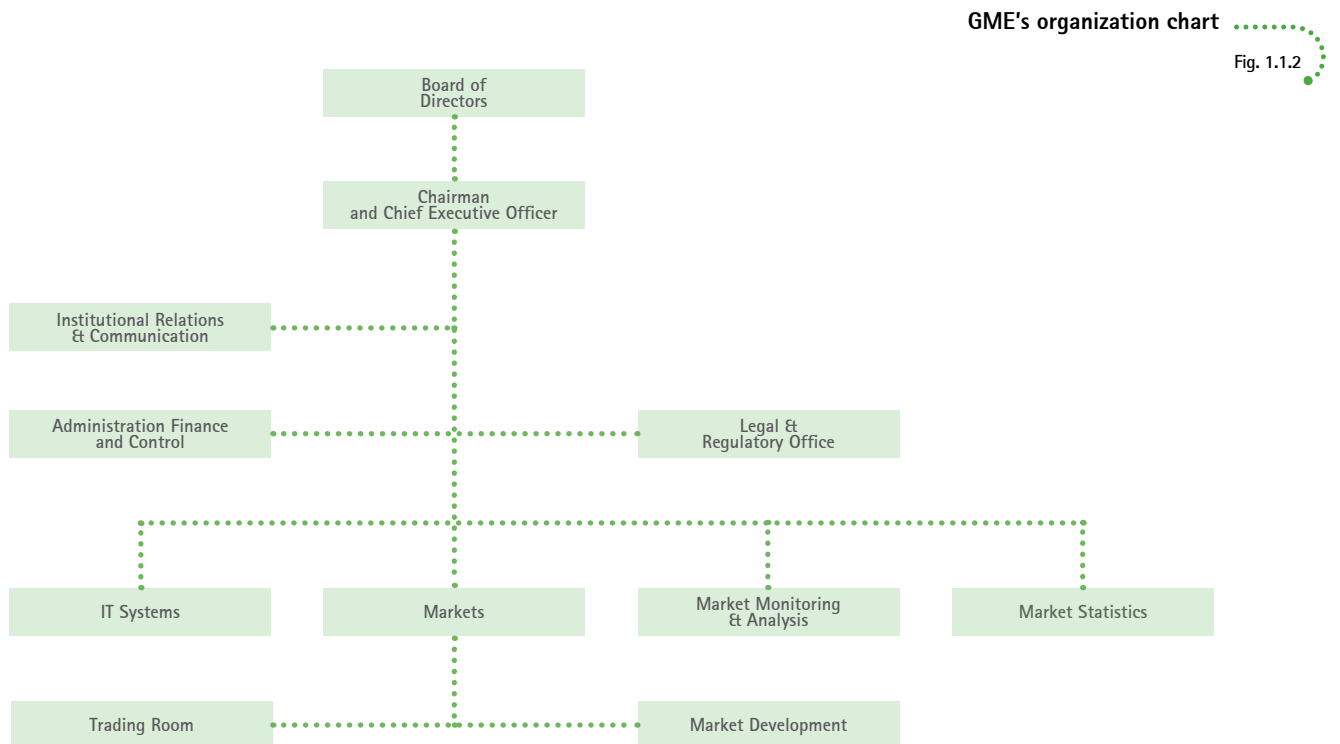
⁵ By resolution of October 22, 2015, the Single Shareholder appointed the new Board of Directors of the Company to remain in office until the date of the Shareholders' Meeting called for the approval of the financial statements for the year 2016.

- on the basis of a Board's resolution, he is given all powers for the administration of the Company, with the exception of those otherwise provided for by law, by the articles of association or reserved to the Board of Directors;
- reports to the Board of Directors and the Board of Statutory Auditors at least every three months on the overall performance of the management and on its foreseeable evolution, as well as on the most significant operations due to their size or characteristics.

Moreover, other GME's corporate bodies include:

- the Board of Statutory Auditors
- The Supervisory Body

The company's staff as of December 31, 2016 consists of 110 employees (of which 1 seconded), organized on seven structures, according to the diagram shown in Figure 1.1.2.



Market rules

Tab. 1.1.1

	ELECTRICITY MARKET			GAS MARKET			
	MTE	MPE	PCE	MGP-GAS MI-GAS	MGS*	MPL*	MT-GAS
Participation	Voluntary	Voluntary on MGP, MI and MPE Mandatory on MSD	Voluntary	Voluntary	Voluntary	Voluntary	Voluntary
Admission Requirements to Markets and Participation in Trading (**)	Required ownership of an electricity account to deliver a net position	Required ownership of an offer point to submit bids	Only dispatching users are admitted and parties delegated by them	It is required to be a PSV user to deliver a net position	Users of storage services, except transport companies and users of the only strategic storage service	Users of the transport service and natural gas balancing	It is required to be a PSV user to deliver a net position
Traded product	Annual, Quarterly, Monthly (with baseload and peakload profile)	Timetable MGP, MI1: 1am-00 MI2: 1am-00 MI3: 4am -00 (****) MI4: 8am-00(****) MI5: 12am-00 (****) MI6: 4pm-00 MI7: 8pm-00 MPEP Daily (with baseload and peakload profile)	OTC contracts	Daily	Daily	Daily	BoM, Monthly, Quarterly, Semiannual, Annual (both thermal and calendar)
Trading method	Continuous Trading	Auction	Bilateral Trading	Continuous Trading	Auction	Auction	Continuous Trading
Price rule	Pay as bid	Marginal price of the zone on MGP and MI Pay as bid on MSD	N/A	Pay as bid	Marginal price	Marginal price	Pay as bid
Guarantees	Bank guarantee and/or cash deposit		Bank guarantee. Cash deposit only if needed or in case of emergency	Bank guarantee and/or cash deposit	Bank guarantee and/or cash deposit	Bank guarantee and/or cash deposit	Bank guarantee and/or cash deposit
Central counterpart	GME	GME on the MGP and MI Terna on the MSD	GME (only for CCT)	GME	GME (from 1° April 2017)	GME (from 1° April 2017)	GME
Payments	M+2	W+1 (from 1° December 2016) for MGP and MI M+2 for MPEP	W+1 (from 1° December 2016)	W+1 for transactions (from 1° September 2016) M+3 For the closing of non-delivered positions	W+1 for transactions M+3 For the closing of non-delivered positions	W+1 per le transazioni M+3 For the closing of non-delivered positions	W+1 for transactions (from 1° September 2016) M+3 For the closing of non-delivered positions

*AEEGSI, with resolution 312/2016/R/GAS, introduced, in the national context, the provisions crucial for the launch of the new balancing system, implemented in: (i) a first transitional phase, operating from 1 October 2016 until March 31, 2017, which envisaged SRG's acquisition of title products on MGAS, while the session for trading locational products (MPL) and the one for regulating the quantities of gas stored (MGS) carried out in the context of PB-GAS; (ii) a second phase (regime phase) operating from 1 April 2017, which provided for the final termination of the PB-GAS operating period and the redefinition of the MGAS design, within which also MPL and MGS markets are managed.

**In addition to what is specifically indicated in the disciplines and regulations of the individual markets in terms of participation requirements, markets platforms can be joined by persons possessing appropriate professionalism and expertise in the use of computer systems and related security systems, or persons who have employees or auxiliaries with such professionalism and competence.

***Bid times applied to products traded on the 1st of February 2017 flow date.

PGAS					
Import	Virtual Storage	Rates	MCV (operating until June 30, 2016)	MTEE	MGO
Mandatory (for sales)	Mandatory (for sales)	Mandatory (for sales)	Voluntary	Voluntary	Voluntary
PSV users subject to the obligation to bid for import quotas	PSV users who joined the virtual storage service	PSV users subject to the obligation to bid for the rates	GSE, domestic and foreign producers, wholesalers, importers, associations ex art. 2.23 First period, of Law 14/11/1995, no. 481, obliged participants pursuant to art. 11, Legislative Decree. 16/03/199, no. 79	It is required an ownership of an account at the TEE Register for trading on MTEE	It is required ownership of an account at the GO Register for trading on the MGO
Monthly, Annual (thermal)	Monthly, Semiannual	Monthly	Certificate referring to annual, quarterly periods	Certificate by type of intervention (1 Toe)	Certificate by tipe of source (1MWh)
Continuous Trading	Continuous Trading	Auction	Continuous Trading	Continuous Trading	Continuous Trading
Pay as bid	Pay as bid	Marginal price	Pay as bid	Pay as bid	Pay as bid
Defined by each Buying Market Participant	Defined by each Buying Market Participant	Defined by each Buying Market Participant	Cash deposit for total purchase coverage	Cash deposit for total purchase coverage	Cash deposit for total purchase coverage
N/A Invoicing and payments between participants	N/A Invoicing and payments between participants	N/A Invoicing and payments between participants	GME	GME	GME
Deadline defined by each Buying Market Participant	Deadline defined by each Buying Market Participant	Deadline defined by each Buying Market Participant	D+3	D+3	D+3


Fees
 Tab. 1.1.2

Market	Reference Rules	Access fee (one-time last)	Yearly fixed fee
Electricity Market	Integrated Text of the Electricity Market Rules	€ 7.500	€ 10.000
PCE	PCE Rules	€ 1.000	€ 0
Gas Market	MGAS Rules	€ 0	€ 0
PB-GAS	Natural-gas balancing platform Rules	€ 0	€ 0
P-GAS	P-GAS Rules	€ 0	€ 0
Green certificates	Integrated Text of the Electricity Market Rules Green Certificates Bilaterals Registration Platform Rules	€ 0	€ 0
Guarantees of origin	Rules governing the operation of the regulated market and of the platform for registration of bilaterals of guarantees of origin	0 €	0 €
Energy Efficiency Certificates	Rules of Operation of the Energy Efficiency Certificates Market Rules for registering bilateral transactions of Energy Efficiency Certificates	0 €	0 €

Variable fee

Fee for MWh traded:

- MPE
 - a fee for the first 0,02 TWh of electricity traded monthly;
 - a fee of 0,04 €/MWh for volumes of electricity traded monthly exceeding the threshold of 0,02 TWh up to a maximum of 1 TWh;
 - a fee of 0,03 €/MWh for volumes of electricity traded monthly exceeding the threshold of 1 TWh up to a maximum of 10 TWh;
 - a fee of 0,02 €/MWh for volumes of electricity traded monthly exceeding the threshold of 10 TWh.
- MTE
 - 0,01 € for each MWh traded
- CDE
 - 0,045 € for each MWh registered

Fee for MWh subject of the transactions registered: 0,008 €/MWh.

If the participant is at the same time an electricity market participant, no access fee and fixed annual fee are to be paid to GME

- Fee for MWh traded: 0,01 €/MWh;
- Contribution to resources to be used for default management: 0,0025 €/MWh .

If the participant of the gas market is also a participant of the electricity market, no access fee is to be paid to GME

Fee for GJ traded: 0,0108 €/ MWh.

*If the participant of the PB-GAS is at the same time a gas market participant, no access fee and fixed annual fee are to be paid to GME
If the participant of the PB-GAS is also a participant of the electricity market, no access fee is to be paid to GME*

Trading fee:

- 0,0025 €/GJ on the Imports and Royalties Segments;
- 0,009 €/MWh on segment pursuant to former Legislative Decree 130/10.

Clearing fee of 0,00.

Fee for each certificate traded (each of 1 MWh):

- € 0,06 for certificate for the first 2.500 certificates traded;
- € 0,03 for certificate, above 2.500 certificates traded.

The structure and extent of the above fees is applied to the total certificates traded both in the sessions of the regulated market and through the Green Certificates Bilateral Registration Platform (PBCV)

Fee for each GO traded/recorded on the market and/or bilaterally: 0,003 €.

The structure and extent of the above fees are approved for the year 2017 with Resolution AEEGSI 739/2016/R/efr. The one relevant to the year 2016, approved by AEEGSI with Resolution 593/2015/R/efr, is 0.004 € for each GO traded/recorded on the market and/or bilaterally.

Fee for each TEE traded: € 0,1

1.2 NEW INITIATIVES

1.2.1 The new gas balancing and GME markets

The European Commission with Regulation (EU) No. 312/2014 of 26 March 2014 established a network code relating to gas balancing in transport networks with the aim of harmonizing, at European level, the relevant standards and encouraging the use of market mechanisms by network users to efficiently balance their portfolios.

In this scenario, in order to enable the gradual implementation of the aforementioned Community provisions in the specific national context, AEEGSI has approved, by Resolution 312/2016/R/GAS of 16 June 2016, the principles and provisions crucial for starting the new system of the natural gas balancing in replacement of the previous setting, governed by Resolution ARG/gas45/11 and subsequent amendments and integrations, which included the organization and management of a specific trading platform, known as Natural-Gas Balancing Platform (PB-GAS).

In particular, AEEGSI, in its Decision 312/2016/R/GAS, has defined, in a single regulatory text, called "Integrated Balancing Text" (TIB), the aspects of the "new balancing regime", namely:

- Snam Rete Gas' supply criteria in the regulated gas market managed by GME (MGAS), title and locational products for balancing the system;
- the modalities for re-integrating Snam Rete Gas' resources, in the context of the MGAS, used for balancing;
- the dispatching of gas stored by Snam Rete Gas and the adjustment of such quantities during a special MGAS session.

The Decision 312/2016/R/ GAS also envisaged the possibility for the person responsible for the balancing to supply gas volumes for different needs than those provided by the TIB by purchasing stored gas, in the MGAS .

Indeed, in tracking the path of actual introduction of the new balancing system, AEEGSI has outlined a systematic approach to the definition of a single two-stage balancing platform:

- the first stage, called "transitional", launched on 1 October 2016, providing that only Snam Rete Gas supply of title products would take place on the MGAS, while the session for the trading of locational products (MPL) and that for regulating stored gas amounts (MGS) were carried out within the framework of PB-GAS which, suitably adapted, remained operational during this period;
- the second stage, called "*regime*", providing for the final termination of the PB-GAS operating period and the consequent reorganization of locational products trading, as well as those related to the regulation of the amount of gas stored, within the MGAS.

With subsequent Decision 66/2017/R/GAS, AEEGSI approved the functional provisions for the implementation of the second stage of the new gas balancing system, also providing for the termination of the PB-GAS operating period.

The start-up of the new gas balancing on 1 April 2017 resulted in a redefinition of the MGAS's design, within which the market for the trading of Locational products (MPL) and the regulated market for the trading of gas stored (MGS), which were previously organized (temporary) under the PB-GAS.

More specifically, the market model generated by the new gas balancing system provides for:

- the role of GME as central counterpart for the transactions concluded on MPL and MGS, as was the case with spot gas markets (MGP-GAS and MI-GAS) and the forward gas market (MT-GAS);
- the extension to the MPL and MGS of billing and settlement modalities and times already provided for MGAS;
- the extension to the MPL and MGS of the guarantee system already adopted for the MGP-GAS, MI-GAS and MT-GAS markets, providing for: *i)* adequacy verification of bids submitted by participants on the MPL and MGS, compared to the guarantees provided to GME and *ii)* the payment by participants of the contribution to the Guarantee Fund provided for in resolution 502/2016/R/GAS, in line with the provisions of MGAS;
- the rules of operation of Snam Rete Gas in its dual role of balancing and supplier, in line with the "transitional" stage for Snam Rete Gas' operations on the MGS.

At the same time, other operational aspects of the MGAS system as a whole were revised in such a way as to ensure some complementary, contiguous and logical-functional consistency across all markets that are part of the MGAS market.

As part of the MGAS Rules, it was also envisaged the possibility for GME to introduce the market-making activities on MGAS.

1.2.2 Fuel markets

Legislative Decree no. 249, in transposing the E.U. Council Directive 2009/119/EC Of 14 September 2009 - imposing on Member States the obligation to maintain a minimum level of stock of crude oil and/or petroleum products - aims to strengthen national legislation on emergency oil stocks as well as to promote competition in the oil sector, by widening opportunities for selling and buying oil logistics services and oil products through the establishment and development of GME-managed markets. In particular, GME has been given the task of establishing, organizing and managing:

- a mineral-oil logistics platform (P-LOGISTICS) to facilitate the trading of short, medium and long-term logistics capacity (Article 21);
- a market platform for the wholesale trading of liquid oil products for the transport sector (P-OIL) (Article 22).

Specifically, with reference to the establishment of the P-OIL, following the Consultation Process on the related Regulation proposal (DCO No 03/2015), taking into account the talks with the MiSE and with the major trade associations, as well as the in-depth analysis of some other aspects of the proposed P-OIL operating model, in particular in terms of competition, GME has drafted a new P-OIL Rules proposal and launched a second consultation procedure on 5 May 2016 with the publication of DCO n. 04/2016.

Following the conclusion of the abovementioned consultation procedure, considering the suggestions received from the consultants, a discussion with the Ministry of Economic Development for the definition of the P-OIL operating rules was held.

1.2.3 Cooperation agreements with third exchanges

In compliance with the provisions of the AEEGSI Decision no. 282/2015/R/GAS, repealed and replaced by Decision 66/2017/R/GAS, GME, as part of the Italian gas system, signed in 2016 as a *nomination agent* a specific agreement in collaboration with CME Europe Limited exchange, following the interest shown by the latter on offering its financial platform with physical gas delivery to the Italian hub PSV (Virtual Trading Point, managed by Snam Rete Gas SpA).

This collaboration agreement with CME complements to the previous agreements signed by GME with ICE Clear Europe Limited and European Commodity Clearing (ECC).

The information flow crucial to the role nomination agent played by GME for third stock exchanges, as defined by the aforementioned decision, are governed by the present Convention between GME and Snam Rete Gas (SRG) relating to the management of the Gas Market.

1.2.4 Daily Products Market (MPEG)

In September 2016, following the consultation processes with stakeholders (Consultation Documents No. 07/2014, No. 01/2016), GME launched the new Daily Products Market (MPEG), introduced in the framework of the Spot Electricity Market (MPE), where *baseload* and *peakload* daily products are continuously traded.

The proposals for amending the Integrated Text of the Electricity Market Rules, advanced by GME in order to include the MPEG Rules in the EM, were approved by the Ministry of Economic Development - following the positive opinion expressed by AEEGSI - by the Ministerial Decree of 19 July 2016.

In particular, the MPEG framework envisages that GME shall trade two types of products (each with two baseload and peakload delivery profiles) respectively defined:

- "unit price differential" products, for which the price indicated in the preparation of bids and so the price determined on completion of the trading phase is the differential expression compared to the PUN, to which participants are willing to trade such products;
- "full unit price", for which the price indicated in the preparation of bids and so the price determined as a result of the trading phase is the expression of the unit value of electricity exchange subject of the traded contracts.

At the initial stage, with regard to the type of products traded, GME introduced the "unit price differential" product, according to the two types of delivery profiles, baseload and peakload.

Compared to trading modalities, the conclusion of contracts on MPEG occurs through the automatic matching of bids for purchase and sale (continuous trading), which are on the ORDER book according to a calendar of sessions published on the GME website.

Like other branches inside the MPE segment, GME plays a central counterpart role on the daily products market, while the related financial settlement of the accepted bids is completed, similarly to what happens in the MTE sector, during the second month following the month of energy delivery (M+2).

1.2.5 Starting the weekly settlement on the MGP, MI electricity markets and on PCE

In December 2016⁶, GME adopted an important review of payment timings, envisaging the transition to a settlement system on a weekly basis with reference to electricity amounts traded on MGP and MI as well as CCTs resulting from PCE registrations, compared to the usual timing on a monthly basis ("M+2"). This change has allowed a better harmonization of the timing of payment of the Italian electricity market with those in force on the main European markets, in order to increase, among other things, the comparability of prices on all European electricity markets.

In this regard, the regulation of net payments on a weekly basis has resulted in a complete review of the administrative billing and payment processes as well as of the guarantee system of the markets involved made possible through:

- the introduction of a timely and automatic payment execution tool (SEPA Direct Debit Business to Business), which provides for a direct charge on the bank accounts of the participants, in the event of a net debt with GME, following the prior acquisition of the related debit mandates by the participants;
- the adjustment of exposure calculation based on MGP and MI trading as well as on PCE for CCT only, depending on the lesser duration of the risk to be covered, resulting in the provision of a lower guarantee;
- the use of deferred invoicing mechanism pursuant to art. 21, paragraph 4, subpara. a) of Decree of the President of the Republic 633/72, which will allow GME and/or participants to issue a summary invoice at the end of month of all electricity and CCT supplies, financially settled within the same calendar month.

In order to implement the procedure, following a special consultation process, GME has consequently adjusted the provisions contained in the Integrated Market Rules of the Electricity Market (MiSe Decree of 21 September 2016) and in the PCE Regulation (AEEGSI Decision No. 501/2016/R/EEL of 15 September 2016). GME has also published the new versions of the relevant Technical Rules in order to regulate all the aspects of both administrative and technical details needed to carry out settlement-related activities on a weekly basis, which was first implemented with reference to energy amounts traded on the MGP and MI as well as for CCTs resulting from registrations on the PCE delivered from 1 December 2016.

⁶ In September 2016, the switch to a weekly payment adjustment system had already begun in the MGAS.

1.3 INTERNATIONAL ACTIVITIES

1.3.1 Implementation of the CACM Regulation

As part of the implementation measures of the Third EU Energy Package for the start-up of the European Electricity Market (Directive 2009/72/EC), the Regulation 2015/1222 entered into force on 15 August 2015, laying down guidelines for the Capacity Allocation and Congestion Management (CACM). The CACM Regulation ("Regulation" or "CACM") is intended to regulate the common standards for the allocation of transmission capacity at borders (both for Day-Ahead and Intra-Day markets time horizons), the technical coordination procedures for the resolution of any congestion on cross-border interconnection lines as well as the rules that each Member State will have to apply in order to internally identify and assign the roles and operational functions.

Power exchanges are subject to the CACM regulation as a single Nominated Electricity Market Operator - NEMO, which the Regulation defines in Art. 2.23 as the "Nominated Electricity Market Operator (NEMO), [...] chosen by the competent authority to perform single day-ahead or single intra-day coupling". In this context, in September 2015, GME was designated by the Ministry of Economic Development as the only NEMO reference in the context of the Italian electricity market under and for the purposes of Article 5 of the CACM.

Following its designation and subsequent start-up of co-ordination activities with other Nominated Electricity Market Operators - NEMOs, GME entered into the Interim NEMO Cooperation Agreement - INCA in February 2016, primarily to establish the NEMO Committee, to regulate voting rights, to determine the confidentiality obligations between NEMOs, and to settle disputes.

In 2016, GME, together with other Nominated Electricity Market Operators (NEMOs), prepared and sent to the relevant regulatory authorities, for their approval, a plan on how to set up and jointly carry out the functions of the Market Coupling Operator required by Art. 7.3 of the CACM.

Still in the framework of the CACM implementation activities assigned to NEMOs, GME, jointly with other NEMOs, prepared in 2016 and sent (January 2017) to the relevant Regulatory Authorities, for their approval, the operational management methodologies relating to "Backup Procedures", "Price Coupling and Continuous Matching Algorithm", "Products for Day Ahead and Intraday Markets, Maximum and Minimum Prices".

1.3.2 Price Coupling of Regions – PCR

With reference to the PCR project, started and managed by GME together with the major European stock exchanges and aimed at implementing an EU-wide market coupling mechanism applicable to the day-ahead market horizon, in 2016 after receiving from the Austrian stock exchange (EXAA) request for the supply of PCR coupling services by means of the Serviced PX mechanism, in December 2016, GME signed the GME-EXAA Service Agreement, a contract of cooperation on supply conditions, in the PCR operating environment, of the market share management activities sent by the Austrian stock exchange. The operational startup by GME is in the state of the second half of 2017, resulting subject to both the adjustment of the necessary PCR procedures and to the positive outcome of the relevant testing phase. In addition, in order to start operating, it is necessary to adjust, within the IBWT market coupling project, all the pre and post coupling procedures that fall under the competence of EXAA and the other parties involved in the allocation of cross-border capacity on the Austrian borders.

Lastly, as for the technical developments within the PCR, a new incremental version of the Euphemia algorithm was tested and put into production in 2016, enabling the management of market products with a time span of 15/30 minutes.

1.3.3 Multiregional Price Coupling – MRC

The start-up of the IBWT project, implying the integration of the Italian Day-ahead market in the wider coordinated management of European day-ahead electricity markets, has ensured GME's full entry into the Multi-Regional price Coupling (MRC) project, governed by a cooperation agreement, called MRC Day Ahead Operations Agreement (MRC DAOA)⁷.

The MRC qualifies as a European over-project of co-operation and convergence between the various European Regional Initiatives (ERIs) aimed at defining a common reference framework, not just operational, for all macro regions that have started or are about to start, the coupling activities on the Day-ahead market⁸ and to promote the convergence of the pre and post-coupling phases of the regional projects that have come become operational.

1.3.4 Cross-Border Intraday – XBID

In the path of EU electricity markets integration, GME is participating, together with other European PXs, in the project for the design and implementation of the infra-day coupling process (PXs Cross Borders Intra-Day – PXs XBID) having signed the contract EU XBID PX Cooperation Agreement. Through this cooperation, European Market Operators – in coordination with their Network Operators – will be able to implicitly allocate the cross-border capacity available in the intra-day horizon, in line with the Target Model as outlined in the EC Regulation No. 2015/1222, on "Guidelines on Capacity Allocation and Congestion Management – CACM", which entered into force on 14 August 2015.

GME has completed the formal process of joining the XBID project by signing the contract All Parties Cooperation Agreement, which defines co-ordination between stock exchanges and network operators in the design and implementation phase of the European *target model* for the intra-day coupling. As for this project, in 2016 a trading process as concluded with the provider of Hosting of the XBID Solution services and a contract with the supplier of *MPLS Services* was signed. Still in 2016, the amendments introduced after the first review of the EU XBID PX Cooperation Agreement, which were made necessary to adapt the contract to the project evolution, came into force.

⁷ On February 4, 2015 GME joined, jointly with TERNA, the MRC DAOA.

⁸ As for Italy, the European macro-reference region is the *Central South Region*, in which the IBWT coupling project qualifies as regional reference project.

1.3.5 Intraday allocation of interconnection capacity available on the ITA-SLO border

In order to transpose the provisions referred to in the CACM Regulation - which, among other things, regulates the Target Models for the management of European electricity market integration processes, both on the Day-Ahead and on the Intra-Day markets - GME started with Terna SpA and the Slovenian stock exchange and network operators, a path of evolution of the models used for the infra-day allocation of the interconnection capacity available on the Italian-Slovenian border (ID Ita-Slo project), implemented through the introduction of a market coupling mechanism, based on an implicit auction model consistent with that used for the Day Ahead market.

Specifically, this Intraday Market Coupling mechanism aimed to establish a first pilot project to develop coupling performance through the coordinated operation of some auction sessions of the Italian Intraday Market (MI) with the Slovenian Intraday market. As a first technical solution, the pilot project involved the MI2 and MI5 sessions of the Italian market.

Following the approval of the contractual documentation required for the start-up by the Regulator - made with Decision No. 297/2016/R/EEL of June 9, 2016 - and by the MiSE - expressed by the Decree of the Ministry of Economic Development of June 15, 2016 on the amendments to the EM Rules - the project was launched on 21 June 2016.

1.3.6 IBWT- XBID Local Implementation Project - LIP

Also in the context of Intra-Day markets development activities, in 2016, the trading for the XBID Local Implementation Project-LIP was started, between neighboring countries on the northern Italian border, with the common goal of integrating and extending the intraday pilot project between Italy and Slovenia to the framework of the implementation of the European Intra-Day target model. For this purpose, the stock exchanges and the TSOs of the aforementioned LIP Project, published in December 2016 the "Consultation Paper on Intraday Coupling Model for Italian Borders" providing a proposal for implementing the Intraday Coupling model, in the framework of which, in compliance with the principles and standards contained in the CACM Regulation, the management of the intraday coupling mechanism, focused on continuous trading mechanism, is also complemented by a parallel mechanism of regional intraday auctions.

For the purposes set out above, starting from the last months of 2016, the LIP project parties jointly participated in the negotiations of a first cooperation agreement called "Cooperation Agreement for the design and implementation phase of the intraday Italian Borders Working Table". With this agreement, scheduled for the second half of 2017, the LIP project parties will work together to define all the technical and governance aspects necessary to carry out the *go live* of the Intraday XBID coupling across the Italian borders in 2019, complemented by the opening of regional auctions for cross-border capacity allocation within the Intraday market.

1.3.7 Association of European Power Exchanges - EUROPEX

GME also confirmed its commitment in the international arena for 2016 as an active player of the process of integrating wholesale electricity markets in the EU.

The activities carried out in each integration project both in the Day Ahead and Intraday context mentioned in the previous paragraphs were supported by the participation of GME in the working groups established

in Europex, the category association that in the Community context coordinates and carries out the best practices, identified by the European energy exchanges, in favor of the reference stakeholders (ACER, EUROPEAN COMMISSION, ENTSO-e, etc.) for what concerns the issues related to the definition and implementation of market models with reference to the coordination of wholesale market monitoring functions and the application of the REMIT Regulation.

Among the activities carried out within the association, GME participated in the Working Group Power Markets (WGPM), whose mission focused, mainly in the second half of 2016, on the analysis of the new regulatory proposals contained in the so-called Winter Package (WP) published by the EC in December 2016⁹. In particular, with these amending proposals, the EC intends to adjust some amendments to the reference Directives contained in the Third Energy Package of the EU.

Within this group were also discussed and shared the contributions of the association to the relevant consultation documents promoted by the Community institutions on the reorganization and improvement of the wholesale electricity markets as well as the documentation prepared in the various forums organized at community level (Florence Forum, Madrid Forum, etc.). In this context, a second business process focused on the Association's response to the consultation conducted by ENTSO-on the principles of managing and revising the setting of European bidding zones.

Through the activities carried out in the WGPM, GME also monitors the evolution of the processes developed within the three European Stakeholder Committees (ESC) - included in the Market, System Operational, Grid Connection network codes - established and chaired by ACER and ENTSO-E in order to achieve greater dissemination and consultation of reference standards to be included in the relevant Network Codes provided for by the Directives of Third EU Package.

A second set of associative activities covered the work of the Working Group on Financial Instrument and Transparency (WGFIT), whose activity was mainly focused on the evaluation of the elements of transposition and proper application of the REMIT. In this context, GME also participated in the various Round-Table meetings with representatives of ACER, and was able to analyze and monitor the main development co-ordination processes for the orders Agency and trading contracts made by market participants, in order to properly comply with the obligations provided for by the REMIT Regulation.

In completing the activities carried out in the field of association, in 2016, GME also confirmed its presence in the other workgroups within EUROPEX, namely the Working Group Environmental markets, focused on the analysis of European legislation and policies for the management of markets and environmental platforms and the Working Group Gas Markets, whose activities are intended for developments in the Integrated Community natural-gas market.

In particular, in relation to activities developed within the environmental markets analysis group, GME also supported the Position Paper published by the Association in February 2017 in response to and commenting on the EC regulatory proposals included in the regulatory package called "Clean Energy for All Europeans".

Lastly, from the point of view of the dimensional growth, in 2016 the total number of associates rose to 27 with the accession of IBEX (Bulgarian Power Exchange) and CROPEX (Croatian Power Exchange) to EUROPEX.

⁹ These legislative proposals are undergoing the European comitology procedure that will gradually involve the various European legislative bodies in the coming months for the final approval of the package and its entry into force (scheduled for the second half of 2017).

1.4 THE MONITORING

1.4.1 REMIT platforms

In compliance with the provisions of EU Regulation No. 1227/2011, concerning the Wholesale Energy Market Integrity and Transparency (REMIT), as well as the EU Implementing Regulation No. 1348/2014 (Implementing Acts), GME manages two distinct platforms, set up in order to support different participants operating on the wholesale electricity and gas markets in fulfilling the reporting obligations to ACER (art 8 REMIT) and the publication of inside information (Article 4 REMIT).

REMIT requires the wholesale electricity and natural gas market participants to inform ACER about all operations carried out with reference to supply and transport contracts for electricity and natural gas (data reporting), both through the presentation of trading orders and transactions executed on organized markets (i.e. standard contracts executed at organized markets), and through OTC trades (standard and non-standard contracts). In this context, GME, as party accredited to the ACER Reporting Activity (RRM), established the PDR platform with the aim of providing to all participants registered in one or more GME markets the most complete and efficient service for the fulfillment of the data reporting obligations imposed by the REMIT.

Data Reporting Platform (PDR)

In 2016, the pursuit of these goals has been strengthened thanks to initiatives aimed not only at supporting participants in fulfilling their reporting obligations, but also at further assisting them through platform-based interventions in order to better manage the growing computational and managerial burden resulting from the increase in the service applicants and the reports transmitted to ACER.

In particular, starting from 7 April 2016, GME has provided participants with the opportunity to fulfill their reporting obligation not only in the context of standard contracts executed on organized markets (already in place since October 7, 2015 through the Data reporting service), but also in the field of OTC contracts (standard and non-standard), through the Upload service.

As for OTC contracts reporting, GME has also expanded the scope of the PDR service by enabling the participant underwriting the data reporting contract with GME to upload the data also for his contractual counterparty, upon specific mandate and/or delegation by the counterparty itself. The terms and conditions regarding the provision of this new service have been regulated in the updated version of the PDR contract, published by GME on 18 July 2016.

By March 31, 2017, PDR-enabled participants amounted to 260, of which 229 (about 88% of the total) chose GME as their own RRM by activating the Data reporting service or Data Reporting with Upload. In the first six months since the start-up of second reporting phase, referring to the period 7 April 2016 to 6 October 2016, the PDR sent about 86,000 reports to ACER, a number comparable to what was observed from 7 October 2015 to 6 April 2016 (i.e. first reporting phase), albeit slightly higher (+ 10%). In the same period, by virtue of the entry into force of the reporting obligation also for OTC contracts in April 2016, there was a sharp increase in the number of reports uploaded to the PDR directly by participants through the upload service, which rose to about 5,000 (About 10 times the value recorded for the same service in the first reporting phase). Moreover, the opening of the reporting on behalf of the counterparty favored a further increase in the reports sent through the Upload service, which in the six months following the last subscription date of the new PDR Contract (October 7, 2016 - March 30, 2017) recorded an increase of about 60%, reaching 8,000 reports sent to ACER.

Regarding the measures for preventing abusive practices in the wholesale electricity and natural gas markets provided for by REMIT, in 2016, GME has provided participants with an information platform for the publication of inside information (PIP), active from January 4, 2016, operating 24 hours a day and 7 days a week and included in the list of European platforms provided by ACER on the REMIT Portal.

Platform for the publication of Inside Information (PIP)

According to the REMIT Regulation, "inside information" shall mean "information of a precise nature that has not been made public, relating, directly or indirectly, to one or more wholesale energy products and which, if it were made public, would be likely to have a significant effect on the prices of those products" (Article 2).

In this regulatory context, through the PIP, GME intended to provide interested parties with an instrument that would enable the effective fulfillment of the obligations to publish their own information, while also complying with the non-binding request from ACER to the organized markets to create centralized, standardized and accessible platforms to the widest possible number of potential subjects, focusing on the gathering of inside information and thereby enhancing transparency and competition between participants.

From a technological perspective, in order to encourage participants to comply with the obligations imposed by REMIT, the PIP has been implemented in accordance with the operating procedures and technical specifications indicated by ACER in the required documents¹⁰ and has been opened, upon subscription of the appropriate Contract, to all parties properly registered in the European Registry of ACER, regardless of the qualification of participants on one or more GME markets/platforms and regardless of the geographic location of their assets. The PIP is subject to constant supervision by GME, with the aim of ensuring the quality of the service offered in terms of usability and publication timeliness, as well as ensuring its continuous adaptation to the needs expressed by different interest parties.

To this end, different platform evolutionary developments were carried out already in 2016, on the one hand, to allow ACER to collect via *web feed* the unavailability data notified by participants¹¹, and to increase their interaction with participants' business systems when downloading/uploading data.

In 2016, the PIP experienced the progressive accession of a growing number of participants. Specifically, the number of subscribers to the platform exceeded 100 (107), of which about 25% were active with messages about capacity unavailability. Among these several *big players* in the electric market, about 420 registered production units and 66 GW of installed capacity.

1.4.2 Monitoring activity results

GME carries out monitoring activities in its own markets to ensure its efficiency, transparency and promote its liquidity. This activity is aimed at detecting any practice, carried out by participants, contrary to the provisions of the Regulations and Market Rules or the relevant national and Community legislation in force.

The market monitoring activity is carried out in coordination with the relevant competent institutions, for which GME is a reference partner, both in Europe, contributing to the progressive implementation of the REMIT, and in Italy, where it has confirmed the Cooperation with AEEGSI and with the institutional stakeholders involved.

¹⁰ Consultation document "Common Schema for the Disclosure of Inside Information – Public Consultation Paper" and "Guidance on the implementation of web feeds for Inside Information Platforms" published by ACER on 15 November 2016.

¹¹ According to the content of the document published by ACER named "Guidance on the implementation of web feeds for Inside Information Platforms".

Specifically in Europe, in 2016, GME's participation in the consolidation and harmonization of monitoring practices has been achieved, in addition to the management of the two REMIT platforms¹², in the presence at working tables and in the various expert groups organized by ACER and Europex in monitoring wholesale markets, with particular reference to market manipulation, insider trading and reporting.

At national level, GME has guaranteed support to AEEGSI by constantly providing reporting, *what-if* simulations and ad hoc processing within the regulatory framework historically defined by Decision ARG/ELT 115/08 (TIMM). In addition, GME has strengthened its role over the last three years with the activity of reporting of potentially non-compliant behavior by market participants in accordance with Art. 15 of EU Regulation No. 1227/2011 (REMIT), and by virtue of the possibility for the Regulatory Authority to avail itself of GME, pursuant to Law no. 161 of October 30, 2014, in the investigation on the failure to comply with insider trading prohibitions by participants and market manipulation (Articles 3 and 5 REMIT) and the disclosure obligations of inside information (Article 4 REMIT).

In this scenario, and in the light of the indications provided by ACER in the fourth edition of REMIT's application guidelines¹³ published on 17 June 2016, during the year, GME was mainly involved in the further evolution of the procedures and tools used to ensure the proper use of markets by introducing a specific control plan to periodically check the state of development and progress of the monitoring activity and, finally, in the latter activity, on a further standardization of the evaluation process of the behaviors registered daily on the markets.

The results of the monitoring activities are summarized in Table 1.4.1.

It should be noted that the significant price increases recorded on the MGP and MTEE markets between the end of 2016 and the beginning of 2017 have generated a sharp increase in the number of cases analyzed in the monitoring activities. These situations are connected to adjustments to the market conditions offered by market participants, which are particularly high due to the criticalities recorded in the French market in the case of the MGP and to the shortage of certificates in the case of MTEE.

Measures taken as a result of the monitoring activity

Tab. 1.4.1

Year	Market	Measure	N°	Interested participants
2013	MCV	Report to AEEGSI	5	12
2013	MTEE	Report to AEEGSI	7	9
2014	MCV	Precautionary suspension + 1-month suspension	1	1
2014	MTEE	Filing	1	1
2014	MTE	Report to AEEGSI	1	2
2015	MTEE	3-day suspension	1	1
2016	MGP	Report to AEEGSI	5	21
2016	MI-GAS	Report to AEEGSI	1	1
TOTAL	-	-	22	48

12 For further details, please refer to par. 1.4.1 of this Annual Report.

13 Reference to *Guidance on the application of Regulation (EU) N. 1227/2011 of the European Parliament and of the Council of 25 October 2011 on wholesale energy market integrity and transparency.*

1.5 RESULTS

1.5.1 Volumes and market participants

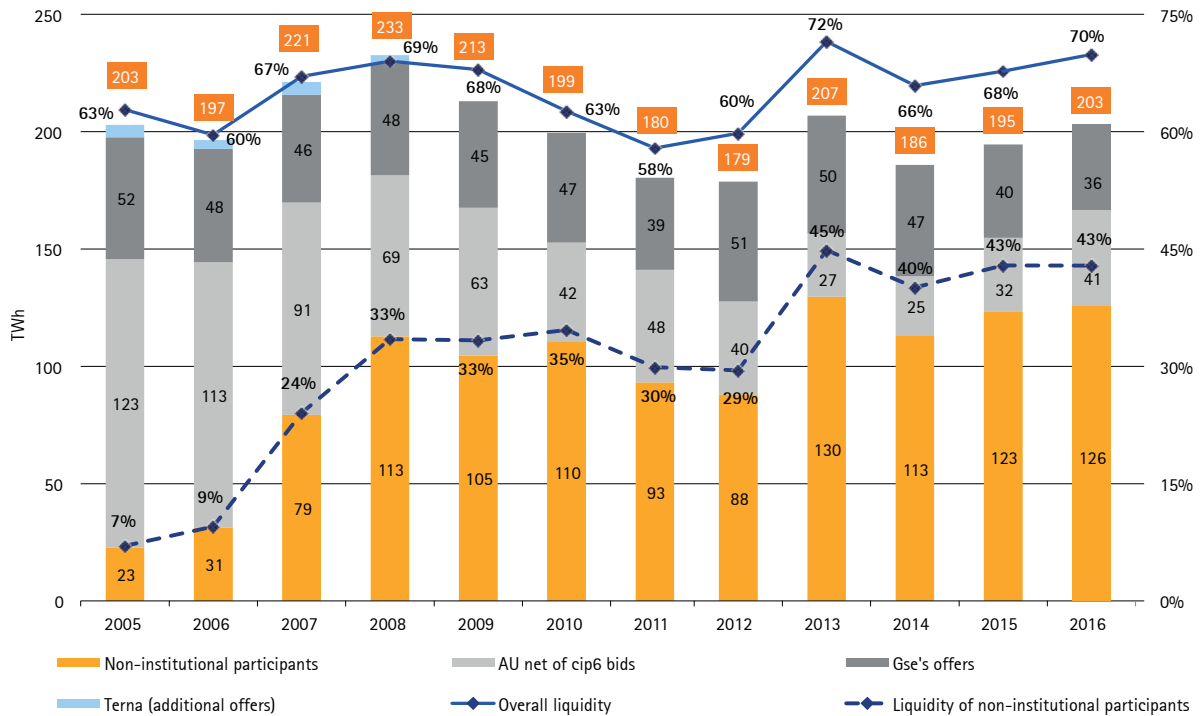
In 2016, there has been a growth trend of regulated markets managed by GME and a decline in bilateral trading. Positive signals come from both the electricity markets which, in the context of falling demand still experience an increase in trading and active participation, and from natural-gas and environmental markets.

As for the electricity sector, despite the decline in Terna's demand for energy in 2016 (-2.1%), which brings it back to the lowest levels recorded in 2014 (310 TWh), GME's spot markets record a new increases both in terms of traded volumes (318 TWh; + 1.5%) and the active participation of participants (despite the slight fall in IPEX members) (Table 1.5.1, Table 1.5.2). Trading on Spot Electricity Market (MPE) sharply increased up to 231 TWh (+ 4.9%), confirming their expansion trend on the most important Day-Ahead Market (MGP), which reaches its all-time-high of 203 TWh (+ 3.9%), but above all in the Intra-Day Market (MI), which reaches 28 TWh (+ 12.1%), thus consolidating its role as a substantial flexibility tool useful to better understand the fluctuations in consumption (both wholesalers' purchases and sales that confirm their high levels recorded in recent years) and production dynamics (the balance between sales and purchases of traditional thermoelectric plants rises to the highest levels). Such developments appear to have had an impact on the dynamics of bilateral trading, which shows, in terms of both recorded volumes and scheduled unbalancing, an overall downward trend. Also the MGP production programs showed an additional heavy fall (-6.4%), recording the second lowest ever value at 87 TWh (they were 82 TWh in 2013).

Electricity demand decreases, but market liquidity records a new impetus thanks to the Single Buyer and non-institutional participants.

The aforementioned dynamics benefit the market liquidity, gaining 2.2 percentage points over the previous year, reaching 70.0%, only once exceeded in 2013. An important contribution to growth is provided by the substantial recovery of purchases on IPEX by the Single Buyer (+ 28.2%), standing at the highest level in the last five years, equal to 41 TWh, with a 14% share on the total traded (+3% compared to 2015). The volumes traded by non-institutional participants are also growing, amounting to 126 TWh, which only the peak recorded in 2013 was able to exceed, with the corresponding stable liquidity at 43%; conversely, GSE sales fall to 36 TWh (-9.3%) (Figure 1.5.1).

Liquidity on the MGP
Fig. 1.5.1



In 2016, after the long expansion phase that characterized it since its start-up, contracts registered on the PCE showed for the first time a halt, shrinking from the peak of 2015 to 342 TWh (-3.5%). However, the churn ratio remains at the highest level (2.04), as evidenced by the interest of participants in such trading as a hedging tool (see Table 1.5.1, Table 1.5.2).

Negative signs from forward trading

In 2016, the Forward Electricity Market (MTE), shows for the second consecutive year the drastic reduction in trading (1 TWh; -79.0%) and the total absence of O.T.C transaction registrations for clearing purposes.

At the end of 2016, the regulatory framework for Gas Markets managed by GME was undergoing major structural changes. As of 1 October 2016, the new Natural Gas Market Rules and the new Natural-Gas Balancing Platform Regulation (PB-Gas Regulation) entered into force. They have been amended in order to start the balancing system according to the transitional setting referred to in Article 2, paragraph 2.1 of Resolution 312/2016/R/GAS, which also provides for the cessation of the activities of the two sections G+1 and G-1 and the launch of the Market for the trading of gas stored (MGS) and the Locational Products Market (MPL).

New positive phase in the spot gas market

The new regulatory framework has given a positive impetus to the two GME-owned spot markets: the doubling of the number of users, reaching 158 (+70 compared to 2015), and the sharp increase in the number of active participants (+45 on MGP-gas, +42 on MI-gas), and trading have risen to a record high of 7.42 TWh (they were 1.01 TWh in 2015). In just three months, the MP-gas market, including MGP-gas and MI-gas, became the most liquid gas-trading platform, collecting 69% of total trading between October and December.

At the time of increased spot market operations, PB-Gas shrank, and, after adjustments to the regulation, with current MGS and MPL markets, records 3.27 TWh in the last quarter of 2016, 30% of the exchanges recorded on GME's total markets and gas platforms. Conversely, as for the period January-September 2016, 36.79 TWh were traded on PB-Gas, up from the same period of the previous year (+ 7.7%); the growth was supported by the volumes exchanged by Snam both in the G+1 segment (+6.9%) and in the G-1 segment (+22.8%), while the "extra balance" component (only regarding the first segment), remained virtually unchanged over the same period of 2015, with 9.1 TWh. Trading concluded directly between participants on the PB-Gas exceeding the volumes required or offered by the RDB (the operator responsible for the balancing) accounted for 29.7% of the total Traded in the segment, confirming the importance of the platform as a "spot" trading tool (it was over 31% in 2015) (Table 1.5.1, Table 1.5.2).

In 2016, participants have been more interested in the incentive mechanisms of the two active environmental markets. In fact, both Energy Efficiency Certificates and Guarantees of Origin mark a revival in terms of participation, with the increase in the number of subscribers and active participants everywhere at the highest levels in history, and the growth in volumes traded.

Consolidation in the growth of volumes traded on the environmental markets

TEE traded volumes rose to 9.38 million toe (+7.5%), with growth driven exclusively by trading on the regulated market, which, with 5.54 million toe (+46.6%), reach their highest level. On the other hand, the certificates traded in the TEE Register marked a sharp contraction (-22.4%) and reached the lowest level in the last five years, amounting to 3.84 million toe. These developments mainly reflect the changes in the regulatory framework of this mechanism launched in October 2015, following which GME has played the role of the central counterpart of exchanges, concretely canceling the risk undertaken by participants and simplifying administrative and accounting compliance.

As for the Guarantees of Origin, the trading volumes remained on the raise for the fourth consecutive year, marking the highest historic figure at 52.80 TWh (+14.3%). These dynamics reflect the developments in the Bilateral Platform (PBGO), which, with 52.69 TWh (+ 14.4%), keeps the dominant share (99.8%). As a result, the trades in the Guarantees of Origin Market (MGO), which replaced MCOFER in 2013, remained marginal and only 0.11 TWh (+ 6.6% from the historic minimum figure of 2015) were exchanged. However, on both platforms positive signals emerge from the participation data of participants in terms of the number of subscribers at the end of the year (+26 on MGO, +31 on PBGO) and active participation (+6 participants with coupling on the MGO, + 30 on the PBGO).

Lastly, on June 30, 2016, pursuant to the provisions of the Decree of the Ministry of Economic Development of 6 July 2012 (the so-called Decree of electrical RES), and in particular the provisions adopted in implementation of Art. 24 of Legislative Decree No. 28, regarding the termination of the Green Certificates, the operation of systems and trading platforms related to the green certificates market (MCV) and the Platform for registration of bilateral transactions of green certificates (PBCV) ceased. Therefore, in the first six months of 2016 with 1.26 TWh on the regulated market (MCV) and 7.98 TWh on the PBCV, the obligations for producers and importers from conventional sources, to enter energy through the mechanism of green certificates, end (Table 1.5.1, Table 1.5.2).

1.5.2 Participants' trends on GME Markets

Participants on GME Markets

Tab. 1.5.1

Participants no*	2010	2011	2012	2013	2014	2015	2016	Var. 16/15
Electricity Markets								
IPEX								
- registered	207	192	200	223	254	264	245	-19
- with offers/bids								
<i>MGP</i>	131	137	149	159	194	208	219	+11
<i>MI</i>	69	91	114	122	149	164	173	+9
<i>MTE</i>	15	20	25	22	19	13	11	-2
<i>MPEG</i>							16	+16
PCE								
- registered	205	208	259	287	317	321	321	0
- with schedules	95	103	120	125	126	117	106	-11
Gas Markets								
MGAS								
- registered	20	33	42	66	71	88	158	+70
- with offers/bids								
<i>MGP</i>	3	17	15	10	-	-	45	+45
<i>MI</i>	-	7	5	4	5	15	57	+42
<i>MTGAS</i>				-	-	-	-	0
PB-GAS								
- registered		60	65	74	86	96	107	+11
- with offers/bids								
<i>Segment G+1</i>		59	74	73	77	75	76	+1
<i>Segment G-1</i>				8	45	51	51	0
<i>MGS</i>							61	+61
<i>MPL</i>							5	+5
P-GAS								
- registered	53	61	72	77	78	80	86	+6
- with offers/bids								
<i>Import</i>	21	17	18	19	14	2	2	0
<i>Former Legislative Decree 130/10</i>			13	4	-	-	-	0
<i>Royalties</i>	25	25	26	12	4	5	4	-1
Environmental Markets								
MCV**								
- registered	620	675	745	852	901	908	911	+3
- with combinations	173	207	235	303	322	290	215	-75
PBCV**								
- registered	969	1.082	1.177	1.381	1.466	1.509	1.509	0
- with combinations	603	646	622	871	851	763	570	-193
MTEE								
- registered	334	379	447	588	838	1055	1281	+226
- with combinations	209	235	264	328	458	609	808	+199
TEE Register								
- registered	421	513	635	866	1.196	1.469	1.775	+306
- with combinations	189	206	238	298	378	402	475	+73
MGO								
- registered			180	262	291	299	325	+26
- with combinations			28	62	21	14	20	+6
PBGO								
- registered			219	324	359	374	405	+31
- with combinations			59	159	148	140	170	+30

* The number of registered participants refers to the figure calculated as at 31/12 of each year.

** The number of registered participants for the year 2016 refers to the figure calculated as at 30/06

Volumes traded on GME Markets

Tab. 1.5.2

<i>TWh</i>	2009	2010	2011	2012	2013	2014	2015	2016	<i>Var. 16/15</i>
Electricity Markets									
MGP**	313.43	318.56	311.49	298.67	289.15	281.98	287.13	289.70	+0.6%
Exchange	213.03	199.45	180.35	178.66	206.90	185.85	194.59	202.82	+3.9%
Bilaterals	100.39	119.11	131.15	120.00	82.25	96.13	92.54	86.88	-6.4%
MI/MA**	11.93	14.61	21.87	25.13	23.34	22.79	24.92	28.01	+12.1%
MI1	1.68	9.47	14.47	15.99	12.80	12.23	12.91	15.04	+16.2%
MI2	0.95	5.15	5.38	6.21	6.07	6.47	6.15	6.97	+12.9%
MI3			1.22	1.72	2.00	2.01	2.39	2.50	+1.3%
MI4			0.80	1.21	2.47	2.09	1.22	1.20	-5.7%
MI5							2.24	2.31	-9.0%
MA	9.30								
MTE	0.12	6.29	33.44	54.96	41.10	32.27	5.09	1.07	-79.0%
Exchange	0.12	6.29	31.67	30.36	8.00	18.40	5.09	1.07	-79.0%
OTC clearing	-	-	1.77	24.60	33.10	13.87	-	-	-
MPEG								0.00	-
PCE*	176.35	236.48	290.82	307.61	325.50	345.72	354.47	342.14	-3.5%
Gas Markets									
MGAS		0.00	0.16	0.17	0.02	0.10	1.01	7.42	+636.3%
MGP		0.00	0.15	0.14	0.01	-	-	0.33	-
MI		-	0.01	0.04	0.00	0.10	1.01	7.09	+603.1%
MTGAS					-	-	-	-	-
PB-GAS			1.71	34.93	40.88	41.52	48.19	40.06	-16.9%
Segment G+1			1.71	34.93	40.83	38.58	40.86	30.57	-25.2%
Segment G-1					0.05	2.94	7.33	6.22	-15.1%
MGS								3.27	-
MPL									
P-GAS		2.14	2.91	2.87	0.62	-	-	-	-
Import		0.00	-	-	-	-	-	-	-
Former Legislative Decree 130/10									
Royalties		2.14	2.91	2.87	0.62	-	-	-	-
Environmental Markets									
CV	23.40	25.37	31.09	32.33	44.81	43.05	36.78	9.23	-74.9%
Exchange	1.84	2.58	4.13	3.81	7.57	8.20	6.95	1.26	-81.9%
Bilaterals	21.56	22.79	26.97	28.52	37.25	34.85	29.84	7.98	-73.3%
TEE (Mtoe)	2.34	3.09	4.10	7.62	8.24	11.76	8.73	9.38	+7.5%
Exchange	0.97	0.98	1.28	2.53	2.82	3.49	3.78	5.54	+46.6%
Bilaterals	1.36	2.11	2.82	5.08	5.42	8.27	4.95	3.84	-22.4%
GO				2.22	42.63	44.48	46.18	52.80	+14.3%
Exchange				0.47	1.34	0.47	0.11	0.11	+6.6%
Bilaterals				1.75	41.29	44.01	46.08	52.69	+14.4%

* Contracts registered in the PCE by trading year, net of the contracts related to the MTE (including OTC clearing) and to the CDE

** The change compared to the previous year are calculated on hourly average in order to take account of the leap year.

1.5.3 Economic results

2016 was characterized by a decrease in pass-through items¹⁴ of about 3.5 billion EUR (-20.7% over the previous year), mainly due to the reduction in revenues from electricity sales on the Electricity Market (-3.8 billion EUR), as a result of the reduction in volumes delivered in the Forward Electricity Market and the substantial reduction of the price of electricity in the power exchanges (PUN), only partially offset by higher volumes traded on the Spot Electricity Market. The decrease in the equivalent value of the electricity traded on the spot and forward electricity market was counterbalanced by both the increase - over 0.1 billion EUR- of revenues from natural gas sales, resulting from the higher volumes sold on the spot market, and the increase - over 0.1 billion EUR - of the revenues from certificates traded on the environmental markets. This latter effect was mainly due to the increase of TEEs traded on the regulated market, only partially offset by the reduction in volumes of green certificates (CV) traded on the regulated market according to the provisions introduced by Legislative Decree no. 28, which envisaged, starting from 2013, a gradual reduction in the percentage of obligation, until its full annulment in 2015. The last CV session was held on June, 28th 2016, before the cessation of the functioning of green certificates exchange systems as at June, 30th 2016.

Summary of economic and financial data of GME (2015 - 2016)

Tab. 1.5.3

Data in thousands €	Revenues and Passing-through costs	Marginal revenues	EBITDA	EBIT	Net Income	Total Assets (a)	Equity
2015	16,780,948	34,857	18,703	11,507	7,408	77,608	22,342
2016	13,301,638	33,034	16,688	11,804	8,093	130,573	23,027

Nota: (a) the total assets has been calculated net of the credits from pass-through items related to sales on the different markets, to the CCT on the electricity over the counter trade, the financial income related to Market Coupling and the guarantee margins paid for the purpose of coupling management on Italy-France and Italy-Austria borders. In addition, the figure does not include unavailable deposits paid by the participants.

Marginal revenues¹⁵ in 2016 decreased by 1.8 million EUR compared to the previous year (-5.2%). This decrease can be attributed:

- for +0.3 million EUR, to the increase in revenues for services provided on the spot and forward market almost exclusively as a result of the greater volumes globally traded on these markets;
- for -0.6 million EUR, to the decrease in revenues for services provided on the PCE, mainly as a result of the reduced volumes recorded during the year;
- for -1.4 million EUR, to the decline in revenues for services provided on the markets and bilateral platforms for the exchange of environmental certificates, resulting from the reduction in CV volumes only partially offset by the increase in TEE and GO trades, compared to the previous year;
- for +0.2 million EUR, to the increase in revenues for services provided on the Data Reporting Platform started at the end of 2015;
- for -0.3 million EUR, to the decrease in other margin revenues, mainly due to *i*) lower revenues from participation in the PCR project and principally related to the accession, in 2015, of the Polish power exchanges (TGE)) and Romanian power exchanges (OPCOM) and the consequent redistribution of the historical costs incurred by the exchanges involved in the project (-0.4

¹⁴ Pass-through items shall indicate positive income elements with an explicit correspondence in the negative income elements to which they refer.

¹⁵ Marginal revenues shall mean the positive income elements aimed at covering the operating costs and the remuneration of invested capital.

million EUR), *ii*) the reduction of the proceeds from the lower remuneration related to the renewal – which took place in September 2016 following a tender – of the agreement between GME and its Treasury service provider (-0.3 million EUR); *iii*) the increase in revenues from the European Power Exchange (EEX) relating to the PUN licensing agreement (+0.1 million EUR) and *iv*) the revenues related to the higher charges allocated, in the previous years, in connection with a legal dispute concluded positively for GME (+0.2 million EUR).

Marginal costs structure (2015–2016)


 Tab. 1.5.4

Data in thousands €	for raw materials and services	for use of third party assets	for staff	depreciation, write-downs and provisions	other operating expenses	Total
2015	5,619	1,115	9,096	7,196	324	23,350
2016	5,329	1,155	9,535	4,884	327	21,230

Marginal costs, including amortization, write-downs and provisions, amounted to 21.2 million EUR, down 2.1 million EUR on the previous year. This decrease is mainly attributable to:

- the decrease of approximately 0.3 million EUR in raw material and services costs, mainly due to the reunification of the various headquarters, which took place in 2015;
- the increase in personnel costs by 0.4 million EUR as a result of both the costs linked to resignations and to the increase in average number of employees;
- the decrease of 2.3 million EUR in amortizations, depreciations and provisions following: *i*) the lower provision for doubtful debts for the year, over the provision made in the previous year, in relation to certain receivables from which – on the basis of the information available – they could emerge losses (-0.6 million EUR), and *ii*) the lower provision made in relation to the effects derived from the content of the AEEGSI's Resolution 785/2016/R/eel, related both to the reduction in operating income attributable to the PCE as well as at the lower revaluation of the previous fund, as a result of AEEGSI's re-determination of its revaluation rates and of the fair return on invested capital. The latter were updated by AEEGSI with Resolution 654/2015/R/eel (-1.6 million EUR).

GME's key ratios (2015 – 2016)


 Tab. 1.5.5

Percentages	% ratio EBITDA/Marginal revenues	% ratio EBIT/Marginal revenues	ROI (a)	ROE (b)
2015	53.7	33.0	14.8	33.2
2016	50.5	35.7	9.0	35.1

Note: (a) ROI is calculated as the ratio between EBIT and total assets;

(b) ROE is calculated as the ratio between net income and shareholders' equity.

EBITDA amounted to 16.7 million EUR, decreased of 2.0 million EUR (-10.8%) compared to the previous year.

EBIT amounted to 11.8 million EUR, increased of 0.3 million EUR (+2.6%).

Net Income amounted to 8.1 million EUR, increased of 0.7 million EUR (+9.2%) compared to the previous year.

The table below shows the average number of employees during the year broken down by category of contracts, as well as that as of December, 31st 2016 compared with the same information as in the previous year, with the evidence of the dynamics of seconded personnel.

GME's personnel members

Tab. 1.5.6

Number	Consistency		Consistency	
	average in 2016	as at 31.12.2016	average in 2015	as at 31.12.2015
Directors	8.0	8	8.0	8
Executives	30.0	30	30.7	30
Employees	68.4	72	64.0	64
Total	106.4	110	102.7	102
<i>of which seconded</i>	<i>1.0</i>	<i>1</i>	<i>2.0</i>	<i>2</i>
Total number, net of those seconded	105.4	109	100.7	100



SECTION

2

MARKET EVOLUTION

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2.1 INTERNATIONAL MARKETS

In 2016, in a European context with sluggish and non-harmonized economic growth among countries, the prices of the main energy commodities show, with rare exceptions, a further decline, consolidating the long and intense recession cycle begun in the markets between 2011 and 2013.

Prices still falling, with a slight recovery by the end of the year

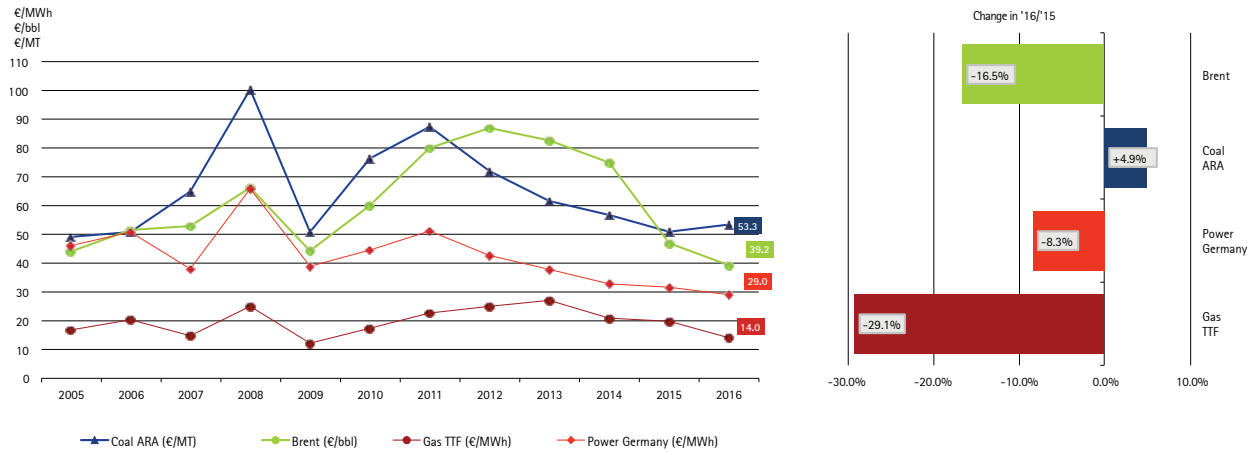
In the light of such dynamics, oil and its derivatives fell to the lowest values recorded over the last twelve years after a series of four consecutive reductions, whereas gas saw its prices halving compared to the peak recorded in 2013. Conversely, coal bounces back to the last year level, however the lowest since 2007.

Nevertheless, it is worth reporting the first timid signs of reversal of the multi-annual downward trend emerged in the last quarter of 2016 that, in spite of the physiological uncertainty of a young and uncertain dynamic, are partially confirmed in the first 2017 and transposed by the expectations expressed by the markets for the years to come.

Within such a context, the European electricity prices continue to decline since 2011, with a significant drop in spreads among countries as the new element of 2016. Specifically, during the year, an important role in this scenario was played by the increased competitiveness of gas-intensive¹ generation plants and the temporary unavailability of French nuclear plants, which could provide the conditions for creating, in a European market synchronized through the mechanism of market coupling, new cross-national zonal configurations and the chance to take advantage of import/export trade opportunities at the borders on a punctual basis (Fig. 2.1.1).

Prices expressed in Euro of the main energy commodities

Fig. 2.1.1



¹ The opposite gas and coal dynamics pave the way to a coal/gas switching prospects for the future.

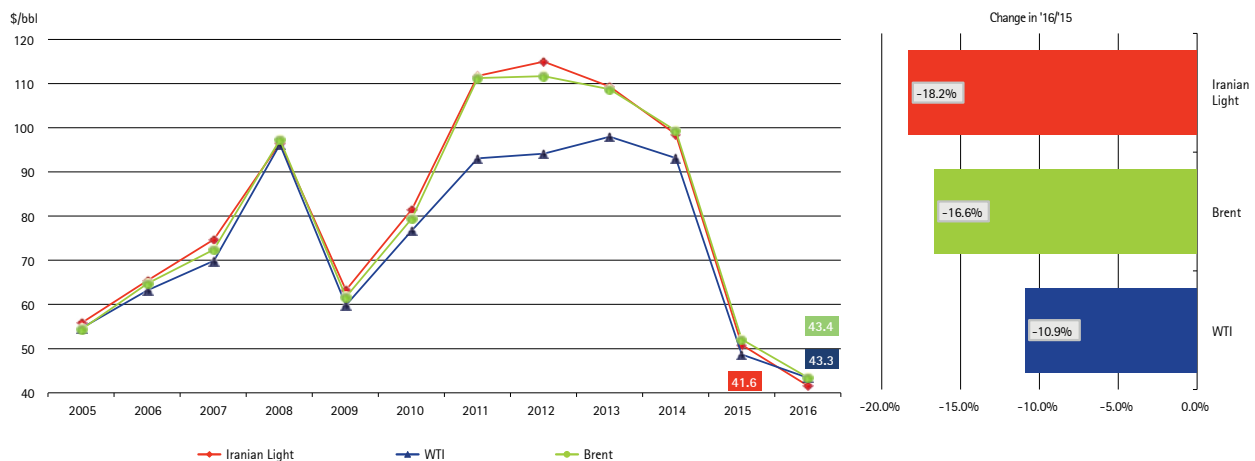
International crude oil prices confirm their alignment phase in terms of both level and variation, converging down to \$43/bbl, with closer and closer mutual spreads. Specifically, Brent shows a contraction of 17%, further strengthening an already marked trend, which in the three-year period 2014-2016 led the European context to lose about 60% of the value achieved in the preceding period. The intra-annual dynamic shows a two-speed trend characterized by stable low prices amounting on average to 41.6 \$/bbl in the first nine months of the year, with an overall fall in price (-24% on 2015), and a moderate recovery of around \$ 55/bbl in the last quarter (+12% on 2015); a level confirmed in the first months of 2017 (Figure 2.1.2).

Crude oil and derivatives at the minimum historical values

In line with the traditionally recorded trend, crude oil prices is influenced by its derivative products, whose prices decrease by approximately 20%, bringing diesel and oil to their lowest values since 2005, at 392\$/MT and 209 \$/MT respectively (Fig. 2.1.3).

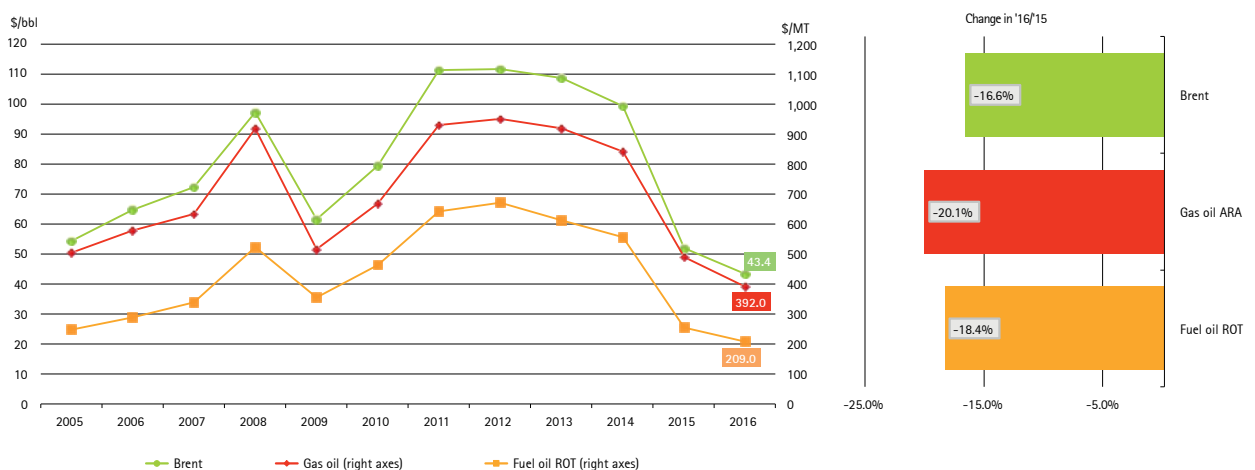
Spot prices on the main international crude oil markets

Fig. 2.1.2



Spot prices of the Brent and of the main oil products

Fig. 2.1.3

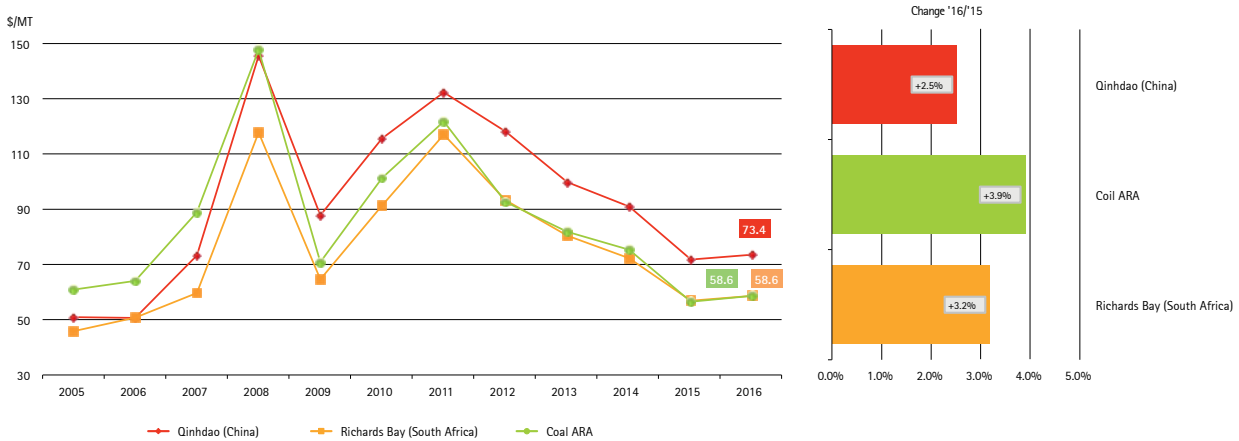


Slight rebound of coal

Contrary to the other fuels analyzed, coal shows on all international references a slight increase (+3/4%) which, while interrupting the long decrease started in 2012, keeps European and South African prices close to the lowest levels recorded in the last decade (\$59/MT). Also in the coal markets, the trend reversal arises after a strong decline recorded during the first months of the year (-13% in the first nine months), characterized by a more rapid and decisive acceleration compared to oil in the last months of the year (+61% over the same period in 2015) (Fig. 2.1.4).

Spot prices on the main coal markets

Fig. 2.1.4

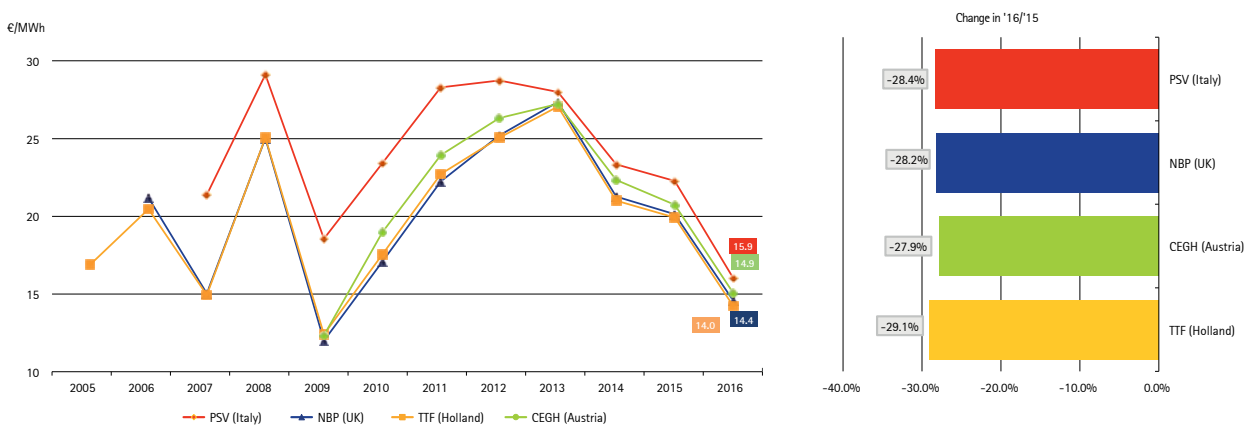


Gas prices keep falling

The third sharp annual consecutive reduction brings the prices recorded on the major European gas hubs to around 14-16 €/MWh (-28% on an annual basis), one of the lowest level since 2005, confirming the €2/MWh-spread between Italian PSV and TTF. The decline appears only partially mitigated by the dynamics occurred from October, starting from which, prices began a decisive ascending ramp that led them to touch the 18-20 €/MWh at the end of the year, reversing the trend of the previous months. The recovery², which continued in early 2017, has experienced a sharp slowdown between February and March, coinciding with the end of the low temperature period and the tensions observed on the French power market (Fig. 2.1.5).

Spot prices on the main gas markets

Fig. 2.1.5



² In January prices reached 21-24 €/MWh on average monthly, reaching in Italy also the value of 40 €/MWh on a daily basis (January 11, 2017).

As for volume traded on the hubs, there is a further slight decline which structurally reflects the trend of trading in British NBP (-3%), weighing over 80% of the total exchanged volumes in the continent. The other European hubs generally present a lower degree of maturity, expressed through both: the level of traded quantities, and the annual growth rates. Among them, Italian PSV shows the highest average growth since 2008 (+ 27%), registering in 2016 exchanges for about 1,000 GWh and thus achieving its highest historic value as the Austrian CEGH (Table 2.1.1).

Volumes traded on gas markets (GWh)

Tab. 2.1.1

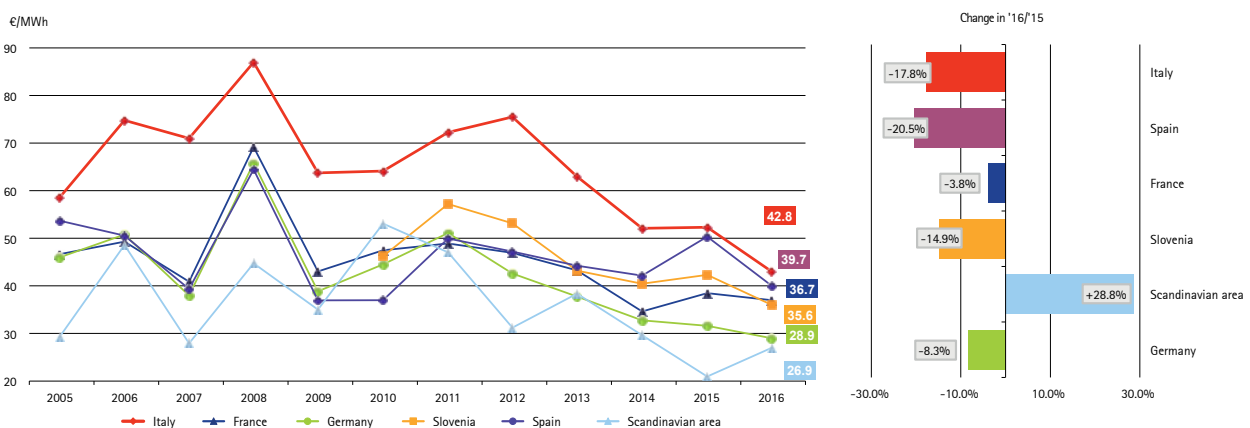
HUB		2008	2009	2010	2011	2012	2013	2014	2015	2016	Change 16/15
Country	Exchange point										
UK	NBP	-	-	-	-	12,353	10,647	10,875	9,925	9,586	-3%
Belgium	ZTP	506	721	724	770	742	772	747	791	759	-4%
Holland	TTF	637	804	1,122	1,598	1,979	n.d.	n.d.	n.d.	n.d.	n.d.
Austria	CEGH	166	253	379	435	525	393	440	478	533	11%
Italy	PSV	174	261	479	641	719	731	890	838	978	17%
Total	-	1,482	2,039	2,704	3,444	16,319	12,542	12,952	12,032	11,855	-7%

In a scenario characterized by persistent poor demand, a decline in the cost of thermoelectric generation and the increasing European distribution of renewable energy production, the prices of the main continental electricity markets confirm the bearish price trend for the fifth consecutive year. It highlights a marked convergence of stocks exchanges, historically characterized by higher prices, on the levels expressed by the more convenient markets. In addition, it shows and a progressive evolution of the traditionally observed equilibria among stock exchanges towards the creation of new well defined continental macro-areas. The dynamics of prices in 2016 show that, in a European market interconnected through market coupling mechanisms, the significant reduction in gas-related costs has made possible the emergence of new business opportunities, pushing the Italian electricity price and its spread with France (6 €/MWh) to the lowest historical level, with the latter for the first time below the spread France/Germany (8 €/MWh). Because of this, we notice evident internal borders within the European market which identify a northern European macro-area, including Germany and Scandinavia and characterized by the lowest prices (27/29

European electricity prices down and new scenarios

Spot prices in the main European power exchanges

Fig. 2.1.6



€/MWh) thanks to the widespread use of renewable sources, and a Mediterranean macro-area including France, Spain and Italy, with typically higher prices (37/43 €/MWh).

In terms of annual performance, the decrease in prices appears generalized, with higher intensity recorded in Italy and Spain (-18/-20%) and lower intensity in France and Germany (-4/-8%). The only exception is the reference price for the Scandinavian area, in recovery with respect to levels that are still the lowest in Europe (+ 29%).

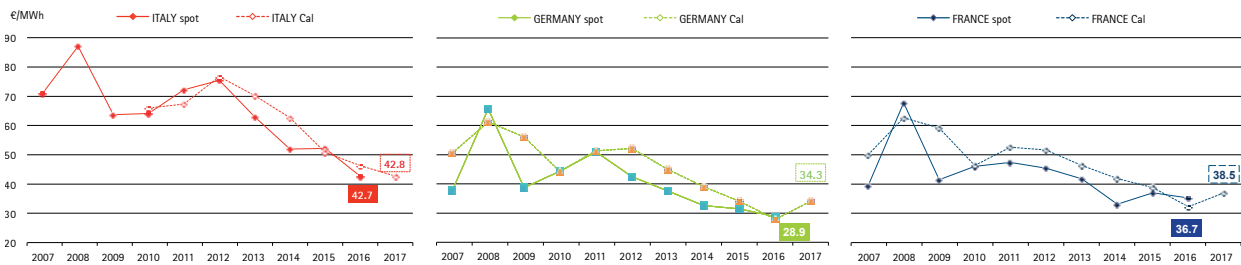
Within this annual trend, consolidated during the first three quarters of 2016, the drop in prices was partially dampened by the strong increment recorded in the October to December period, in which, in particular, Italy and France prices rose to 55/60 €/MWh, respectively 17€/MWh and 30 €/MWh above the average of the previous nine months.

The criticalities on prices recorded at the end of the year, in a period characterized by the seasonal recovery of demand, are mainly due to the numerous technical unavailability of the French power plants, protracted until February 2017, in a context made even more unstable by the cold temperatures and the sudden increase in gas prices, a fuel that became essential to balance the needs not met by French nuclear plants.

In this situation, the effective response provided by the implicit capacity allocation mechanisms led to a frequent and unusual reversal of energy flows and price differential between France and Italy during the critical period of October 2016 - February 2017, with Italian prices being lower than France in 39% of the days. These developments and dynamics have therefore generated export opportunities for Italy, supported by predominantly combined-cycle power plants, whose sales, constricted by an overcapacity national context over the last few years, have contributed to the management of European peaks in demand (Figure 2.1.6).

The rise in prices observed in the last months of 2016, along with *switching coal/gas* assumptions stemming from more carbon growth expectations, affect forward markets with different intensity, boosting the inclination towards a greater convergence of European prices. In fact, in view of the substantial stability of futures for the Italian price, particular expectations for increase are observed in Europe, where German and French calendar products account for approximately 6 €/MWh and 2 €/MWh respectively, over the 2016 data (Fig. 2.1.7).

Fig. 2.1.7 Spot price and corresponding price of the Calendar baseload product³



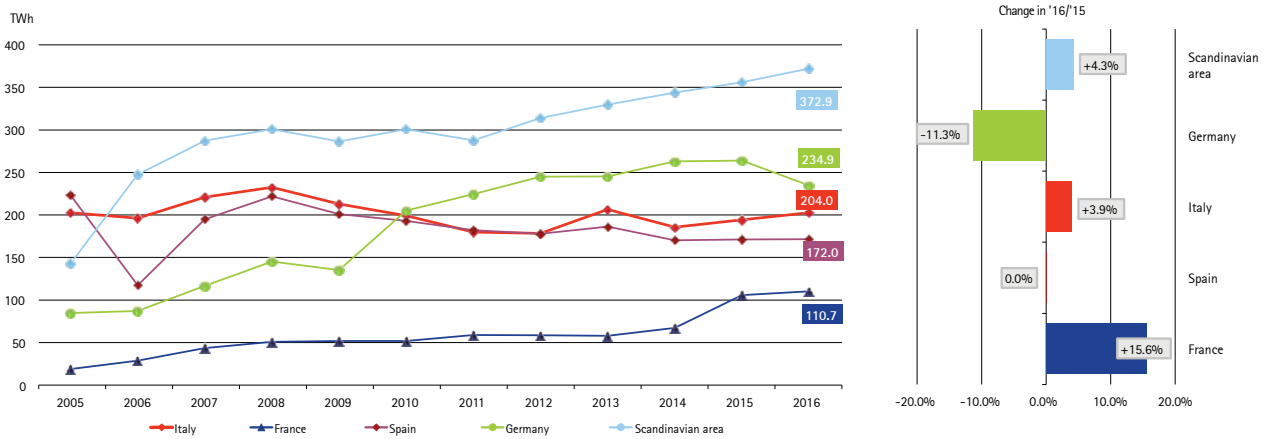
³ The chart shows the settlement price of the Calendar product in its last trading day.

With regard to volumes, trade in the main European stock exchanges shows contrasting signals: the Scandinavian area continues to rise in the fifth consecutive increase, reaching 372.9 TWh (+ 4.3%). Overall, the volumes traded in the Franco-German area show a decrease, where the sharp drop recorded in Germany (234.9 TWh, -11.3%) is only partially balanced by the further moderate increase in France (110.7 TWh, +3,8%). However, in line with the historical reference values, Italy rose to 203 TWh (+ 3.9%) and Spain remained stable at 172 TWh. Conversely, forward markets continue their path towards the definitive maturity, where the increasing number of trades moves faster. In particular, Germany brings its volumes to 2,665 TWh (+52%), while Italy and France continue to move toward 500 TWh, with sharp increases (+20.3% and + 51.8%, respectively) (Fig. 2.1.8, Fig. 2.1.9).

Forward trading still characterized by explosive growth

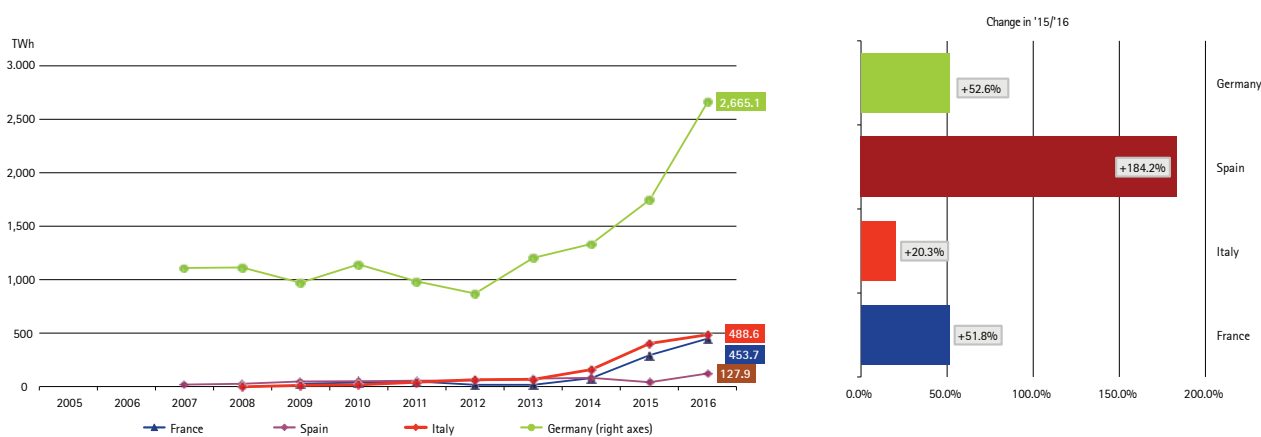
Volumes traded on the main spot exchanges

Fig. 2.1.8



Volumes traded on the main forward exchanges

Fig. 2.1.9



IN-DEPTH ANALYSIS

Two years of Market Coupling

The second year of the full functioning of the Market Coupling mechanisms along the Northern Italian borders confirms the indications that emerged in 2015, identifying, through the implicit auction of cross-border capacity, an instrument not used to cancel the structural price spread between neighboring countries, but to make the most of the commercial opportunities provided by the markets in the presence of particular conditions observed on the fundamentals. Moreover, these opportunities appear to be more and more frequent in the current economic system characterized by a sluggish European demand and a fall in the price of fossil fuels, which has gradually returned competitiveness to gas-powered thermal power plants.

In this context, European electricity prices showed a significant and unusual convergence in 2016, which led to the creation of two continental macro-areas: the German-Scandinavian and the Mediterranean one, with France as buffer zone⁴. The trend towards greater integration between countries is found in the data, on the basis of which there is a clear decrease in the cases of high price dispersion (from 20.2% in 2015 to 8.8% in 2016), which have now reached values comparable to complex market configurations (Belgium-France-Germany, together with Italy and Slovenia, present in 7.9% of the hours).

The situation described above directly involved the Italian market, which was affected by a significant reduction in generation costs, and saw its prices converge towards the historically lower levels expressed by the neighboring stock exchanges and to align with them more frequently. In particular, considering the price in the northern Italian region of just under 43 €/MWh, the cross-border differential in 2016 was 6/7 €/MWh with France and Slovenia and 13 €/MWh with Austria, which is either nil or inverted, respectively, in 24% and 4% of the hours (+8 and +2 pp compared to 2015).

In this scenario, the North has been increasingly coupled with neighboring borders, as proven by the substantial halving of its isolation frequency from the rest of Europe, confirming its link with Slovenia (alone or together with Austria and France) in 2016. In the same manner, the alignment with France (31% of the hours, +15 p.p.) significantly increased, mainly in the period October-December, in the presence of tensions recorded in French market due to the unavailability of nuclear capacity, and the number of hours in which the North formed a single market area with the rest of Europe (24 hours compared to 4 hours in 2015).

In 2016, the narrowing of the gap with foreign countries showed more different dynamics than in 2015: even with typical countries features, the spread with neighboring countries has reached its minimum values in the central quarters of the year, when the combination of favorable events, such as the low cost of power generation, high availability of renewable energy and mild temperatures, favored a containment of Italian prices, and also determined a significant frequency of alignment with neighboring references. With regard to this observation, the experience of the two years of Market Coupling applied to the Italian borders also unveils the absence of a seasonal recurrence, without correlation in the intra-annual dynamics recorded in 2015.

However, such recurrence seems clear when analyzing the trend of the spread in a full day (24 hours). On average, both in 2015 and 2016, both the differential and the cross-border alignment frequency show a clear balance between the Italian and the neighboring price in the time zone 1 pm - 2pm, with more or less intensity depending on the border. Exceptions are the Austrian border, along which the average differential is still high and basically flat throughout the day, and the time zone around 7 pm at the

⁴ For more information, please refer to par. 2.1.

French border, the only one characterized by a reversal of the differential resulting from prices higher than 800 €/MWh recorded several times in France in the last quarter of the year.

In this context, the coupling mechanism application has enabled efficient management of the available transmission capacity across the borders and at the same time allowing making the most of the opportunities presented during the year. This phenomenon appeared quite evident between October and December, when the criticalities in the French market pushed its price above the North (North: 58.5 €/MWh, France: 59.8 €/MWh) by changing the consolidated setting and favoring a sharp increase in the hours of cancellation and/or inversion of the differential between the two countries (67% and 13% respectively, compared to 20% and 1%, respectively, in the previous months). In this situation, while Italy confirmed its position of importer from abroad, the implicit allocation of cross-border capacity has ensured the Italian system to be a net exporter to France in the total price inversion hours, for a total of 505 GWh, equal to 87% of the volumes exported to the country in the year.

The benefits of coupling appear even more evident if analyzed in the light of the dynamics observed in Switzerland, characterized by price dynamics similar to those recorded in France, but not synchronized to the rest of Europe by coupling. Indeed, in the fourth quarter of 2016, in the presence of a substantially zero cross-border differential and an inversion rate of 49%, cross-border export potential was only exploited in 22% of the opportunities (234 hours on 1,082 hours of inversion of flows), for a total of 105 GWh. Especially due to the dynamics recorded in the last quarter of the year, in 2016 Italy, while still being a net importer from abroad, saw the volume of energy coming from abroad drop to 39.7 TWh (-17%), of which 47% managed by coupling⁵. There are no substantial variations in the structure of trade on the northern border of Italy: the largest contribution of energy to the border has been confirmed by France (around 14 TWh, 83% of which is allocated by implicit auction) due to a much wider ATC than the rest of the borders, which, on the other hand, contribute to the Italian national requirements for a total of 5.4 TWh, all of which are allocated through coupling for the part related to Slovenia. The level and frequency of net exports are on the raise, mainly fueled by the suffering manifested by the French nuclear plants at the end of the year. As for the French border, which has a wider interconnection capacity, Italy was a net exporter for a total of 578 GWh (62 GWh in 2015), distributed in 9% of the hours of the year (+8 p.p. in 2015), mainly in the period October–December.

⁵ The analysis carried out on 30 September 2016, excluding the last quarter of the year, shows a substantial alignment of import flows at the levels recorded in 2015 at the same expiry date (33.6 TWh compared to 34 TWh).

2.2 ELECTRICITY MARKETS

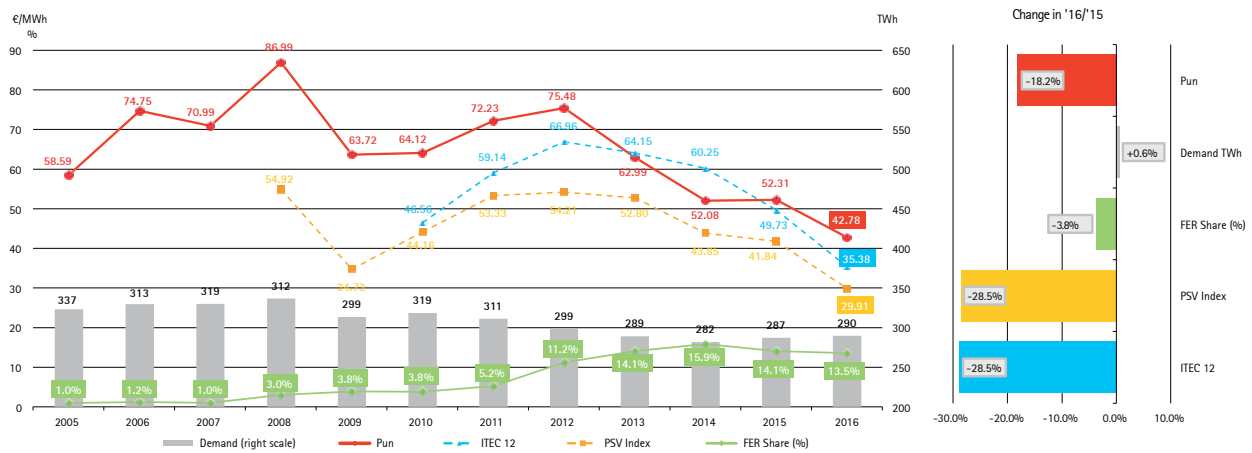
2.2.1 Day-Ahead Market (MGP)

National Single Price (PUN) at its historical low levels, in line with the decrease in fuel prices...

In 2016, the purchase price of energy in the power exchange (PUN), down 18.2% compared to the previous year, dropped to 42.78 €/MWh, the lowest annual average level since the start-up of the regulated market. The decisive decline is part of a framework in which, with the energy demand level still low, the strong downward trend for fuel costs consolidates, with the price of Brent (39.16 €/bbl, -16.5%) and average spot prices of gas at PSV (15.85 €/MWh, -28.4%) down to the lowest of the last decade. However, the bearish trend was partially mitigated by the unexpected rise recorded in the last quarter of the year, when the halt of about a third of the French nuclear power plants by the French Nuclear Safety Authority (ASN) increased the electricity prices of the major European stock exchanges, witnessing the ever-increasing integration of the markets promoted by the so-called Third Energy Package. Under these conditions, the trend of the PUN goes down sharply in the first nine months of the year (-26.4%), while it shows a 6% growth in the last quarter of the year, reversing the structurally positive differential with Swiss and French prices (-3/-4 €/MWh) (Figure 2.2.1, Figure 2.2.2).

Fig. 2.2.1

Trend of PUN and of its determinants⁶



⁶ The FER figure refers to wind and solar sources.

Monthly trend of PUN and PSV



Fig. 2.2.2

In 2016, purchase offers submitted in the MGP continue to decrease, following their downward trend, unchanged in the last six years, down to 301.5 TWh (-1.5%); a trend that is also reflected in the evolution of the electricity demand identified by Terna (310.3 TWh; -2.4%), which resets the recovery recorded in 2015, a year characterized by particularly favorable calendar and temperatures (three working days more than 2014 and the summer heat wave that had driven peaks power to record levels). The drop in the MGP purchase offer, however, has been almost entirely absorbed by the active component (offer with price indication) while the inelastic component has remained almost unchanged. Electricity volumes exchanged on MGP, amounting to 289.7 TWh, confirm a slight recovery (+ 0.6%) and bounce back to the levels of 2013. In this regard, it is worth pointing out that much of the increase is attributable to the remarkable performance of foreign purchases, which, driven by favorable price differentials with foreign stock exchanges in the latter part of the year, set the highest historical value at 7.3 TWh (Table 2.2.1).

.. and a sluggish demand, albeit with exports at their highest historical values

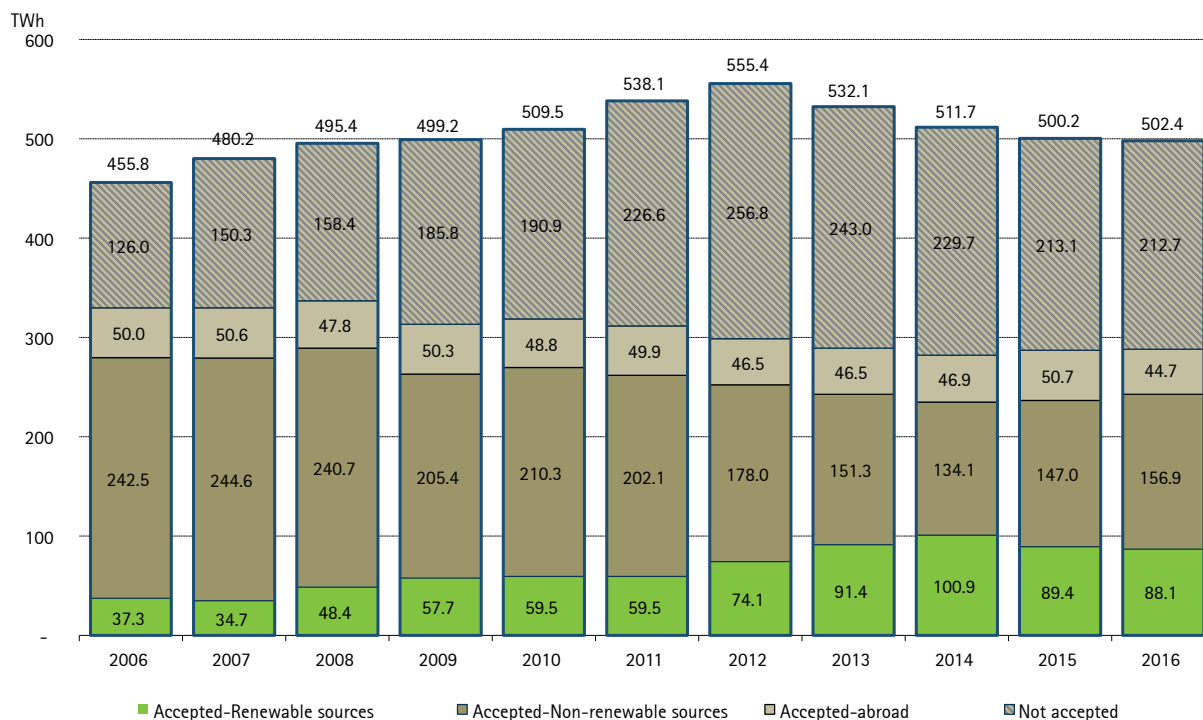
Trend of volumes on the MGP

TWh	2010	2011	2012	2013	2014	2015	2016	Change '16/'15
Request by Terna	330.5	334.6	328.2	318.5	310.5	316.9	310.3	-2.4%
Demand	345.1	338.2	330.5	329.8	318.2	305.3	301.5	-1.5%
with price indication	28.3	28.2	34.8	46.5	44.8	36.8	33.0	-10.5%
rejected	26.4	26.6	31.8	40.6	36.0	18.1	11.7	-35.4%
Purchases	318.6	311.5	298.7	289.2	282.0	287.1	289.7	0.6%
% upon Terna's request	96.4%	93.1%	91.0%	90.8%	90.8%	90.6%	93.4%	3.1%
Offer/bid	509.5	538.1	555.4	532.1	511.7	500.2	502.4	0.2%
Sales	318.6	311.5	298.7	289.2	282.0	287.1	289.7	0.6%
at zero price	218.4	210.0	201.8	214.7	212.7	190.5	172.2	-9.9%

Tab. 2.2.1

Offer in the MGP

Fig. 2.2.3



Growth of MGP trading, in the presence of a net import at the lowest historical levels, has resulted in an increase in sales of domestic production (+ 3.3%) largely covered by thermoelectric plants, whose sales return to exceed the threshold of 150 TWh. With the steady decline in coal production (-6.6% in 2015, -8.5% in 2016) and oil and its derivatives (more than 20% in 2016), growth was mainly driven by combined-cycle plants (+ 18.9%) which is, also favored by low raw material prices, a flexible and strategic resource to cope both with the reduction of power available in the French production plants in the last part of the year, and with the decline in renewable energies. In 2016, green energy production was down mainly in the sector of hydroelectric (-0.7%) and solar (-7.9%) plants, affected by climate factors such as few rainfalls and solar radiation reduction. On the other hand, the performance of wind power plants is positive, which reaches +6.4% (Figure 2.2.3, Table 2.2.2).

The reduction in imports gives a new impetus to thermoelectric growth

Sales by source and technology

Tab. 2.2.2

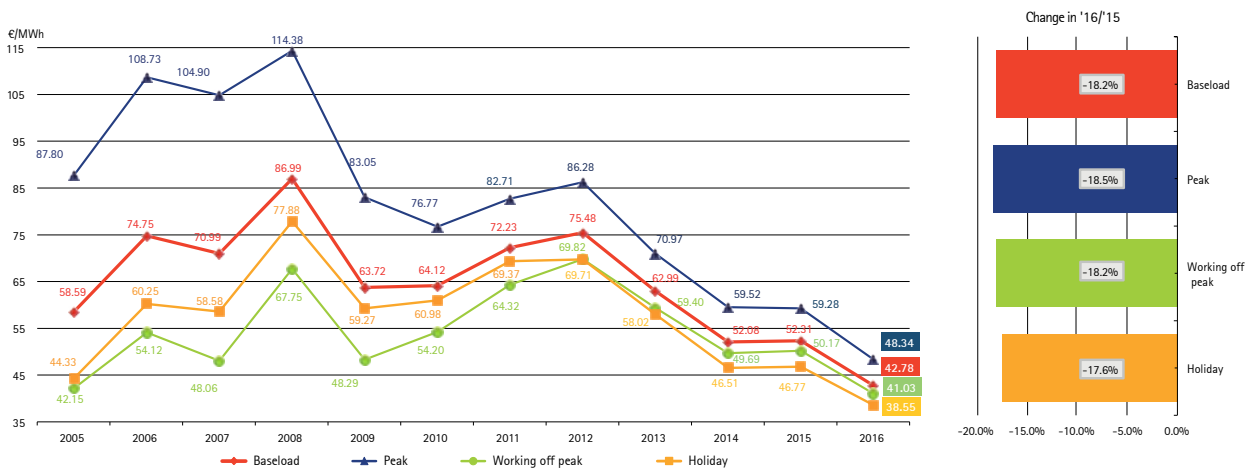
TWh	2010	2011	2012	2013	2014	2015	2016	Change '16/'15
Conventional sources	204.6	197.9	175.1	147.9	130.6	144.3	153.1	5.8%
Combined cycle	149.6	138.5	113.8	92.5	75.1	90.5	107.8	18.9%
Coal	24.4	29.3	32.3	26.2	25.0	23.4	21.5	-8.5%
Other	30.6	30.1	29.0	29.3	30.5	30.4	23.8	-22.0%
Renewable sources	59.5	59.5	74.1	91.4	100.9	89.4	88.1	-1.8%
Hydraulic	42.2	37.9	35.2	45.3	50.5	43.2	43.0	-0.7%
Run of river	24.6	23.4	22.3	27.0	31.3	28.7	29.9	3.9%
Reservoir	17.6	14.5	12.9	18.3	19.2	14.5	13.1	-10.0%
Geothermal	5.1	5.4	5.3	5.3	5.6	5.8	5.9	0.5%
Wind	5.6	7.2	10.3	14.1	14.6	13.4	14.3	6.4%
Solar and other	6.6	9.1	23.3	26.7	30.2	27.0	25.0	-7.9%
Pumping	5.8	4.1	3.0	3.3	3.6	2.8	3.8	36.6%
TOTAL	269.8	261.6	252.1	242.7	235.0	236.5	245.0	3.3%
Abroad	48.8	49.9	46.5	46.5	46.9	50.7	44.7	-12.0%
TOTAL SALES	318.6	311.5	298.7	289.2	282.0	287.1	289.7	0.6%

The heavy decline in the purchase price has affected the individual groups of hours with prices down to their lowest historical values. Specifically at peak hours, the PUN fell to 48.34 €/MWh (-18.5%), highlighting the lowest difference with low load hours prices (41.03 €/MWh in off-peak hours of working days; 38,55€/MWh on holidays) since market start-up. Therefore, the ratio between price in peak hours and off-peak hours of working days falls to 1.18, consolidating the flattening of the hourly price profiles highlighted in recent years (Figure 2.2.4, Figure 2.2.7).

Prices at their lowest historical values even in single groups of hours

Yearly average PUN by groups of hours

Fig. 2.2.4



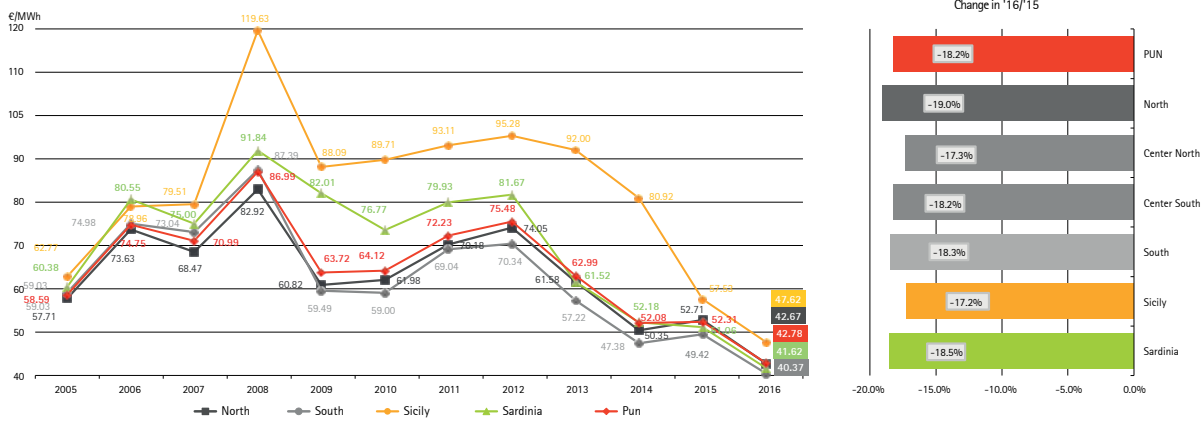
The evolution of zone sales prices confirms the dynamics that emerged at the national level (-17/-19% on the previous year), with annual prices dropping everywhere to the lowest historical levels. Unchanged the ranking of price levels, with the South firmly confirming the lowest price (40.37€/MWh) - consolidating a mature picture of the widespread distribution of renewable power which still sees the net exports towards other peninsular areas - and Sicily showing the highest price (47.62 €/MWh). However, this spread, which has been largely reduced by the regulatory measures⁷ introduced in 2015, with the entry into operation in May 2016 of the new Sorgente-Rizziconi interconnection cable, decreases to a little more than 7 €/MWh, never so low since 2007. The picture sharply changes in the last quarter of the year, when the abovementioned reduction in imports from abroad has a greater impact on the prices of the northernmost regions. The North's selling price, in particular, is on average (58.50 €/MWh) higher than over 6 €/MWh compared to the price of Sicily (Fig. 2.2.5, Table 2.2.3, Tab 2.2.4).

Convergent zonal prices at their lowest historical values everywhere

⁷ AEEGSI Decision 521/2014/R/Eel.

Yearly average zonal prices on the MGP

Fig. 2.2.5



Zonal volumes on the MGP - 2016

Tab. 2.2.3

TWh	Purchases		Sales		Offer		Demand		Offers/bids rejected	
North	155.33	(-0.6%)	119.29	(+8.5%)	243.00	(+5.4%)	158.21	(-1.4%)	123.71	(+2.6%)
Center North	29.86	(+5.9%)	18.94	(+5.6%)	29.22	(-3.0%)	31.91	(+4.8%)	10.27	(-15.7%)
Center South	46.16	(+2.3%)	32.07	(+10.7%)	54.19	(-6.4%)	46.91	(+0.7%)	22.11	(-23.6%)
South	25.72	(-12.3%)	50.28	(-7.9%)	73.00	(-6.6%)	26.29	(-14.0%)	22.72	(-3.4%)
Sicily	16.62	(+5.7%)	14.76	(-6.7%)	38.13	(+11.4%)	18.09	(+0.3%)	23.37	(+27.0%)
Sardinia	8.75	(-1.6%)	9.64	(-2.0%)	18.66	(+3.8%)	9.29	(-4.4%)	9.03	(+10.7%)
Abroad	7.27	(+64.9%)	44.71	(-12.0%)	46.19	(-12.4%)	10.77	(+4.5%)	1.48	(-22.1%)
Italy	289.70	(+0.6%)	289.70	(+0.6%)	502.39	(+0.2%)	301.46	(-1.5%)	212.69	(-0.5%)

(In brackets, the change from the previous year)

Zonal sales by source and technology - 2016

Tab. 2.2.4

	North		Center North		Center South		South		Sicily		Sardinia	
	MWh	Change	MWh	Change	MWh	Change	MWh	Change	MWh	Change	MWh	Change
Conventional sources	7,940	+15.1%	848	+18.5%	2,638	+18.9%	4,184	-10.2%	1,038	-9.3%	781	-6.1%
Gas	6,004	+24.3%	763	+24.0%	1,024	+56.4%	3,069	+13.1%	923	-12.4%	526	+3.0%
Coal	833	-18.3%	1	-57.1%	1,411	+3.1%	-	-	-	-	199	-28.9%
Other	1,103	+5.0%	84	-14.1%	204	+4.6%	1,115	-42.8%	115	+27.4%	56	+34.2%
Renewable sources	5,240	-2.2%	1,308	-1.4%	980	-4.3%	1,540	-0.9%	643	-2.3%	316	+10.3%
Hydraulic	3,566	-2.3%	352	+7.7%	409	-5.6%	376	+12.4%	140	-3.6%	49	+22.9%
Geothermal	-	-	671	+0.5%	-	-	0	-	-	-	-	-
Wind	5	-46.1%	17	+19.3%	278	+10.5%	774	+5.3%	371	+3.2%	180	+14.8%
Solar and other	1,669	-1.8%	269	-15.6%	293	-13.6%	391	-19.6%	132	-13.9%	87	-3.3%
Pumping	401	+53.7%	0	-100.0%	33	-41.1%	-	-	0	+194.0%	0	-65.8%
Total	13,581	+8.5%	2,156	+5.6%	3,651	+10.7%	5,724	-7.9%	1,680	-6.7%	1,097	-2.0%

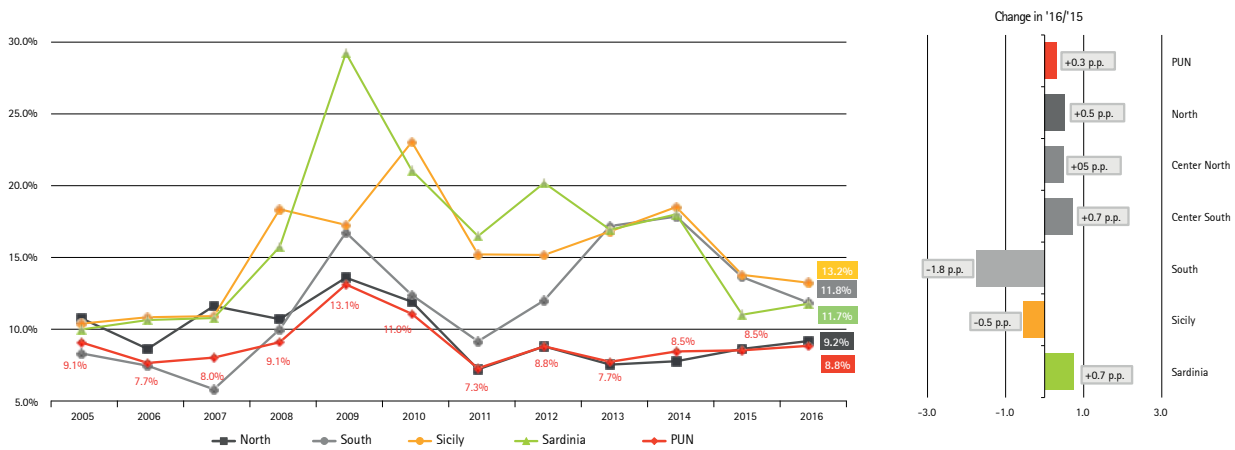
In 2016 the PUN volatility (8.8%), although slightly up on the previous year, still stands in line with the average values of the last five years. At the zonal level, however, volatility decreases only in the South (-1.8 percentage points) and in Sicily (-0.5 percentage points), which, along with Sardinia, have shown higher volatility rates in recent years. Such dynamics have probably been affected by the reduction in renewable production at an hourly rate which, for the first time since 2012, has never dropped to 0 €/MWh, following a phenomenon already highlighted the previous year when the zero rate seemed broadly reduced. Nevertheless, it is worth mentioning how in 2016 the spread of renewable power has favored a larger number of MGP

Decreasing volatility of prices in the South and in Sicily

sessions that show lower daily prices during the day than during the night in southern and island areas with a price differential in those sessions dropped about to 5/6 €/MWh (Figure 2.2.6, Figure 2.2.7, Table 2.2.5).

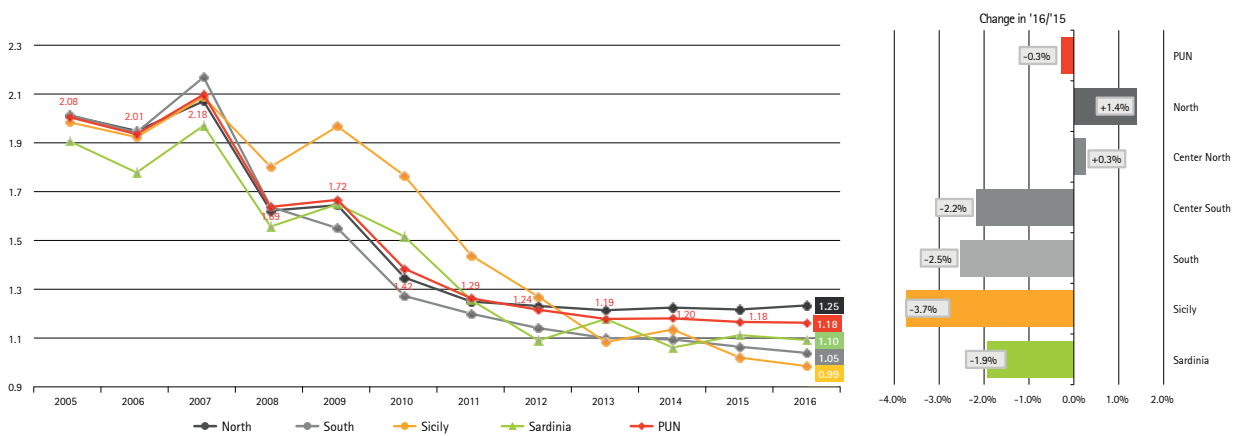
Price volatility

Fig. 2.2.6



Peak/off-peak price ratio on working days

Fig. 2.2.7



Zero prices and day-time/night-time price reversals on the MGP –2016

Tab. 2.2.5

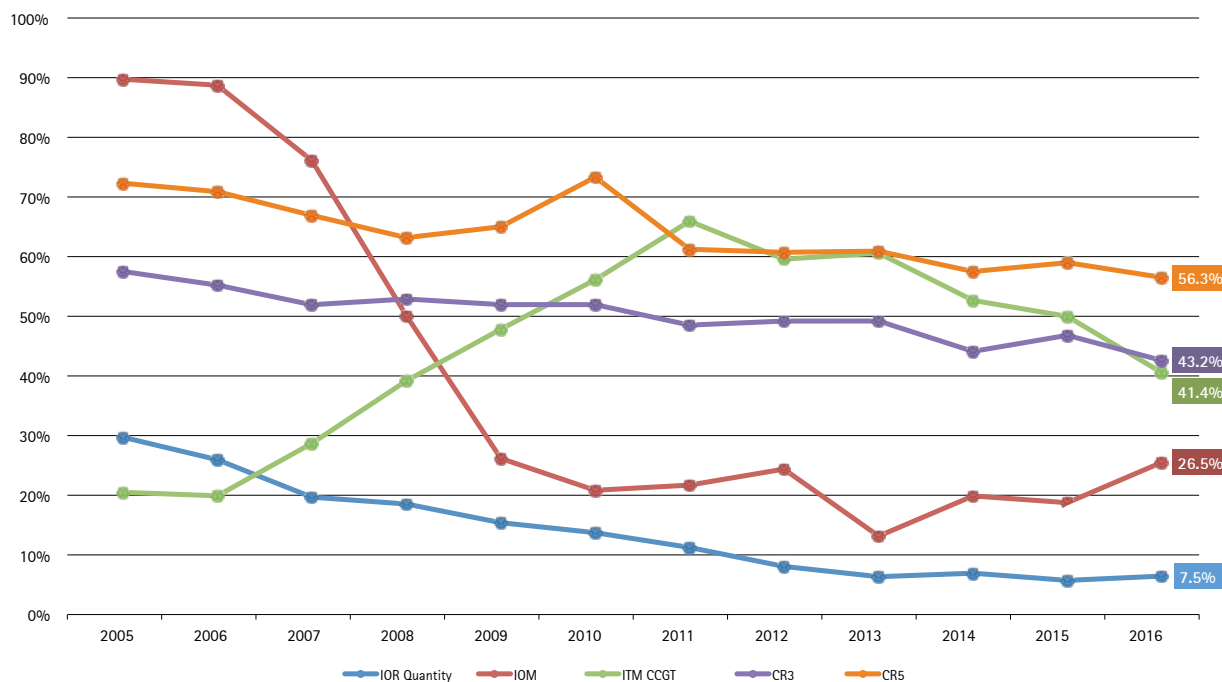
	PUN		North		Center North		Center South		South		Sicily		Sardinia	
No. of hours with price equal to zero	-	(0)	-	(0)	-	(15)	-	(15)	-	(19)	-	(15)	-	(29)
No. of sittings with at least a hourly price equal to zero	-	(0)	-	(0)	-	(5)	-	(5)	-	(6)	-	(5)	-	(7)
No. of sittings with daily prices < night prices	82	(72)	44	(51)	100	(101)	123	(114)	151	(144)	124	(119)	216	(156)
Sittings % with daily prices < night prices	22.4%	(19.7%)	12.0%	(14.0%)	27.3%	(27.7%)	33.6%	(31.2%)	41.3%	(39.5%)	33.9%	(32.6%)	59.0%	(42.7%)
Average difference in the sittings with daily prices < night prices €/MWh	-3.62	(-5.95)	-3.41	(-6.75)	-5.61	(-6.96)	-5.25	(-6.82)	-4.72	(-6.43)	-5.44	(-6.71)	-6.07	(-5.06)

(/)In brackets, the change from the previous year

In 2016, indicators of competitiveness and competition express positive signals, albeit with some exceptions. In particular, the percentage of guaranteed sales in absence of competition (IORq), progressively reduced until 2013, seems stable at 7.5% in line with the last three years. The indicator still confirms very low levels in the North (0.7%) and considerably higher in the North Center (21.9%) and in the South Center (25.9%); it appears reduced in the islands, where it registers the lowest values since the launch of the market (Sardinia 2.6% and Sicily 2.2%). The downward trend of the Marginal Technology Index of combined cycle plants (ITM Ccgt), which reaches the lowest value since 2009 (41.4%), is confirmed. The indicator decreases in particular in the last quarter of the year when, despite the sharp increase in sales, the combined cycle technology has been pushed below the marginal level due to lower than average foreign prices that favored a record level of exports. A general improvement for the Hirschmann-Herfindahl Index of the Sales (HHI) index, which confirms itself under the first level of competition in the North, and for the first time falls below it to the South. The positive signals from the HHI index are also reflected in the CR3 and CR5 concentration indicators, which, after the recovery in 2015, fall again and reach the lowest historical levels (43.2% and 56.3% respectively). The only negative signal is detected in the competition at the margin, as reported by the Index of Marginal Operator (IOM) of the main price-maker, which earns 6 percentage points on an annual basis, to 26.5%, the highest level in the last seven years (Fig. 2.2.8, Table 2.2.6).

Drop in market concentration but decreased competition at the margin

Fig. 2.2.8 Indicators of competitiveness



Tab. 2.2.6 Concentration indicators on the MGP - 2016

Indicator	Total	North	Center North	Center South	South	Sicily	Sardinia
HHI Offers		1,771 (1,882)	3,026 (3,459)	3,698 (4,177)	1,594 (1,714)	2,645 (2,548)	2,958 (3,273)
HHI Sales		1,190 (1,294)	2,750 (2,693)	2,962 (3,359)	1,442 (1,851)	1,819 (2,046)	4,658 (4,515)
CR3	43.2% (47.1%)	47.6% (50.3%)	78.6% (76.5%)	67.0% (76.8%)	51.6% (64.2%)	55.4% (58.6%)	82.7% (83.4%)
CR5	56.3% (58.9%)	65.8% (66.0%)	85.0% (86.5%)	77.7% (82.5%)	69.1% (77.0%)	72.5% (79.0%)	91.8% (91.8%)
IOR Quantity	7.5% (7.1%)	0.7% (0.5%)	21.9% (22.2%)	25.9% (22.4%)	8.9% (7.7%)	2.2% (5.5%)	2.6% (6.0%)
IOM 1st Part	26.5% (19.8%)	19.5% (13.5%)	27.3% (19.8%)	29.8% (20.9%)	32.7% (22.3%)	52.4% (63.0%)	29.8% (23.5%)
ITM Ccgt	41.4% (51.0%)	37.1% (50.8%)	43.5% (48.7%)	44.5% (49.4%)	44.3% (50.8%)	63.0% (69.7%)	43.8% (46.1%)

(In brackets, the values referred to the same month of the previous year)

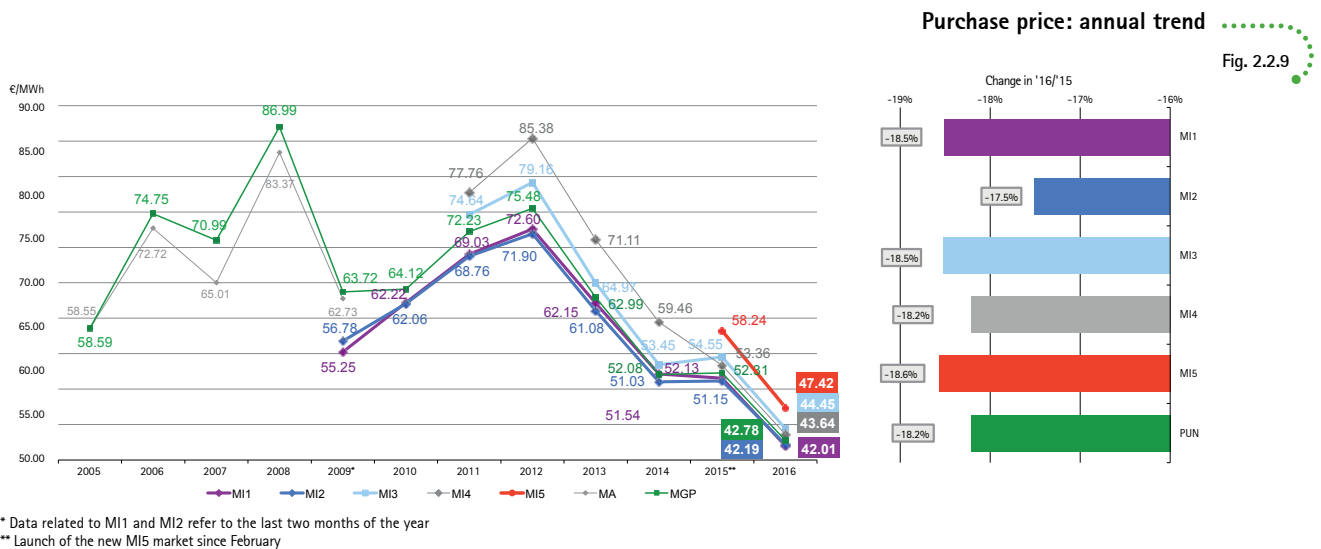
2.2.2 Intra-Day Market (MI)

In 2016, the purchase prices of the Intra-Day Market (MI) showed a sharp drop over the previous year (-18/-19%) and recovered the downward trend that began in 2013 (partially interrupted in 2015), reaching the lowest historical levels in all sessions. The prices of the first two sessions are slightly above 42 €/MWh, while those of MI3 and MI4 are around 44 €/MWh; the price of MI5 is confirmed at the highest level (47.42 €/MWh). However, it should be noted that only MI1 and MI2 prices, like MGPs, refer to all 24 hours of the day, while MI3, MI4 and MI5 prices only to a limited number of hours (respectively the last 16, 12 and 8 hours). The spread between the highest and lowest price sessions in 2016 sets a historic low level slightly above 5 €/MWh (Figure 2.2.9).

Prices more and more harmonized and all at minimum historical levels

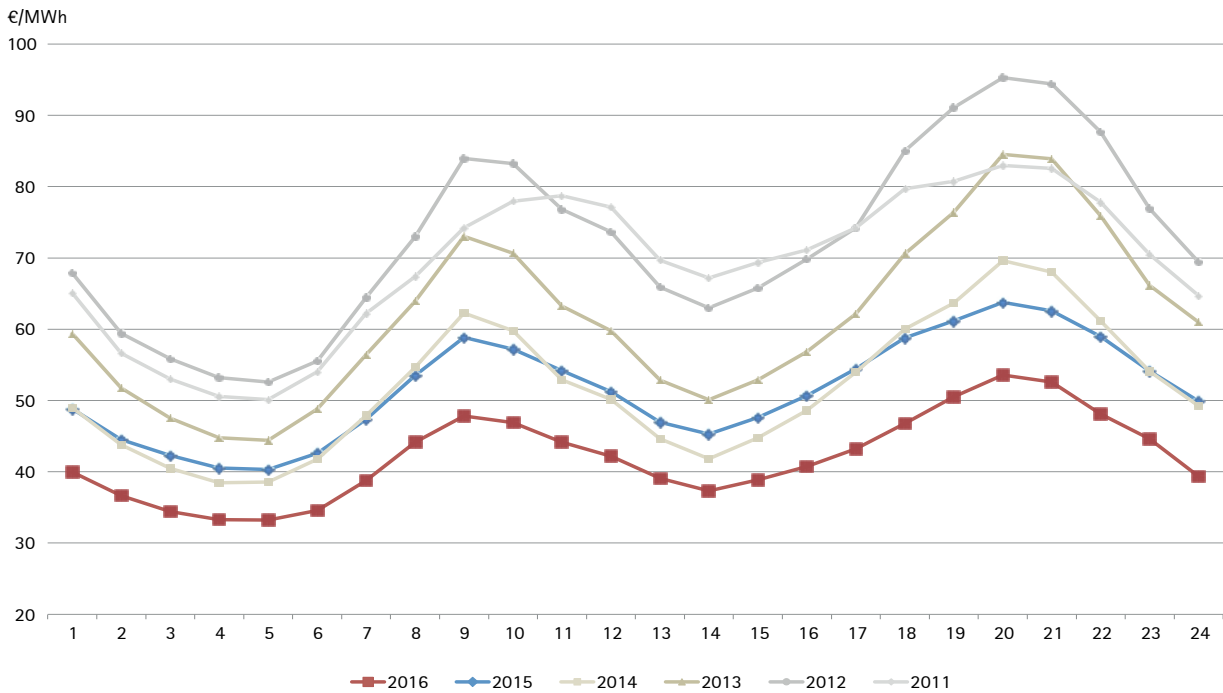
The analysis of the MI daily average time profile (including all sessions) highlights the typical "camel hump" trend, with lower levels in the early hours of the day, a morning peak at 9 am o'clock (with the exception of 2011), a relative decrease at 2 pm o'clock, an evening peak at 8 pm o'clock higher than that in the morning. The historical evolution of the price curve also reveals a progressive downward trend (confirming 2016 as the record year) and a reduction in the intra-day variability particularly strong in the last three years (Figure 2.2.10).

Compared to the MGP purchase prices (PUN), with which they are closely correlated, the prices of the five MI sessions, given the same hours, are constantly lower; the negative gap appears more significant on MI4 (-3.9%) and less relevant on MI5 (-0.9%).



Purchase price: average hourly volumes

Fig. 2.2.10

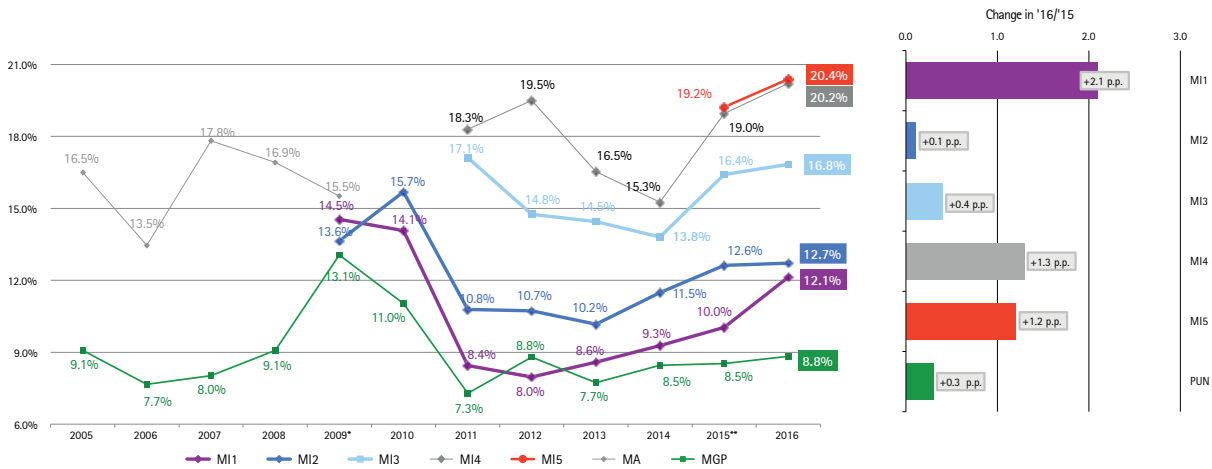


In each MI session, the drop in prices over the previous year has not always had calming effects on volatility indicators. In MI1, with an increase of 2.1 percentage points, volatility rises to 12.1% (maximum value since 2011), and aligns with MI2 (12.7%) (Figure 2.2.11). Less variation in price volatility in other sessions. As with MGP, the increase in MI volatility appears to be linked to price tensions over the last three months of the year following the break of some French nuclear plants.

Increases in price volatility during sessions

Purchase price volatility: annual trend

Fig. 2.2.11



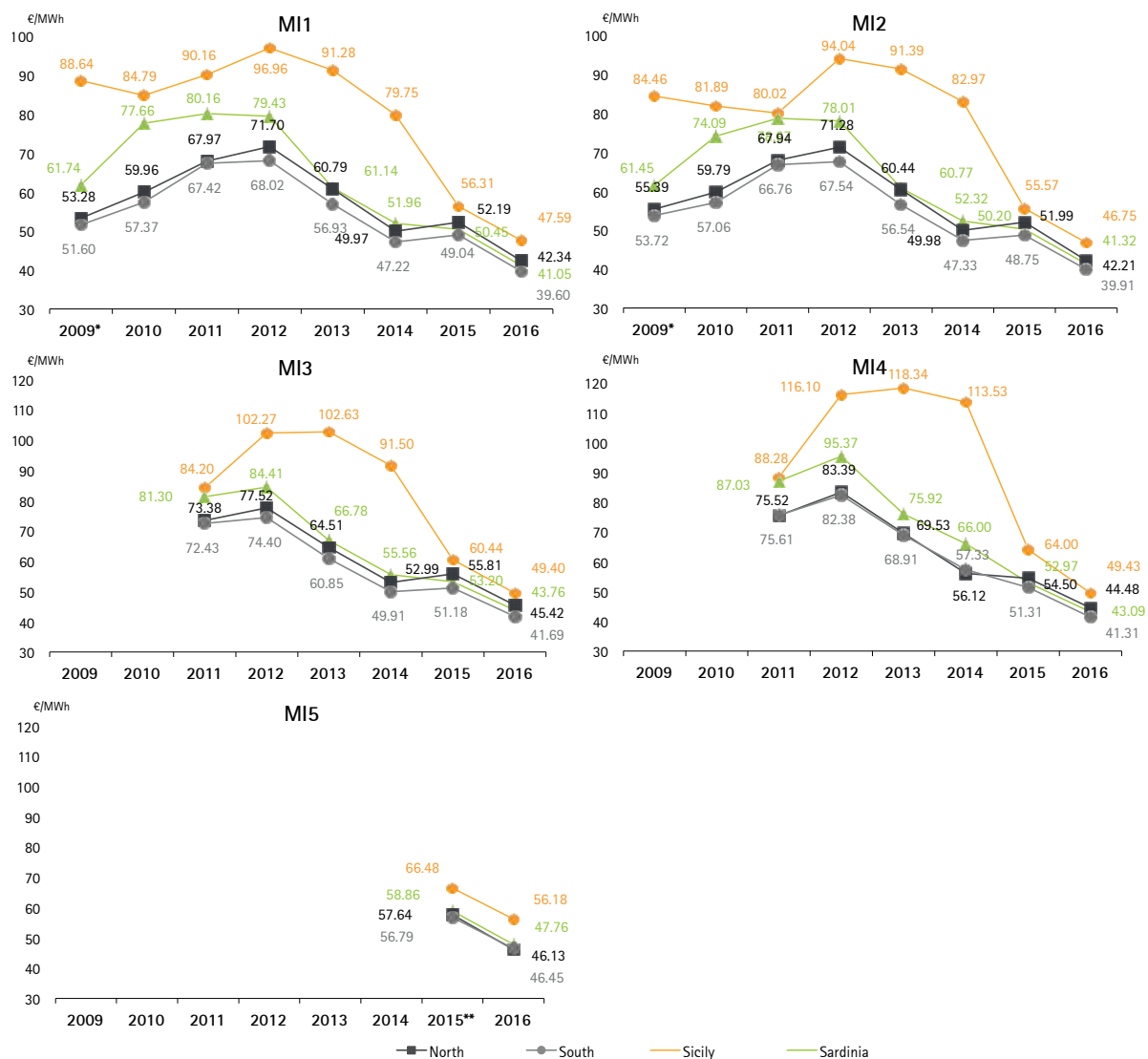
* Data related to MI1 and MI2 refer to the last two months of the year
 ** Launch of the new MI5 market since February

At the zonal level, MI prices in all sessions show important and widespread decreases compared to the previous year, reaching lower levels in the first ones and higher in the following ones but everywhere at the lowest levels. The general depreciation has seen, in all markets, the South as the zone with the lowest prices, falling below the threshold of 40 €/MWh on MI1 and MI2, and Sicily as the one with significantly higher prices than the other zones. However, this spread, already drastically reduced in 2015, drops in the first four sessions (7/8 €/MWh), rising slightly on MI5 (10 €/MWh). Also in Sicily, in 2016, there were some peaks of 3,000 €/MWh per hour on MI1 and MI5, determined by reaching the VENF level (i.e. when the domestic market offer is insufficient to meet the inelastic demand). In other zones, however, where there have never been similar cases, the highest hourly price reached was 200 €/MWh (Figure 2.2.12).

Stronger convergence of zonal prices and historical minimum values everywhere

Zonal prices in the MI sessions

Fig. 2.2.12



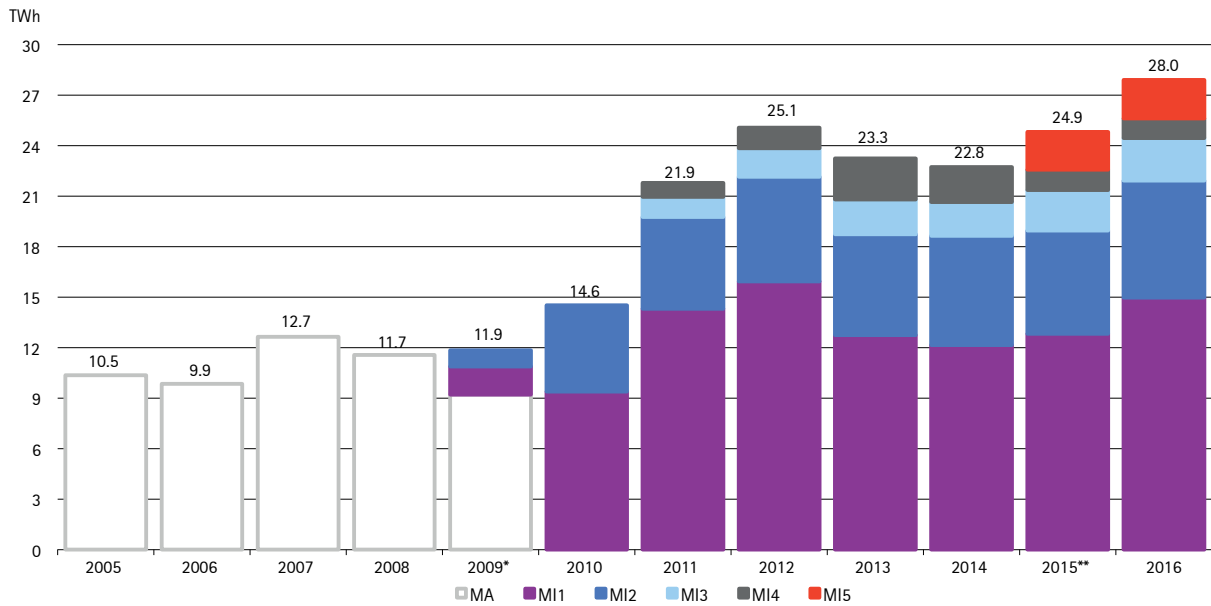
* Data related to MI1 and MI2 refer to the last two months of the year
 ** Launch of the new MI5 market since February

Traded volumes at their highest historical levels...

Total energy volumes traded on the MI, after the positive trend in 2015 triggered by the introduction of a new session (+ 9.3% over 2014), in 2016, mark a new growth of over 12%, reaching the all-time-high of 28.0 TWh (Table 2.2.7, Figure 2.2.13). This upward trend demonstrates the interest of participants on this platform, not just as a means of adjusting planning, but also as an important trading tool that allows more timely response to market needs. The recovery concerns volumes exchanged in the first three sessions, in particular MI1 (15.0 TWh; + 16.2%) and MI2 (7.0 TWh; + 12.9%), all rising to the highest levels of all time; while trading on MI4 (-5.7%) and MI5 (-9.0%) decreased. The analysis of the average daily time profile of the traded volumes, including all sessions, shows steady growth within a 24-hour period, reaching the top between 5 pm and 8/9 pm, then plummeting quickly. The 2016 curve shows a growth over the previous year, distributed over the 24 hours, more intense in the early hours (about 25% in the first 6 hours), demonstrating the decisive role of the first two markets and their weight in developing MI as a trading tool (Figure 2.2.14).

Volumes traded

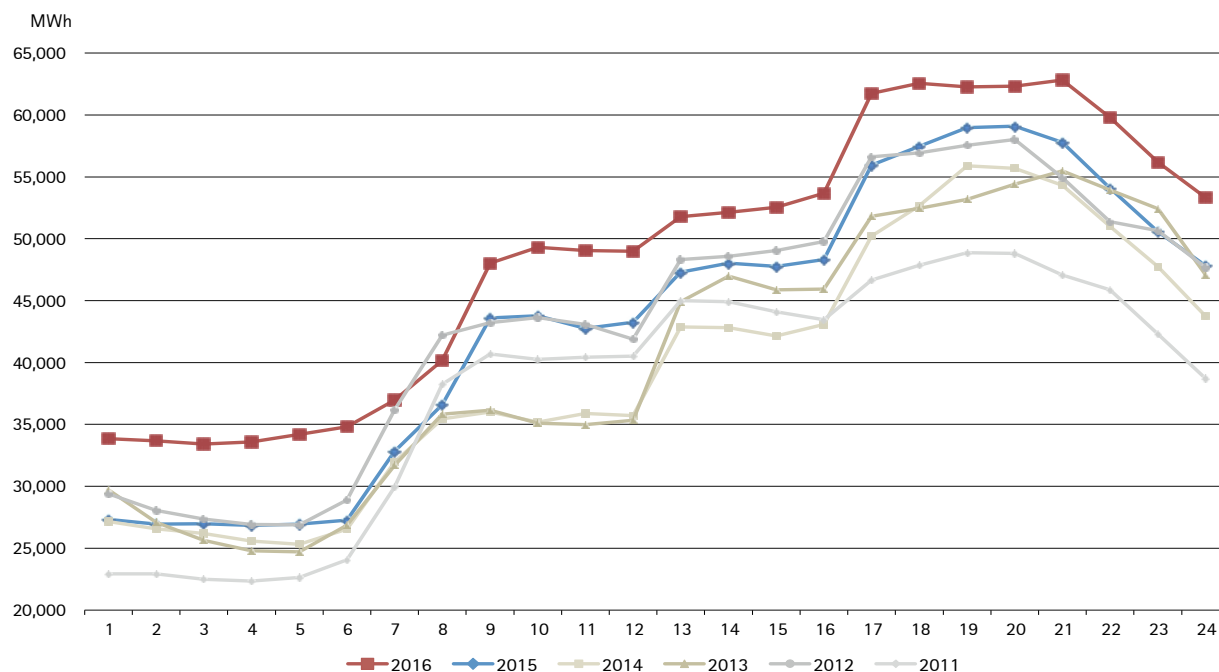
Fig. 2.2.13



* Data related to MI1 and MI2 refer to the last two months of the year
 ** Launch of the new MI5 market since February

Daily average hourly volumes

Fig. 2.2.14



On the five MI markets, the domestic picture shows an overall sharp increase in both sales and purchases in 2015 (+ 11.4% and + 10.2% respectively) and both at the highest historic rates, equal to 26.5 TWh for sales and 26.4 TWh for purchases. The increase appears to have been concentrated in the first five months of 2016 (around + 23% on both sides) at historical low prices on both MGP and MI, and in the last two months of the year (+18 %), in conjunction with the above-mentioned criticalities on European markets. The volumes traded recorded a substantial increase in the peninsular zones, where both purchases and sales are at the highest levels of the last four years. In the islands, however, some discrepancies are observed: Sicily reports slight variations, while Sardinia shows significant but opposite signs (sales: -23.4%, purchases: + 23.1%). The balance between sales and purchases is positive in the North and South (both +0.7 TWh) and in Sicily (+0.1 TWh), the opposite happens in other zones. At a national level, differently from the previous two years, the balance is +0.1 TWh, with the difference absorbed by trade on foreign zones, which in 2016 lead to the highest historic level of 1.5 TWh on the sales (+ 33.8%) and 1.6 TWh on the purchases (+ 67.4%) (Table 2.2.7).

...supported by peninsular zones...

Zonal volumes

Tab. 2.2.7

TWh	2011		2012		2013		2014		2015		2016	
	Sales	Purchases	Sales	Purchases	Sales	Purchases	Sales	Purchases	Sales	Purchases	Sales	Purchases
North	13.2	12.4	15.4	14.4	10.9	10.7	10.5	11.2	12.0	11.7	13.2 (+10.4%)	12.5 (+7.2%)
Center North	1.3	1.3	0.7	1.6	0.9	1.3	1.2	1.4	1.1	2.2	1.4 (+27.1%)	2.4 (+13.6%)
Center South	1.8	2.1	2.6	2.6	3.1	3.0	3.0	2.3	3.4	3.1	3.4 (-0.4%)	3.6 (+14.0%)
South	3.0	3.9	3.9	3.7	5.3	4.6	4.5	4.3	5.0	5.0	6.4 (+27.1%)	5.7 (+15.3%)
Sicily	1.8	1.0	1.5	1.3	1.6	1.4	1.9	1.8	1.6	1.4	1.6 (+0.7%)	1.4 (-1.5%)
Sardinia	0.5	0.6	0.3	0.5	0.4	0.9	0.5	1.0	0.8	0.6	0.6 (-23.4%)	0.7 (+23.1%)
Italy	21.7	21.2	24.4	24.3	22.2	22.0	21.6	22.0	23.8	23.9	26.5 (+11.4%)	26.4 (+10.2%)
Abroad	0.2	0.6	0.7	0.9	1.2	1.3	1.2	0.8	1.1	1.0	1.5 (+33.8%)	1.6 (+67.4%)
Total	21.9	21.9	25.1	25.1	23.3	23.3	22.8	22.8	24.9	24.9	28.0 (+12.4%)	28.0 (+12.4%)

() In brackets, the change compared to the previous year

...and particularly by renewable energy plants

The analysis of trade by type of plant reveals a significant increase in the volumes, for both sale and purchase, linked to renewable energy sources (+ 26.9% and + 28.4% respectively), both at historic highs. This increase, supported by both hydraulic and wind power plants (both at record levels), drives the share of renewables at the national level to 22.1% (+2.7 percentage points compared to 2015) for sales and 25.9% (+3.7 percentage points) for purchases. Significant also the performance of sales from thermoelectric plants (14.9 TWh; + 10.1%), especially gas installations (+ 7.7%), representing 43.1% of the total sold (-1,5 p.p. compared to 2015), and other thermal plants (+ 133.9%); while sales from coal-fired power plants (-43.6%) dropped to 4.0% (-4.0 p.p.). However, purchases of thermoelectric plants (8.5 TWh; -1.8%) continued to fall to the lowest levels since 2010, with a 32.3% share (32.9 p.p.) on the total purchased; decisive was the drop in gas installations (-15.1%), which suffers from the increased use of other sources. Also trading in pumping plant increased (+ 17.1% on sale, + 150.1% on purchase).

Overall, the volumes traded in the MI by injection point's holders have represented the largest percentages on both sides, respectively equal to 86% of the total injection (sales) and 68% of the withdrawal (purchases). The volumes handled in the MI by withdrawal point's holders (typically wholesalers and traders), on the other hand, after a long growing trend, marked a sharp decline in both sales, with 3,8 TWh (-4.5%) and purchases, with 8.3 TWh (-6.2% compared to the peak of 2015), and a share of 14% of the total injection and 32% of the total withdrawn, both falling (respectively -2.4 p.p. and -5.5 p.p.) (Table 2.2.8).

Purchases and sales by source

Tab. 2.2.8

TWh	2011		2012		2013		2014		2015		2016			
	Sales	Purchases	Sales	Purchases	Sales	Purchases	Sales	Purchases	Sales	Purchases	Sales	Purchases		
Thermoelectric	15.5	13.8	18.7	13.6	15.2	10.9	12.4	9.3	13.6	8.7	14.9	(+10.1%)	8.5	(-1.8%)
Gas	12.8	8.1	15.9	9.1	12.2	7.0	10.0	5.2	10.6	5.6	11.4	(+7.7%)	4.8	(-15.1%)
Coal	1.3	2.1	1.2	1.7	1.5	1.4	1.1	1.6	1.9	0.7	1.1	(-43.6%)	0.8	(+11.3%)
Other thermal	1.5	3.6	1.6	2.8	1.5	2.6	1.3	2.5	1.0	2.4	2.4	(+133.9%)	3.0	(+26.1%)
Renewable sources	2.9	1.4	2.4	1.5	3.3	2.6	3.8	2.8	4.6	5.3	5.9	(+26.9%)	6.8	(+28.4%)
Geothermal	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(-67.9%)	0.0	(-74.3%)
Natural hydroelectric	2.9	1.4	2.4	1.4	2.7	2.0	2.9	2.1	3.5	3.8	4.3	(+20.8%)	4.6	(+20.4%)
Wind	0.0	0.0	0.0	0.1	0.6	0.6	0.8	0.7	1.0	1.3	1.5	(+52.7%)	2.2	(+61.6%)
Solar and other	-	0.0	-	-	0.0	0.0	0.0	0.0	0.0	0.1	0.0	(-9.6%)	0.1	(-53.4%)
Pumping	2.9	2.8	2.5	2.3	1.7	1.6	2.0	1.4	1.7	1.1	1.9	(+17.1%)	2.7	(+150.1%)
Wholesalers	0.4	3.2	0.7	6.9	1.9	6.8	3.3	8.4	4.0	8.9	3.8	(-4.5%)	8.3	(-6.2%)
National total	21.7	21.2	24.4	24.3	22.2	22.0	21.6	22.0	23.8	23.9	26.5	(+11.4%)	26.4	(+10.2%)

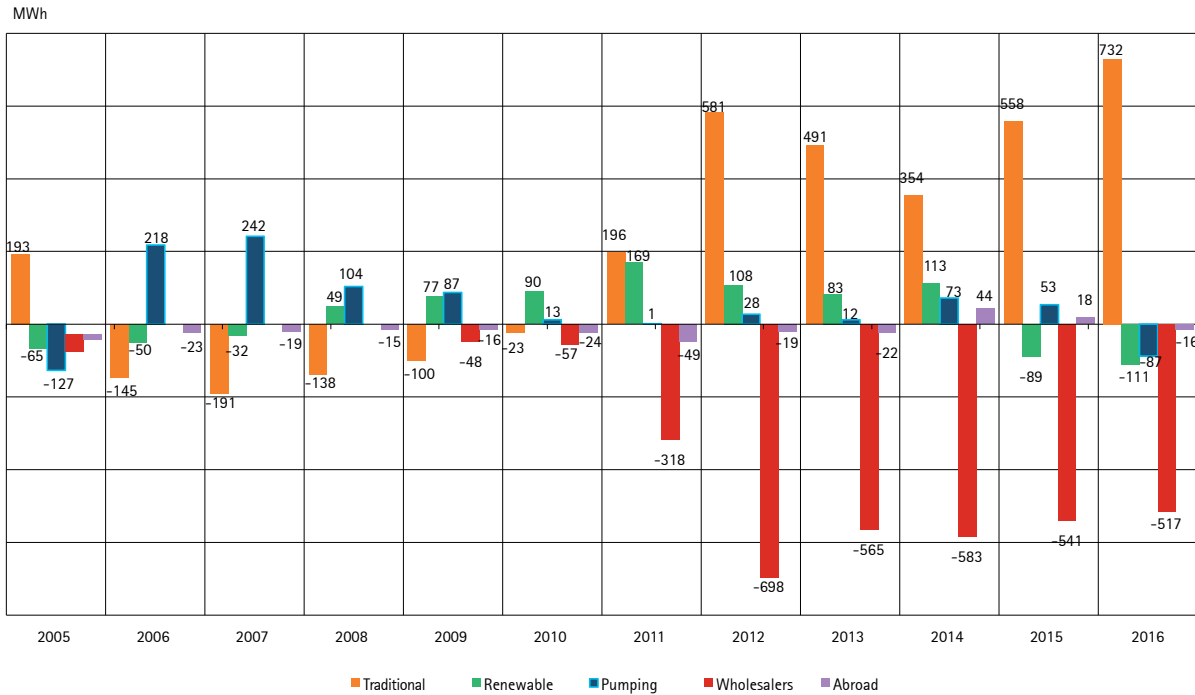
()In brackets, the change compared to the previous year

The examination of sales/purchases balance in the MI, in 2016, shows positive values only for traditional thermal power plants with +732 MWh hourly average, new highest historical level. A negative value, however, for renewable energy plants (-111 MWh), for foreign zones (-16 MWh hourly average) and, as it has not happened since 2005, also for pumping plants (-87 MWh hourly average). As expected, even for wholesalers, purchases exceed sales with a balance of -517 MWh, in line with the levels of previous years (Figure 2.2.15).

The activity of the participants in the five MI sessions resulted in an increase of 1.9% in injection programs in response to the MGP, which is consistent with the trend of recent years (Figure 2.2.16).

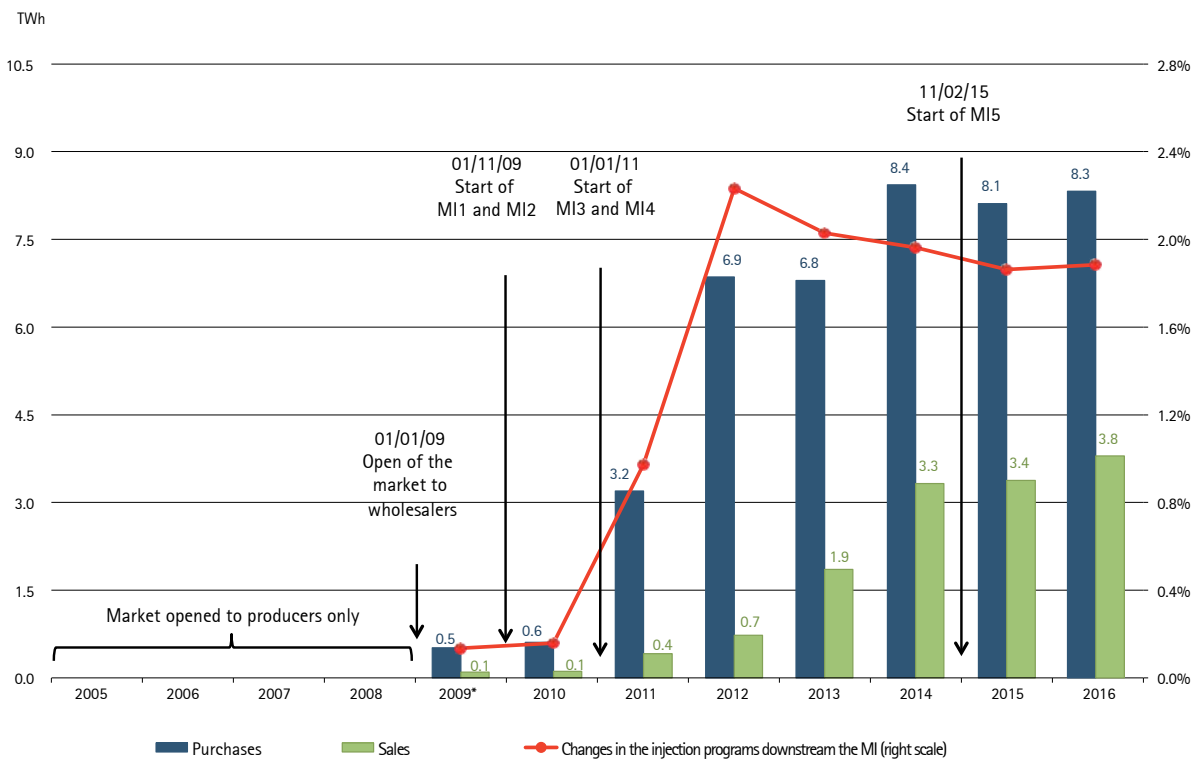
Balance of the sales/purchases by type of plant. Hourly average

Fig. 2.2.15



Sales and purchases of wholesalers and changes in the injection programs downstream of the MI

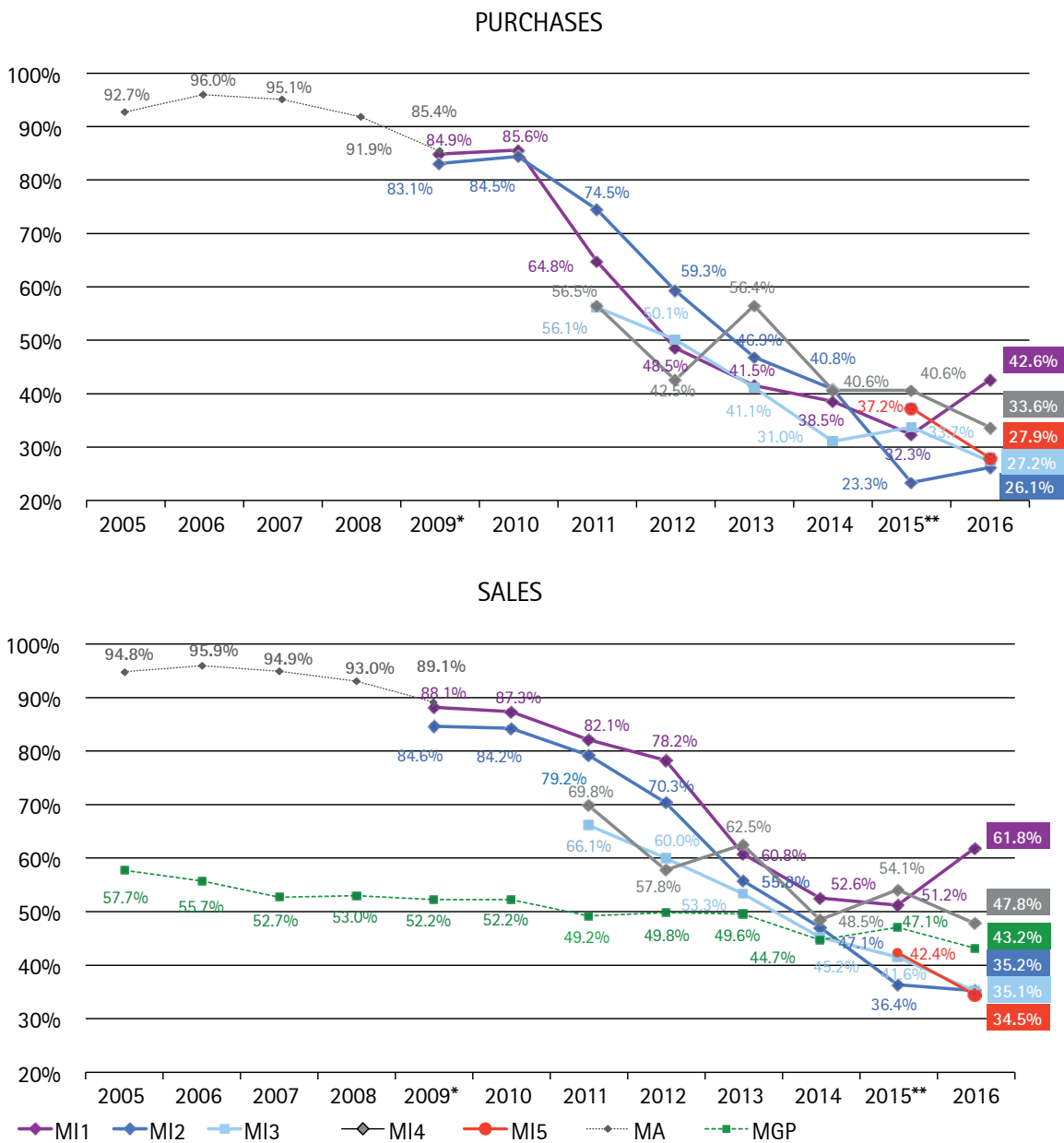
Fig. 2.2.16



Finally, in 2016, there is a worsening of competitiveness in the first two sessions, the most liquid of MI, and an improvement in the last three. In fact, the percentage of traded volumes held by the top three participants (CR3) rose on the purchase side to 42,6% in the MI1 (+10.3 p.p.) and to 26.1% (+2.8 p.p.) on MI2; on the sales side, the same indicator on the MI1 bounces to 61.8% (+10.6 p.p.), while MI2 remains almost unchanged. Positive developments, however, for CR3 indexes in other sessions, all at their lowest levels. The CR3 sales side of MGP, equal to 43.2%, is placed at an intermediate level than the CR3 of the MI sessions (Figure 2.2.17).

Less competitiveness in the first two markets

CR3
Fig. 2.2.17



* Data related to MI1 and MI2 refer to the last two months of the year
** Launch of the new MI5 market since February

In June 2016, the coupling project on the Slovenian border was started for MI2 and MI5 sessions. Through this mechanism, on the two above sessions, a total volume of 105 GWh was purchased and 64 GWh was sold.

Start-up of the coupling Italy-Slovenia

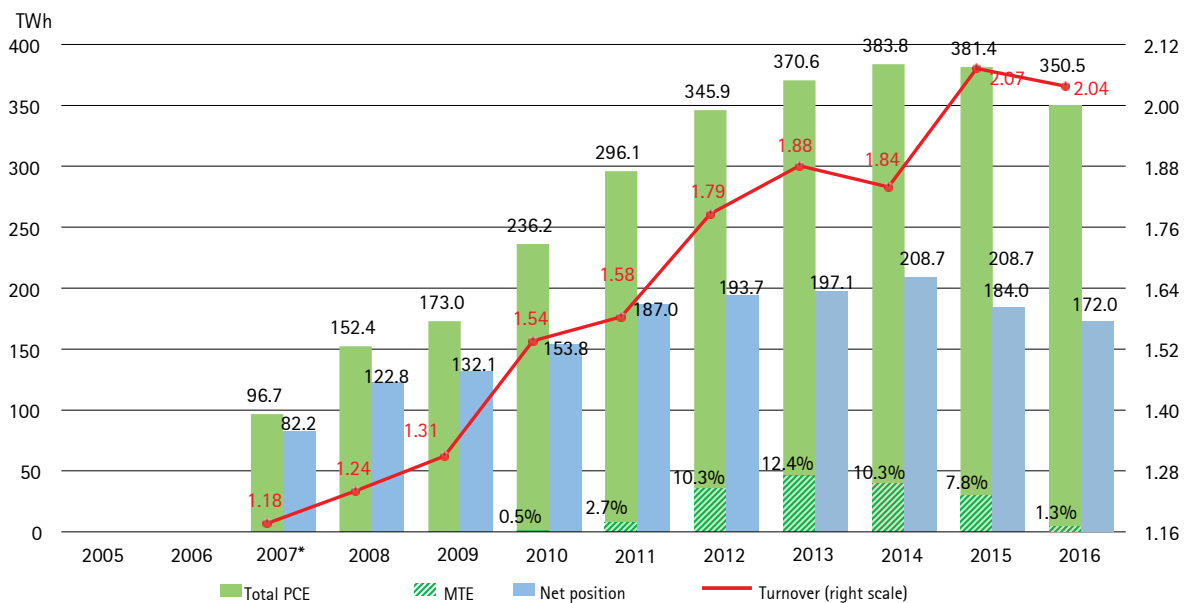
2.2.3 Forward trading (PCE and MTE)

The recorded transactions in the OTC Registration Platform (PCE), with delivery/withdrawal in 2016, confirm and strengthen the trend reversal highlighted in the previous year and, with a fall of 8.4%, reach the lowest level of the last four years down to 350.5 TWh (Figure 2.2.18).

Volumes trading continues to fall

Transactions recorded, net position and turnover

Fig. 2.2.18



* Data from May 2007

In 2016, transactions deriving from contracts concluded on the Forward Electricity Market (MTE) fell to 4.5 TWh (-84.8%)⁸, with a share on total registrations falling to 1.3% (12.4% at its highest in 2013). Also, for the first time since the launch of the platform, transactions resulting from contracts concluded by participants off the regulated market (bilateral contracts) marked a decline, reaching 345.9 TWh (-1.9%). The most used contracts by participants were still non-standard contracts, accounting for 67.0% of the total traded, reaching 234.7 TWh, almost in line with the previous year (+ 0.2%). Instead, volumes recorded by standard contracts decrease (-6.1%), including baseload contracts, still favored by participants (100.8 TWh; -2.3%). No transactions were recorded on the Delivery of electricity derivatives platform (CDE), as in the previous five years (Table 2.2.9).

8 The value refers to the volumes traded in the MTE in 2016

Profile of recorded transactions and schedules

Tab. 2.2.9

TRANSACTIONS RECORDED				PROGRAMS						
Profile	MWh	Change	Structure	Injection			Withdrawal			
				MWh	Change	Structure	MWh	Change	Structure	
Baseload	100,783,972	-2.3%	28.8%	Required	110,075,756	3.1%	100.0%	135,028,050	-6.2%	100.0%
Off Peak	4,560,224	-44.9%	1.3%	of which with price indication	50,420,217	36.9%	45.8%	25,885	19132.4%	0.0%
Peak	5,935,791	-16.2%	1.7%	Registered	86,876,007	-6.4%	78.9%	134,895,133	-6.3%	99.9%
Week-end	-	-100.0%	0.0%	of which with price indication	27,325,309	19.4%	24.8%	24,583	18165.0%	0.0%
Total Standard	111,279,988	-6.1%	31.8%	Rejected	23,199,749	65.8%	21.1%	132,918	9035.5%	0.1%
Total non-standard	234,661,498	0.2%	67.0%	of which with price indication	23,094,908	65.6%	21.0%	1,302	-	0.0%
PCE bilaterals	345,941,485	-1.9%	98.7%							
MTE	4,532,268	-84.8%	1.3%							
MPEG	2,485	-	0.0%							
CDE	-	-	0.0%							
Total	350,476,238	-8.4%	100.0%	Schedules unbalancing	85,313,912	-7.0%		37,294,787	-8.0%	
Net position	172,189,919	-6.7%		Schedules balance	-	-		48,019,126	-6.2%	

Also the net position of the energy accounts, determined by the complexity of recorded transactions, confirms and strengthens the trend reversal highlighted in 2015, down to 172.2 TWh (-6.7%), the lowest level in the last six years.

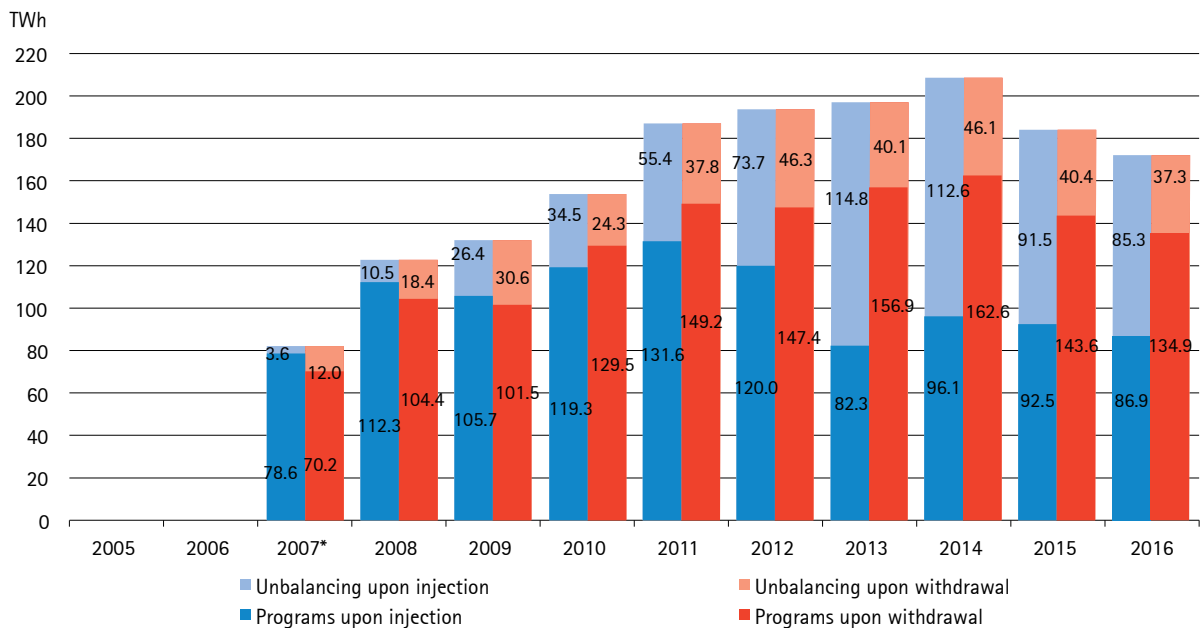
Therefore, the turnover, ie the ratio between recorded transactions and the net position, slightly falling back from the peak of 2015 to 2.04 (-0.03), is confirmed at high levels (Figure 2.2.16).

The decline also includes the physical programs recorded in injection accounts, falling to 86.9 million MWh (-6.4% by 2015), but it does not even spare the physical programs recorded in the withdrawal accounts, which amount to 134.9 TWh (-6.3%), to the lowest value since 2011.

Unbalancing
scheduled
reduced

Physical programs recorded and scheduled unbalancing

Fig. 2.2.19



* Data from May 2007

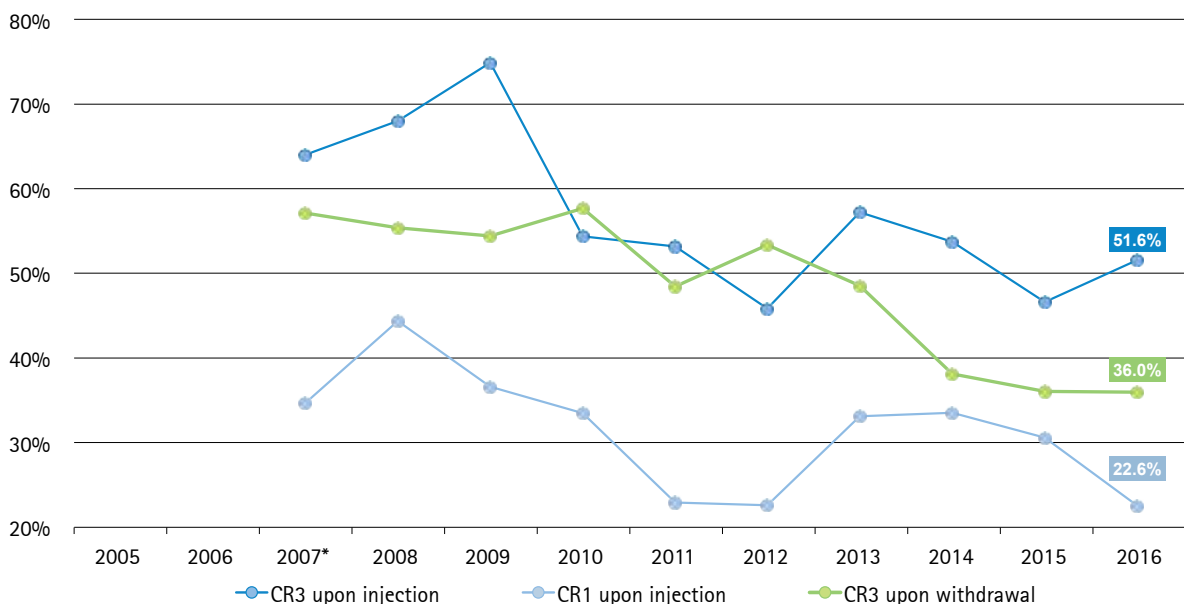
In this framework, there is also the reduction of the overall program imbalance that, although it is still a useful instrument of flexibility for participants, proves a lesser need for a short-term rescheduling of the medium-long term bilateral commitments. In particular, the unbalancing on the injection side, historically the most used by participants, marks a new decrease (-6.4%) and, following a gradual reduction trend started in 2014, reaches the lowest value of the last four years to 85.3 TWh (Figure 2.2.19).

There are also falling imbalances on the withdrawal side, which lead to 37.3 TWh (-8.0%), the lowest level since 2011, and falling differential of the balance between injection and withdrawal programs, offset by sales of the regulated market (48.0 TWh; -6.2%).

The lesser use of injection imbalances is particularly evident in the activity of the first participant, as shown by a reduction of 8 p.p. in the CR1 (22.6%), never so low since the launch the platform, while the share of the first three participants grew (CR3: 51.6%; +4.9 p.p.). On the withdrawal side, however, there is a substantial stability of the CR3 indicator, which decreases of 0.1% and updates the historical minimum level to 36.0% (Figure 2.2.20).

Scheduled unbalancing: shares of participants

Fig. 2.2.20



* Data from May 2007

Also in the Forward Electricity Market of the GME (MTE), the trend of progressive erosion of total traded volumes has increased, down to 1.1 TWh in 2016 (5.1 TWh in 2015 and 32.3 TWh in 2014)⁹. In particular, for the second consecutive year, no bilateral registration for clearing purposes was made on the platform (53 in 2014), while the combinations recorded fell to 85 (252 in 2015) with 411 contracts traded compared to 1.004 in 2015 (Table 2.2.10, Figure 2.2.21). Small trades still focus on baseload products, historically the most used by participants, but they suffer from a decline of about two-thirds on an annual basis (73 combinations compared to 239 in 2015). The peakload products, on the other hand, are rather modest in comparison with the previous year (12 combinations; -1). Like the previous year, the product that attracted the largest number of trades was the annual *baseload*, with about 20% of total traded contracts (Table 2.2.10, Figure 2.2.21).

MTE liquidity at the lowest historical level

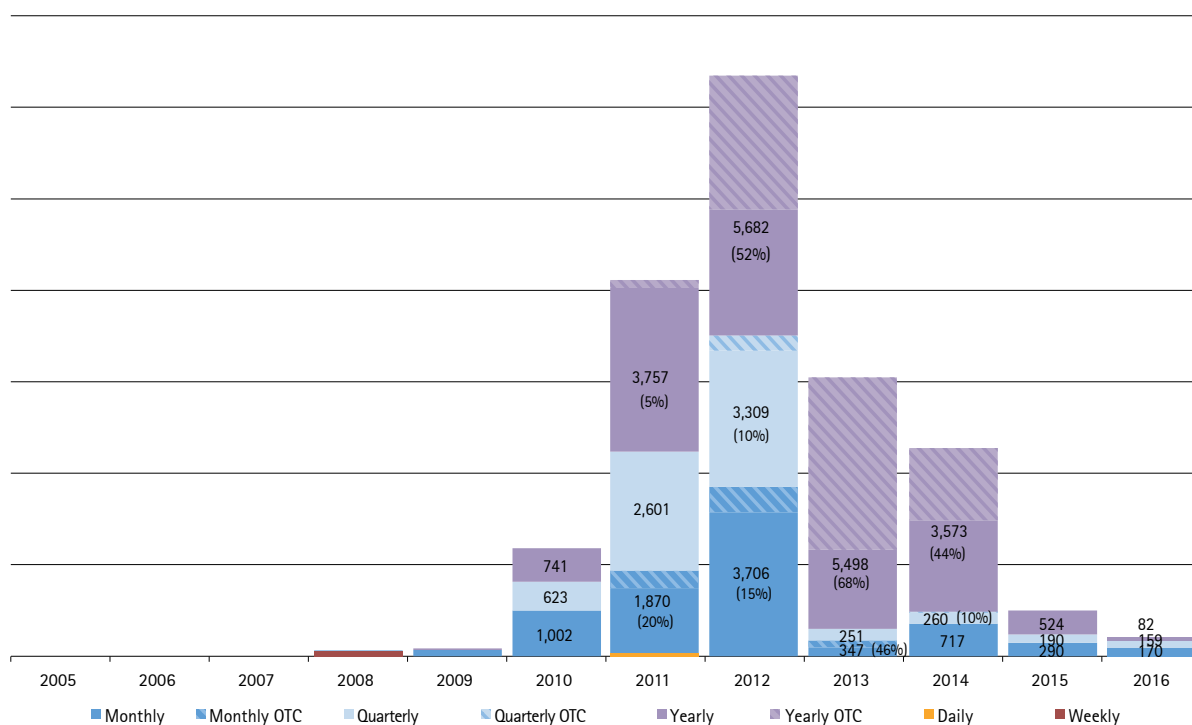
9 The data refers to the volumes traded in the MTE in 2016, regardless of the delivery period.

By focusing the price analysis on this latter product, the trend in forward prices seems to be aligned with levels expressed by major brokerage platforms and other regulated markets. In particular, the annual price evolution expressed by the forward market of the GME shows a steady rise in the last part of the year, consistent with what has been observed on the spot market in the context of the tensions triggered by the French nuclear crisis.

MTE: volumes traded by type

Fig. 2.2.21

MW



MTE: volumes traded by trading year

Tab. 2.2.10

	2010	2011	2012	2013	2014	2015	2016	Δ % 2016/2015
Contracts (MW)								
Total	2,366	8,228	12,697	6,096	4,550	1,004	411	-59%
Baseload	1,146	6,018	11,633	4,604	4,410	899	323	-64%
Peakload	1,220	2,210	1,064	1,492	140	105	88	-16%
Volumes (TWh)								
Total	6.3	33.4	55.0	41.1	32.3	5.1	1.1	-79%
Baseload	5.0	29.8	52.3	36.7	32.2	5.0	1.0	-80%
Peakload	1.3	3.7	2.7	4.4	0.1	0.1	0.1	-15%
Number of combinations								
Total	360	665	953	342	500	252	85	-66%
Baseload	177	478	884	136	488	239	73	-69%
Peakload	183	187	69	206	12	13	12	-8%
Share of OTC volumes								
Total	0%	5%	45%	81%	43%	0%	0%	+0 p.p.
Baseload	0%	6%	45%	90%	43%	0%	0%	+0 p.p.
Peakload	0%	1%	46%	0%	29%	0%	0%	+0 p.p.

2.3 GAS MARKETS

The year 2016 is characterized by a further increase in natural gas consumption in Italy, confirming the trend reversal initially registered in 2015, driven in particular by the thermoelectric sector and industrial consumption, the latter with a positive change compared to the previous year, for the first time after 4 years. In this context, commodity prices in the major European hubs confirm the strong decline seen since 2014, with an average variation of -28% compared to 2015. The Italian PSV hub, the first in Europe in 2016 to increase its volumes traded, confirms the European average decline and stands at €15.85/MWh, recording an increase of around € 2/MWh with the price in the TTF.

In 2016, in the context of the gas market managed by GME, an overall amount of 47.5 TWh in trades were recorded, a quantity slightly lower than in 2015 (-3%). This result is characterized by a profound change in the dynamics between the various gas-market platforms, following the start-up, as of 1 October 2016, of the so-called transitional phase of the new natural gas balancing system referred to in AEEGSI Resolution 312/2016/R/gas¹⁰. In particular, this resolution, in transposing and supplementing the provisions of EU Regulation 312/2014, introduced a new design of the gas balancing market based on the use of the spot market products by the person responsible for the balancing (RdB), as a priority. Among the main effects of this regulatory change, the Natural-Gas Balancing Platform (PB-GAS) - which in 2015 with its two G+1 and G-1 compartments covered 98% of the volume traded on all GME gas-markets - in 2016, despite the launch of the new market design only in the last quarter of the year, it accounted for approximately 84% of total volumes¹¹, with the remaining 16% traded on the spot market of the MGAS.

Here is an analysis of the transition from the old to the new gas balancing market, with particular attention to the fast growing markets of MP-GAS (i.e. MGP-GAS and MI-GAS) and the launch of new PB-GAS markets (MGS and MPL)¹².

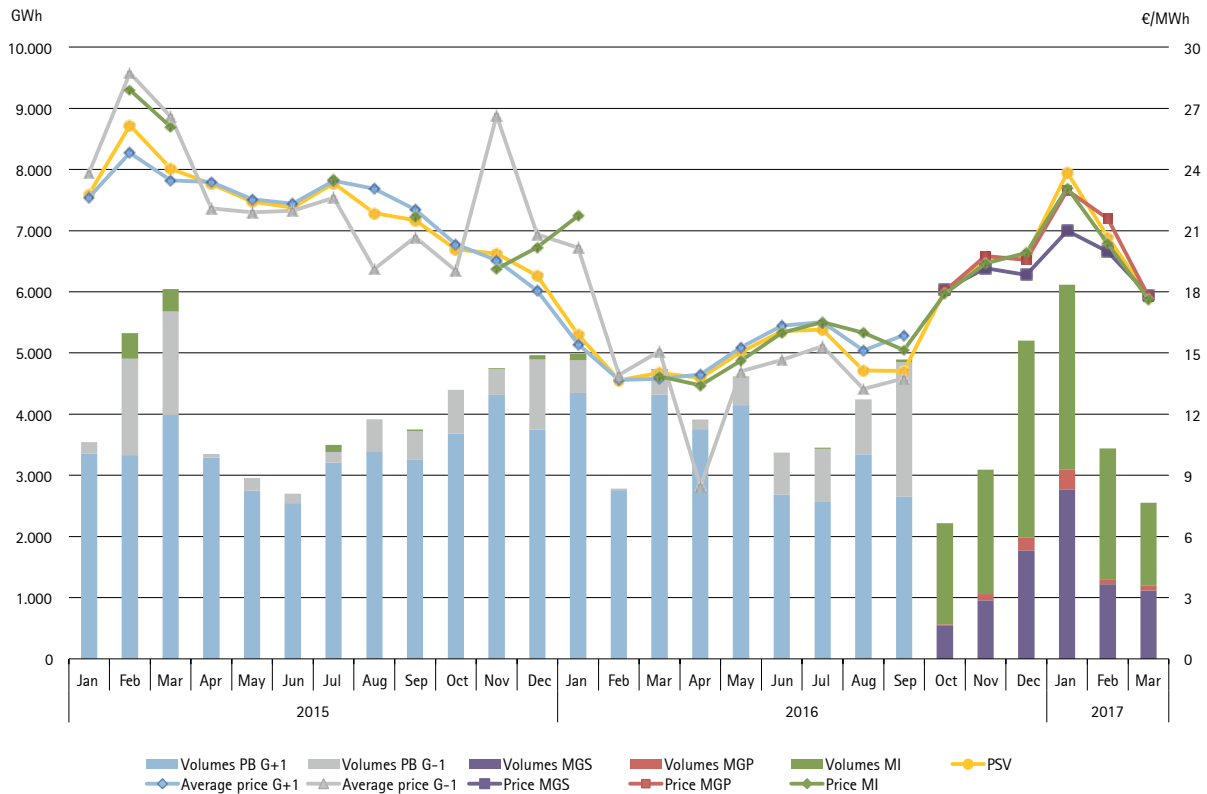
¹⁰ See Chapter 1.2.1.

¹¹ The calculation includes the volumes G+1 and G-1 until the end of September 2016 and the MGS volumes (ex G+1) until the end of December 2016. The new market of locational products of PB-GAS (MPL) since its introduction, has never been activated by the RdB.

¹² To this end, most of the analyzes were conducted by extending the time window until the end of March 2017, i.e. until the end of the "transitional" phase of the new balancing system referred to in point 2 of AEEGSI Resolution 66/2017/R/gas.

Fig. 2.3.1

Price and volumes by month of the gas-markets compared with PSV prices



2.3.1 Spot gas market (MP-GAS)

With the entry into force of the AEEGSI Resolution 312/2016/R/gas, the title products provided on the gas spot market MP-GAS, which includes the Day-Ahead Market (MGP-GAS) and the Intra-Day Market (MI-GAS) have become the main source of supply by the person responsible for the balancing for the activities carried out for system balancing.

The trades concluded in 2016 on the spot market amounted to 7.4 TWh, an increase of around 6.4 TWh over 2015, essentially only in the last quarter of the year as a result of the aforementioned redesign of the market and therefore of the shift in the supply of RdB from the G+1 segment of PB-GAS to MP-GAS. The distribution of markets was remarkably asymmetrical, with about 7.1 TWh (99.6%) traded in the intra-day market and 0.3 TWh on MGP-GAS.

This unbalance is present until the end of March 2017, with 94.4% of the volume traded on MI-GAS (net of the amounts traded before October 2016).

As for the MGP-GAS alone, the launch of the new balancing system has favored the re-establishment of market trading, inactive since 2013, with the activation of 100 sessions out of 181, for a total volume of 0.8 TWh until March 2017. Participants were clearly more inclined to the exchange of the product being delivered the next day (about 75% of the market combinations), with residual trading shares on the remaining products offered (9% on G+2 and 16% on G+3). The average trading price, typically 19.24 €/MWh in 2016 and 21.28 €/MWh in the first quarter of 2017, was substantially aligned with the PSV price (in the same

Contained volumes on the MGP-GAS and prices in line with PSV

two periods, amounting to 15.85 €/MWh and 20.77 €/MWh), with a correlation of about 93%¹³ in the six months considered.

In general, the person responsible for the balancing has worked to a small extent on MGP, participating in only 5 sessions with small volumes and always on the purchase side, for a total purchased volume of 87 GWh. This result reflects the provisions of EU Regulation 312/2014 on the hierarchy of market resources for balancing purposes¹⁴.

In addition to the person responsible for the balancing, 52 participants operated, resulting in a low-volume and concentrated market in both purchase and sale, with an HHI index¹⁵ on both sides averaging to 6,741.

Intra-day market trading, which began to be recorded in late 2014, albeit sporadically and usually in conjunction with the participation of Snam Rete Gas (SRG) in session, marked an expected and sharp increase since October 2016. As shown in Fig. 2.3.1, volumes globally traded in 2016, recorded in almost all of the months of the year except for February, were mainly (97%) concentrated in the last quarter, with progressive increase in monthly volumes until December, then more stable in the first quarter of 2017, up reaching a total of 13.4 TWh traded. The person responsible for the balancing was present in 83% of the sessions between October and March, contributing to market movements with 6.9 TWh in purchases (equivalent to just over half of the traded volumes) in 78 sessions (43% of the total) mainly concentrated between November and January and with 3.3 TWh sold (about 24% of the volumes on that side) in the remaining 70 sessions, with an unbalance between volumes purchased and sold due to seasonality characterized by more days with a short system.

Over 90% of spot volumes traded in the MI-GAS

The availability of a market trading platform continues with sessions from 6:00 am to 2:30 am, along with the person responsible for the balancing providing up-to-date information on the forecasting capacity of the system imbalance (SAS) status, favored a fairly homogeneous distribution of operations in terms of average hourly volumes traded by participants on the market with a slight inclination to conclude combinations between 7:00 pm and 9:00 pm (21% of the average daily volumes). Trade are also recorded after that time window and until the end of the session (20% of the average daily volumes of MP-GAS), favored by the constant presence on the market of the RdB. Even for SRG, however, the highest share of average matched volumes is recorded around 8:00 pm, with average volumes usually traded on a daily basis amounting to 8% and 7% respectively for purchase and sale.

Intra-session volumes homogeneous trades

With the growing maturity of the market there is also a doubling in the number of participants that conclude trading, both intra-session and cross-market between MGP-GAS and MI-GAS, from 29 in the last quarter of 2016, to 42 until the end of March 2017. However, the volume of traded volumes remained unchanged compared with the total volumes traded on MP-GAS, accounting for 4% in the first six months of market activity, yet providing an indication of its evolution.

13 The data is calculated by considering the gas days when both the average market price and PSV prices for the same gas day are available.

14 EU Regulation 312/2014, Article 9, paragraph 2: "While trading in short term standardized products, the transmission system operator shall prioritize the use of within day products over day ahead products where and to the extent appropriate".

15 Herfindahl – Hirschman Index determined on the basis of the shares of active market participants on the opposite market side to that on which SRG operates, on the total volume of traded volumes.

High correlation between MI and PSV when RdB is not relevant

The average price of the Intra-Day Market session was 19.83 €/MWh in the first 3 months of the new market design of the gas balancing and 20.60 €/MWh when extending the analysis until the end of March 2017, following a progressively increasing trend substantially in line with the seasonality of the commodity, as confirmed by similar trends on MGP-GAS and PSV (Fig.2.3.1). In the first two weeks of January, after the introduction of the Alert by the Ministry of Economic Development envisaged by the Gas Emergency Plan, the highest price level of 31.82 €/MWh was reached. The average annual volatility analysis of the average session price shows a value of 8.0% (to be compared with the lowest values recorded on average on PSV reported in Tab.2.3.4), due to the peculiar role of the market, aimed at providing users with clear price indications from the RdB to a degree that promotes balancing actions by the individual users themselves. All this is confirmed by comparing the MI price with the PSV price for the same gas day, linked by a moderate correlation of 84%, with an average differential of 0.11 €/MWh. Considering only the sessions where RdB operates with relevant market shares¹⁶, this differential increases up to 1.30 €/MWh on the purchase side and to -1.06 €/MWh on the sales side, highlighting how the promotion of balancing actions by the Users is conducted by SRG through the most disadvantageous price for participants subject to the imbalance fee¹⁷. In those sessions where the actions on the market by the person responsible for the balancing (both in purchase and sale) do not reach the relevant share (about 45% of sessions from October to March), it is observed how the correlation between the average MI price and the PSV price increases to 94%.

SAP in line with the average price of the RdB

Given the direct relationship between the MP-GAS (so-called SAP¹⁸) and the measurement of the dual imbalance price¹⁹, the analysis of price developments on the spot market may give rise to further elements about the first outcomes of the new balancing market. The weighted average market price of the spot market was 19.09 €/MWh in the last quarter of 2016 and was 19.72 €/MWh when extending the analysis until March 2017, characterized by a volatility of 8,1%, essentially consistent with the average price of the Intra-Day Market, due to its significant weight on MP-GAS volumes. The predominant role of the Rdb in the first six months of new market activity, with average purchasing and selling prices over 60%, has effects in the particular alignment between the value of the SAP and the average purchase/sale price of the RdB on MI-GAS, with a spread between the two values for one gas day of about 0.10 €/MWh. Figure 2.3.2 shows the performance of the SAP in the first quarter of 2017 compared with unbalancing prices and market volumes, highlighting the side and the share of the Rdb. During this period, in over 80% of sessions, imbalance purchase prices are ascribable to the value of the SAP net of the small adjustment contribution, while the imbalance sale price corresponds to SAP in 70% of the sessions. The gap between SAP and the imbalance price in the remaining sessions was on average 0.41 €/MWh on the purchase side and at 0.35 €/MWh on the sale side.

¹⁶ A market share greater than 50% is considered relevant.

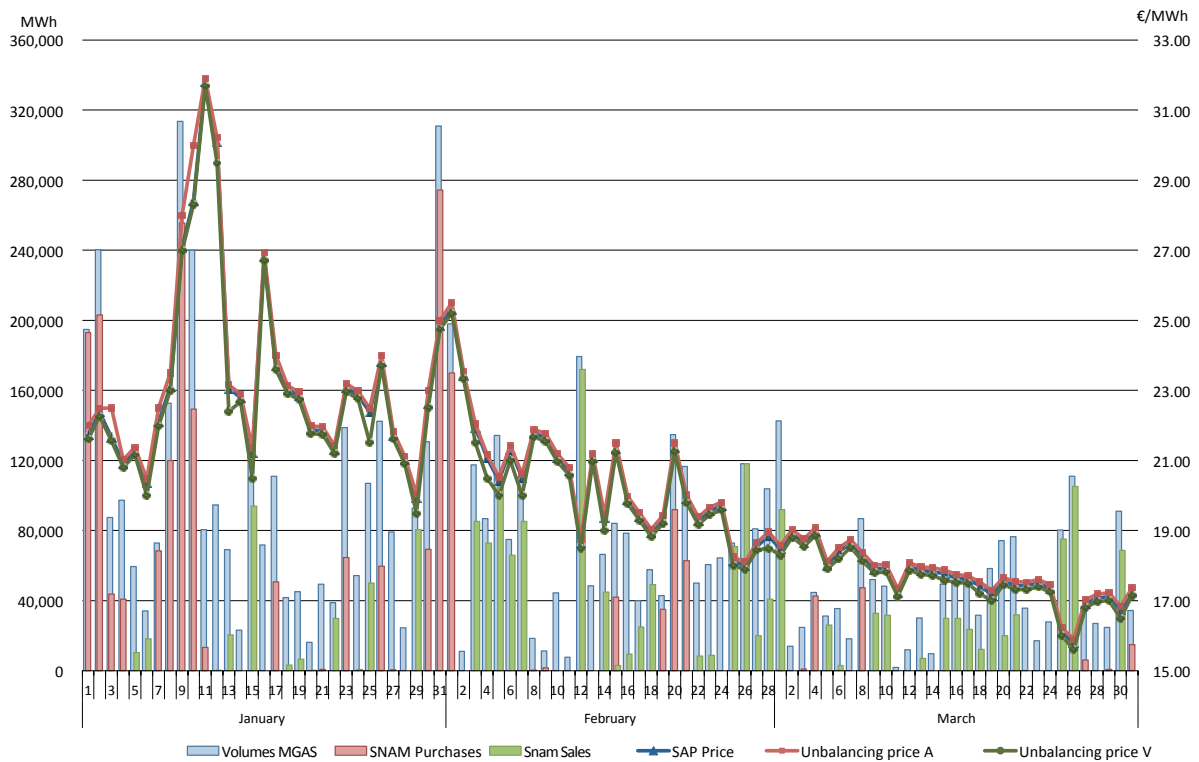
¹⁷ As for the price in the Dutch TTF reference hub, amounting to 17.84 €/MWh in the period from October 2016 to March 2017, the MI session price recorded an average differential of 2.19 €/MWh and a fairly contained correlation (equal to 65%). In line with the considerations made on the PSV price, it is noted that in sessions where the person responsible for the balancing operates with relevant sales shares, the difference between the price of the session and the TTF is decreases up to 0.34 €/MWh, proving the more disadvantageous price for participants with a long position compared to the Italian price level represented by the PSV price.

¹⁸ According to Art.1 of the TIB, the System Average Price or SAP is, for a one-day gas, the weighted average prices of the bids/offers accepted on MP-GAS and, in the case of activation, on the MPL sector with delivery in the same gas day, weighed on the basis of the amounts of gas, expressed in energy, associated with the selected bids/offers.

¹⁹ In particular, for the single gas day, the unbalance price on purchase (applied to short-period users) is determined as the maximum between the SAP plus a fixed amount defined by AEEGSI (the so-called small adjustment) and the maximum purchase price of the RdB on the market, while the unbalance price on sale (applied to long-period users) is quantified as the lower between the SAP minus the small adjustment, and the lowest selling price of the RdB on the market.

Daily performance of the SAP and imbalance purchase and sale price in the first quarter of 2017

Fig. 2.3.2



The different role of the Intra-Day Market over the previous years has also led to an increase in liquidity also in terms of active market participants, amounting to 57 until the end of 2016 (+42 compared to 2015), and 67 at the end of March 2017. The weight of the RdB in the session until March 2017 was on average 72% on the purchase side and 63% on the sales side, while on the opposite side to SRG participants operated in a not particularly concentrated market, characterized by a HHI index of 2,845. The analysis in the same period of the main participants in the MI-GAS (Table 2.3.1 reported for MP-GAS until December 2016) reveals ENI as the main participant with a total market share of 17% (mainly attributable to sales), followed by A2A and ENET with the same share (11%).

Concentration and main participants in the MI-GAS

Market shares of the top 10 participants in the MP-GAS. 2016

Tab. 2.3.1

Market Participants	MGAS		
	Purchases	Sales	Total
SNAM RETE GAS	66.3%	19.5%	85.8%
ENI S.P.A.	1.5%	21.9%	23.4%
DUFENERGY TRADING SA	6.8%	4.5%	11.3%
ENET ENERGY SA	2.3%	6.6%	8.8%
ENOI S.P.A.	1.1%	5.9%	7.0%
EDF TRADING LIMITED	0.2%	5.2%	5.4%
KOCH SUPPLY & TRADING SARL	0.6%	4.8%	5.4%
ELECTRADE S.p.A	1.5%	3.1%	4.7%
BURGO ENERGIA SRL	1.4%	2.6%	4.0%
ENGIE ITALIA SPA	2.1%	1.9%	4.0%
Others	16.3%	24.0%	40.3%
Volumes (MWh)			7,438,147
%			100.0%

Market shares of the top 10 extra-balancing participants in the MP-GAS. 2016

Tab. 2.3.2

Market Participants	MGAS		
	Purchases	Sales	Total
A2A TRADING S.r.l	21.2%	4.1%	25.3%
ENET ENERGY SA	6.5%	16.4%	22.9%
SORGENIA S.P.A.	14.1%	0.3%	14.5%
ENOI S.P.A.	1.1%	10.0%	11.1%
BURGO ENERGIA SRL	6.4%	4.2%	10.5%
ELECTRADE S.p.A	4.7%	5.7%	10.4%
ENEL TRADE S.P.A.	4.1%	5.4%	9.5%
DUFENERGY TRADING SA	5.1%	2.8%	7.9%
GUNVOR international b.v., AMSTERDAM, GENEVA BRANCH	5.4%	2.2%	7.5%
EDF TRADING LIMITED	0.7%	6.5%	7.2%
Others	30.8%	42.6%	73.3%
Volumes (MWh)			1,045,938
%			100.0%

2.3.2 Gas Balancing Platform (PB-GAS) – G+1/MGS Sector

Until September 2016, the G+1 segment of the PB-GAS platform confirmed the growth of market movements already observed in 2015, with slightly less than 31 TWh traded overall (about 5% over the same period of 2015, Fig. 2.3.3). This growth is observed in the light of a greater volumes required for balancing by SRG (21.5 TWh compared to 20.0 TWh in 2015 in the same period), and a slight decrease in the share of volumes traded for extra-balancing by the remaining participants (29% compared to 31% in 2015).

Stable volumes up to the operation of the old G+1 sector

The analysis of the operation by the RdB highlights the split of volumes purchased and sold substantially in line with 2015 values, with SRG intervening in 55% of sessions with the aim of balancing a short system, with purchases of 12.2 TWh (corresponding to 57% of SCS²⁰ overall offered up to September, to be compared with 58% in the same period of 2015), and the remaining 45% of sessions with sales offers and total volumes amounting to 9.3 TWh (43% of SCS total value, compared to 42% in 2015).

Trend of the average price and volumes in the PB-GAS

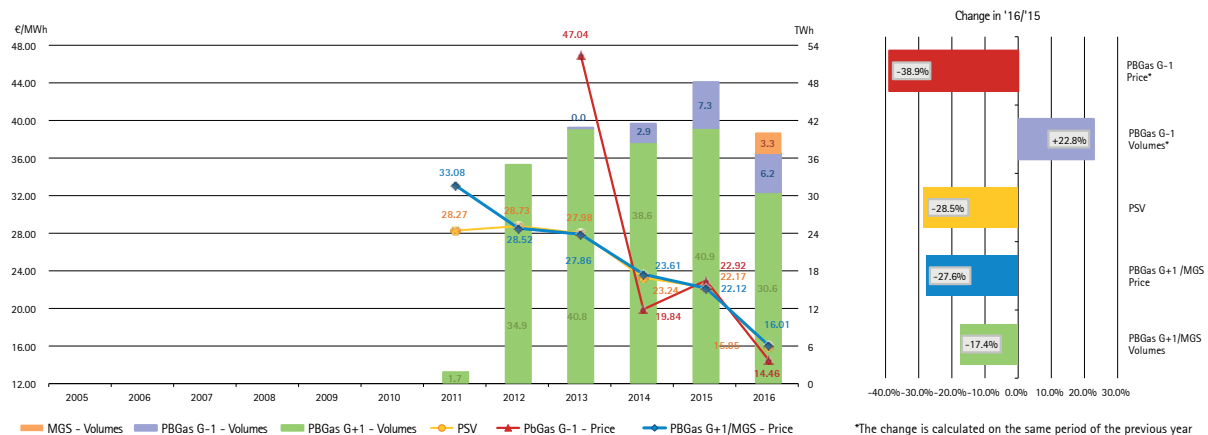


Fig. 2.3.3

Starting from 1 October 2016, the launch of the new gas balancing based on the use of the title products as a priority and the simultaneous removal of the obligation for participants to supply storage gas previously covered by G+1 of PB-GAS - replaced by the new MGS (i.e. the Gas Storage Market) - resulted in a significant decline in volumes traded on the market on a monthly basis (-80% of the volumes traded on MGS in October compared to the G+1 volumes in September, as reported in figure 2.3.1), progressively recovered towards the end of the year. In this regard, by extending the analysis in the first quarter of 2017, a total volume of 8.4 TWh was recorded, compared with 3.3 TWh traded in the first three months of the new market design of gas balancing. The value of the first quarter of 2017, however, is less than half compared to the first quarter of 2016 (5 TWh compared with around 11 TWh), an element that clearly reveals the different nature of the market after 1 October 2016. The RdB, operating predominantly on the spot market for system balancing, uses the MGS with the sole purpose of balancing the overall imbalance of the system of the past gas day (the so-called residual balancing), and only with regard to the actual

Contraction of volumes with the start of the new gas balancing

20 System overall imbalance

use of the storage resources in its availability, quantified as the difference between the measured and scheduled energy in the inputs and outputs interconnected with storages (amount indicated as Sop). This regulatory amendment, introduced by the AEEGSI Resolution 312/2016/R/gas, had a direct impact on market operation by the RdB, with a reduction in its share of G+1 both on the purchase side and on the sales side, averaging 44% and 43% respectively, corresponding to Sop of 2.4 TWh for purchases and 2.1 TWh for sales.

The recovery of Brent's prices, starting in the second quarter of 2016, has favored the upward trend in gas prices across all major European hubs starting from April, and was also observed in the price dynamics of the G+1 segment of PB-GAS. This trend did not, however, completely balance the sharp decline observed over the course of the year, with the formation of an average price of 15.11 €/MWh until September, which is about 35% lower than the same period of the previous year (Table 2.3.3).

G+1 prices increasing until September 2016

The annual appreciation of the gas stored given by the market is basically in line with the price in the Italian reference hub, amounting to 14.76 €/MWh. The dynamics of the price of the segment during the year was well correlated with that of PSV until mid-August (90% of correlation), with a daily average differential of 0.39 €/MWh, and then characterized by a progressive decoupling and by the recording of a growing differential that in the last two months of market activity amounts to 1.57 €/MWh. The gradual deviation between G+1 and PSV's price starting from August, characterized by values systematically higher than those of the Italian hub and by a stronger bullish trend, led to the highest price from the beginning of the year on its penultimate day of operation (17.62 €/MWh for the gas day 29 September 2016). This deviation was observed in conjunction with an increasing activation rate of the G-1 balancing segment, activated in 72% of the sessions between August and September, against an average value of 29% from January 2016. The activation of the G-1 segment, due to a particularly critical imbalance condition of the system provided by the RdB, is confirmed – similarly to what was observed in 2015 – extremely relevant in guiding the formation of the marginal price of the G+1 segment.

Average prices in the PB-GAS G+1 (MGS from 1 October 2016) compared to PSV and TTF prices (€/MWh)

Tab. 2.3.3

Year	Snam Purchases			Snam Sales			Total			
	PB-GAS G+1/MGS	PSV	TTF	PB-GAS G+1/MGS	PSV	TTF	PB-GAS G+1/MGS	PB-GAS G+1/MGS*	PSV	TTF
2012	29.29	29.18	25.34	28.14	28.48	24.74	28.52	28.61	28.76	24.98
2013	28.28	28.23	27.55	27.52	27.67	26.40	27.86	27.93	27.97	27.03
2014	24.03	23.79	21.10	23.21	22.69	20.71	23.61	23.65	23.28	20.92
2015	22.25	22.14	19.76	21.94	22.23	19.93	22.12	22.13	22.17	19.83
2016	15.98	15.87	13.98	16.03	15.80	14.10	16.01	16.01	15.85	14.03

* average PB-GAS G+1 price calculated based on the days on which prices at the PSV are available

Average volatility of the PB-GAS G+1 (MGS from 1 October 2016) prices, compared to the PSV and TTF

Tab. 2.3.4

Year	Snam Purchases			Snam Sales			Total			
	PB-GAS G+1	PSV	TTF	PB-GAS G+1	PSV	TTF	PB-GAS G+1	PB-GAS* G+1	PSV	TTF
2012	1.33%	3.79%	3.10%	2.29%	1.55%	2.60%	2.19%	2.46%	2.58%	2.52%
2013	1.41%	1.82%	2.21%	2.25%	2.61%	2.91%	1.39%	1.49%	1.25%	1.96%
2014	1.80%	2.61%	3.07%	2.81%	2.90%	3.50%	1.52%	1.79%	2.08%	2.73%
2015	1.36%	1.99%	1.60%	1.80%	2.65%	1.90%	1.10%	1.32%	2.42%	1.67%
2016	1.73%	4.11%	3.24%	2.92%	3.23%	4.71%	1.67%	1.86%	3.00%	2.62%

* volatility calculated based on the days on which prices at the PSV are available

The new gas balancing system has required a different role of the RdB – mainly based on providing different price signals during the day through operations on the spot market (see above) – which also influenced the different price dynamics observed in the new MGS market compared to the previous G+1 segment. The first six months of new market activity were characterized by substantially stable prices, averaging 19.13 €/MWh (18.69 €/MWh, only until December 2016), with a daily trend less correlated to PSV prices (during the period, considered at 19.94 €/MWh, and with which there is a 79% correlation) compared to what was typically observed in the G+1 segment. This consideration is particularly clear when analyzing price dynamics during the first two weeks of January 2017, where – along with the gas Alert announced by the Ministry of Economic Development – the market has marked marginal prices with lower appreciation, due to spreads over 7€/MWh with PSV, more correlated with price signals on MP-GAS. In the absence of MGS price dynamics easily attributable to those in the Italian hub, there is still a good correlation with TTF (92%), with an average differential of 1.45 €/MWh.

Stable MGS price

The different adjustment expected for the new MGS compared to the previous G+1 segment of PB-GAS – with particular reference to the abolition, starting from 1 October 2016, of the bidding obligation for participants holding storage capacities – has led to a deep differentiation in the dynamics among the participants in the market. In 2016, in the context of G+1 segment, 82 participants submitted bids/offers, 7 more than in 2015 (+9%), however, the main participants held market shares higher than in the previous year, with a consequent increase in market concentration (HHI index of 3.201 compared to 2,997 in 2015, + 7%). In this context, bids/offers submitted on both sides by the RdB accounted for 70% of the total volume offered on the market, a value in line with the previous year (+1%), and were always fully met. Even in the light of a weaker operation in the new MGS, the RdB remains the main participant in the market, with a bid share of 40% up to December 2016 and 54% when extending the analysis to the end March 2017. It is noted that the lower number of active participants, even if the weight of the RdB in the market is weaker than G+1, contributed to the creation of a moderately concentrated market (HHI index of 3,574). In the transition from the G+1 to the MGS market, a predictable variation of the order of importance among the extra-balancing participants is reported, as shown in Tab.2.3.6.

Rdb price decreasing in the MGS

Top 10 participants active on the PB-GAS G+1 and MGS, market shares by side and frequency of acceptance. 2016

Tab. 2.3.5

Market Participants	PB-Gas G+1			Acceptance share			MGS			Acceptance share		
	Purchases	Sales	Total	Purchases	Sales	Total	Purchases	Sales	Total	Purchases	Sales	Total
SNAM RETE GAS	39.9%	30.4%	70.3%	100.0%	100.0%	100.0%	30.5%	9.9%	40.4%	100.0%	100.0%	100.0%
EDISON S.P.A.	11.7%	8.3%	19.9%	24.2%	26.3%	25.0%	3.2%	10.3%	13.5%	10.3%	51.5%	26.3%
SHELL ENERGY EUROPE LIMITED	7.6%	9.9%	17.5%	2.7%	4.8%	3.6%	21.7%	5.7%	27.3%	5.5%	0.9%	2.6%
ESTRA LOGISTICA SRL	6.7%	4.5%	11.3%	22.3%	24.2%	23.0%	-	-	-	-	-	-
ENOI S.P.A.	3.4%	3.9%	7.3%	5.4%	6.8%	6.1%	4.1%	0.1%	4.1%	12.8%	0.1%	4.6%
ENGIE ITALIA SPA	2.5%	4.1%	6.5%	5.2%	7.1%	6.2%	2.6%	6.8%	9.4%	5.6%	10.6%	8.5%
DUFENERGY TRADING SA	2.7%	2.9%	5.7%	2.9%	3.8%	3.3%	0.7%	13.3%	14.0%	0.6%	6.1%	4.2%
KOCH SUPPLY & TRADING SARL	4.8%	0.0%	4.8%	20.5%	0.0%	18.9%	0.3%	0.0%	0.3%	100.0%	0.0%	66.7%
GUNVOR international b.v., AMSTERDAM, GENEVA BRANCH	1.8%	3.0%	4.8%	2.0%	3.4%	2.7%	2.6%	11.2%	13.8%	1.0%	4.2%	2.6%
ENI S.P.A.	0.1%	3.9%	4.0%	0.1%	5.2%	2.1%	-	-	-	-	-	-
Others	18.7%	29.0%	47.8%	-	-	-	34.4%	42.8%	77.2%	-	-	-
Volumes (MWh)	30,568,460						3,269,012					
%	100.0%						100.0%					

Top 10 extra-balancing participants on the PB-GAS G+1 and MGS. 2016

Tab. 2.3.6

Market Participants	PB-Gas G+1			MGS		
	Purchases	Sales	Total	Purchases	Sales	Total
EDISON S.P.A.	25.6%	14.0%	20.2%	2.9%	18.8%	10.2%
ENOI S.P.A.	9.2%	10.9%	10.0%	12.2%	0.0%	6.6%
KOCH SUPPLY & TRADING SARL	12.9%	0.0%	6.9%	-	-	-
ESTRA LOGISTICA SRL	6.9%	6.0%	6.5%	-	-	-
ELECTRADE S.p.A	5.8%	4.5%	5.2%	0.7%	0.0%	0.4%
ENGIE ITALIA SPA	4.1%	5.8%	4.9%	0.3%	4.9%	2.4%
SHELL ENERGY EUROPE LIMITED	3.0%	6.2%	4.5%	35.3%	8.2%	22.8%
E.ON GLOBAL COMMODITIES SE	0.8%	6.0%	3.2%	-	-	-
DUFENERGY TRADING SA	5.0%	0.6%	3.0%	0.0%	17.3%	8.0%
ENOVA S.R.L.	2.3%	2.4%	2.3%	0.8%	0.0%	0.4%
Others	24.3%	43.5%	33.2%	47.9%	50.8%	49.2%

2.3.3 Gas Balancing Platform (PB-GAS) – G-1/MPL Sector

In 2016, the G-1 segment, reserved for locational resources within the PB-GAS balancing platform, was characterized by increased activation rates by the RdB, with 89 active sessions until 30 September 2016 (compared to the 88 sessions recorded throughout 2015 and the 63 recorded until September 2015), the date on which the sector was closed and replaced by the Locational Products Market (MPL), as provided for in AEEGSI Resolution 312/2016/R/Gas²¹.

Activation has steadily increased in the last 4 months of the life of the segment, reaching the highest historical rate of 26 activations (87% of potentially active sessions) in September, with a total volume of 6.2 TWh (+ 23% considering the same period in 2015, Fig.2.3.3). The RdB activated the segment mainly to balance a long system, with 75 active sessions for sales and allocated volumes amounting to 84% of the total (about 5.2 TWh), a result mainly due to the failure to activate the new segment in the last months of the year, typically used by SRG in order to supply resources for a short system.

All time high reached in the activation frequency

Similarly to what was recorded in 2015, the Stogit resource is the one that contributed the most to meet the balancing needs expressed by SRG, with a volume share of 31%, with a decrease of 10% compared to 2015. The contraction in volumes accepted on the Stogit resource is offset by the growing weight of Import resources in the segment (29%, +8 p.p.) and of gas belonging to Edison's storage facilities (18%, +14 p.p.).

The average price of the segment, in line with what was observed on the major European hubs and in the G+1 sector, experienced a sharp decline compared to the same period in 2015, with a value of 14.46 €/MWh (13.75 €/MWh in the injection phase, 18.30 €/MWh in the delivery phase) and a spread of 9.20 €/MWh compared to 2015. The maximum marginal price of 27.71 €/MWh was recorded in January, in conjunction with the failure to meet the demand of the RdB and the consequent formation of a regulated price aimed at providing a clear appreciation for the scarce resource in the system²². Likewise, the minimum price of 0 €/MWh corresponds to the regulated price expected at the distribution stage, recognized in April due to the failure to meet SRG's offer. Overall, sessions with price regulated in 2016 (2 sessions in January, 1 in April) had a lower incidence on total sessions activated compared to 2015 (about 3%, -5 p.p.).

Average price in line with the European downward trend

The comparison with the price dynamics observed in the G+1 segment reveals an average differential in the injection phase of 1.34 €/MWh, slightly higher than in 2015 (+0.32 €/MWh), due to the only session with regulated price where this differential has reached the maximum value of 13.32 €/MWh. During the 3 months of the delivery phase, the marginal price in the G-1 segment was systematically higher than the G+1 price but with a lower average differential than the same period of 2015, at 0.87 €/MWh (1.32 €/MWh).

²¹ The lack of recourse by the RdB to the MPL market until the end of March 2017 focuses the following considerations only on what was recorded until the end of September 2016 on G-1 only.

²² Pursuant to the AEEGSI Resolution ARG/gas45/11, in case of non-fulfillment in the G-1 segment of the bid submitted by the RdB, the marginal price is equal to the price offered by RdB. During the distribution period, this value is equal to the TTF price plus 14.40 €/MWh, while in the injection period the sale offer of the RdB is presented at a zero price.

*Increased number
of "mono-zone"
participants*

The number of active participant in the segment was slightly higher than in the previous year (54 instead of 50 in 2015), but the figure was also marked by an increase of just under 8% in the market concentration (HHI index of 4,341), while remaining below the figure of 2014 (-5%). It is observed that 76% of the participants with bids accepted have operated in a single zone (-1 p.p. compared to 2015) with a prevalence (72%) for the Stogit storage resource. On the sales side, there is an increase in the share of participants with bids accepted on a single resource (70%, about twice the share of 2015), in 69% of the Stogit storage gas, with a result of the substantial inhibition of resources "G+1" and "G+N".

2.3.4 Other gas markets

The start-up of trades for the gas balancing on the spot market did not result in increased liquidity in the Forward Gas Market (MT-GAS) in 2016, where there were no matches for the entire solar year. However, as in the first quarter of 2017, there were 10 matchings in 8 sessions, for a total volume of 29 GWh, divided by 91% on monthly delivery products and, for the remaining volume, on products delivered each quarter and The Balance of Month. These trades, concluded between 8 participants, are the first recorded since 2012. This result, albeit small, shows the presence of more favorable trading conditions compared to the past, mainly due to the review of the methodology for calculating the control price over that market in January 2017.

First trades on Forward Market in 2017

The three trading platforms for the exchange of natural gas (P-GAS) confirm the steady illiquidity observed over the past years, excluding orders submitted periodically and predominantly determined, where requested, by the offer's obligation.

Lack of liquidity on the P-GAS

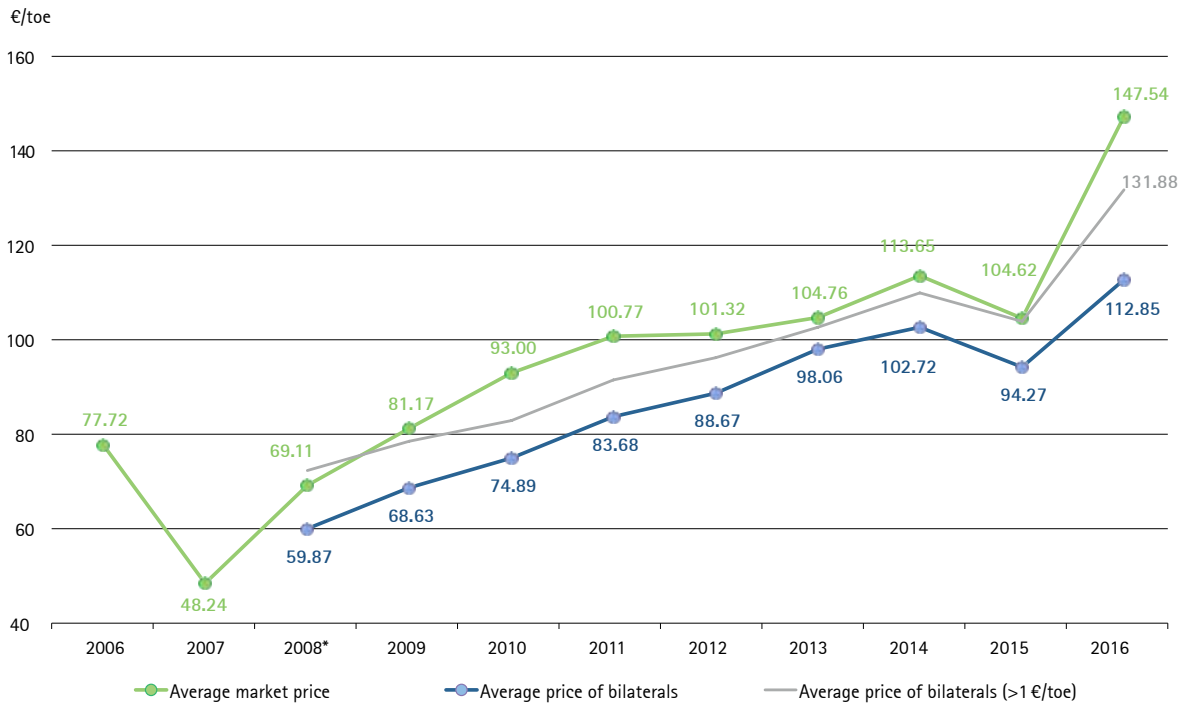
2.4 ENVIRONMENTAL MARKETS

2.4.1 Energy Efficiency Certificates (TEE): Regulated Market and bilateral trades

In 2016, the average annual price of any TEE increased both on the market (MTEE), where prices rose to 147.54 €/toe (+41.02%) and on the bilaterals platform where, net of transactions recorded at a zero price (14% of the total), prices amounted to 131.88 €/MWh, reopening the gap with the market annulled last year (+15.66 €/MWh) (Fig 2.4.1).

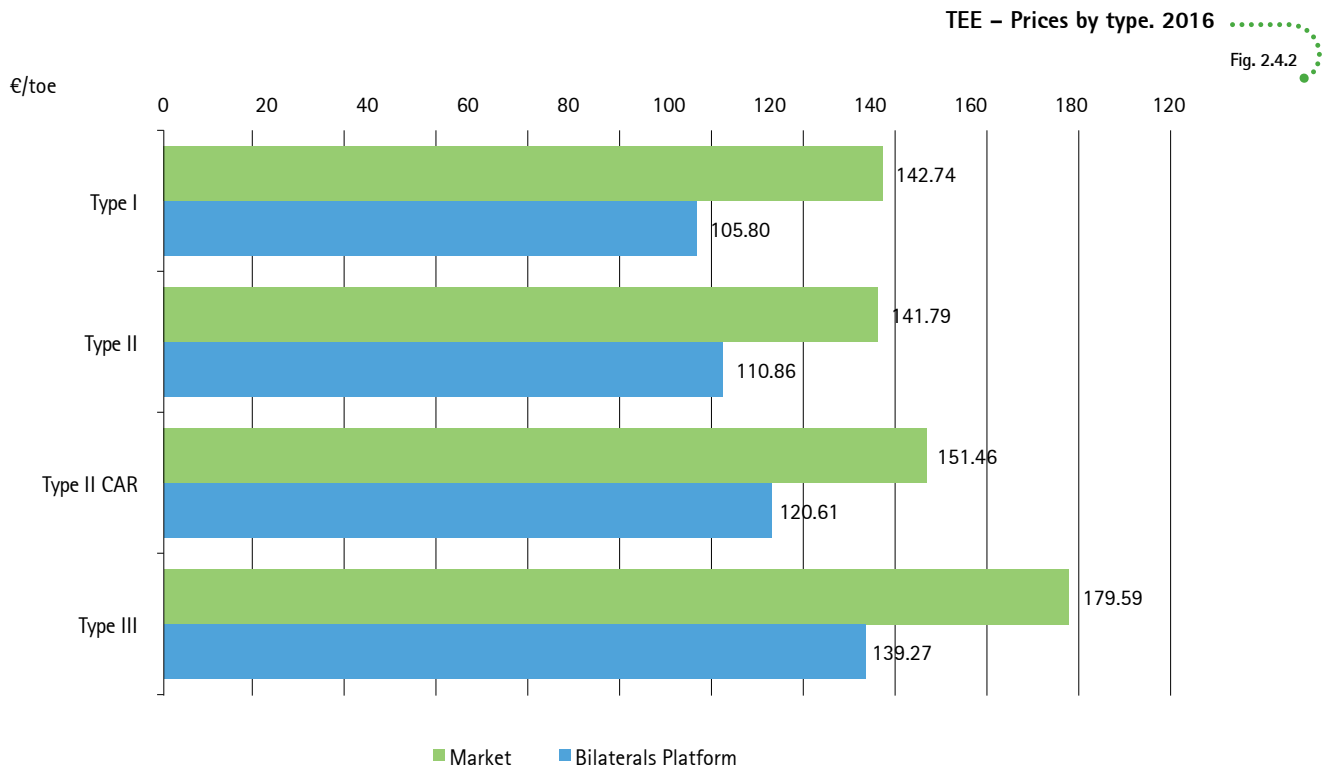
Prices rising on the market and on the TEE bilaterals platform

Fig. 2.4.1 TEE – Average Prices

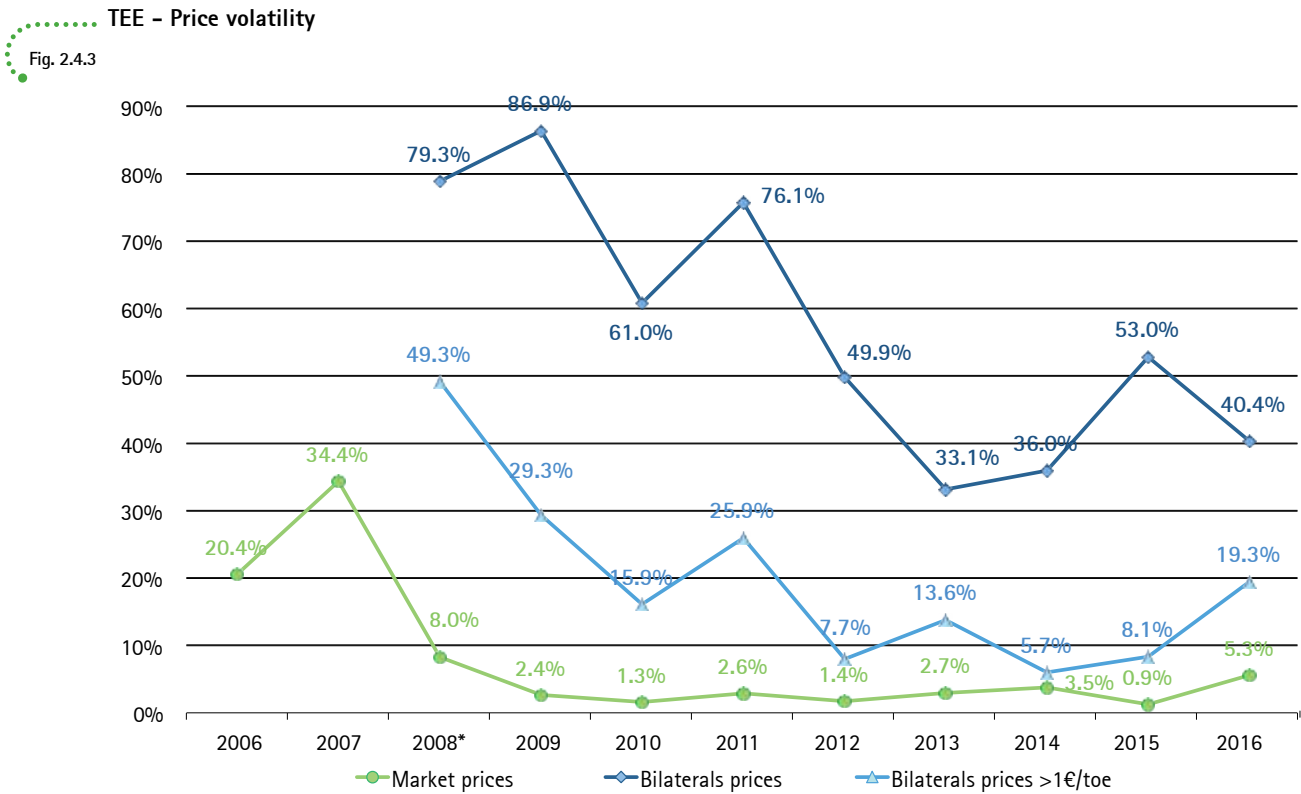


* Data on bilateral prices are available starting from 1 April 2008, when entered into force the price disclosure requirement of bilateral transactions through the TEE Register managed by GME, introduced by AEEG's Resolution no. 345/07.

The analysis by type of TEE in the regulated market reveals a substantial alignment of average prices for Types I and Type II types around 142-143 €/toe; the highest average prices are recorded for Type II CAR (151.46 €/toe) and Type III TEE (179.59 €/toe). Bilateral transactions, on the other hand, record weighted average prices comprised between €106/toe and €139/toe (Fig 2.4.2).



Along with the increase in prices, a sharp rise in the volatility of prices in the regulated market is also detected, with maximum value since 2009 (5.3%). The increase in variability reflects the trend in prices during 2016: in fact, in the first part of the year, prices reached peaks up to 150 €/toe, then climbing throughout the following semester and closing the year at levels considerably higher and closer to 230 €/toe. As noted above, the volatility of bilateral prices net of zero-price registrations is higher and stands at 19.3%, on the rise compared to the previous year (11.2%) (Figure 2.4.3).

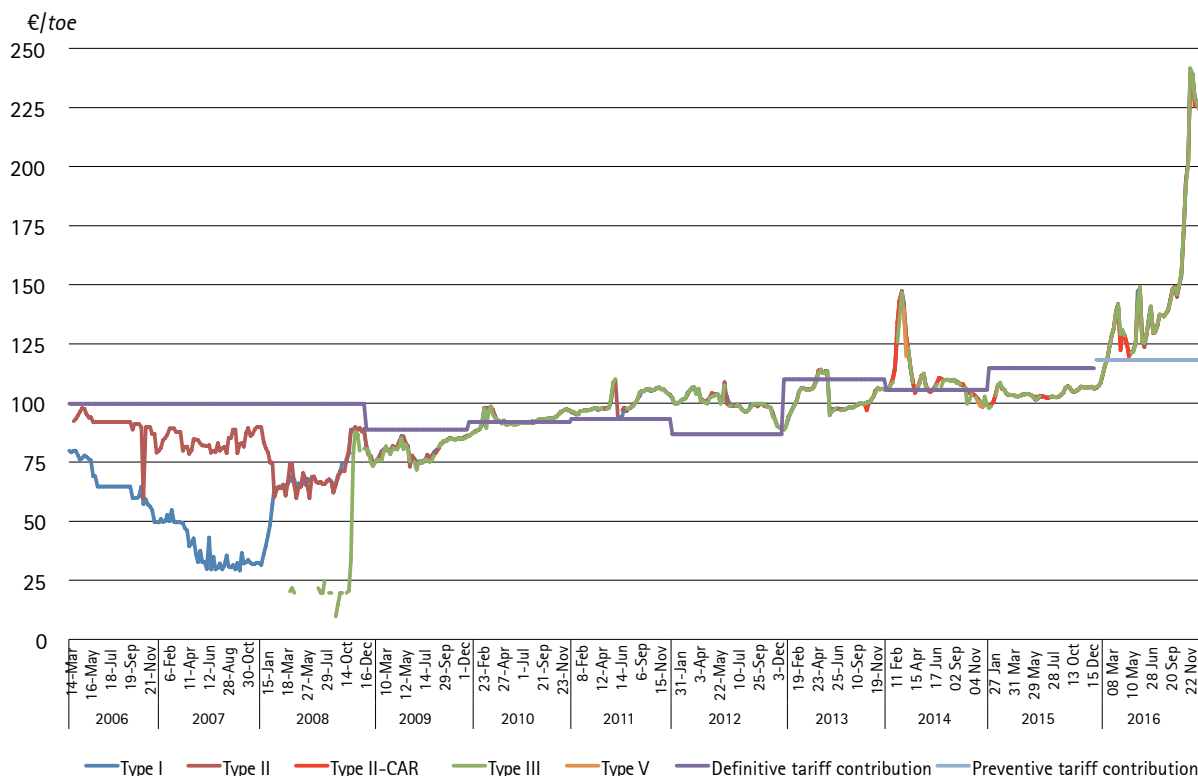


* Data on bilateral prices are available starting from 1 April 2008, when entered into force the price disclosure requirement of bilateral transactions through the TEE Register managed by GME, introduced by AEEG's Resolution no. 345/07.

Taking into account the weighted average trading value of certificates recorded on the market and the trend in electricity prices for domestic end-customers in the reference periods set in accordance with Resolution DMEG/Efr/11/2016 of 16 June 2016, AEEGSI indicated the definitive tariff contribution for the year 2015 to 114.83 €/toe, an increase on the price estimate (approximately 6.7 €/toe), directly affected by the evolution of market prices exceeding 100 €/toe. However, the unit preventive tariff contribution for the year 2016, expiring in May 2017, is 118.37 €/toe (Fig. 2.4.4).

TEE – Market tariffs and refunds

Fig. 2.4.4



In order to reach the energy savings targets scheduled for 2016, due to expire in May 2017, the amount of TEEs that the obliged parties have to cover is 9.51 million. It means that the cumulative amount of TEE required to cover the minimum requirements of the obliged suppliers is approximately 52 million TEEs, which is obtained by adding the value of the 2016 obligation (9.51 million TEE) (Tab 2.4.1) to the cumulative total of the certificates required to reach the targets in all the years until 2015 (42,12 million TEE).

TEE – Certificates required for the fulfilment of the obligation. Cumulative values.

Tab. 2.4.1

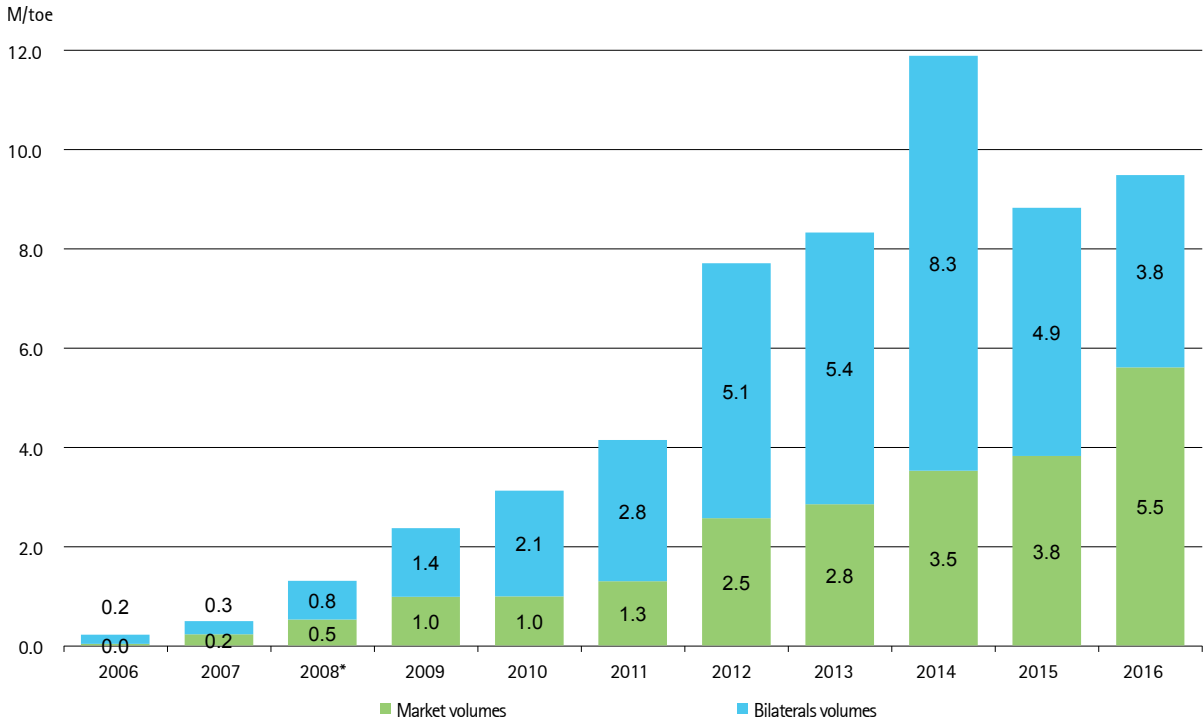
Obligation year	Actual obligations of the Electricity Distributors (Mtoe/a)	Actual obligations of the GAS Distributors (Mtoe/a)	Cumulative total for the fulfillment (Mtoe/a)	Certificates released from the mechanism beginning (Mtoe)
2005	0.10	0.06	0.16	-
2006	0.19	0.12	0.47	-
2007	0.39	0.25	1.11	1.26
2008	1.20	1.00	3.31	2.60
2009	1.80	1.40	6.51	5.23
2010	2.40	1.90	10.81	8.02
2011	3.10	2.20	16.11	11.44
2012	3.50	2.50	22.11	17.23
2013	3.03	2.48	27.62	23.99
2014	3.71	3.04	34.37	32.27
2015	4.26	3.49	42.12	37.73
2016	5.23	4.28	51.63	43.97

Increased volumes traded on the market

In 2016, the total number of Energy Efficiency Certificates traded recorded an increase over the previous year, reaching almost 9.4 million toe. Growth is driven by the regulated market, on which the volumes traded rose to 5.5 million toe, up 47% on the previous year. On the contrary, the amounts traded bilaterally, fell to 3.8 million toe, dropped by 22% (Fig. 2.4.5).

Fig. 2.4.5

TEE – Traded volumes

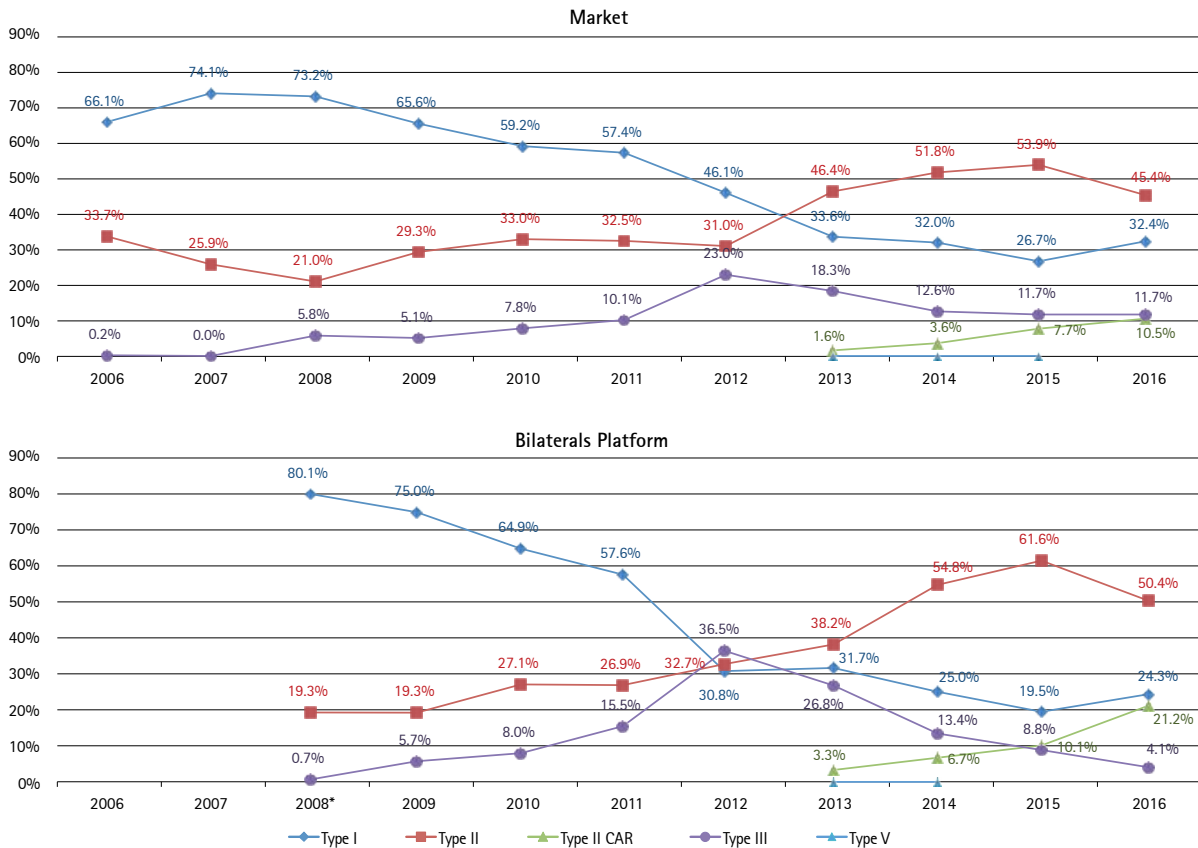


* Data on bilateral prices are available starting from 1 April 2008, when entered into force the price disclosure requirement of bilateral transactions through the TEE Register managed by GME, introduced by AEEG's Resolution no. 345/07.

As for the volumes trend for the different types, the share of total Type II certificates, confirmed as the most traded both on the regulated market and bilaterally, shows a halt in both segments (market: 45.4%, -8.5 p.p.; bilateral: 50.4%, -11.2 p.p.), while Type I and Type II CAR Certificates record an overall increase over the previous year (Figure 2.4.6).

TEE – Structure of volumes traded

Fig. 2.4.6



* Data on bilateral prices are available starting from 1 April 2008, when entered into force the price disclosure requirement of bilateral transactions through the TEE Register managed by GME, introduced by AEEG's Resolution no. 345/07.

The trend that in the last three years has seen a slight increase in market concentration on both the supply and demand is confirmed, following the downturn recorded between 2012 and 2014. The demand remains the most concentrated side, with competitiveness rates calculated by means of the Concentration Ratio (CR) slightly further on both the top three participants (CR3: 56%, +3.4 p.p.) and the top ten (CR10: 77.3%, +1.1 p.p.). Similar trend is also reported on the supply side, with a significantly lower concentration level (CR3: 17.4%, +3 p.p.; CR10: 35.3%, +2.7 p.p.) (Figure 2.4.7).

Concentration on both sides of the market still on the rise

TEE – Market: Participants shares

Fig. 2.4.7



IN-DEPTH ANALYSIS

Inter-Ministerial Decree 11 January 2017 – new rules for White Certificates

By Ministerial Decree of January 11, 2017, published in the Official Gazette General Series no.70 of March 24, 2017, the Ministry of Economic Development approved the national quantitative targets for energy savings to be pursued by electricity and gas companies from 2017 to 2020 through the White Certificates mechanism. It also set out criteria, conditions and ways of implementing energy efficiency projects in end-uses to access the same mechanism.

Below is a brief summary of the main contents of the new Decree – in force as of April 4, 2017 – which introduces several innovations to the previous regulatory framework.

Parties required to achieve the annual energy efficiency improvement targets for end-use of electricity and gas (i.e. "obliged parties") are:

Obliged parties

- electricity distributors with over 50,000 final customers connected to their distribution grids as of 31 Dec. of two years preceding each year of obligation;
- natural-gas distributors with 50,000 final customers connected to their distribution network as of 31 Dec. of two years preceding each year of obligation.

Yearly national quantitative targets of energy efficiency improvement to be achieved in the 2017 – 2020 period, through the mechanism of White Certificates:

Energy efficiency improvement targets

- 7.14 million toe of primary energy in 2017;
- 8.32 million toe of primary energy in 2018;
- 9.71 million toe of primary energy in 2019;
- 11.19 million toe of primary energy in 2020.

Obliged parties must achieve a share of national quantitative targets by savings linked to the issuing of White Certificates. In particular, electricity distributors must achieve a total reduction in primary energy consumption, expressed in number of White Certificates, according to the following annual quantities and years:

Yearly energy efficiency improvement obligations in electricity and gas end uses

- 2.39 million white certificates, to be accrued in 2017;
- 2.49 million white certificates, to be accrued in 2018;
- 2.77 million white certificates, to be accrued in 2019;
- 3.17 million white certificates, to be accrued in 2020.

Likewise, natural-gas distributors must achieve a total reduction in primary energy consumption, expressed in number of White Certificates, according to the following annual quantities and years:

- 2.95 million white certificates, to be accrued in 2017;
- 3.08 million white certificates, to be accrued in 2018;
- 3.43 million white certificates, to be accrued in 2019;
- 3.92 million white certificates, to be accrued in 2020.

Each individual electricity and natural gas distribution company must fulfill the above obligations according to a subdivision defined annually by AEEGSI.

The new Decree provides that energy efficiency projects and related interventions to meet these obligations can be carry out:

- through direct actions of the obliged parties, or by the companies controlled by them or by parent companies;
- through actions by electricity and natural gas distribution companies not subject to the obligation;
- public and private persons that, throughout the technical lifetime of the project, are certified under UNI CEI 11352, or have appointed a certified energy management expert in accordance with UNI CEI 11339, or are in possession of a certified energy management system in accordance with ISO 50001.

Parties entitled to carry out energy efficiency projects

In the event that the person in charge of the project and the proposing party do not coincide, this certification is required for the sole proposing party.

The Decree of January 11, 2017 provides for a method of assessing the savings achieved through energy efficiency projects, either "final" or "standardized". However, unlike the provisions of the previous regulatory framework, the "analytical" assessment method is not confirmed.

Methods for assessing/ certifying energy savings and how to award the White Certificates

As for the procedures for awarding the White Certificates, the distribution of certificates is based on the reporting of the savings achieved for a maximum of years equal to the "useful life" of the projects, which cannot exceed 10 years.

When submitting the application for the recognition of the White Certificates, the proposing party will still be able to request an increase of 20% of the White Certificates during the first half of the useful life of the project, which will then be offset in the second half of the useful life (by applying of the multipliers coefficients $k_1 = 1,2$ and $K_2 = 0,8$ respectively). In this regard, the new Decree no longer provides for the application of the coefficient of durability (so-called "Tau coefficient"), previously provided as the multiplier of the energy savings awarded over the useful life of the projects.

The White Certificates awarded for energy efficiency projects, for which a request of subsidy has been submitted after the entry into force of the new Decree, can be cumulated with other non-state subsidies for the same project, within the limits foreseen and allowed by the European legislation.

White Certificates are distinguished into the following four types:

- Type I, certifying the achievement of primary energy savings through projects reducing final electricity consumption;
- Type II, certifying the achievement of primary energy savings through projects reducing natural-gas consumption;
- Type III, certifying the achievement of savings of forms of primary energy other than electricity and natural gas and not used for transport;
- Type IV, certifying the achievement of savings of forms of primary energy other than electricity and gas in the transport sector

Types of White Certificates awarded at the issuing stage

Therefore, the independent type of II-HEC certificates (certifying the achievement of primary energy savings obtained on high-efficiency cogeneration plants, moved to the context of TEE type II) is omitted, as well as the types IN and E (issued as a reward in relation to the degree of technological innovation and the reduction of the emissions into the atmosphere of the so-called "big projects") provided by the previous regulatory framework.

Assessing the fulfillment of obligations

The Decree provides for measures to promote the fulfillment of the obligations envisaged and, in particular, the possibility for obliged parties to benefit from two deadlines instead of the one final deadline envisaged in the previous regulatory framework. In particular, the obliged parties, without prejudice to the expiration of the year of obligation set for 31 May of the following year, will be able to notify the GSE of the White Certificates held for the purpose of their annulment also within the mid-term period set in November 30 of each calendar year. In this context, it should be noted that, pursuant to Art. 14, paragraph 14.3 of the Decree, if an obliged party partially fulfils his/her obligation, for a percentage of the same less than 100% - but in any event at least equal to the minimum threshold of 60% (so-called minimum target), in order not to be sanctioned, may compensate for the remaining 40% of the due date of the annulling deadline. This pattern differs from the previous one, which guaranteed the possibility for each party to compensate for the remaining 40% with a longer period, i.e. within the two following years of obligation.

New Trading Modalities - standardization of types for the purposes of trading of White Certificates

In this context, the Decree introduces the principle of the standardization of the different types of TEE for the purpose of their trading activities. In particular, Article 16, paragraph 16.3 of the new Decree provides that White Certificates "*may be subject to free trading between the parties, i.e. trading on the market regulated by GME, unified for all types of certificates, in accordance with the terms defined by the Authority for Electricity, Gas and Water*".

Report on the state of implementation of the provisions of the Decree

From 2017 onwards, by 31 January of each year, the GSE, with the support of GME, sends to the Ministry of Economic Development, the Ministry of the Environment and the Protection of Land and Sea, the Unified Conference and to AEEGSI a report on the activities carried out and the projects implemented under the Decree. The report must contain:

- a) statistical information on the number and type of projects submitted, including the territorial location of the interventions;
- b) quantification of savings made during the reference year, expressed in millions of tonnes of oil equivalent (toe) and valid for the achievement of the national annual energy saving targets;
- c) the numbers of White Certificates issued during the year of reference;
- d) the forecasts for the next year of obligation regarding the information referred to in subpara. b) and c);
- e) the trend of the White Certificates transactions, as well as the ratio between the cumulated volume of the White Certificates and the value of the national annual energy efficiency improvement obligations provided for by the Decree (both figures referring to the previous year).

Moreover, the Decree provides that GME should promptly report to the Ministry of Economic Development, the Ministry of the Environment and the Protection of the Territory and the Sea and to the AEEGSI any behavior, occurred when carrying out White Certificates transactions, clashing with the principles of transparency and neutrality.

2.4.2 Guarantees of Origin (GO): Market, Bilaterals Platform and GSE's Auction

In 2016, the average GO price recorded a significant increase in the Market (M-GO), rising to 0.21 €/MWh (+0.16 €/MWh), and for the first time since the beginning of the trading, higher than the level recorded on the Platform for the Registration of Bilateral Transactions (PB-GO), amounting to 0.14 €/MWh, which is also growing compared to 2015, albeit less sharply. The prices of GOs awarded through the GSE Auctions were also up, amounting to 0.25 €/MWh (+0.13 €/MWh) and linked to the basic auction price offered by the GSE (Fig 2.4.8).

Prices increase in the regulated market, in the bilaterals platform and auctions

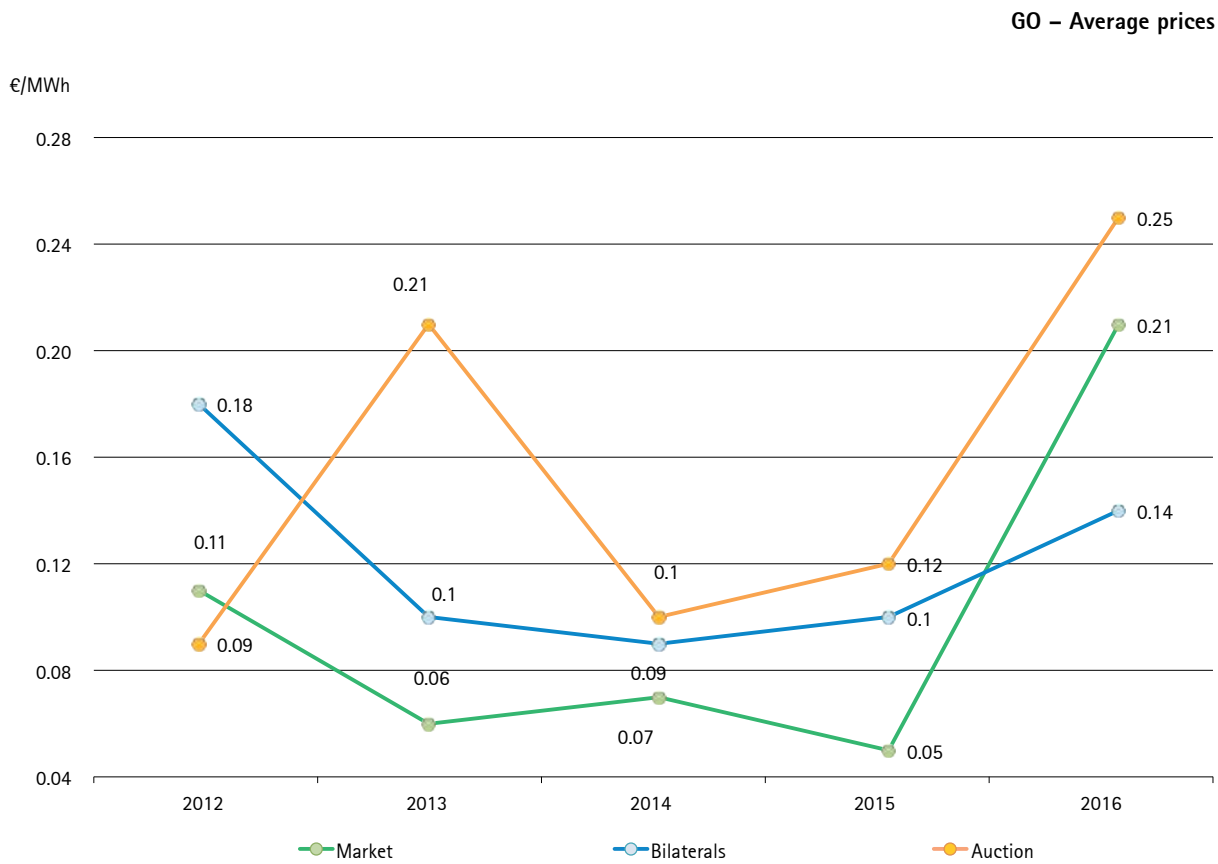
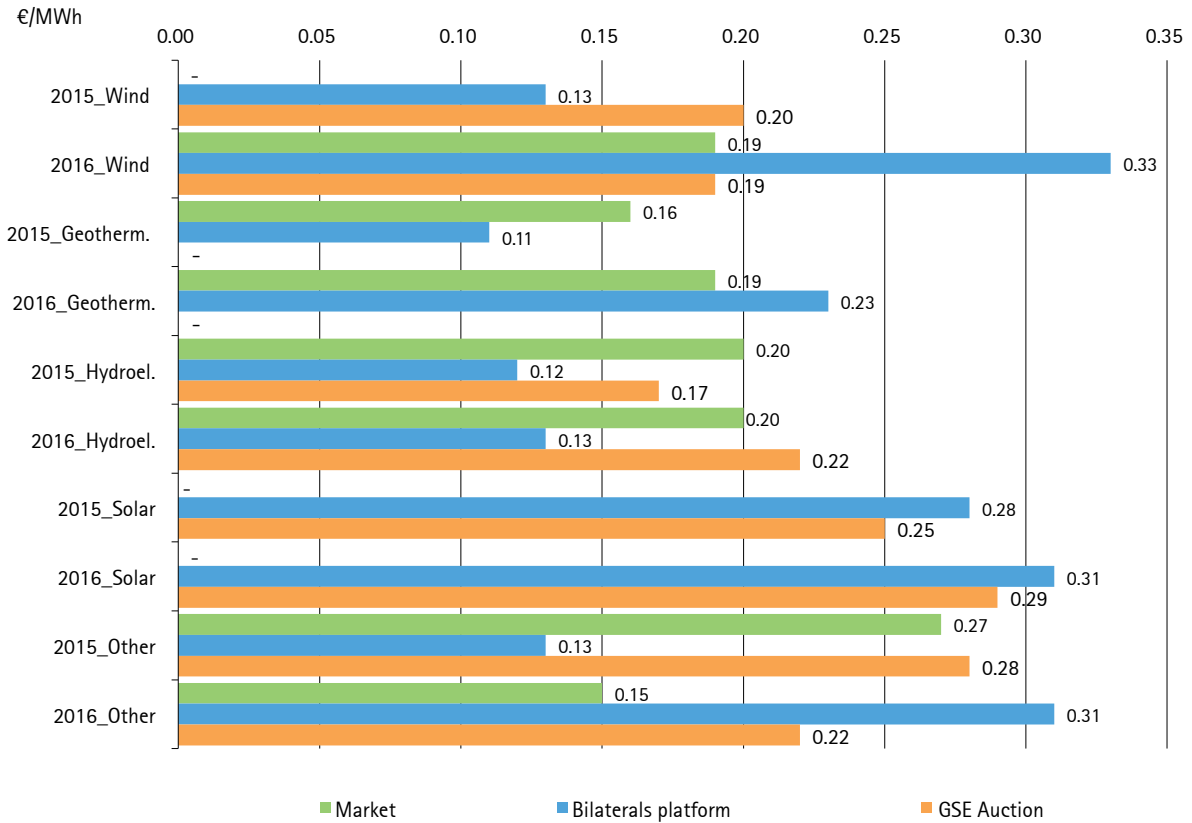


Fig. 2.4.8

The average price analysis by type of plant shows on the M-GO a fluctuation between 0.16-0.27 €/MWh for guarantees generated in 2015 and between 0.15-0.20 €/MWh for guarantees generated in 2016. PB-GO shows average prices between 0.11 and 0.28 €/MWh for GOs referring to the generation of 2015, while for the generation year 2016, prices fluctuate between 0.13-0.31 €/MWh, with an exception for the average price of the 2016 GO Eolica type of 0.33 €/MWh.

GO – Prices by type and year of generation. 2016

Fig. 2.4.9

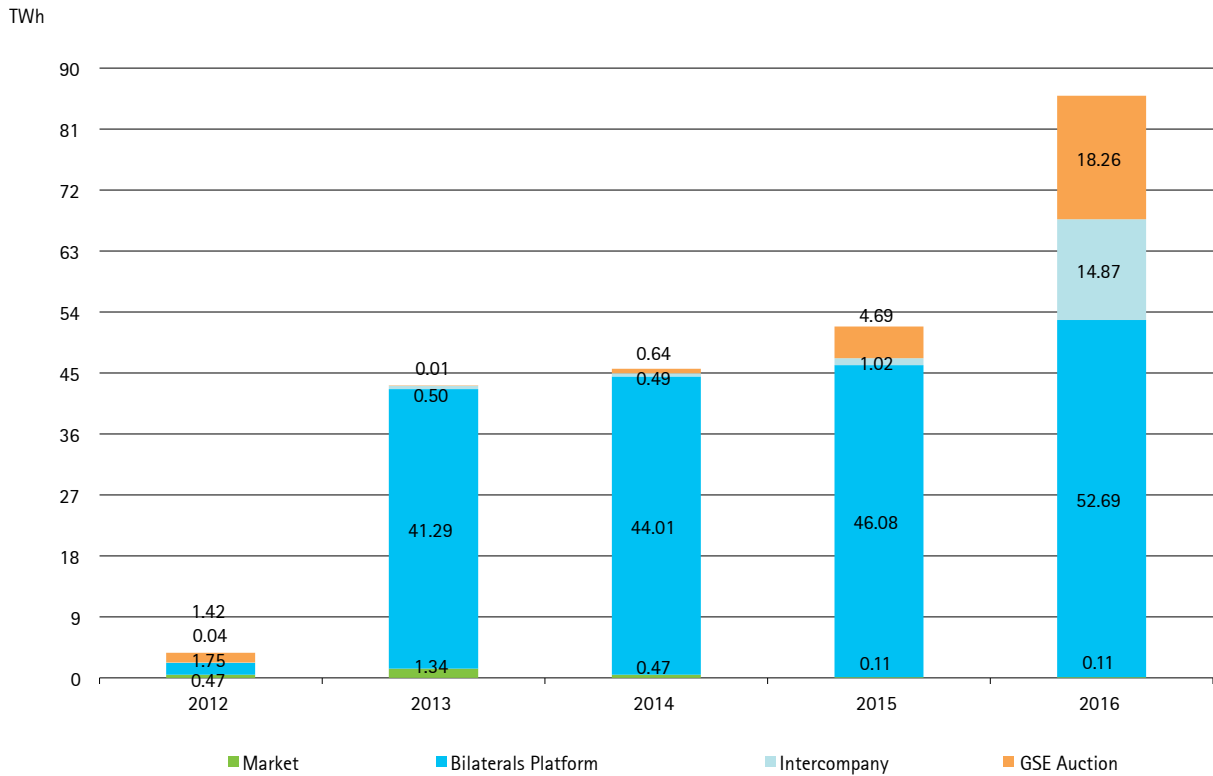


In 2016, volumes traded on the market increased compared to the volumes of 2015 (+6.6%). Bilateral trading (+14.4%) also grew and continued to be dominant. Volumes awarded in auctions also increased during the year, amounting to 18.26 TWh, despite an increase in auction prices, with bigger amounts offered by the GSE from 30 million MWh in 2014, to approximately 100 million MWh in 2016 (Fig 2.4.10).

Predominance of bilateral trading, increasing volumes in the auctions

GO – Volumes traded

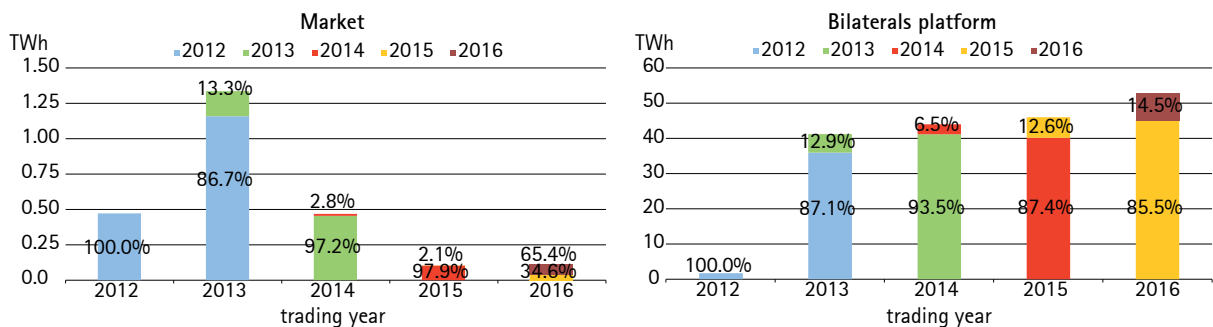
Fig. 2.4.10



In 2016, the bilateral platform confirmed the inclination to trade predominantly the guarantees for the previous year of generation (GO 2015), while the market experienced an inversion, with a share of GO trades in 2016 higher than that of the previous generation year.

GO – Structure of volumes traded by year of generation

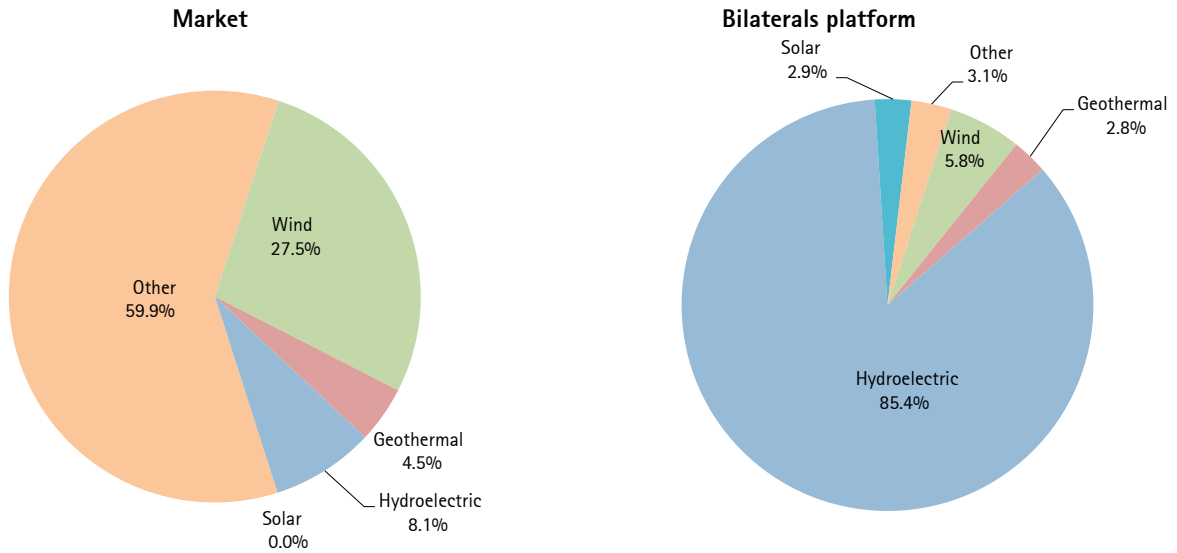
Fig. 2.4.11



Considering only the type of plant to which the guarantee relates, regardless of the year of generation, the most traded certificate in the market is "Other", with 67 thousand MWh (59.9% of the total), followed by the "Wind", amounting to 27.5%. In the Bilaterals Platform, however, trades focused on the "Hydroelectric" type with 45 million MWh, namely 85.4% of the total (Fig 2.4.12).

GO - Structure of volumes traded. 2016

Fig. 2.4.12



2.4.3 Green Certificates (CV): Market and Bilaterals Platform

In 2016, pursuant to the provisions of the Decree of the Ministry of Economic Development of 6 July 2012 (FER electric Decree) and, in particular, the provisions adopted pursuant to Article 24 of Legislative Decree no. 28 of 3 March 2011, on the termination of the Green Certificate system, GME closed the trading and exchange systems of green certificates, which, as of July 1, 2016, resulted in the cessation of the Green Certificates Market (MCV) and the Green Certificates Bilaterals Registration Platform (PBCV).

End-of-cycle trend

As for the volumes, during the end-of-cycle semester, over 9 TWh (65.4% of CVs for 2015, of which 1.3 TWh on MCV) were traded in the regulated markets and bilateral platforms.

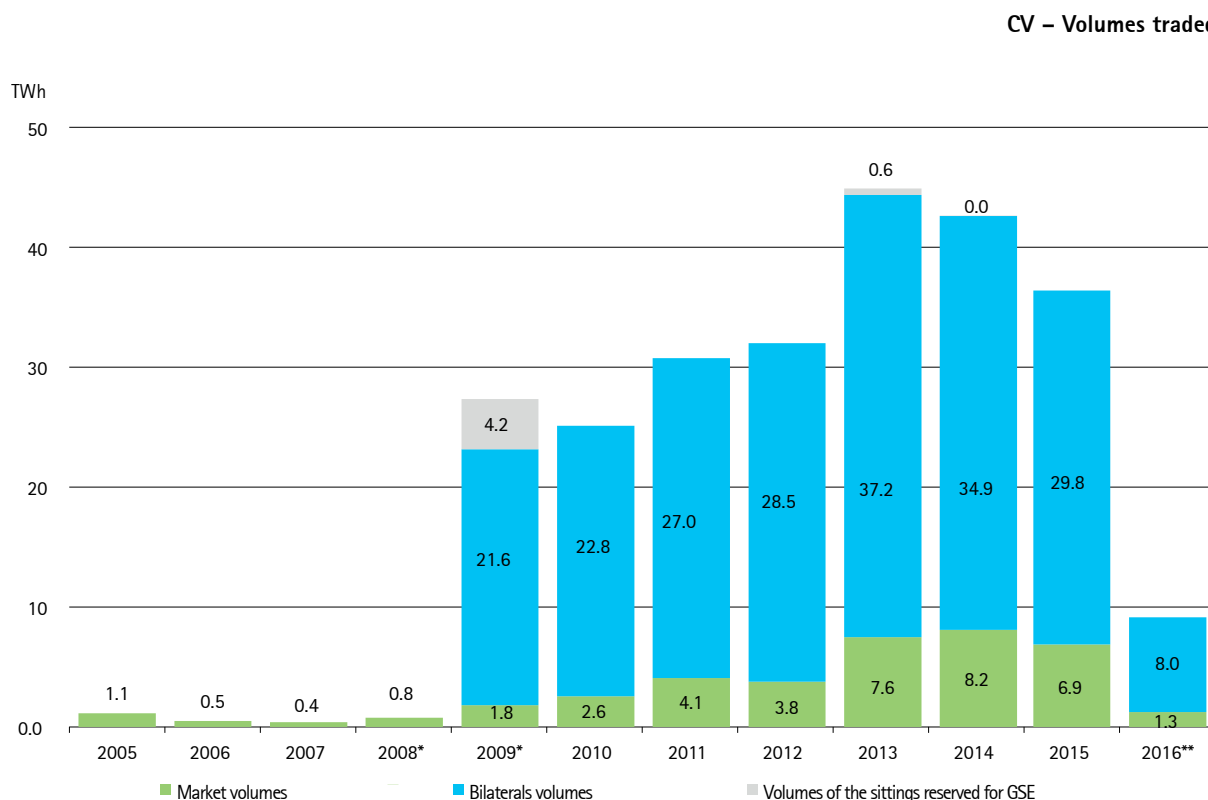


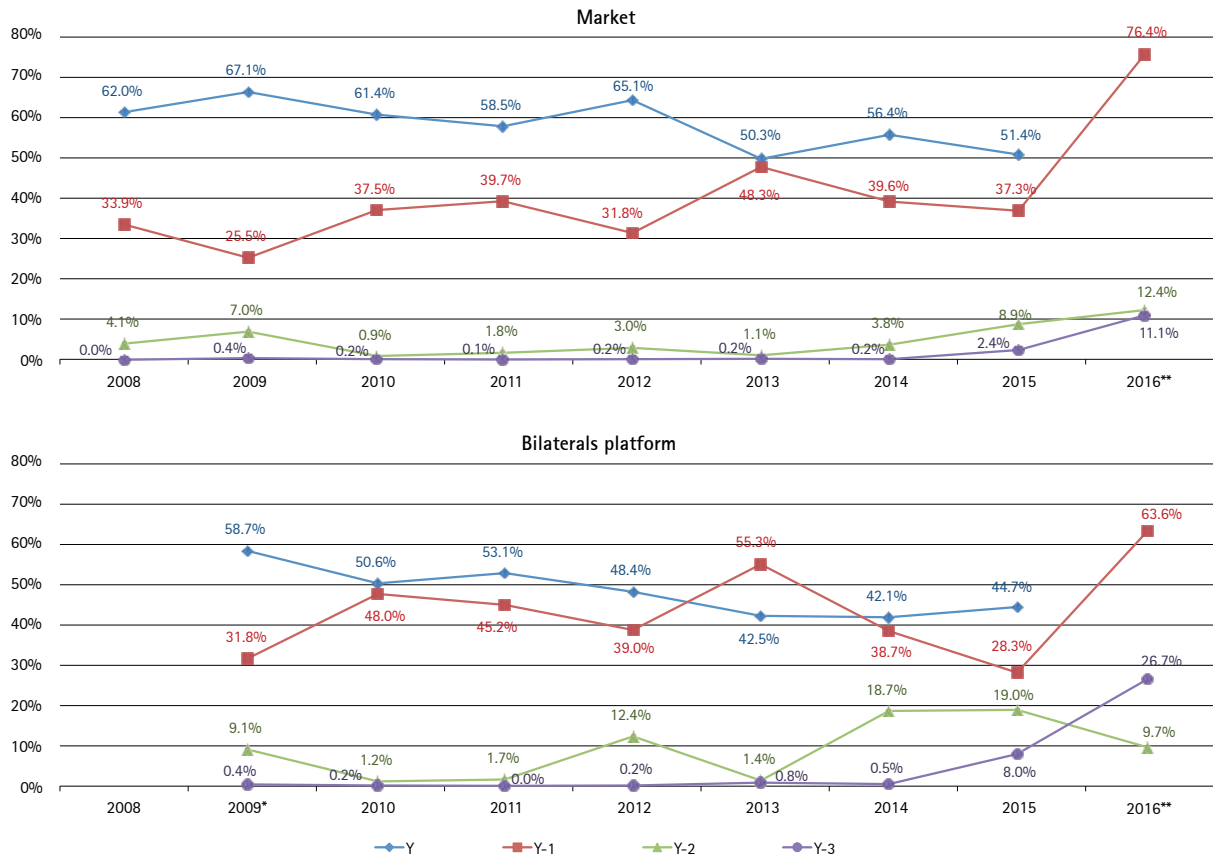
Fig. 2.4.13

* Bilateral data are available as of 1 January 2009, when entered into force the disclosure obligation of the price and quantity of bilateral transactions following approval of Ministerial Decree of 18 December 2008.

** Data refer to the period January – June

In fact, starting from 2013, because of the gradual reduction of the mandatory quota (amounting to 0 in 2013), almost exclusively green certificates issued in 2015 and the remaining amounts of certificates related to the previous year of obligation were traded in the MCV and PBCV.

Fig. 2.4.14 CV – Volumes traded by period of reference



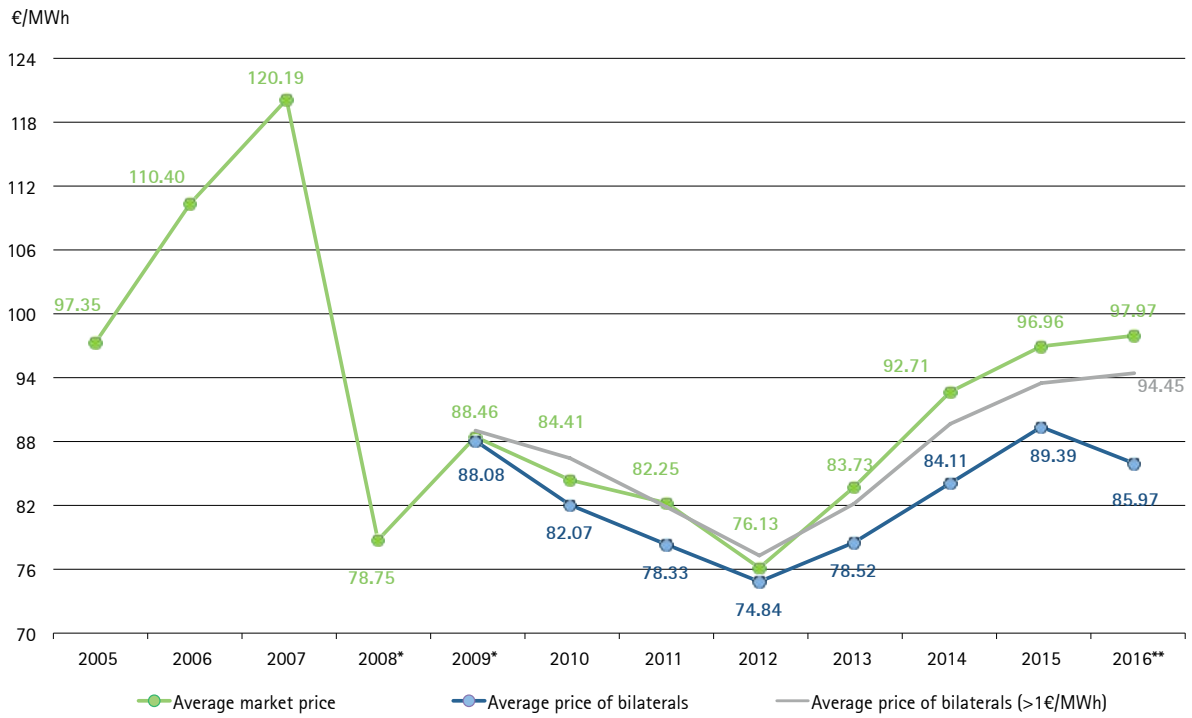
Y is the reference year of the CVs whose injection year coincides with the first year of trading
 * Bilateral data are available as of 1 January 2009, when entered into force the disclosure obligation of the price and quantity of bilateral transactions following approval of Ministerial Decree of 18 December 2008.
 ** Data refer to the period January-June

As for the traded certificates, in the last trading semester, the average weighted average market price (MCV), regardless of the type and the reference period, was 97.97 €/MWh (+2.06% on the first semester of 2015), slightly lower than the GSE withdrawal price (100.08 €/MWh)²³, but higher than the price recorded on the PBCV (94.45 €/MWh), net of transactions registered at a zero price.

23 Starting from 2009, with the introduction of the Ministerial Decree of December 18, 2008 "Subsidies for the production of electricity from renewable sources, pursuant to Article 2, paragraph 150, of Law 24 December 2007, no. 244", GSE, acting as a last-resort buyer, was able to fully absorb the excess bid, ensuring a perfect balance of the market. Legislative Decree no. 28 subsequently provided that the withdrawal price of excessive CVs for the productions of the years 2011-2015 is 78% of the reference price of the GSE's CV. The latter is equal to the difference between € 180 and the average selling price of electricity for the year before the withdrawal, as calculated by AEEGSI. The reference price for the CV market in 2015 was 124.90 €/MWh, from which the withdrawal price of CVs issued for renewable energy sources in 2015 was 100,08 €/MWh.

CV – Average prices

Fig. 2.4.15

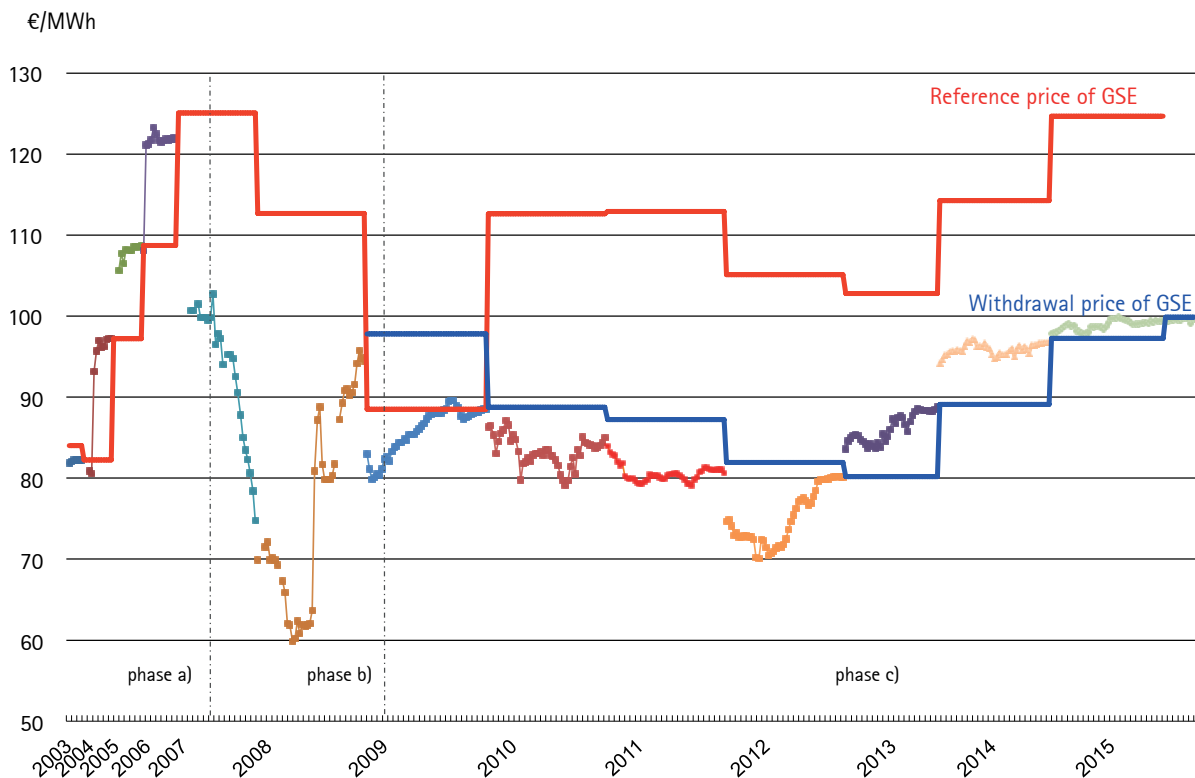


* Bilateral data are available as of 1 January 2009, when entered into force the disclosure obligation of the price and quantity of bilateral transactions following approval of Ministerial Decree of 18 December 2008.

** Data refer to the period January - June.

CV –Trend of market prices compared to withdrawal price

Fig. 2.4.16



ANNUAL REPORT 2016

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