GME
Gestore
Mercati
Energetici

ANNUAL REPORT 2010

FOREWORD

The energy strategy laid down by the European Commission for sustainable, competitive and secure energy, has identified energy priorities for the coming decade and outlined the actions to be adopted to overcome any obstacles to creating an energy market characterised by competitive prices and reliable supplies. Looking forward to the future decade, in which pan-European energy markets and infrastructure will be integrated, the fifth edition of GME's Annual Report aims to provide a wide and detailed overview of national energy markets over the year 2010, which saw: the first effects of the electricity market reform in compliance with Law no. 2/09; the first trades on the spot gas market; some fundamental steps towards integrating the Italian electricity market into the wider European context, i.e. the take-off of the pilot project of market coupling on the Slovenian-Italian border; as well as GME's participation, together with the main European power exchanges, in the ambitious Price Coupling of Regions project. In 2010 GME, in line with the various reference institutions, translated into facts its obligations under national and supranational legislative/regulatory provisions, in order to contribute to the evolution of the energy and environmental markets managed by the Company, towards even more mature designs that are able to face the challenges posed by Europe. Within this context, along the wake of the recognitions received in relation to previous editions, GME wanted to renew its commitment in drawing up this publication, which aims, in a continuity perspective, to represent an instrument analysing any results so far achieved, with the contribution of all stakeholders. All this in an attempt to face, with increasingly greater awareness, any future commitments in light of the anticipated, more wide-ranging developments in the European energy system and in its markets. The challenges facing the energy sector require an ever greater knowledge of the markets. Our ambition is that this publication may contribute, together with the Company's daily commitment, to the dissemination of an "energy culture", which proves to be more and more necessary for the attainment of the important goals envisaged for the years ahead.

Chairman

Alfonso Maria Rossi Brigante

Chief Executive Officer

Massimo Guarini

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INTRODUCTION

Despite persistent uncertainty, the year 2010 gave the first signs of a recovery from the deep crisis that unfolded over the course of 2009. After two years of recession, GDP trend reversal, up by 1.3%, showed a renewed growth potential for national economy, providing new stimulus to energy consumption in our country. This is evidenced by a slowly reviving electricity demand, rising to 330.5 TWh (+1.4%), and a more sustained increase in gas consumption, amounting to 83 billion m^3 (+6.4%), but both were still aligned with the lowest values of the last five years.

This phenomenon, however, did not slow the process of progressive strengthening of the power generating mix, which in 2010 reached a generating capacity of 107 GW (+5,4%), enhancing a, by now structural, overcapacity condition. This, in turn, calmed wholesale electricity prices, reducing the impact of the strong price hikes experienced by oil prices - ranking second only to the 2008 data alone (Brent: +36% in €/bbl) - thus causing the spark spread to plummet to the historical low of 3.6 €/MWh (-77%).

The resulting excess of supply and the increase in competition, especially in the hours of highest demand, kept the PUN at around 64 €/MWh - one of the lowest values since power exchange inception - which facilitated its gradual convergence with the main European references. The price of the Italian market, while reflecting a generating mix characterised by a more expensive fuel mix, reduced its distance from the most important international electricity prices (19 €/MWh, -20%), strengthening the signs for a growing integration with other European markets. In this scenario, new investments in generating and transmission capacity are also providing promising signs of a reduction of the gap that historically is observed on the prices of the country's zones: more specifically, in Sardinia the progressive entry into operation of the new transmission cable (SAPEI) ensured a more frequent alignment to the price dynamics of mainland Italy, whereas in Sicily the entry into service of the new renewable-power and combined-cycle plants partially displaced the more expensive oil-fired generation, necessary precondition for a broader realignment of prices with those of the neighbouring zones.

In the gas sector, the more intense recovery of demand, driven by industrial and household consumption, and the sharp rise in oil prices led to an increase in gas prices throughout 2010. All Italian price references denoted upward trends, reflecting a current trend in all European markets, compared to which they prove to be moderately more expensive (about +6 €/MWh).

In this context, over the course of 2010, GME continued to implement the electricity-market reform project, initiated by the Company in 2009 enforcing the provisions of Law 2/09, with the introduction of important new elements in forward markets; spot markets showed instead a consolidation of trends that have been at play for the past years.

With regard to forward markets, the new elements introduced by the law on market restructuring in the MTE, namely the change in the guarantee system and the introduction of yearly and quarterly products, bolstered an appreciable growth of transactions, exceeding 6 TWh[1] . This figure, still low in absolute terms, appears in line with the volumes collected by other European forward markets in their starting phases and may further develop in 2011. Positive contributions also came from prices, which, in spite of the still low liquidity level of trades, expressed indications that were consistent with what was observed in the underlying and in the financial market managed by Borsa Italiana, and showed homogeneity between their trend and those of other international markets. This data goes hand in hand with the reassuring performances of the PCE, which in 2010 showed a vigorous increase of trades recorded at 236

1 This data refers to volumes traded in the MTE in 2010 irrespective of the delivery period.

TWh (+34% [2]), with an overall net position that went up to 154 TWh, and a progressive standardisation of products traded in it. This indicates a more massive use of the platform and its ripening as support instrument for trading on OTC forward markets.

As far as spot markets are concerned, the substitution of the MA with the day-ahead sessions of the MI brought about an appreciable rise of liquidity and operators, with volumes growing by 22% and reaching 15 TWh. Similarly with forward market developments, the higher flexibility offered by the two daily sessions, introduced through the transposition of Law 2/09, seem to have been met with operators' interest, in a context where the uncertain demand trend imposed an increasing adjustment of commercial positions upon MGP closing. This trend seems to be further strengthened in this first phase of 2011, when the MI has acquired two more auction sessions, in order to facilitate the functional integration with the MSD, in compliance with the Ministerial Decree of 29 April 2009.

Only the MPG dynamics seems to move in a countertrend fashion. The MPG is the only energy market, among those operated by GME, which recorded a further decrease in volumes, thus confirming the 2009 drop. However, on the back of the shift in the procurement strategy pursued over the past years by AU, more and more geared to meeting its demand through forward transactions, the overall result highlighted a stability of the market, confirmed by the increase to the all-time high of active participants (134, +18) and by trades by non-institutional participants (110 TWh, + 5 TWh).

The real new element for 2010, however, is given by GME's entry into the gas market with operational start first of all of the P-Gas platform, divided into two sectors "Imports" and "Royalties", then of the spot gas market, whereby GME changed its name from "Gestore del Mercato Elettrico" into "Gestore dei Mercati Energetici". The development of a gas exchange offers a fundamental opportunity to pursue such goals as competitiveness, price transparency and access to the system, in a sector where the liberalisation process today is still less ripe than the one in the electricity sector. The start of regulated gas markets with standardised products and appropriate financial guarantees should ensure benefits within the sector, stimulating liquidity and participation growth, through the definition of a public price that is set on the basis of the laws of demand and supply. As already pointed out, in some North-European markets and on the most developed North-American markets, this perspective should lead, among others, to the decoupling of the price of gas from the one of oil (to which long-term supply contracts are pegged) contributing to holding down prices and, as a result, increasing system efficiency. The advantages, in this sense, may indirectly be perceived also in the electricity sector. In its generating mix, gas production has definitely played a key role. In 2010 the markets managed by GME could collect a still modest liquidity, owing to the peculiarity of traded contracts, as far as the P-Gas is concerned, and to the operation that is still too short for the spot market. However, they will be capable of exhibiting the first appreciable result in 2011, on the back of what in part has already emerged in the first quarter of the new year and of the coming start of the balancing platform operated by GME, pursuant to the provisions of AEEG's Decision Arg/elt 45/11.

With regard to environmental markets, the different European platforms recorded a halt in EUA transactions, associated with the temporary interruption of trading in some exchanges as a result of unusual trends of negotiations and with the closing of many national exchange registries, imposed by the European Commission following the theft of emission permits. Please note that GME too suspended, as of 1 December 2010, any transactions in its Emissions Trading Market in light of the unusual trends of negotiations as found in the latest market sessions and, in particular, of allegedly irregular or illegal conducts. With regard to other GME's markets, positive results came from the Green Certificates Market (MCV) and the Energy Efficiency Certificates Market, with a further increase in the number of participating companies and in the volume of trades[3] , testifying the growing appreciation expressed by participants over the years.

Lastly, at international level, in 2010 further steps were taken towards the process for the creation of a European single energy market, advocated by the Third Package and aimed at achieving greater efficiency of energy sectors,

2 This data refers to the transactions recorded on the PCE irrespective of the delivery period and net of the volumes traded in the MTE and CDE.

3 The rise recorded in the MCV refers to the data net of the extraordinary sessions dedicated to GSE which took place in 2009.

competitive prices and higher service standards. Local markets are being integrated on two levels: a European level, preparing the regulatory framework required for the transition towards a single and competitive market; a regional level, implementing operational projects of integration of national markets that may help overcome any obstacles that might limit trades and competition. Under this approach, over the last two years, on the one hand, the bases were laid to establish the Agency for the Cooperation of Energy Regulators (ACER), officially taking office in March 2011 with the aim to co-ordinate and ensure harmonisation of the regulatory functions performed by national Authorities; on the other, the different market coupling initiatives- the answer of the electricity sector to the integration requirements laid down by European legislation - were put in place.

In this context, GME implemented the market coupling project on the Slovenian-Italian border, jointly started in 2008 by the power exchanges and the TSOs of the two countries, with the institutional backing of the Italian Ministry of Economic Development and the Slovenian Ministry of Economy, as well as the respective national regulatory Authorities. The adoption of a coupling mechanism, in full operation since 31 December 2010, is ensuring an efficient use of interconnection capacities, thereby determining their allocation together with the resolution of the respective electricity markets through a common matching algorithm.

The development of the Price Coupling of Regions (PCR) is also well underway. This is a market integration project, supported by Europex and promoted by the most important European power exchanges, in which GME participates, in conformity with the provisions of Directive 2009/72/EC. The aim of the PCR is to create a European single market that could go beyond the regional dimension of any coupling initiatives that are already in place, while respecting the institutional, regulatory, and, where possible, technical specific traits of each country or each region. In 2010, the activities of the working groups mainly focussed on identifying the functional requirements of the future single algorithm. Based on these requirements, in March 2011, the algorithm to be used as starting point for PCR prototype implementation was selected.

SECTION

A

THE COMPANY

THE COMPANY

1. GESTORE DEI MERCATI ENERGETICI

1.1 Governance

Gestore dei Mercati Energetici S.p.A. (GME) is a publicly-owned company ("società per azioni pubblica"). The company is fully owned by Gestore dei Servizi Energetici S.p.A. (GSE), the publicly-owned parent company which supports the development of renewables by granting incentives for electricity generation and promotes sustainable development with campaigns aimed at raising awareness on the efficient use of energy. GSE's sole shareholder is the Ministry of Economy and Finance (MEF), exercising its rights jointly with the Ministry of Economic Development (MiSE). GSE is the parent company of the following subsidiaries: GME (Gestore dei Mercati Energetici); AU (Acquirente Unico); and RSE (Ricerca sul Sistema Energetico).

Acquirente Unico is the Company which is the vested authority for the electricity supply to households and small-sized enterprises under conditions of cost-effectiveness, continuity, security and efficiency of the service.

RSE (Ricerca sul Sistema Energetico - RSE S.p.A.) develops research in the energy-electricity sector, with special reference to national strategic projects, that are of public interest and financed by the Fondo per la Ricerca di Sistema (Fund for Systems Research).

The company was established in 2001 pursuant to art. 5 of Legislative Decree 79/99 (the so-called "Bersani Decree") as part of the liberalisation process of the Italian electricity sector, with the aim to "guarantee organisation and economic management of the electricity market under criteria of neutrality, transparency, objectivity and competition between producers and to ensure the economic management of an adequate availability of reserve capacity," as well as to set up and manage the Green Certificates Market. Its area of activity has extended progressively to environmental markets (Energy Efficiency Certificates and CO_2 emission allowances), and to gas markets. In particular, GME was vested with the exclusive gas-market management since 2010, pursuant to law no. 99/09. That is why the Company changed its name from "Gestore del Mercato Elettrico" into "Gestore dei Mercati Energetici".

GME's operation is regulated in different regards. In particular, the rules for electricity market functioning, the Green Certificates Market, the Gas Market and the P-GAS bilaterals platform are defined by GME and approved by the Ministry of Economic Development, after hearing the opinion of the "Autorità per l'energia elettrica e il gas" (AEEG).

The rules for the functioning of the Energy Efficiency Certificates Market, which was established pursuant to article 10 of Ministerial Decrees 20 July 2004, are defined by GME in agreement with AEEG.

The rules for the registration of bilateral transactions of energy efficiency certificates, as well as the rules for the functioning of the Electricity Account Registration Platform, are defined by GME prior to approval from AEEG.

With respect to the rules for the functioning of the Emissions Trading Market, set up by GME as part of the provisions of Directive 2003/87/EC, the Company arranges any amendments and supplements to the Rules which are passed by resolution by its Board of Directors and enter into force with the relevant publication on the Company's website.

Lastly, operation on electricity markets is subject to supervision and monitoring by AEEG, pursuant to the Integrated text for the monitoring of the wholesale electricity market and the Ancillary Services Market (decision ARG/elt 115/08).

The Company's management body is represented by the Board of Directors, which is now formed by five members, appointed, with resolution passed by the Shareholders' Meeting, for a term of three financial years. The Board of Directors is exclusively responsible for the management of the Company; the Directors in office carry out any operations that are necessary for the implementation of the corporate object.

GME's Board of Directors identifies from among its members the following functions:

- *Chairman,* who holds the legal representation towards third parties and in legal proceedings. The Chairman is also

vested with the signing authority, deals with the life of the Company and promotes its development according to the provisions of the By-Laws, the Shareholders' Meeting's directions and the Board of Directors' resolutions. The Chairman is also assigned proxies by Shareholders' meeting's resolution.

- *Deputy Chairman of the Board of Directors,* who, in the event of Chairman's absence or unavailability, under the By-Laws is bestowed the Company's legal representation and signing authority. The Deputy Chairman's signature is valid before third parties in the event of Chairman's absence or unavailability.

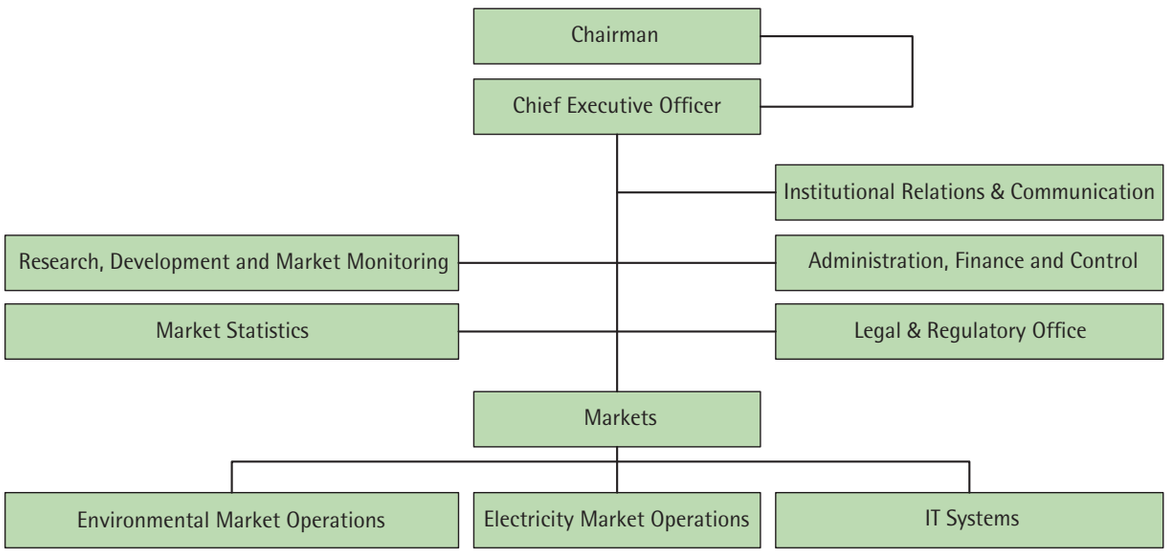
- *Chief Executive Officer,* who, apart from the powers of legal representation of the Company under the By-Laws, is bestowed, by virtue of a specific Board resolution, all management powers for the administration of the Company, with the exception of those otherwise granted by law, by the By-Laws, or otherwise granted by the above-mentioned resolution. The Chief Executive Officer ensures that the organisation and accounting structure is suitable for the Company's nature and size and reports to the Board of Directors and the Board of Auditors at least every three months on the general management performance and its predictable evolution, as well as on the most noteworthy operations given their extent or features carried out by the company.

The remaining GME's corporate bodies are:

- the Board of Auditors, the Supervisory Board and the Internal Appeal Board.

The company has about 90 employees, divided into nine units, as shown in the chart in Fig.A.1.1

GME's organisational chart Fig A.1.1



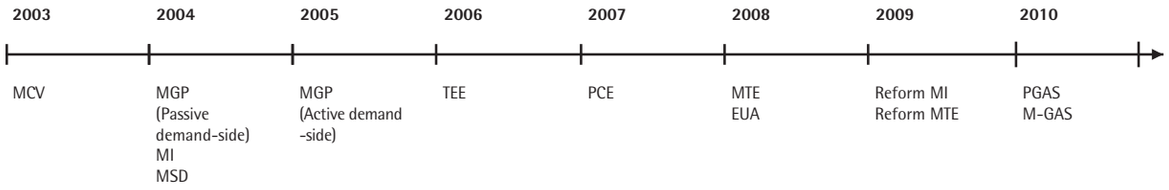
1.2 Institutional tasks

1.2.1 Market management

GME operates in three main areas: energy markets, environmental markets, and gas markets. On all of GME's markets products are traded with physical delivery and GME acts as central counterparty (except on the PCE, PBCV, P-GAS bilaterals platforms, and in the Energy Efficiency Certificates Market).

Fig A.1.2 **The markets managed by GME**

Electricity	Environment	Gas
› **MTE** - Forward electricity market	› **MCV** - Green Certificates Market	› **PGAS** – Natural Gas Trading Platform
› **MGP** – Day-Ahead Market	› **TEE** – Energy Efficiency Certificates Market	› **M-GAS** (day-ahead and intra-day)
› **MI** – Intra-Day Market	› **EUA** – Emissions Trading Market	
› **MSD** – Ancillary Services Market	› **PBCV** – Green Certificates Bilaterals Registration Platform	
› **PCE** – Forward Electricity Account Trading Platform		



As part of the electricity market GME arranges and manages the following platforms.

- **The Spot Electricity Market (MPE)**. The MPE took off on 1 Apr. 2004 in compliance of article 5 of Legislative Decree 79/99 and the Decree of the Minister of Productive Activities of 19 Dec. 2003. It has been partially redesigned since 1 Nov. 2009 under Law 02/2009. It consists of three submarkets:
  - **Day-Ahead Market (MGP)**, where producers, wholesalers and eligible final customers may sell/buy electricity for the next day;
  - **Intra-Day Market (MI)**, where producers, wholesalers and final customers may modify the injection/withdrawal schedules that they have defined in the MGP. The market is organised in two sessions on day d-1 downstream of the MGP (MI1 and MI2) which replaced by the previous Adjustment Market as of 31 Oct. 2009, and two intra-day sessions organised on day d introduced as of 1 Jan. 2011.
  - **Ancillary Services Markets (MSD)**, where Terna S.p.A procures the dispatching services that it requires to manage and control the power system. The MSD consists of one ex-ante session, dedicated to the purchase of services of congestion relief and reserve, and of one intra-day stage of acceptance of the same bids/offers for balancing purposes (MB). The ex ante MSD consists of three scheduling substages: MSD1, MSD2 and MSD3, and the MB in 5 sessions.
- **Electricity Account Registration Platform (PCE).** This platform, which was assigned to GME under AEEG's Decision no. 111/06, as subsequently amended and supplemented, took off on 1 Apr. 2007. On the PCE, participants register forward contracts of electricity purchase/sale that they have concluded off the MPE and in particular in the MTE or on a bilateral basis (over the counter or OTC contracts).
- **Forward Electricity Market (MTE).** The MTE took off on 1 Nov. 2008 in compliance with the Decree of the Ministry of Economic Development of 17 Sep. 2008. It has been redesigned since 1 Nov. 2009 under Law 02/2009 in compliance with the Ministerial Decree of 29 April 2009. It is a regulated market where participants may sell

and buy forward electricity contracts with delivery-making/-taking obligation.

- **Electricity Derivatives Platform (CDE).** GME has been managing the CDE since 26 Nov. 2009 in compliance with the Ministerial Decree of 29 April 2009. The platform enables electricity market participants to settle, by physical delivery (through registration on the PCE), the contracts that they have concluded on IDEX, the electricity derivatives market managed by "Borsa Italiana SpA".

As part of the organisation and economic management of the electricity market, GME is also entrusted with the management of environmental markets, including:

- **Green Certificates Market (MCV).** The MCV took off in March 2003 in accordance with article 6 of the Ministerial Decree of 11 Nov. 1999 (definitely repealed with the Ministerial Decree of 18 Dec. 2008). In the MCV, Green Certificates, giving evidence of electricity generation from renewables (RES-E) are traded. This market allows producers to fulfil their obligations of injecting into the grid/importing a given quota of RES-E as per Legislative Decree 79/99;
- **Green Certificates Bilaterals Registration Platform (PBCV).** This is a new functionality of the MCV, introduced in 2007. On the platform, participants register their Green Certificates bilaterals. The Ministerial Decree of 18 Dec. 2008 introduced the obligation to specify the price at which the certificates have been traded.
- **Energy Efficiency Certificates Market.** In this market, which became operational in March 2006, "white certificates" (giving evidence of measures or projects of reduction of energy consumption) are traded. This market allows parties subject to energy-saving obligations under the Ministerial Decrees of 20 Jul. 2004 (as subsequently amended and supplemented) to comply therewith. The Energy Efficiency Certificates Register is functional to the performance of activities in the Energy Efficiency Certificates Market;
- **Energy Efficiency Certificates Register (TEE Register).** In this Register, which took off in 2006, each participant is assigned with one ownership account, a kind of "electronic portfolio" where each participant can register the total number of TEEs that he/she possesses. Thanks to the Register's features, participants are able to find out, in real time, the status of their TEE portfolio and enter directly the single TEE transactions concluded on a bilateral basis off the market context. GME is responsible for the management of the Register and the preparation of the related rules, in compliance with AEEG's Decision EEN no. 5/08 containing the "Approval of the Rules for the registration of bilateral transactions of Energy Efficiency Certificates as per article 4, para. 1, of AEEG's Decision of 28 December 2007, no. 345/07 and article 4, para. 1, of the Decree of the Ministry of Economic Development of 21 December 2007";
- **Emissions Trading Market (EUA).** This market took off in April 2007 within the framework of Directive 2003/87/EC, establishing a greenhouse gas allowance trading scheme within the Community (EU-ETS). In this market, emission allowances (the so-called "black certificates") are traded. The certificates represent the amount of CO2 allowed to be emitted by a number of explicitly regulated (e.g. energy) activities; these emissions are allocated through National Allocation Plans (NAPs);

Finally, GME was charged with new responsibilities in the gas sector under Law no. 99 of 23 Jul. 2009, which favours the introduction and development of market mechanisms in the various stages of the gas cycle. This consists of:

- **Natural Gas Trading Platform (P-GAS).** This platform became operational on 10 May 2010. Importers of gas produced in non-EU member countries and the holders of leases of exploitation of national gas fields are required to fulfil their obligation of bidding quotas of imported gas (as per art. 11, para. 2 of Law 40/07) on this platform. Accordingly the P-GAS consists of the two segments "Imports" and "Royalties": in the Imports segment, gas quotas are offered as per art. 11, para. 2, of Law 40/07, as well as, freely, other quotas offered by parties other than those subject to the obligation; in the Royalties segment, gas quotas owed to the State under art. 11, para. 1, of Law 40/07 are offered.

- **Spot gas market (M-GAS).** On 10 Dec. 2010 GME launched a spot market consisting of: day-ahead market - whose transactions are performed under the continuous trading and auction trading mechanisms, in succession one after another - and intra-day market, whose transactions are performed on a continuous trading basis.

1.2.2 Electricity market monitoring

Ever since transactions took off in the electricity market in April 2004, GME has carried out numerous activities in support of the monitoring functions exercised by institutional parties for the areas falling under their responsibilities, such as the "Autorità Garante della Concorrenza e del Mercato" (AGCM, the competition regulator), the Ministry of Economic Development (MiSE), the Directorate-General for Competition of the EU (DG COMP) and, above all, the "Autorità per l'Energia Elettrica e il Gas" (AEEG, the electricity & gas regulator). In particular GME supports AEEG's monitoring activities in compliance with AEEG's Decision ARG/elt 115/08 (Integrated text of market monitoring, hereafter "TIMM"), which was amended and supplemented by AEEG's Decision ARG/elt 60/09 and by AEEG's Decision ARG/elt 50/10. Under the TIMM, GME shall:

- create and manage a special data warehouse (DWH), which integrates the data of the electricity market with those listed on the main European spot electricity markets and on the various forward electricity markets (physical and financial, regulated and OTC) making them available to AEEG through an appropriate business intelligence tool (art. 3);
- create appropriate monitoring indicators and develop what-if market simulations to assess the impact of participants' alternative supply policies on the market, based on the guidelines given by AEEG (articles 4 and 5);
- obtain confidential data from participants about their forward electricity contracts and their available generating capacity (art. 8);
- set up an appropriate "monitoring unit", whose costs are acknowledged by AEEG (articles 3 and 9).

All this makes it possible to monitor energy markets in an integrated way, in view of growing integration of European markets, of electricity and gas markets, of physical and financial markets and of spot and forward markets.

GME complied with the provisions of the TIMM by creating the above-mentioned DWH, making it accessible to AEEG through an appropriate monitoring portal (from which pre-defined reports may be displayed and ad-hoc analyses may be carried out) and periodically reporting data to AEEG on the various markets managed by GME. GME also set up an External Data Platform (PDE) dedicated to the collection of participants' forward contracts, completed its testing together with participants and put it into operation, as scheduled, on 1 Jan. 2010.

1.3 Fees, customers and volumes

Participation in the markets operated by GME is subject to fees which are broken down in the table in the following Table A.1.1.

Today the MPE is the dominant market both in terms of central-counterparty turnover (92.2%), and, lastly, the volume of fees (54.4%). However, it is worth mentioning that environmental markets, which collect a turnover figure significantly lower (4.7%), contribute in an appreciable fashion in terms of collected fees (8.9%) (Table A.1.2).

Fees for participation in GME's markets – 2010 Tab A.1.1

Market	Participation fees
MPE	**One-off fixed (€): 7,500** **Fixed yearly (€): 10,000** **Variable (€/MWh):** – an initial exemption threshold on the first 0.02 TWh of electricity negotiated every month; – a fee of **0.04€/MWh** for any amounts exceeding the threshold of 0.02 TWh up to a maximum of 1 TWh; – a fee of **0.03 €/MWh** for any amounts exceeding the threshold of 1 TWh up to a maximum of 10 TWh; – a fee of **0.02 €/MWh** for any amounts exceeding 10 TWh.
PCE	**Fixed yearly (€): 1,000** **Variable (€/MWh): 0.02**
MTE	**Variable (€/MWh): 0.01**
CDE	**Variable (€/MWh): 0.045**
MCV	**Variable (€/MWh):** – **for the first 2,500** certificates (worth 1 MWh) traded: **€ 0.06** per certificate; – **over 2,500** traded certificates (worth 1 MWh): **€ 0.03** per certificate
PBCV	**Variable (€/MWh):** – **for the first 2,500** certificates (worth 1 MWh) traded: **€ 0.06** per certificate; – **over 2,500** certificates (worth 1 MWh) traded: **€ 0.03** per certificate
TEE	**Fixed yearly (€): 300** **Variable (€/MWh): 0.2** per certificate traded
CO2	**Variable (€/MWh): 0.0025** per emission allowance traded (equal to 1 t/CO_2)
P-GAS	**Variable (€/MWh): 0.0025 €/GJ**
MPE Gas	**One-off fixed (€): 7,500** **Fixed yearly (€): 10,000** **Variable (€/MWh): 0.01** **Note:** If the GAS market participant is also an electricity market participant, the former is not required to pay the access fee to GME.

Key data of GME's markets Tab A.1.2

2010	Volumes	Central-counterparty turnover (thousands of €)	Fees (thousands of €)	Fees %
ELECTRICITY MARKETS		**16,402,670**	**31,351**	**89.7%**
MPE	238.2 TWh	15,867,398	19,006	54.4%
MTE (*) and CDE	6.4 TWh	92,887	130	0.4%
PCE (**)	238.2 TWh	n/a	9,540	27.3%
Other items	n/a	442,385	2,675	7.7%
ENVIRONMENTAL MARKETS		**802,311**	**3,111**	**8.9%**
MCV	2.6 Mln	217,670	1,558	4.5%
PBCV	22.8 Mln	n/a		0.0%
TEE - regulated market	1.0 Mln	n/a	506	1.4%
TEE - bilaterals	2.1 Mln	n/a	843	2.4%
EUA	40.8 Mln	584,641	204	0.6%
GAS MARKETS		**30**	**99**	**0.3%**
P-GAS	2.1 TWh	n/a	39	0.1%
M-GAS	- TWh	30	60	0.2%
Other marginal revenues	**n/a**	**n/a**	**373**	**1.1%**
Total		**17,205,011**	**34,934**	**100.0%**

(*) Volumes traded in the MTE

(**) Transactions registered in PCE

2. INTERNATIONAL ACTIVITIES

The creation of an energy market in electricity is a priority goal of the European Union (EU), which has been progressively implemented throughout the Community since 1999 to "deliver real choice for all consumers of the European Union, be they citizens or businesses, new business opportunities and more cross-border trade, so as to achieve efficiency gains, competitive prices, and higher standards of service, and to contribute to security of supply and sustainability".

This is the first Whereas of Directive 2009/72/EC concerning common rules for the internal market in electricity and Directive 2009/73/EC concerning common rules for the internal market in natural gas, included in the Third Energy Package.

But, actually, how is the energy-market integration process taking place?

The Third Energy Package gave full legitimacy to what, since the spring of 2006, has been taking place in Europe, that is a market integration, and attempts are being made to implement this integration on two levels: at European and regional level. The two approaches, top-down and bottom-up, are being implemented in a complementary way: whereas, on the one hand, European measures supply the necessary legislative framework to bring about a real transition towards a single and competitive European energy market, on the other hand, the regional initiatives are providing the operational support to develop and implement practical solutions, at market level, in order for the political objective to come true.

The regional initiatives are based on a voluntary cooperation between stakeholders, headed by Regulators, with the aim to identify and find solutions to overcome, at regional level, the specific barriers to commodity trading and competition (such as the lack of transparency and incompatible market devices).

GME participates in international working groups, established within the framework of European regional initiatives (ERIs) promoted by ERGEG[1] , with the task to develop integration projects that are compatible with national market operation.

In this context, GME acts also through EUROPEX and, in this capacity, provides answers to the consultations posed at European level (paying special attention to transparency and congestion management) in order to help define a target model for energy markets.

GME is one of the founding members of EUROPEX[2] , whose main objective, among others, is to support the process of energy market liberalisation, by promoting the role of power exchanges in the process of market integration.

Power exchanges were identified as strategic instruments to increase competition and the transparency of the price-setting mechanism.

GME is engaged in the definition of the lines of action of EUROPEX, by constantly participating in the activities of the technical working groups which have been set up within the association:

- Power Market Working Group - PMWG, which deals with matters concerning the structure and functioning of spot, balancing and forward markets, as well as congestion management and guarantee systems;
- Environmental Market Working Group - EMWG, which addresses issues regarding the structure and development of markets where Green Certificates, Energy Efficiency Certificates and emission allowances are traded. In 2009, the working group also analysed the European Union's regulatory proposals for environmental policies and the measures adopted by countries which did not choose market mechanisms to promote renewables;
- Gas Market Working Group - GMWG, which was set up in 2009 with the mission of conducting a reconnaissance study on the structure of the gas sector at continental level (existing legislative/regulatory framework and expected evolution, situation of TSOs, situation of storage, opening of retail markets, liquidity of existing

1 Italy is part of the Central-South Europe region, whose works are chaired by AEEG, together with Austria, France, Germany, Greece and Slovenia, with regard to the electricity market, and of the South-South East Europe region, together with Austria, Bulgaria, Czech Republic, Greece, Hungary, Poland, Romania, Slovakia, and Slovenia, with regard to the gas market.

2 In 2010 EUROPEX changed its acronym from Association of European power exchanges into Association of European energy exchanges, to better highlight the role of exchanges with respect to electricity, natural gas and the environment.

hubs and current and future role of gas exchanges), and of defining a common position within the association on strategic issues for the development of efficient markets.

3. NEW PROJECTS

3.1 Italy - Slovenia market coupling

From 31 Dec. 2010 (day of flow 1 Jan. 2011) the market coupling mechanism on the Italian-Slovenian border became operative, which made it possible to explicitly allocate daily physical interconnection rights between the two countries, through the resolution of their day-ahead energy markets operated by GME and BSP (Market Participant in Slovenia).

The initiative, launched in 2008 by GME, Borzen (Market Participant in Slovenia) and BSP, received the institutional backing by the Italian Ministry of Economic Development and the Slovenian Ministry of Economy, as well as from their respective national regulatory Authorities (AEEG and AGEN-RS).

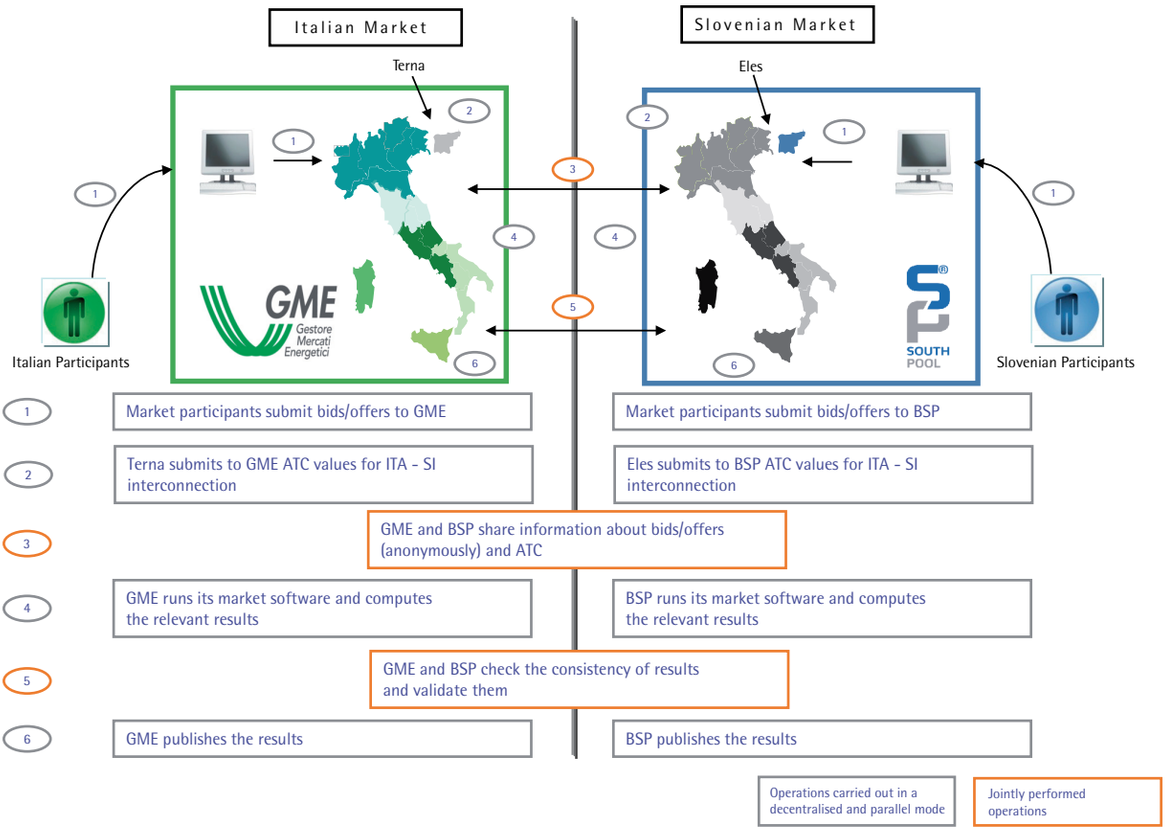
Taking into consideration the European regulations in force, the project complies with and supports the provisions of (EC) Regulation no. 714/2009 and, in particular, art. 12, whereby Member States are required to promote *"...the co-ordinated allocation of cross-border capacities by means of non-discriminatory market-based solutions, with special attention to the specific features of implicit auctions for short-term allocations ...".*

More in detail, implicit auctions, as they combine interconnection capacity allocation with the execution of energy markets, always guarantee an efficient use of capacity, in that they define a transit that always occurs from the market zone with a lower price to a market zone with a higher price.

The coupling model adopted on the Italian-Slovenian border is a decentralised price coupling. In this context, GME and BSP adopted a common matching algorithm, reproducing the rules for matching adopted in their respective markets and taking into account the grid model that is representative for both the Italian power grid and the Slovenian one. This algorithm is managed, in parallel and decentralised fashion, by both market participants, which receive bids/offers from their respective participants and, before executing their own market, exchange important information on demand/supply curves deriving from bids/offers they have received and on grid constraints in their respective market zones. After sharing this information, GME and BSP simultaneously calculate - through a common matching algorithm - the results of their own market, taking into account market and grid conditions of the other country, and at the same time determining the energy flow on the interconnection between Italy and Slovenia (that is they allocate the capacity on this interconnection) depending on the prices as determined on their respective energy markets.

The decentralised price coupling, on the one hand, thanks to the adoption of a common algorithm, enables the implementation, in a single system, of the matching rules of the markets sharing the coupling mechanism, on the other, by decentralising procedure management and sharing important information, guarantees the co-ordination between markets, without, however, requiring changes in terms of responsibilities and roles that are already held by GME and BSP as part of their national contexts.

Functioning of market coupling between Italy and Slovenia Fig A.3.1



For more information on the model of decentralised price coupling please refer to the document published on GME's website: *http://www.mercatoelettrico.org/It/Mercati/MercatoElettrico/MC_Modello.aspx*

3.2 Price coupling of Regions

The PCR (Price Coupling of Regions) is the project supported by EuroPEX[1] for the integration of European regional and national markets, in view of the European single market, based on the continental price coupling and on a decentralised approach. This project was promoted by the six major power exchanges in Europe (EPEX, OMEL, NordPool Spot, GME, APX-Endex, and Belpex), which together cover areas where electricity consumption amounts to about 2,860 TWh, namely 80% of yearly European consumption and manage the most liquid spot markets in Europe, with traded volumes reaching over 1,000 TWh/year. The project also aroused the interest of some exchanges in Eastern Europe (Poland, Hungary, Czech Republic, Slovenia, Romania), which, from a technical point of view, are already co-operating in a variety of ways with the above-mentioned exchanges and their integration in the project should not add any further technical or regulatory complexities.

The aim of the project is to contribute in the creation of a European single market, going beyond the regional extent of any coupling initiatives that have been put in place so far. The philosophy behind the project is to fulfil this purpose not by replacing, but co-ordinating the different regional initiatives, while respecting national/regional specificities and the freedom of every region to join independently.

1 European Association of Energy Exchanges.

The PCR is based on decentralisation, allowing each country to keep its institutional structure, as determined on the basis of the national law/regulation or contracts with its own TSO, without these differences influencing operating procedures, coupling-related responsibilities and Regulators' jurisdiction.
The decentralised approach to the PCR is based on three pillars:

- a single algorithm shared by all participating exchanges and embedding all the properties of the algorithms that are being used by them;
- a decentralised operational management, from bid/offer collection to the publication of the results;
- a decentralised governance, consistent with the principles of the European Governance laid down by the AHAG[2].

Single algorithm

Consistently with PCG's specification in the target model, the PCR adopts a price-coupling mechanism[3]: this requires that all exchanges participating in the project adopt a common algorithm, which calculates prices and flows for each bidding area based on the market data collected by the exchanges and on cross-border transmission capacities declared by TSOs. Compared with other coupling projects already implemented, such as the CWE, however, the geographic extent of the PCR requires the co-ordination of markets with different algorithms in terms, for instance, of products used, bid/offer formats, constraints to bid selection. These differences reflect specific commercial choices of the various exchanges, but also constraints deriving from the national Regulator or the reference TSO. So the PCR's choice is to create a single algorithm without eliminating the differences in favour of a standardised market design, but integrating the features of all markets as long as technically feasible. Project development in this direction is well underway:

- in Aug. 2010 the original founders of the project (EPEX, NPS, and OMEL) showed the technical possibility to implement in a single algorithmic solution the features of their markets, simulating the results of each market through the bids/offers in this market and the algorithms of the other markets (the so-called Proof of Concept);
- in Dec. 2010, following the inclusion of 6 participants in the project, exchanges collectively identified features and functional requirements for the future single algorithm;
- in March 2011, exchanges selected one of the algorithms currently in use and based on the specified functional requirements, as a starting point to be used as basis for the development of PCR prototype algorithm.

2 The European single market, scheduled for 2015, essentially aims to deliver real choice for all consumers of the European Union, be they citizens or businesses, new business opportunities and more cross-border trade, so as to achieve efficiency gains, competitive prices, and higher standards of service, and to contribute to security of supply and sustainability. The integration of national markets into a single one necessarily requires the use of cross-border interconnections, whose transmission capacity is often poor (transit limits), which makes it impossible to support the flows resulting, instead, from commercial transactions. Electricity market operation and efficiency are strictly dependent on Capacity Allocation methods and on Congestion Management mechanisms (CACM). The identification of the most efficient methods for CACM, already contained in the Draft Framework Guidelines on CACM for Electricity published by ERGEG (European Regulators' Group for Electricity and Gas) in Feb. 2011, and newly proposed in consultation by ACER since April 2011 in their final version, is the result of a European process, that lasted over a decade, which united two different courses of action. One of these lines was prescribed by European institutions by issuing 3 different "Energy packages" - in 1996, 2003, and 2009 - (top-down process) and the other line that developed at regional level (bottom-up process) after the start of the Electricity Regional Initiative projects by ERGEG, seven regional initiatives (Baltic, Central-East Europe, Central-West Europe, Northern, South-West Europe, France-UK-Ireland, and Central South-Europe, also including Italy) created to facilitate local integration of national markets in view of the single market, by looking at the main issues, such as balancing, transparency, and congestion management. Co-ordination of the two lines is guaranteed by works of the Florence Forum (The Electricity Regulatory Forum), in particular following the establishment in 2008 of a para-institutional table dedicated to CACM, the PCG - Project Co-ordination Group: formed by the representatives of the European Commission, of ERGEG, and of the main stakeholders' industry associations, such as ETSO (now ENTSO-E, European Association of TSOs), EuroPEX, Eurelectric (European Association of electricity producers) and EFET (European Federation of Energy Traders) -, which were entrusted with the task to develop a concrete model for the congestion-management harmonisation at first across the regions and then at pan-European level, in line with the advances achieved within the ERIs. This "target model" is the core of the aforesaid Framework guidelines on CACM. In addition, during the Florence Forum in Dec. 2009, ERGEG set up AHAG - Ad Hoc Advisory Group: this is formed by representatives of the European Commission, ERGEG, and the main associations of industry stakeholders, such as ENTSO-E, EuroPEX, Eurelectric, EFET, IFIEC (International Federation of Industrial Energy Consumers) - which contributed, through its pilot projects, to draw up the final document. Within this initiative three pilot projects took off: the first two, headed by ENTSO-E, on capacity calculation and intra-day market respectively, whereas a third one, headed by the European Commission, for the purpose of drafting the binding guidelines concerning day-ahead-market governance. The new Framework Guidelines aim to ensure that the capacity of the transmission grid is used efficiently between the different areas and that the electricity produced in the most cost-effective zones is transferred in the zones with higher prices. Accordingly, the most efficient mechanism for cross-border congestion management in the day-ahead market was identified in the pan-European single price coupling.

3 For the definition of "price coupling" see Box I – Comparison between coupling projects.

The decentralised operational management

Another important novelty of the PCR is the management mode of the single algorithm. Unlike the other coupling models/projects, providing for the establishment of a central matching unit for the management of the common algorithm (EMCC, NWE) or entrusting its management to participating exchanges that perform the task on a rotating basis, under the PCR, the management of the single algorithm is to be performed in parallel and simultaneously by all participating exchanges, which, to this end, will be interconnected to share any information that is necessary for the coupling of the whole PCR region and calculate its results, through direct communication lines or secure Internet channels. So, by using the same inputs and the same algorithm, results will obviously be identical and verifiable. The advantages of this approach are evident at local level in terms of implementation timescales and cost: operators and TSOs would remain connected with their own exchange according to the existing procedures and contracts, to send market inputs (bids/offers and transit limits) and receive the outputs (prices, volumes, transit flows, schedules, settlements), thereby avoiding unnecessary changes to existing local procedures, functions, responsibilities and operational interfaces. Coupling complexities would only affect the necessary parties (that is the exchanges), that would manage them by means of multilateral operational agreements between them. In addition, the inevitable redundancy that would be generated by a decentralised approach would guarantee tangible advantages both in terms of security and transparency of results and of the possibility to address back up and fallback cases[4].

Decentralised governance

The latest addition in the PCR project is the adoption of the decentralised governance model. Assuming that the continental extent of couplings requires the co-ordination of very different local governance systems, inspired to the "service provision model"[5] rather than on the "regulated model" , the PCR identifies the few elements to be co-ordinated and harmonised at European level, recognising that the majority of the other elements that are necessary to coupling management may be defined and differentiated on a regional or local basis, while respecting existing realities and without prejudice to the overall project efficiency. In line with the specification of PCG's target model and AHAG's pilot project on governance, the description of the overall price-coupling functioning at European level is covered by Governance Guidelines[6] , with regard to the high-level architecture (including the principle whereby Member States are responsible for identifying the exchanges and the TSOs with coupling functions), the definition of common procedures (definition of the common gate closure, responsibility for the management of operating procedures and for their amendments) and the rules for participation in the coupling (entry, exit, voting rights, etc.). Consistently with the assumptions of the Guidelines, the more detailed description of roles and common procedures for coupling operations is entrusted to a secondary regulatory level, the Operational arrangements, that will be applied by means of agreements between exchanges and TSOs or imposed directly by the national legislation, depending on the institutional designs in force in each country. In this respect, under the proposal submitted by the PCR the management of Operational arrangements is entrusted to a co-ordination body - the Market Coupling Council - chaired by ACER and attended by all important stakeholders (exchanges, TSOs, Regulators, producers, consumers, traders). In this scenery, where the resolution of other management aspects (including defining shipping arrangements, capacity calculation, and the appointment of the exchanges, etc..) is deferred to a regional or local level, exchanges will only be responsible - under regulators' supervision – for the co-ordinated matching. The joint responsibility on these elements, in particular, will be regulated at European level

4 Under the operating management, each one of the participating PXs, on a rotating basis, takes over as "Master", that is the party that is in charge of confirming that the market results obtained by each exchange are identical and – and if anything to the contrary, albeit unlikely – acting as co-ordinator for the activities aimed at spotting differences and explaining them, as the solution, in general, is found through predefined and agreed operating procedures. Further, under the system each exchange may decide to take part in the project with a different and progressive degree of technical and financial involvement, depending on its requirements: on the one end, by requesting to be co-owner of the algorithm and of the relevant interface systems, and taking over, on a rotating basis the operational role of "Master", or, on the opposite end, by considering the choice of not owning the algorithm, focussing exclusively on bilateral agreements with one of the members already present in the PCR to use the relevant systems.

5 In this respect see Box I - Comparison between coupling projects.

6 Pilot project headed by the European Commission for the definition of binding Guidelines concerning day-ahead market governance.

by co-ordination and co-operation agreements between participating exchanges, whereas systems and internal procedures will be defined at local level. In this perspective, some of the project activities are being defined, such as the algorithm co-ownership contract and the co-operation agreement between the exchanges which is to regulate the functioning and the evolution of co-ordinated-matching procedures.

In light of the foregoing, the advantages of the decentralised approach are easy to guess. While delivering the same results as a centralised market, the decentralised model is developed based on existing algorithms, rules and procedures. If on the one hand this minimises the need for a harmonisation, thus reducing implementation timescales and costs for the project, on the other, in no way does this limit any developments that may later prove more efficient. Thus, the PCR also qualifies as open project, insofar as the decentralised approach does not impose limitations to the type of eligible exchanges[7], nor to national regulatory and contractual designs in force, nor to the geographic extent of the coupling.

7 Especially in relation to their type of governance and institutional design.

Box 1 A COMPARISON OF EUROPEAN COUPLING PROJECTS

In the 2000s a series of market coupling and market splitting projects flourished in Europe, which were characterised by a progressively wider territorial expansion and by an increasing sophistication of the technical solutions. This refers, in particular, to the projects Mibel, TLC, CWE, CWE-Nordic ITVC, NWE, PCR as well as to the coupling project between Italy and Slovenia.[a] These projects are the bottom-up answer of the industry to the demand for integration of national markets in view of the single market, advocated by European legislation ever since 1996 and clearly envisaged by the last energy package of 2009.[b]

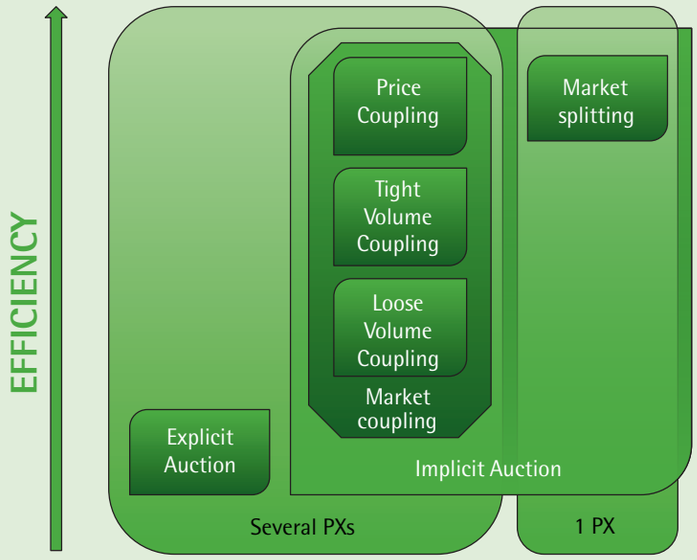
Together with market splitting, market coupling is one of the two possible ways to implement the so-called "implicit auctions" as per Regulation 714/2009 of the European Commission, as an instrument to regulate entry in cross-border transmission grids. Unlike explicit auctions, where the cross-border transit capacity between two countries and the relevant energy are allocated and priced in distinct and sequential auctions, implicit auctions allocate and value transit capacity at the same time as and depending of the level of prices on the energy markets between which energy is traded. This ensures that the value of the capacity is always equal to the price spread between the two sides of the border - hence, an always efficient use of the interconnection capacity. As a result greater pressure is exercised on the convergence of prices on the two sides of the border: in the event of no congestions (transit capacity not completely used) the clearing price on bordering markets is the same, whereas, conversely (transit capacity completely used) prices in the different markets would be differentiated, with higher prices in the importing market and lower in the exporting one. In the case of market splitting, this result is achieved through the integration of national markets in a single regional market which, by applying a market algorithm based on zonal prices, simultaneously determines clearing prices and volumes in all systems covered, as well as the relevant transit flows: typical examples are provided by NordPool Spot (the market connecting Norway, Sweden, Finland, Denmark and Estonia), Mibel (the market connecting Spain e Portugal) and – albeit on a national basis – GME's market. Market coupling delivers the same results by co-ordinating the national markets, with a solution that only differs from market splitting in terms of governance and operating modes.

The various market-coupling models created in the last years mainly differ with regard to three dimensions.

The first is the algorithmic solution adopted. Market coupling essentially consists in using a single algorithm (the "coupler") for the calculation of optimal energy flows between all coupled markets. To this end, the algorithm uses any aggregated bids collected in the various bidding areas and any transit limits between such areas as defined by the TSOs; this uniqueness delivers efficiency in transit capacity allocation. The implementation of this solution, however, may be faced by, more or less considerable, differences between the market algorithms that are in use on the various exchanges.[c] That is why two possible models of market coupling exist. One is the so-called price coupling, where the coupling algorithm is entirely identical with the algorithms adopted by the single coupled markets: under this model, prices, volumes and flows determined for the single markets by the coupler coincide with those that would have been determined by the markets themselves, exactly as it would have been the case with an overall market splitting. This is the solution suggested by the PCG in the so-called "Target model" for the European single market and it is relatively easy to be adopted where similar markets are coupled, as it may be implemented through the total harmonisation of the differences and through the coexistence in the same algorithm. However, in some cases it is too complex or even impossible to integrate matching rules and/or too different constraints in one single algorithm. In this case a second best solution is adopted, namely the "volume coupling", where the coupler only reflects a subset of rules being applied in the various markets (or reflects them in a -at times -simplified manner) and is used to determine any net positions between the areas (flows), assigning to the different power exchanges the calculation and the separate price setting for each area. Where neglected constraints are not too binding, it may be that the prices set by national exchanges are different from those that would have been calculated by the coupler,

but without reversing the sign of their relevant spreads. Here capacity allocation is always efficient, even though its value is not univocal. Conversely, where neglected constraints are mandatory, it may be that the prices set by national exchanges are quite different from those that would have been calculated by the coupler so as to reverse the sign of the relevant spreads, thus generating an inefficient capacity allocation (the so-called counterflows). For these reasons, this solution so far has only been adopted in two cases: in the failed coupling experiment between Germany and the Scandinavian Peninsula, known as EMCC, and in the transitional solution for the coupling between CWE and NordPool Spot (the so-called Interim Tight Volume Coupling or ITVC), which, anyway, is bound to be replaced by a price coupling model as soon as possible.

Fig I.1 **Xborder Capacity Allocation**



The second important dimension which differentiates coupling projects is the governance model adopted, that is the institutional design and therefore the set of rules governing function allocation and the relationships between the various parties involved in delivering and managing the coupling (PXs, TSOs, Regulators).
The national markets that now operate in Europe are characterised by deeply different models of national governance, which essentially refer to two types. On the one hand, the so-called "service provision model", that is the prevailing model in central-northern Europe, where the relationship between PXs and TSOs is defined by contract, identifying in the TSOs the parties responsible for the co-ordination of cross-border capacity and congestion management and in the PXs the parties that, thanks to the ownership of the matching algorithm and the liquidity they provide, exercise the matching functions in the form of service provision contracts for the TSOs. This design reveals that in these areas power exchanges are private entities predominantly established on a voluntary basis, which operate financial markets that essentially are scarcely related to the underlying physical reality of the market. On the other, the so-called "regulated model", more common in southern Europe countries and some eastern countries, where the relationship between PXs and TSOs directly originates in the regulation, in a triangular relationship with the Regulator. Here the TSOs are responsible for capacity calculation and the PXs for the assignment of the right of transit. This model reveals that power exchanges in these countries are established by national laws, are directly conferred with operational function within the electricity sector and are physical exchanges with regard to regulation, nature of traded products, consideration of the physical constraints of the system in their own market

rules. Under this model, the necessary operating agreements between TSOs and PXs do not originate from a service provision contract, but from bilateral agreements requested and approved by the regulator.[d]

In a context such as Europe, characterised by different national models and by the tension towards creating a single energy market, the various coupling projects, therefore, also differ for the flexibility of their own governance models, namely for their ability to contain and allow the coexistence of different local governance models, rather than requiring total harmonisation of these models. This capability makes it possible for the models to evolve from local or regional solutions to global solutions, that are able to unite the whole European market. Three different models may be identified to this respect. On one end, there are fully centralised models, based on the creation of a central party that manages the coupler (so-called central matching unit) and daily performs capacity allocation; here the relationship between the PX and the TSO is based on the rights of ownership on the coupling company and on any operational contracts and agreements binding this company to the other stakeholders. Typical examples of this approach are the EMCC or the NWE project, providing for the creation of a company set up as a joint venture of some TSOs and legally responsible for co-ordinated matching. Hence, the joint venture, from the point of view of the assigned functions, may enter into service-provision contracts with power exchanges. Similar models deeply affect national governances insofar as they centralise different functions and as such may not be easily extended to not homogenous systems, unless engaging in a long, expensive, and controversial harmonisation activity of the single systems. All other implemented projects, instead, include some level of governance decentralisation, which moves away from the concept of creating ad hoc companies that are responsible for the co-ordinated matching, while entrusting existing PXs directly with coupling. The PXs, in turn, will co-ordinate with one another based on a multilateral agreement. This is the case with various projects devised in the continental platform (TLC, CWE) which essentially share an institutional design based on regional co-operation contracts between TSOs and PXs, according to the prevailing service provision model in participating countries. On the opposite end, there is the totally decentralised model proposed by the PCR, whereby the different national or regional governance models coexist through an architecture where the central governance is reduced to the agreement between exchanges for the management of the central algorithm and to the few general features suggested by AHAG for EC governance (in this respect see Chapter A.3.2).

One last distinctive trait between the models is about the operating modes adopted. Here too similar distinctions as those illustrated with regard to governance apply. On one end, totally centralised models where the coupling is performed by a central party in Europe (central matching unit), which collects all the data required to calculate the results for all: a typical example of this is the ITVC managed by the EMCC or the model proposed by the TSOs for the management of the NWE project. Most of the couplings consist in a partially decentralised model, where the coupler management from time to time is entrusted to only one PX involved in the coupling, on a rotating basis (e.g. TLC and CWE). On the opposite end is the totally decentralised mode proposed by the PCR where all participating PXs simultaneously manage the coupler, producing identical results (in this respect see chapter A.3.2). The key data is that the difference between the various modes, apart from the operational aspects concerning management timescales and costs, also affect the governance model, insofar as the higher the centralisation of operations, the greater, to a large extent, the need for harmonisation of governance solutions between the various participating PXs.

(a) A summary of the definition and the analysis of these projects is provided in 0. For the description of the Italian-Slovenian coupling please refer to paragraph A.3.1.

(b) For further insights on the European process of creation of the single market linked to the Third Package, with special reference to the indications contained in Framework Guidelines and to the proposals emerged within the context of the PCR and AHAG, please refer to note 2 of paragraph A.3.2.

(c) The differences may be found, among other things, in: the format of bids/offers (stepwise or linear bids); traded products (hourly blocks, simple multi-hourly blocks, linked multi-hourly blocks, ...); price/volume indeterminacy management; supply inadequacy management; the measurement unit for prices; the minimum/maximum price limits; roundings).

(d) Looking forward, the difference between the two models is bound to decrease when considering that, in the model proposed by AHAG for the governance of the future European single market, for the first model contracts subject to "regulator's approval" are envisaged.

Tab I.1 **European coupling projects**

Project	TLC	EMCC	CWE	CWE-Nordic ITVC	NWE	ITA-SLO	PCR
General data							
Name	Trilateral Coupling	European Market Coupling Company	Central West Europe	Central West Europe – Interim Tight Volume Coupling	North- West Europe	Market Coupling Italy - Slovenia	Price Coupling of Regions
Target countries	France, Belgium, The Netherlands	Inter-connections between Germany – Denmark and Germany – Sweden	TLC + Germany, Luxembourg	CWE + Northern zone (Finland, Sweden, Norway, Denmark, Estonia)	CWE + Northern zone + UK	Italy + Slovenia	CWE + North + UK + Iberian Peninsula + Italy
Partners	PXs: Powernext, Belpex, APX TSOs: RTE, Elia, TenneT	PXs: EPEX, EEX, NordPool Spot; TSOs: Vattenfall Europe Transmission, Transpower (E.ON Netz), Energinet.dk	PXs: EPEX, Belpex, APX/ Endex; TSOs: Amprion, Creos, Elia, EnBW, Rte, Tennet, Transpower	CWE-Nordic PXs e TSOs, EMCC.	North-West Europe TSOs	Pxs: GME, BSP e Borzen TSOs: Terna, ELES	PXs: EPEX, Belpex, APX, OMEL, NPS, GME.
Type of cooperation	Regional cooperation	EMCC GmbH (joint venture of PXs: NPS, EEX TSOs: E.ON Netz, Energinet.dk, Vattenfall.	Regional co-operation	Inter-regional co-operation (CWE + Nordic)	Joint-TSOs company	Regional co-operation	Inter-regional co-operation
Date of take-off	21 Nov. 2006	9 Nov. 2009	9 Nov. 2010	9 Nov. 2010	Mid-2012	1 Jan. 2011	2012
Status	Finished – Replaced by CWE since 9 Nov. 2010	Finished – Replaced by CWE-ITVC since 9 Nov. 2010	On-going	On-going	At study stage	On-going	At study stage

(continued) European coupling projects Tab I.1

Project	TLC	EMCC	CWE	CWE-Nordic ITVC	NWE	ITA-SLO	PCR
Analysis							
ALGORITHM							
Type of coupling	Price coupling	Tight volume coupling	Price Coupling	Tight Volume coupling between CWE and NordPool	Price coupling	Price coupling	Price coupling
Number of algorithms	1 – TLC algorithm (Co-ordination module)	1- EMCC algorithm	1- Cosmos	1- EMCC algorithm	Not yet defined	1- GME algorithm	1- PCR: formed by 4: Cosmos, Siom, Sesam, GME.
Type of algorithm	Optimisation	Optimisation	Optimisation	Optimisation	Not yet defined	Optimisation	Not yet defined
Grid model	ATC	ATC	ATC/FB	ATC/FB	Not yet defined	ATC	ATC/FB
SYSTEM DESIGN							
Management	Centralised	Centralised	Centralised - MC System	Centralised - EMCC	Centralised	Decentralised	Decentralised
Decoupling	Progressive	direct	direct	direct	Direct	Direct	Being defined
Decoupling management	Daily explicit auctions of TSOs for the XB capacity	Short term → capacity provided to the intra-day market Long term → re-implementation of the auction scheme	*Daily Shadows explicit auctions (performed in parallel) via CASC*	ITVC decoupling: Daily Shadows explicit auctions (performed in parallel) via CASC + CWE Second Auction	Not yet defined	Decoupling: every market per se without considering the bids/offers of the other + Explicit auctions	Not yet defined
GOVERNANCE							
PX/TSO relationship	*Service Provision model*	*Service Provision model*	*Service Provision model*	*Service Provision model*	*Service Provision model*	Independent	On a national basis
PX regulation	indirect	indirect	indirect	indirect	indirect	direct	On a national basis
Approval process	Pentalateral Forum	MoU between PXs and TSOs	Pentalateral Forum	Pentalateral Forum	Not yet defined	MoU Italy-Slovenia + Pentalateral agreement	On a national basis

3.3 MI – MSD integration

In compliance with the provisions of Law no. 2/09 and of the Ministerial Decree of 29 Apr. 2009, GME, starting from 31 Oct. 2009, established an Intra-day Energy Market (MI), replacing the Adjustment Market, which takes place between the closing of the day-ahead market and the opening of the ancillary services market and consists of two sessions (MI1 and MI2), which take place with different closing times and in succession and finishing both on the day before the day of flow[8] .

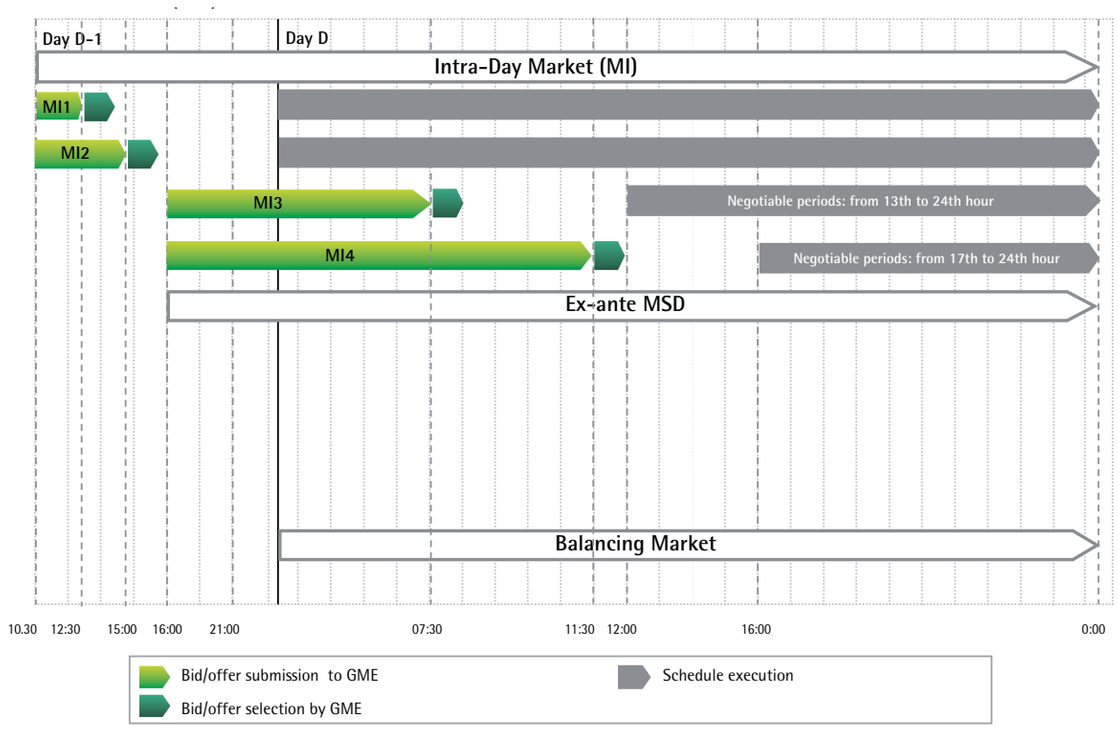
The creation of two sessions for the MI preceded the subsequent integration, at functional level, of this market with the ancillary services markets (MSD), in order to increase the number of market sessions giving rise to a continuous flow of negotiations.

Later, namely as of 1 Jan. 2011, two more sessions of the MI (MI3 and MI4) were introduced, which, unlike the first two sessions, close directly on the day of flow.

In order to integrate the MSD and the additional MI sessions, again on 1 Jan. 2011, the ex-ante MSD was divided into in 3 scheduling substages, taking place at the end of the sessions of the MI2, the MI3, and the MI4 respectively. In particular, through the first two scheduling substages taking place downstream of the MI3 and MI4 sessions, Terna checks the compatibility of any transactions performed in the MI sessions with the system operation constraints and deploys any resources that may be necessary to guarantee proper functioning of the grid.

Unlike the other energy markets, where all the 24 hours of the following day are negotiable, in the MI3 and MI4, as these sessions take place in the course of the day of flow where the energy being negotiated is to be injected into or withdrawn from the grid, only the remaining hours are negotiated until completion of the day of flow. In particular in the MI3 time periods between the 13th and the 24th are negotiated, whereas in the MI4 those between the 17th and the 24th. Both sessions consist of an implicit-auction mechanism that is similar to the one adopted by the previous sessions of the energy markets.

Fig A.3.2 **Integration between the MI and the MSD**



8 Day of flow means the day on which the energy negotiated on the market is injected into/withdrawn from the grid.

4. RESULTS OF OPERATIONS

In the course of 2010, owing to the different electricity-procurement policy adopted by Acquirente Unico S.p.A., traded volumes recorded a sharp drop in the Spot Electricity Market. As a result of this dynamics, central counterparty revenue/cost items[1] went down by € 0.7 million, passing from € 17.9 billion in 2009 to € 17.2 billion in 2010. Earnings before interest, taxes, depreciation and amortisation (EBITDA), equal to € 18.8 million, increased by € 2.4 million (+14.7%) on the previous financial year. This positive dynamics is to be ascribed, above all, to the growth by over € 3 million (+9.6%) of marginal revenues[2] , which amounted to € 34.9 million, caused by the sustained rise in transactions recorded on the PCE and, to a lesser extent, by the increased volumes traded in the Environmental Markets. Earnings before interest (EBIT) reached € 17.5 million, up by € 2.5 million (+16.6%) as against 2009. Earnings after tax (net income for the year), equal to € 12.1 million, went up by € 0.3 million (+2.8%) as against 2009.

GME's performance, income and equity (2009-2010) Tab A.4.1

Data in € million	Marginal revenues	EBITDA	EBIT	Net income	Total Assets (a)	Shareholders'equity
2009	31.879	16.403	15.035	11.802	83.322	33.199
2010	34.934	18.818	17.527	12.132	46.219	33.529

Note: (a) the total assets are net of receivables from: i) sale of electricity in the Electricity Market; ii) market participants; iii) GSE; iv) fees for assignment of rights of use of transmission capacity (CCT) and for market segmentation. The total assets do not include unavailable deposits made by market participants.

GME's key ratios (2009-2010) Tab A.4.2

Data in € million	EBITDA/Revenues ratio (%)	EBIT/Revenues ratio (%)	ROI (a)	ROE (b)
2009	51.5	47.2	18.0	35.5
2010	53.9	50.2	37.9	36.2

Note: (a) ROI is calculated as the ratio of EBIT to total assets;
(b) ROE is calculated as the ratio of net income to shareholders' equity.

The marginal costs incurred in 2010, totalling € 17.4 million, grew by € 0.6 million (+3.3%) on the financial year 2009 (€ 16.8 million) resulting from the reduction of labour cost and the increase of costs for services and for leases and rentals, related to new and larger spaces hosting GME's offices.

Marginal costs and share of revenues (2009-2010) Tab A.4.3

Data in € million	Raw materials and services	Leases and rentals	Personnel	Amortisation, Depreciation, Write-downs and Provisions	Sundry Operating Expenses
2009	5.999	0.871	8.317	1.367	0.290
2010	6.241	1.466	8.023	1.291	0.386

Data in %	% of revenues	% of revenues	% of revenues	% of revenues	% of revenues
2009	18.8	2.7	26.1	4.3	0.9
2010	17.9	4.2	23.0	3.7	1.1

1 Central-counterparty revenue/cost items are the positive revenue items which exactly correspond to the negative revenue items to which they refer.

2 Marginal revenues are the positive revenue items which are allocated to cover operating costs and return on capital invested.

The following table displays the average number of personnel members, divided by contractual category, and the actual number at 31 Dec. 2010, vs. the previous year.

Tab A.4.4 **Composition of personnel**

Number	Personnel members		Personnel members	
	Average in 2010	at 31 Dec. 2010	Average in 2009	at 31 Dec. 2009
High and middle-level managers	9.46	9	10.54	10
Low-level managers	28.38	29	27.29	28
Office personnel	52.75	51	53.59	53
Total	**90.59**	**89**	**91.42**	**91**

SECTION

B

MARKET FUNCTIONING

MARKET FUNCTIONING

The markets operated by GME may be grouped in three macro-zones: electricity markets, environmental markets and gas markets. Please find below the functioning rules of the different markets as well as the basic principles of the legislative/regulatory framework within which these markets operate.

1. ELECTRICITY MARKETS

1.1 The organisation of the electricity market in Italy

The organisation of the Italian electricity market is practically governed by the merit-order dispatch rules laid down in AEEG's Decision no. 111/06 (as subsequently amended and supplemented). This Decision provides that: i) in the Italian electricity market, the purchase and sale of electricity may take place on the exchange (MPE or MTE) or under bilateral (OTC) contracts; and ii) this activity may be carried out only by "market participants", i.e. parties having the availability of injection and/or withdrawal capacity since they have entered into a dispatching contract with Terna (the so-called "dispatching users") or have been duly authorised by a dispatching user to act on his/her behalf. More generally, market participants (and thus also dispatching users) carry out marketing activities (purchase/sale, registration of injection/withdrawal schedules) and pay the related system charges (CCTs, scheduled deviations), whereas dispatching users in the strict sense are responsible for conducting physical activities (generation/consumption, execution of dispatching commands given by Terna in the MSD, i.e. Ancillary Services Market) and paying the related charges (balancing charges).

The Electricity Account Registration Platform (PCE), managed by GME in the name and on behalf of Terna as per art. 16 of Annex A to AEEG's Decision no. 111/06, as subsequently amended and supplemented, ensures the traceability of flows, the physical execution of contracts and the coverage of related financial risks. This is done by using Forward Electricity Accounts and Actual Deviation Accounts, so as to manage the commercial and physical aspects of electricity purchase and sale transactions in a co-ordinated but distinct way.

In particular, each market participant holds one injection account and one withdrawal account, corresponding to the offer points (and thus to the capacity) that he/she has available. The market participant is entitled to register contracts on these accounts. The offer points may be: i) injection points (corresponding to both physical and virtual generating units)[1] ; or ii) withdrawal points (except for pumped-storage units, they typically correspond to virtual consuming units, which aggregate all the meters of the wholesaler's customers in the same zone). Upon conclusion of the contract, the two counterparties must register the volume covered by the contract, for each hour, on the PCE, specifying on which of their accounts the registration is to be made. The volumes registered by the two counterparties must be identical. To guarantee the execution of the contracts, these volumes - together with the volumes previously registered on the same account - should give rise to a net balance. This balance should be consistent with the nature of the account (net sale for injection accounts, net purchase for withdrawal accounts) and not exceed the sum of the available capacities of the units belonging to the account. On the day before the delivery of the electricity covered by the contracts, the counterparties register the related injection schedules on their own accounts. In doing so, they must specify to which of the units included in the account the volumes for each hour should be attributed[2] . To guarantee the execution of the contracts, the quantities registered on each unit should not exceed its available capacity and the sum of the scheduled volumes should not exceed the sold or purchased volume. However, the sum of the overall volumes scheduled by each participant may be lower than the registered net balance (the so-called scheduled deviation). If the parties have concluded the contracts directly

1 The virtual generating units may be: i) units which include various "non-relevant" generating units or neighbouring countries' generating units representing the availability of import capacity on the border assigned to a given participant.

2 The same procedure takes place for purchase contracts, registered with positive sign, which must correspond to one or more withdrawal schedules registered with negative sign.

(so-called physical bilaterals OTC), they must register the contracts and schedules directly on the PCE. If the parties have concluded the contracts in the MTE, the platform will automatically register the net balance of the contracts belonging to each participant on the PCE, upon expiration of the trading period, and participants will be required to register the related schedules at a later stage. Finally, in the case of contracts made in the MPE, the platform will automatically consider the accepted bids/offers as contracts and schedules and register them on the PCE.

Likewise, Terna assigns to each dispatching user an Actual Deviation Account for the units falling under his/her responsibility. This account holds the schedules registered in the MI and ex-ante MSD and any volumes actually injected and/or withdrawn (as measured by the meters of the individual injection/withdrawal points).

Thus, upon the settlement of payables/receivables: i) the payment of the injected/withdrawn electricity, executing the injection/withdrawal schedules, is settled between the counterparties at the price specified in the contract; ii) any positive difference between the volume registered and the volume scheduled by each counterparty (the so called "scheduled deviation") represents a purchase/sale in the MGP, to be settled with GME at the corresponding market value (Pun); iii) the payment of the injected/withdrawn electricity, modifying the schedules of such contracts, is settled between the dispatching user and Terna at the value of the so-called "price of deviation" (the so-called double settlement)[3].

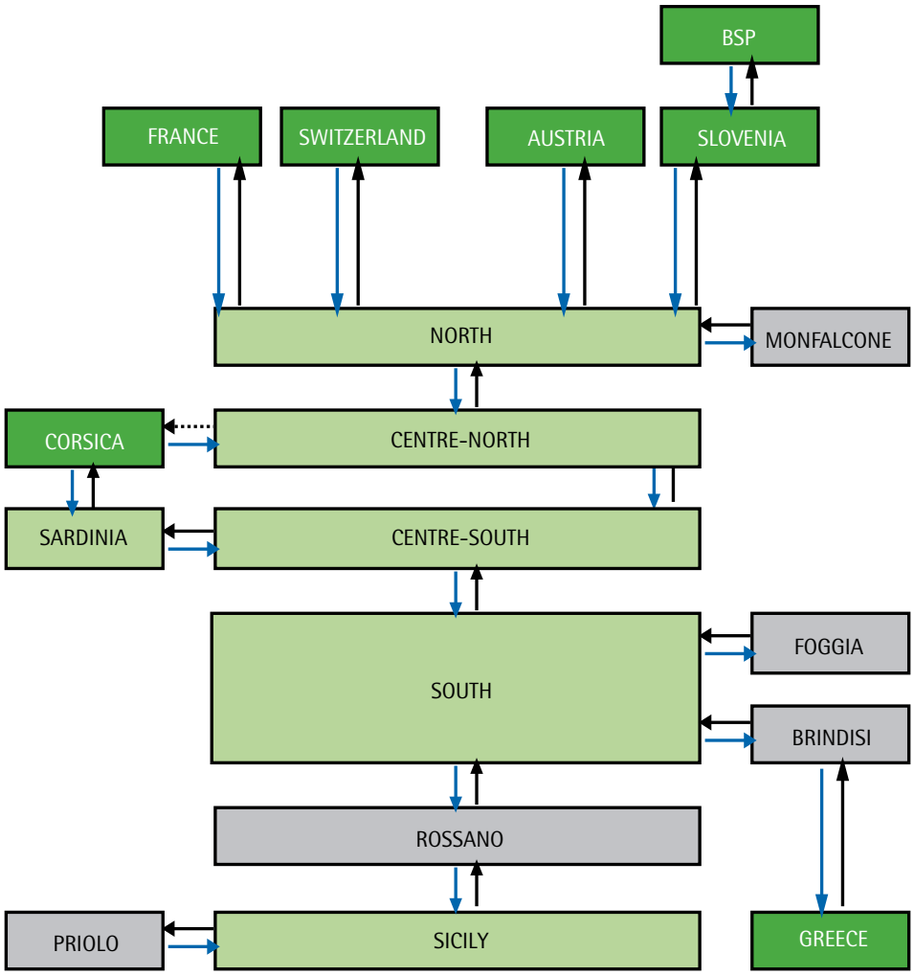
As the schedules registered on the PCE contribute to creating grid congestions, just as the schedules resulting from the bids/offers accepted in the MPE, both should compete for the allocation of available transmission capacity, paying it at the market value in case of congestions. This is obtained by organising the MGP as a zonal market, gathering all the schedules registered on the PCE, as described in the following paragraph. To this end, Terna conventionally divided the power grid into zones, representing areas between which congestions are frequent and significant, but within which no major congestions occur, as illustrated in the chart in Fig.B.1.1[4] . In case of congestion, a fee (CCT, cost of the right of use of transmission capacity or transmission capacity fee) is applied to the injection schedules. The CCT is calculated as the difference, in each hour, between the hourly electricity purchasing price in the withdrawal zones of the contract and the hourly electricity selling price in the injection zones of the contract. Therefore, the CCT is: i) positive (burden) for injection into exporting zones, as it contributes to increasing congestions; ii) negative (subsidy) for injection into importing zones, as it contributes to relieving congestions; and iii) zero if no congestions arise. In the case of OTC contracts registered on the PCE, this fee is explicitly paid to Terna by the operator that has registered the injection schedule. In the case of contracts registered

3 A generation deficit or consumption surplus with respect to the schedules qualifies as a purchase by Terna, which in turn buys such electricity on the MB. Conversely, a generation surplus or a consumption deficit with respect to the schedules qualifies as a sale to Terna, which offsets these transactions by selling on the MB. The price of deviation is calculated in such a way to penalise only the deviations that worsen the overall zonal deviation. In particular, with regard to the injection schedules of the "relevant units" (units whose schedules, taking into account their nominal capacity and the transit limits, are relevant for Terna's prediction of requirements of ancillary services), when the aggregate zonal deviation is positive (demand surplus), the generation deficit is priced at the maximum value between the price in the MGP (Pun) and the highest sell price accepted in the MB, whereas the generation surplus is merely priced at the Pun. Conversely, when the aggregate zonal deviation is negative (supply surplus), the generation deficit is valued at the Pun, whereas the generation surplus is valued at the minimum value between the Pun and the lowest buy price accepted in the MB. Similar but less penalising rules are applied to the "non-relevant" units, for which the highest (lowest) sell (buy) price accepted in the MB is replaced by the average price of all the accepted sell (buy) prices. Likewise, in the case of non-schedulable units, the price of deviation is more simply equal to the corresponding Pun. Finally, it should be pointed out that, to minimise the impact of these rules on consuming units and calibrate its incentive effect over time, the same rules provide for a threshold of consumption, which decreases over time and below which the deviations are priced at the Pun.

4 Article 15.1 of AEEG's Decision 111/06 also provides that the zones shall be defined in such a way that the transmission capacity between the zones proves to be inadequate to execute the injection and withdrawal schedules corresponding to the most frequent operating conditions, based on the results of the electricity market predicted by Terna; the execution of injection and withdrawal schedules does not give rise to congestions within each zone under the predictable operating conditions; the location of injections and withdrawals, including potential ones, in each zone has no significant impact on the transmission capacity between the zones. The zonal configuration of the grid approximates the real grid, leaving some congestions potentially unresolved and subsequently resolved by Terna in the MSD. This simplification marks a point of equilibrium between: the minimisation of congestion relief costs, possibly guaranteed by a nodal system; and the maximisation of market transparency and liquidity, typical of a single-zone system. In this connection, see the analysis made in AEEG's consultation document DCO 24/08 (fundamentals and rationales of zones and potential impact on the electricity market). In particular, the grid consists of 6 geographical zones, 5 poles of limited production and 7 neighbouring countries' zones. The geographical zones (northern Italy, central-northern Italy, central-southern Italy, southern Italy, Sicily, Sardinia) correspond to portions of the country that have injection and withdrawal points: in 2009, they accounted for 67% of total sales. The poles of limited production (Monfalcone, Brindisi, Foggia, Rossano, Priolo) correspond to points of injection insufficiently interconnected with the rest of the grid. These points are isolated into an appropriate zone in order to solve structural congestions on a scheduled basis: in 2009, they accounted for 17% of total sales. Foreign virtual zones (France, Switzerland, Austria, Slovenia, Greece, Corsica, Corsica AC) correspond to portions of interconnections on each neighbouring country's border and are used to manage cross-border congestions, by allocating the available transmission capacity for exports and imports on a scheduled basis: in 2009, they accounted for 16% of total sales. As of 1 Jan. 2011 the zonal design includes a BSP zone regarding the interconnection capacity between Italy and Slovenia allocated by daily implicit auction (the so-called market coupling). Conversely, the neighbouring virtual zone - Slovenia - is used for the share of interconnection capacity allocated by periodical (monthly and yearly) explicit auctions.

on the MPE, the fee is implicitly paid by the participant as the seller's opportunity cost of being paid a zonal price different from the Pun. GME extracts this cost as the difference between the value of purchases and the value of sales concluded in the market and pays it to Terna. The set of the transmission capacity fees paid to Terna represents the congestion rent that Terna returns to final customers by reducing the system charges (the so-called uplift).
The PCE makes it possible, among others, to manage the guarantee of solvency of the obligations that market participants and dispatching users have taken on towards the system. Indeed, upon registering the contracts on the forward electricity accounts, market participants are required to post guarantees in favour of GME. These guarantees must cover the estimated value of a possible scheduled deviation and of the possible CCT. Conversely, dispatching users are held to post guarantees in favour of Terna; these guarantees must cover the estimated value of actual deviations.

Fig B.1.1 **Electricity market grid configuration**



1.2 The Spot Electricity Market (MPE)

The MPE took off on 1 Apr. 2004 in compliance of article 5 of Legislative Decree 79/99 and with the Decree of the Minister of Productive Activities of 19 Dec. 2003. It has been partially redesigned since 1 Nov. 2009 under Law 2/09. It consists of three submarkets: the Day-Ahead Market (MGP), the Intra-day Market (MI) and the Ancillary Services Markets (MSD).

- **Day-Ahead Market (MGP).** The Day-Ahead Market is the main market operated by GME, with its 199 TWh recorded in 2010. In the MGP participants only trade in hourly contracts with physical delivery obligation and having GME as central counterparty. The MGP qualifies as a physical market for three reasons: i) only electricity operators may participate therein and they are subject to the constraint of submitting supply offers only in respect of injection points and demand bids only in respect of injection points (therefore, trading activities are not allowed in the MGP); ii) bids/offers must refer to specific points of injection so that, after acceptance, they give rise to injection/withdrawal schedules (the so-called "unit bids"); iii) bids/offers are accepted under the economic merit-order criterion, but they should comply with the transit limits between zones (the so-called zonal market). Negotiations are based on hourly clearing-price auctions: bids/offers, in respect of all units and of the 24 hours of the delivery day, may be submitted from nine days ahead of delivery to 9:00 of the day ahead of delivery (gate closure). The results of the market are made known at 11:30. For each hour and each offer point, each participant may submit a supply curve consisting of four price-quantity pairs (the so-called "simple multiple bids"); bids/offers may change hour by hour. As the products are hourly-based and the bids/offers are simple, the market results of each of the 24 hours may be determined simultaneously and independently. Bids/offers are accepted under a non-discriminatory auction (or clearing-price auction) mechanism, which maximises the added value of transactions. This value is defined as the difference between the value of demand bids and supply offers, each valued at its own offered price. In graphical terms, this is tantamount to building a decreasing demand curve and an increasing supply curve, defining the accepted bids/offers as those located on the left side of their point of intersection and valuing them at the price of intersection between demand and supply (clearing price). However, when accepting the submitted bids/offers, the auction algorithm ensures that overall demand is equal to supply and that the transit flows arising from bids/offers are compatible with the maximum transmission capacity or transit limits between each pair of neighbouring zones (these limits are reported by Terna before the opening of the market), thus defining a clearing price for each zone of the grid. If no limits are saturated, the selling price in each zone is the same. Otherwise, the zonal selling prices may be differentiated; by definition, they will be lower in exporting zones and higher in importing ones. In this sense, the zonal market is not only an explicit auction for electricity but also an implicit auction for the transmission right on the grid. This is the reason why, for the purposes of the zonal market solution, the schedules registered on the PCE and executing forward electricity purchase/sale contracts are considered to be virtual bids/offers entered into the MGP. These bids/offers do not receive the market price, but contribute to determining the level of congestions to which the CCT is applied. While supply offers are valued in each hour at the applicable zonal price, demand bids are valued in each hour at a single national purchasing price (PUN). This price is defined for each hour as the average of the prices of the geographical zones, weighted for the value of purchases by final customers in the same hours and the same zones[5]. An exception to this rule is represented by demand bids in respect of pumped-storage units and those

5 In this connection, it is worth recalling that the Pun is not calculated after the solution of the MGP, as the average of the already set zonal prices, but is calculated together with the zonal prices during market resolution. This means that the constraints to be met in maximising the value of transactions also comprise the constraint that the accepted demand bids express a maximum purchasing price not lower than the Pun. Otherwise, the result of the market might yield paradoxical results, accepting demand bids which specify maximum purchasing prices below the value of the Pun. For further insight into this subject, the reader is referred to the document "Uniform purchase price algorithm" available on GME's website: http://www.mercatoelettrico.org/It/MenuBiblioteca/Documenti/20041206UniformPurchase.pdf

pertaining to foreign virtual units, which are valued at the respective zonal prices[6]. In compliance with Law 02/2009, the Decree of the Ministry of Economic Development of 29 Apr. 2009 introduced the following provisions: after positive verification by the Ministry of Economic Development of the completion of the revision process as per art. 3, para. 10, b) and e) of Law no. 2/2009, the electricity price in the Day-Ahead Market shall, beginning on 1 Apr. 2012, be determined on the basis of the different selling prices offered in the market, in a binding way, by each seller and accepted by GME, giving priority to supplies offered at the lowest prices until demand is completely covered (so called "pay as bid" rule).

- **Intra-day market (MI).** The Intra-Day Market (MI), which replaced the Adjustment Market (MA) beginning on 31 Oct. 2009, consists of four sessions: two on day D1 concerning the 24 hours of day D and two on day D concerning the last 12 and 8 hours respectively, according to the timescales illustrated in Tab. B.1.1. The volumes traded in the MI, overall equal to 15 TWh in 2010, are much more limited than those in the MGP. Indeed, while the main purpose of the MGP is the definition of electricity purchase/sale contracts and related injection/withdrawal schedules, the MI is aimed at enabling participants to modify the schedules defined in the MGP, to solve problems of dispatching, if any (in the case of thermal power plants), or more generally of changed willingness to inject/withdraw electricity. In terms of rules, the MI differs from the MGP in the following few aspects: i) each participant may submit both demand bids and supply offers in respect of a same offer point; and ii) all demand bids and supply offers are valued at the related zonal price. Until the end of 2008, this did not entail problems, as only offers in respect of injection points were allowed to be submitted into the MI. On 1 Jan. 2009, this constraint was removed, allowing also bids in respect of withdrawal points to be entered into the MI: in this case, a non-arbitrage fee is applied to withdrawal bids; this fee is equal to the CCT applied in the MGP for that hour and that zone.
- **Ancillary Services Market (MSD).** The MSD is a venue where GME performs operational functions of data exchange, but whose responsibility in terms of rule-setting and bid/offer acceptance rests with Terna. The market consists of two sessions. The first (ex-ante MSD or MSD1) is held immediately after the MI2 - opening at 15:30, closing at 17:00 and publication of results at 21:00. Terna relies on this market to solve residual congestions which may arise after the MGP and MI and to procure generating unit reserve margins to guarantee the real-time balancing of the system. The second session (ex-post MSD or MB) is instead held on the day of delivery. In this session, no new bids/offers are submitted, but bids/offers already entered into the ex-ante MSD are possibly accepted for balancing purposes. Unlike in the MGP and MI, each of the accepted bids/offers is valued at its own offered price (pay as bid). Only dispatching users may participate in this market and only in respect of generating or consuming units that Terna has defined as "relevant". Participation in the market is mandatory. A single supply offer (up) and a single demand bid (down) may be submitted in respect of each hour and each unit, at the price freely chosen by the dispatching user. Terna may accept these bids/offers both in the ex-ante MSD and in the ex-post MSD, so that each of the two markets qualifies in turn as balancing-up market and balancing-down market. It is worth mentioning that, as a result of the approval of Law 02/2009, Terna modified the rules of operation of the MSD with effect from 1 Jan. 2010. Until 31 Dec. 2009, the market consisted of only one MSD and one MB session and participants could submit a single supply offer and a single demand bid for each unit at unvaried prices for contiguous hourly bands. Then, beginning on 1 Jan. 2010, the MSD was subject to a deep legislative/regulatory overhaul. In the first place, participation was extended to further operators, including in particular several CIP6 units. Secondly, multiple bids/offers were introduced; these bids/offers display three incremental and successive electricity prices (GR1, GR2, GR3) and the related costs for plant switching-on/off; they may also differ from hour to hour and may be changed in the MB. Thirdly, MB sessions passed from 1 to 5, according to the timetables provided in Tab. B.1.1, and, additionally, beginning

6 This exception is justified by the need for averting possible arbitrages in respect of these units. As these units may simultaneously enter supply offers and demand bids, they might take advantage, in each hour, of the difference between the zonal price and the Pun in all the zones where the zonal price is lower than the Pun.

on 1 Jan. 2011, two new intra-day scheduling stages of the ex-ante MSD were introduced after the start, on the same date, of the two new MI3 and MI4 sessions respectively.

Timings on spot electricity markets Tab B.1.1

	MGP	MI1	MI2	MSD1	MB1	MB2	MI3	MSD2	MB3	MI4	MSD3	MB4	MB5
Reference day		**D–1**							**D**				
Preliminary information	08.00	12.30	15.00	n.d.	n.d.	n.d.	07.30	n.d.	n.d.	11.30	n.d.	n.d	n.d
Sitting opening	08.00**	10.30	10.30	15.30	°	23.00*	16.00*	°	23.00*	16.00*	°	23.00*	23.00*
Sitting closing	09.00	12.30	15.00	17.00	°	04.30	07.30	°	10.30	11.30	°	14.30	20.30
Individual results	10.30	13.00	15.30	21.00	#	#	08.00	10.00	#	12.00	14.00	#	#
General results	10.30	13.00	15.30		##	##	08.00	##	##	12.00	##	##	##

** time referred to day D-9
* time referred to D-1
° bids/offers submitted in the first MSD substage are used
fifteenth day month M+2
General results are reported every hour, 1 hour after the end of each hourly period. For the first three months after the new MSD took off, result publication will take place on a weekly basis.

1.3 The Electricity Account Registration Platform (PCE)

The Electricity Account Registration Platform (PCE), which was assigned to GME under article 16, of Annex A to AEEG's Decision no. 111/06, as subsequently amended and supplemented, took off on 1 Apr. 2007. The PCE is not a market but a platform where participants register the forward OTC contracts that they have signed outside the MPE without specifying their contractual prices. As previously described, the operation of the platform is based on a system of forward electricity accounts, where the registration of commercial transactions is separated from the registration of the related schedules that participants undertake to execute. In this way, the management of electricity portfolios in the medium-long term is more efficient, since participants may, if necessary, easily renegotiate the electricity previously bought/sold. The PCE also provides IPEX participants with other forms of flexibility: i) the option of registering schedules lower than the net balances registered on their own account; and ii) the option of registering these schedules by specifying a positive price; in this way, the schedules are accepted in the MGP only if their price is lower than the zonal price (their price contributes to the setting of the zonal price). These options are available only to IPEX participants, since they imply a scheduled deviation and thus a purchase or a sale in the MGP. This is the reason why, as against 236 TWh of contracts registered on the PCE, the registered schedules only amounted to 119 TWh. Finally, it should be added that, pursuant to AEEG's Decision 111/06, participants may register on the PCE only contracts with a maximum deferred delivery of two months. Consequently, for contracts of longer maturity, participants have to make a series of registrations by successive tranches.

1.4 The MTE and the CDE

The MTE was launched on 1 Nov. 2008, pursuant to the Decree of the Ministry of Economic Development of 17 Sep. 2008. It has been redesigned since 1 Nov. 2009, under Law 2/09 as set out in the Decree of the Ministry of Economic Development of 29 Apr. 2009 (Ministerial Decree 29/04/2009). It is a regulated market where participants may sell and buy forward electricity contracts with delivery- obligation. In the MTE, standardised forward products, with both base-load and peak-load profiles and physical delivery obligation, may be traded. In this market, GME acts as a central counterparty. The physical delivery obligation suggested, at least in a first stage, to fully integrate the MTE with the PCE with a view to safeguarding the security and stability of the power system. Therefore, the physical positions arising from the contracts made in the MTE were immediately registered on the PCE. This rule limited the maximum maturity of these contracts to 60 days, i.e. the maximum delivery period established for the registration of electricity trades on the PCE. Beginning on 16 Feb. 2009, in each session, participants could choose among 4 weekly contracts and one monthly contract, as well as 9 daily contracts. On 1 Nov. 2009, in accordance with Law 02/2009, the structure of the market was aligned with the one of the main European power exchanges, eliminating daily and weekly contracts and extending the maturity of the contracts. At present, 3 monthly contracts, 4 quarterly contracts and one yearly contract (always with base-load and peak-load profiles) are simultaneously listed. As regards the settlement, only the monthly contract goes to delivery. At the beginning of the delivery period, a cascading mechanism is applied to the other contracts. Under this mechanism, the contracts are split into an equivalent number of contracts with a shorter delivery period[7]. Additionally, under the new structure, the contracts concluded in the MTE are transferred to the PCE no longer upon their conclusion but at the end of the trading period, i.e. immediately before the start of the delivery period. Unlike the MGP, the MTE is based on continuous trading, in which each pair of contracts is matched on the basis of its own contractual price. The reference price published by GME is calculated as the average of the prices of the concluded contracts, weighted for the respective volumes. Also OTC transactions may be registered in the MTE, specifying the electricity volumes involved and the price at which the corresponding OTC contract has been entered into; this enables participants to efficiently manage the counterparty risk that is intrinsic in these contracts. In 2010 in the new MTE, although volumes remained low, 2,366 transactions were completed, totalling 6 TWh, vs. 0.12 TWh traded in 2009.

Since 26 Nov. 2009, GME has also been managing an Electricity Derivatives Platform (CDE). The CDE enables fuller integration of physical and financial forward electricity markets. In particular in the CDE participants execute the financial electricity derivatives that they have concluded on IDEX – the segment of the financial derivatives market of "Borsa Italiana S.p.a." where electricity futures are traded. Participants may execute these contracts only if they have requested to exercise the option of physically delivering the electricity underlying their contracts in the electricity market (ME). All electricity market participants are automatically admitted to the CDE. However, only participants holding a forward electricity account on the PCE may request physical delivery in the ME.

The market participant may exercise the option of physical delivery in the ME of the electricity underlying the financial contracts (only those having a monthly delivery period) concluded on IDEX (on the information systems of Borsa Italiana and CC&G) in accordance with the procedures and within the time limits defined in the respective Rules.

Physical delivery takes place by registering an electricity purchase/sale transaction to which GME becomes the counterparty. The transaction has a sign corresponding to the delivered contracts and is registered on the forward electricity accounts that the participant holds on the PCE. In the course of 2010, delivery options for overall 0.1 TWh were exercised in the CDE.

7 Under the cascading mechanism, a quarterly contract is divided into three monthly contracts (the first is settled by physical delivery), whereas the yearly contract is split into three monthly and three quarterly contracts. In both cases, the maturity covered by the new contracts is the same as that of the original contract.

2. ENVIRONMENTAL MARKETS

2.1 Green Certificates Market (MCV)

The market mechanism based on green certificates was introduced as part of Legislative Decree no. 79 of 16 Mar. 1999, concerning the liberalisation of the electricity sector to promote the generation of electricity from renewables (RES-E) and gradually replace the old feed-in tariff support scheme, known as CIP 6, in force since 1992. Under said Decree, producers and importers of electricity from non-renewable sources, every year beginning on 2002, are required to inject into the grid a quota of electricity generated by renewable- power plants. This quota amounts to 2% of the electricity produced or imported in the previous year, exceeding 100 GWh. This mandatory quota was increased by 0.35% yearly for the period 2004-2006 and again by 0.75% yearly for the period 2008-2012.

The electricity from renewables is eligible for green certificates; each certificate is worth 1 MWh of electricity generated by an RES-E ("IAFR - Impianto alimentato da fonti rinnovabili") plant.

Gestore dei servizi energetici (GSE) is responsible for qualifying RES-E power plants. At the request of the producer, a Technical Commission of GSE assesses the characteristics of the plant and, if the assessment is positive, it awards the RES-E ("IAFR") qualification. After qualification, the RES-E producer may apply for green certificates both on an ex-post basis (in respect of actual generation in the previous year) and on an ex-ante basis (in respect of the expected generating capability in the current or following year).

By 31 Mar. of each year, parties subject to the green quota obligation submit to GSE a number of green certificates equal to the required percentage. Every green certificate is identified by the reference year, i.e. when the generation from renewable sources took place. A green certificate with a given reference year is valid for the purposes of fulfilling the obligation for the same year or the two subsequent years. These green certificates are no longer deemed valid after the deadline for fulfilling the obligation of the second year subsequent to the reference year.

Different types of green certificates may be issued: in particular, apart from green certificates issued in respect of generation by RES-E certified plants, CV_H2s may be issued for electricity production fuelled by hydrogen and in static plants using hydrogen, i.e., using fuel cells, and CV_TRLs issued in respect of generation from co-generation plants combined with district heating (limited to the share of thermal energy that is actually used for district heating).

Where required to comply with their obligation, the parties may choose between investing in the construction of RES-E plants - and receive green certificates by generating electricity in their plants - and buying green certificates from other producers. This decision is mainly based on the assessment of the marginal costs for each alternative. Building new plants may be more favourable when the related marginal costs are lower than those incurred for purchasing green certificates.

In order to favour the trading of green certificates, the Ministerial Decree of 11 Nov. 1999 (repealed and replaced by the Ministerial Decree of 24 Dec. 2005, lately repealed and replaced by the Ministerial Decree of 18 Dec. 2008) vested GME with the responsibility of arranging and managing a dedicated platform.

The MCV took off in Mar. 2003 and consists of sessions where transactions are performed on a continuous-trading basis. This means that during market opening hours, participants may enter purchase/sale orders, specifying volumes and prices. Orders are matched if the price of the best purchase order is higher or equal to the best sale order, and vice versa. In addition, purchase/sale orders may be posted without specifying their price and are automatically matched with the best order of opposite sign. Sessions usually take place once a week, from 9:00 to 12:00.

In this market GME acts as central counterparty, to guarantee a successful outcome for transactions. For this purpose, in order to ensure the delivery of the negotiated green certificates to purchasers, market rules only admit the sale of the green certificates available on the ownership account of each participant within the Green Certificates Registry managed by GSE, thus excluding short selling and avoiding the failure to deliver the negotiated certificates. Similarly, to ensure payment to selling participants, potential purchasers are required to

make a deposit, the day before each market session, into GME's bank account in order to fully guarantee their transactions. Consequently, purchasing participants may not enter purchase orders that are not totally covered by the deposit, net of any concluded purchases.

In addition to being traded in the regulated market, green certificates may also be traded in the open market, i.e. off the aforesaid venue. In order for over-the-counter (OTC) transactions to be registered, GME developed a market functionality, the Green Certificates Bilaterals Registration Platform (PBCV). Here participants may notify the details of their bilateral contract to later enable the transfer from the seller's to the purchaser's ownership account. Since 2009 it has become compulsory to register bilateral contracts on the PBCV, specifying their price.

The registration of bilateral transactions may occur in the following modes: "with adequacy verification" or "without adequacy verification".

Under the registration "with adequacy verification", GME, before validating the transaction entered by the seller and confirmed by the purchaser, performs a double check as to: i) the availability of the number of green certificates being sold by the selling participant; i) the deposit to be made by the purchasing participant into GME's bank account in order to cover the value of the transaction to be validated. If the verification yields a positive outcome, GME will transfer the amount of the transaction to the selling participant as well as the ownership of the green certificate from the seller's to the purchaser's ownership account through a direct link between the PBCV's management system and GSE's Registry.

Under the registration "without adequacy verification", GME, before validating the transaction, only checks whether the selling participant has the actual availability of the green certificates to be sold, without extending the verification to the purchaser. If the verification yields a positive outcome, GME will transfer ownership of the green certificates from the seller's to the purchaser's ownership account.

GME does not play the role of central counterparty to the transactions registered through the PBCV, irrespective of whether or not the "adequacy verification" was required for the purposes of registration.

2.2 The Energy Efficiency Certificates Market (MTEE)

Under Directive 2006/32/EC Member States are required to adopt any appropriate measures to achieve a non-binding, 9% energy-saving target within 9 years from the enactment of the Directive.

Italy, consistently with its policy concerning the RES-E support mechanism, resolved to incentivise energy saving by introducing a market mechanism based on Energy Efficiency Certificates (TEE). Indeed, the Decrees of 20 Jul. 2004 of the Minister of Industry, Trade and Handicraft were introduced ahead of the passing of the Directive. They set out quantitative national targets of increase of energy efficiency to be achieved by electricity and natural gas distributors with no less than 100,000 users at 31 Jan. 2001 for the five-year period beginning on 1 Jan. 2005. Later, the Decree of 21 Dec. 2007 of the Ministry of Economic Development lowered the eligibility threshold for obliged distributors to 50,000 users and set new targets for the three-year period beginning on 1 Jan. 2010. Moreover, the targets for the years 2008 and 2009 were revised upwards.

The table below contains yearly national targets for energy saving to be attained before 2012, following any intervening amendments:

Yearly national energy-saving targets Tab B.2.1

Obligation year	Obligations of electricity distributors (Mtoe)	Obligations of gas distributors (Mtoe)
2005	0.10	0.10
2006	0.20	0.20
2007	0.40	0.40
2008	1.2	1
2009	1.8	1.4
2010	2.4	1.9
2011	3.1	2.2
2012	3.5	2.5

Energy efficiency enhancements are attained by means of projects providing for energy-saving measures and actions. These projects are entitled to energy efficiency certificates, as a result of any savings accrued with them, generally for 5 consecutive years from the implementation of the emission-related project.

Energy efficiency certificates may be issued; i) both to any obliged distributors who put in place the action, and non-obliged distributors; ii) to energy-saving companies (ESCOs) for projects implemented autonomously; and iii) to companies which appointed an energy manager (in accordance with Law no. 10/1991).

The Energy Regulator ("Autorità per l'energia elettrica e il gas" or AEEG) drafted and published guidelines for project preparation, execution, and preliminary assessment and procedures for issuing Energy Efficiency Certificates in respect of the savings achieved by the projects. AEEG has also the task of verifying the implemented projects, certifying the resulting savings, and then asking GME to issue the related energy efficiency certificates to project owners. The Ministerial Decrees of 2004 also assigned to GME the task of issuing the energy efficiency certificates based on saving certification by AEEG as stated above. Subsequent to AEEG's notification, GME issues the corresponding Energy Efficiency Certificates (in particular, one energy efficiency certificate for each toe of energy saving achieved) to the party that implemented the project.

Energy efficiency certificates are divided into three categories:

- type I: energy efficiency certificates giving evidence of the achievement of primary energy savings through actions aimed at reducing final electricity consumption;
- type II: energy efficiency certificates giving evidence of the achievement of primary energy savings through actions aimed at reducing natural gas consumption;
- type III: energy efficiency certificates giving evidence of the achievement of primary energy savings through actions other than the aforesaid.

In order to manage energy efficiency certificate issuing procedures, GME set up the Energy Efficiency Certificates Register, i.e. an electronic archive where one ownership account is activated for every market participant. In each ownership account GME's energy efficiency certificates are deposited and all certificate movements are recorded. Any transactions concluded through bilateral contracts are entered into the Register directly by participants, so as to enable certificate transfer from the seller's to the purchaser's ownership account.

By 31 May of each year, beginning in 2006, obliged distributors surrender to AEEG the energy efficiency certificates related to the preceding year for cancellation. AEEG makes sure that each distributor holds the certificates corresponding to the yearly target.

For each certificate surrendered and cancelled, obliged distributors receive a "tariff contribution" to partially repay any costs incurred for their compliance.

Obliged parties, in a system based on the market mechanism, must opt between i) the possibility of autonomously implementing energy-saving projects and receiving the energy efficiency certificates that are necessary to fulfil their obligations and ii) purchasing the certificates in the market.

In order to facilitate energy efficiency certificate trading and the search for negotiating counterparties, GME

was designated to organise a venue for energy efficiency certificate trading, as per art. 10 para. 3 of the Decrees of 20 Jul. 2004. Market rules were defined in agreement with AEEG (decision no. 67/05) and the market became operational in 2006.
Like the Green Certificates Market, the Energy Efficiency Certificates Market is based on continuous trading within its sessions. The rules for matching energy efficiency certificate purchase/sale orders as well as the mechanisms to guarantee payment of transactions are similar to those applicable in the Green Certificates Market. However, in the Energy Efficiency Certificates Market, GME does not act as a central counterparty. Indeed, purchasing participants are required to make a cash deposit to cover one part of the value of their transactions, which must be made available on GME's bank account the day before each market session. In addition, a direct connection between the regulated market and the Energy Efficiency Certificates Register is in place to guarantee the availability of energy efficiency certificates and avert the risk of short selling. The Market ensures the transparency and the security of transactions, makes it easy to find the counterparty and ensures efficient price-setting for the energy efficiency certificates.

2.3 The Emissions Trading Market (EUA)

The passing of Directive 2003/87/EC regarding Emission Trading (ET) plays a key role among EU initiatives introducing measures for reducing greenhouse gas emissions.
This Directive establishes an Emission Trading Scheme (ETS) between Member States, identifying an initial period of application in the years 2005-2007. Subsequently, the envisaged measures apply for periods of 5 years, beginning on 1 Jan. 2008.
Beginning in 2005, installations carrying out the activities indicated in Annex I to the Directive must obtain a greenhouse gas permit.
Furthermore, for each reference period (2005-2007 initially, 2008-2012 and so on), each Member State shall develop a National Allocation Plan (NAP) stating the total quantity of allowances that it intends to allocate for each obliged installation and how it proposes to allocate them.
NAPs must be approved by the European Commission, which may reject them if they are deemed to be incompatible with the provisions of the Directive. Under the allocation methods, for the three-year period beginning on 1 Jan. 2005, Member States shall allocate at least 95% of the allowances free of charge. For the subsequent five-year period beginning on 1 Jan. 2008, Member States shall allocate at least 90% of the allowances free of charge.
By 30 April each year at the latest, the obliged operator of each installation surrenders a number of allowances equal to the total emissions from that installation during the preceding calendar year and these are subsequently cancelled.
Any operator failing to surrender sufficient allowances shall be held liable for the payment of a penalty of € 40, during the period 2005-2007, and of € 100, for the period 2008-2012, for each tonne of carbon dioxide-equivalent emitted but for which the operator has not surrendered the related allowance. Payment of the penalty shall not release the operator from the obligation to surrender any due allowances.
The Emission Trading scheme makes it possible to minimise the total cost of reducing emissions; at global level, reduction costs will be lower, allowing for reductions to take place independently from their geographical location as well as for the transfer of emission rights. Indeed, it is more cost-effective to perform reductions where the marginal cost is lower and the related permits are transferable, rather than requiring all participants in the scheme to abate emissions irrespective of costs. Countries with higher marginal costs will be better off, if the reductions are financed in another country, purchasing any related emission rights, rather than taking direct actions.
In order for plants to easily fulfil their obligations, Directive 2004/101/EC ("Linking Directive") was passed, which creates a "bridge" between the provisions of the Kyoto Protocol on flexible mechanisms and the Community-wide ETS scheme. The Directive provides for the recognition of any reduction certificates from projects of Joint

Implementation (JI) and Clean Development Mechanism (CDM), for the purposes of fulfilling the obligations as per Emission Trading Scheme. Recognising the validity of credits from JI and CDM projects may help take advantage of lower marginal costs for emission abatement, resulting in a reduction of the price of allowances and a positive impact on compliance costs.

In order to facilitate ET, regulated markets have been operated in Europe since 2005, with both "spot" and "forward" delivery.

In Italy GME organised a trading platform, launched on 2 Apr. 2007, where transactions take place under the continuous-trading mechanism - like in the Green Certificates Market - usually during weekly sessions. Moreover, in this market, GME is the central counterparty to the negotiations, to totally guarantee the payment of transactions with similar guarantee systems. In this market, the rules for matching orders and the guarantee system are the same as those applicable in the MCV: purchasing participants must make a deposit to fully guarantee the value of transactions. This deposit shall be paid into GME's bank account the day before each session is to take place. To guarantee the delivery of allowances, GME opened an ownership account in the national registry of emission allowances, which is held by ISPRA ("Istituto Superiore per la Protezione e la Ricerca Ambientale" - environmental protection and research institute), where potential sellers must temporarily transfer the allowances to be traded. GME will allow participants to enter sell orders only for an overall amount that is lower or equal to the total of the allowances previously transferred by participants to GME's account.

Taking into account the abnormal trading trends recorded in the last market sessions in the second part of 2010 and, in particular, the irregular or unlawful behaviours, even only presumed, on 1 Dec. 2010 the emissions allowance market has been suspended until further notice.

3. GAS MARKETS

Article 30, para. 1, of Law no. 99 of 23 Jul. 2009, containing provisions on development and internationalisation of companies, as well as on energy matters, vested GME – on an exclusive basis - with the organisation and the economic management of the natural gas market under criteria of neutrality, transparency, objectivity and competition.

Moreover, para. 2 of the same article stipulates that GME shall take over the management of natural gas supply offers and demand bids and of the related ancillary services under economic merit-order criteria.

Generally, a step-by-step approach was adopted, whereby the creation of a gas exchange first of all would rely on instruments facilitating the performance of market-related "ancillary services", such as compliance with the obligation to bid quotas of imported gas and gas royalties owed to the State.

In compliance with the provisions of article 30, para. 2, of Law no. 99 of 23 July 2009, the MSE, in 2010, issued the Ministerial Decree of 18 Mar. 2010. Pursuant to this Decree, GME drafted the rules of and, beginning on 10 May 2010, put into operation the trading platform (P-GAS Imports segment), through which any parties[1] importing gas produced in non-EU countries may fulfil their obligation to bid quotas of imported gas in the market. This platform is also used to trade quotas of gas offered on a voluntary basis.

The precise definition of bidding/delivery methods for said quotas will instead be covered by subsequent regulatory measures adopted by AEEG[2].

In addition, also in compliance with the provisions of the aforesaid article, the MSE issued the Ministerial Decree of 6 Aug. 2010 defining the methods for natural gas producers to comply with the obligation[3] to sell any royalties

1 Importing parties are required to comply with article 11, para. 2, of Law n. 40 of 2 Apr. 2007.

2 The Decision ARG/gas no. 58/10 of 30 Apr. 2010 set out the provisions concerning the economic terms for one part of the quotas of imported natural gas to be bid within the thermal year 2009/2010 and those to be bid within the thermal year 2010/2011. The Decision ARG/gas 20/11 of 16 Mar. 2011 set out the terms for bidding quotas of imported gas on the Platform for the thermal year 2011/2012 and onwards.

3 Producers are required to comply with article 11, para. 1, no. 40 of Law 2 April 2007.

owed to the States for the exploitation of gas fields. In particular, these royalties are to be offered by their holders exclusively on the Platform organised and managed by GME (P-GAS Royalties segment). Under this Decree, AEEG, with Decision ARG/gas no. 132/10 of 9 Aug. 2010, subsequently defined the economic terms for the bidding of royalties on the P-GAS, consistently adjusting any previous provisions on the matter.

In this way, GME adjusted the provisions contained in the Rules of the P-GAS platform to the provisions of the Ministerial Decree of 6 Aug. 2010, putting in place, as from 11 Aug. 2010, the new P-GAS capabilities that are expedient to managing the bids/offers of said royalties.

The P-GAS is organised in two segments:

- the Imports segment, for the management of: i) supply offers and demand bids in respect of gas quotas as per article 11, para. 2, of Law no. 40/07 (import quotas), ii) any bids/offers in respect of quotas other than those specified in article 11, para. 2, of Law no. 40/07. Negotiations in the Imports segment take place on a continuous-trading basis and only contracts concerning lots with monthly and yearly delivery may be traded;
- the Royalties segment, where supply offers and demand bids are managed in relation to gas royalties owed to the State as per article 11, para. 1, of Law n. 40/07. Negotiations in the Royalties segment are carried out under the auction mechanism and only contracts concerning lots with monthly delivery may be traded.

GME manages the P-GAS as a broker (not in the role of central counterparty), whereas delivery of the traded gas, guarantees, invoicing and payments are managed directly by participants. This means, among others, that supply terms are fixed by the seller, which notifies them to GME. GME, in turn, is only in charge of publishing them on its website without controlling their specific merits. As a consequence, any contracts negotiated by each participant may differ with one another.

The units of measurement adopted on the P-GAS are the GJ for natural gas quotas, and the €cent/GJ, with specification of three decimals, for unit prices. The minimum tradable quantity (minimum lot) is 3.6 GJ/day, equal to 1 MWh[4].

In the Imports segment of the P-GAS, the following contracts are simultaneously listed:

- 1 Monthly, referred to the second month subsequent to the current one;
- 1 Yearly, referred to the thermal year subsequent to the current one.

The monthly contract may be negotiated starting from the day of open market after the last trading day of the monthly contract referred to the previous month until the last day of open market of the second month prior to the start of the delivery period.

The yearly contract may be negotiated starting from the day of open market after the last trading day of the yearly contract referred to the previous year until the last market session of the month of August of the preceding thermal year.

With regard to gas quotas other[5] than those offered by obliged parties, the following contracts are simultaneously listed:

- up to a maximum of 6 (six) monthly contracts;
- 1 yearly contract.

Each monthly contract may be negotiated starting from the first day of open market of the sixth month prior to the start of the delivery period until the next-to-the-last day of open market of the month prior to the start of the delivery period. The trading period of the yearly contract corresponds to the trading period of the yearly contract in respect of import quotas.

4 For instance, 3.6 GJ/day correspond to lots of 108 GJ for a monthly contract (30-day month) and to 1,314 GJ for a yearly contract.

5 Following the review of the emergency situation that arose on 23 Jul. 2010 concerning the unavailability of the cross-border gas transmission system managed by the company Transitgas SA (hereinafter Transitgas), the MSE issued guidelines to maintain continuity and security of natural gas procurement, to manage storage systems in a co-ordinated way and to minimise the vulnerability of the national natural gas system. In order to facilitate the resolution of any criticalities resulting from the interruption of the Transitgas gas pipeline, the MSE asked GME, on 13 Sep. 2010, to amend the P-GAS Rules, in order to envisage, within the Imports segment - with regard only to gas quotas other than those subject to the obligation to bid - the possibility of extending the trading period of monthly contracts. GME thus established that these contracts should be negotiated beginning on the first day of open market of the sixth month preceding the delivery month and until the next-to-the-last day of open market of the month prior to the start of the delivery period. Following the approval by the MSE of the amendments made by GME to the P-GAS Rules, these products were made tradable within the Imports segment of the P-GAS, beginning on 24 Sep. 2010.

In the Royalties segment of the P-GAS, only monthly contracts with the same trading period as the one of the monthly contract offered by importers in the Imports segment are traded.
In the course of 2010, a further step towards the upcoming completion of the Gas Exchange was implemented by the entry into operation, on 10 Dec. 2010, of the spot natural gas market (M-GAS).
The M-GAS only admits operators that are authorised to perform transactions at the "Punto di Scambio Virtuale" (virtual trading point – PSV).
In the M-GAS, unlike on the P-GAS, GME acts as a central counterparty to the transactions concluded by operators, i.e. GME guarantees the delivery of the traded gas, as well as the payment of transactions.
In order to guarantee delivery of the gas traded in the M-GAS, GME signed with Snam Rete Gas a specific agreement governing the exchange of some information flows between GME and Snam Rete Gas. These flows are essential to properly manage market activities and those related to the registration of the gas volumes traded at the PSV, operated by Snam Rete Gas.
The M-GAS consists of:

- the Day-Ahead Gas Market (MGP-GAS) where transactions are performed in two successive stages: i) under the continuous-trading mechanism and ii) under the auction-trading mechanism. In the MGP-GAS, gas demand bids and supply offers are selected for the calendar gas-day following the one on which the auction session ends;
- the Intra-Day Gas Market (MI-GAS), where transactions are performed in a single session on a continuous-trading basis. In the MI-GAS, gas demand bids and supply offers are selected for the gas-day corresponding to the one on which the session ends.

The product traded in both market sessions refers to the gas-day (defined as beginning at 06:00 of each calendar day and ending at 06:00 of the subsequent calendar day). The units of measurement for price and volumes, for a prompt comparison with the electricity price and the gas traded on the other European exchanges, are expressed in €/MWh and MWh respectively.

4. THE SYSTEM OF PAYMENTS AND GUARANTEES

The system of guarantee and payments of the electricity and gas markets is based on the first-demand bank guarantee, whose amount shall cover the net debit that each participant incurs during the invoicing and payment cycle. The net debit must be settled on the fifteenth working day of the second month after the invoicing month, or on the fifteenth working day of the month after the invoicing month.

In particular, electricity market participants are required to post financial guarantees - which may be cumulated with one another - to cover obligations arising in the energy markets or on the PCE, in the form of first-demand bank guarantees or non-interest bearing cash deposits. The guarantees must satisfy the requirements indicated in the Integrated Text of the Electricity Market Rules (hereafter "Electricity Market Rules"). If they are posted in the form of bank guarantees, they must be submitted in the applicable formats annexed to the Electricity Market Rules[1] (art. 79). The amounts of the bank guarantees may be adjusted by submitting an updating letter in the applicable formats annexed to the Electricity Market Rules (art. 80).

Lastly, for the purpose of submitting adequate bids/offers in the M-GAS, the participant may post a guarantee in the form of a first-demand bank guarantee, which meets the requirements set out in the Gas Market Rules, and/or in the form of non-interest-bearing cash deposit.

1 A Participant that has posted a cumulated bank guarantee in favour of GME may allocate a part of that guarantee to cover any payables/receivables that may arise in the various energy markets, submitting to GME a statement made by the legal representative, or any other person holding the necessary powers. This statement must have the format published on GME's website and specify the amount of the bank guarantee to be allocated.

SECTION

C

MARKET TRENDS

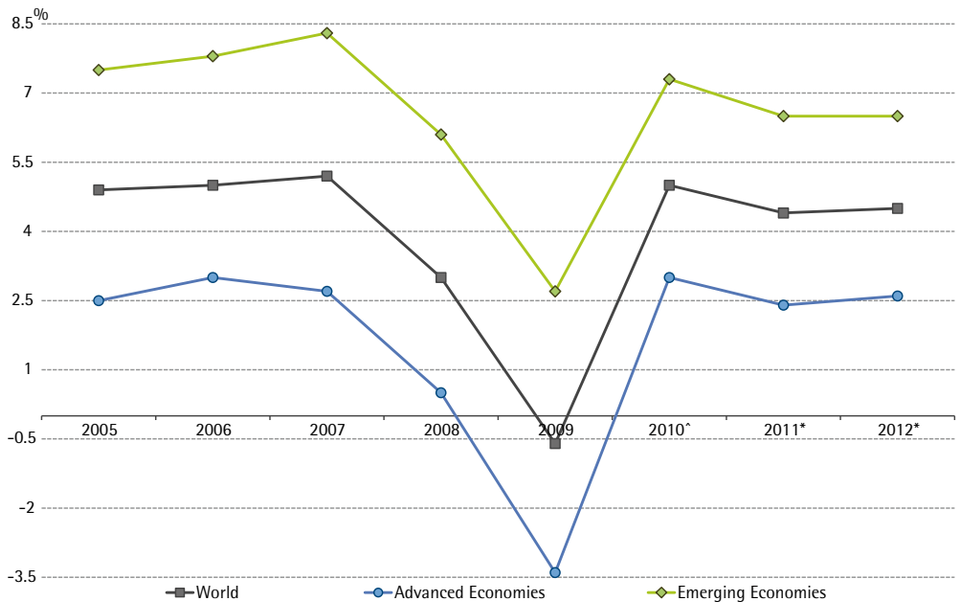
MARKET TRENDS

1. THE CONTEXT

1.1 The international scenario

The global macroeconomic picture for 2010 was positive, although uncertainties remain. According to recent IMF forecasts, this is likely to impact negatively in the course of this year.
Economic growth showed the first signs of a stabilisation, characterised by a V recovery and a diverging economic cycle between the two macro-areas shown in Fig. C.1.1.. In this process, according to IMF macroeconomic projections, emerging and newly industrialised countries will continue to precede advanced economies. The consolidation of domestic demand growth in emerging markets, in particular in the BRICS[1] area, is the main driver of recovery, induced by exports (12% in 2010)[2] that will benefit developed economies in the next two years.

Fig C.1.1 **Fig.C.1.1 Evolution of GDP growth rate**



(^) estimates and (*) projections of the International Monetary Fund.
Source: WEO, April 2011 IMF.

The risk of a negative evolution of the economic system may not be ruled out. The present global growth is proving more fragile than expected. Forecasts in the early 2010 had resulted in expansionary policies by the governments of the advanced economies.
In developed countries unemployment rate is still high (+10% as against 2009) and the risks associated to the sovereign debt crisis in some Eurozone countries (Greece, Ireland, Portugal and, to a lesser extent, Spain) persist. The recovery of U.S. economy seems to continue on its positive path, but its consolidation still depends on the set of fiscal policies, financial-market regulatory policies, and monetary policies adopted after the 2008 crisis. In this connection, please note that the quantitative easing policy by the FED in November 2010, amounting to $ 600 billion, is a sign of clear concern about the

1 Brazil, Russia, India, China, South Africa.
2 IMF: WEO, April 2011.

resilience of U.S. recovery.

This is also affected by world-wide inflationary pressures driven in particular by the increase of commodity prices (above all oil and coal), by recent political turmoil in North Africa and the Middle East, also triggered by higher food prices, and by the earthquake in Japan. In advanced economies, inflation, although edging up in the second part of 2010, appeared to have reached moderate levels; conversely, in many emerging economies the strong expansion of the economic activity and high energy consumption, had a greater impact on inflation rates. This added up to the recent 'overheating' signs originating from considerable capital inflows from advanced economies, which may have been hampered with policies favouring the equalisation of external imbalances, both in terms of foreign trade and capital movements.

GDP growth rate for 2010 globally stands at 5% and a moderate decrease to 4.4% is expected in 2011 (Table C.1.1).It is worth noting that if growth is rather weak for Western countries (3% and 2.4% in the two years under review), it is especially robust in the rest of the world (7.3% and 6.5%), in particular in China and India (10%). In the U.S.A. the positive results also stand at pre-recession levels, although the real activity has not yet recovered from the downturn. The Eurozone is likely to experience a weak recovery in the coming two years, equal to 1.8% (on average) in 2010 and 2011, as it is adversely affected by high indebtedness, poor competitiveness and high unemployment rates. Among the countries being reviewed, growth performance is markedly diverging, ranging from 3.5% (2.5% in 2011) of Germany to an even negative sign for Spain (-0.1% in 2010; +0.80 in 2011). In Italy growth is expected to reach 1.3%, which follows the reductions registered in the two preceding years (-1.3% in 2008 and -5.2% in 2009). This context also shows upward adjustments, which pushed oil beyond 80 $/bbl.

GDP growth rate Tab C.1.1

GDP	2000	2005	2006	2007	2008	2009	2010^	2011*	2012*
World	4.7	4.9	5	5.2	3.0	-0.6	5.0	4.4	4.5
Advanced Economies	3.9	2.5	3	2.7	0.5	-3.4	3.0	2.4	2.6
USA	3.4	3.2	3	2.0	0.4	-2.6	2.8	2.8	2.9
European Union°°,°°°	3.4°	1.9	3.3	3.1	0.9	-4.1	1.8	1.8	2.1
Italy	**2.9**	**0.1**	**1.8**	**1.6**	**-1.3**	**-5.2**	**1.3**	**1.1**	**1.3**
Germany	3	0.9	2.9	2.5	1.2	-4.7	3.5	2.5	2.1
France	3.6	1.2	2	2.1	0.3	-2.5	1.5	1.6	1.8
United Kingdom	3	1.9	2.9	3.0	0.5	-4.9	1.3	1.7	2.3
Spain	2.8	3.5	3.9	3.7	0.9	-3.7	-0.1	0.8	1.6
Japan	0.8	1.9	2.4	2.4	-1.2	-6.3	3.9	1.4	2.1
Emerging Economies	5.7	7.5	7.8	8.3	6.1	2.7	**7.3**	6.5	6.5
Russia	8.3	6.4	7.4	9.3	7.3	-7.9	4.6	5.0	4.7
Brazil	4.4	2.9	3.8	5.7	5.1	-0.6	-0.6	7.5	4.5
China	8	10.4	11.1	13.0	9.6	9.2	10.3	9.6	9.5
India	6	9.2	9.7	8.1	5.6	5.7	10.4	8.2	7.8
Global Trade Volumes	12.4	7.4	9.2	7.2	2.8	-10.7	**12.4**	7.4	6.9
Oil price**	57.0	41.3	20.5	10.7	36.4	-36.3	**27.9**	35.6	0.8
Inflation									
Advanced Economies	2.3	2.3	2.4	2.2	3.4	0.1	**1.6**	2.2	1.7
Emerging Economies	6.1	5.4	5.4	6.4	9.2	5.2	**6.2**	6.9	5.3

°EU-15; °°in 2005 EU-25; °°°since 2006 EU-27 2006

**Simple arithmetic average of the prices of the Brent, WTI and Dubai equal to 79.03 $/bbl (Dec. 2010)

(^) Estimates and (*) projections of the International Monetary Fund.

Source: IMF, World Economic Outlook Update, 11 April 2011

1.1.1 Primary energy consumption

In the present economic setting - between the uncertainty of global post-crisis demand, the extraction potential of shale gas in the European continent, the high production costs of non-conventional oil and those for reducing its impact on the environment, the uncertain trend of (energy and other) commodity prices that are expected to remain highly volatile, at least in the medium term - according to IEA's forecasts, fossil fuels (oil, coal and natural gas) are the main energy sources both in the short and in the long term (accounting for more than 50% of primary energy demand in 2035[3]), in spite of a significantly-varying relative contribution by the set of primary energy sources. The energy sector is evolving towards a new model of growth, which, as emerged in world-wide debates continued throughout 2010, is not based exclusively on exhaustible resources, taking into account the continuously rising demand by emerging and developing economies (first of all China and India). This inevitable transition, albeit slow and non-homogeneous at international level, will be stimulated by greater energy efficiency and large-scale investments in technologies with low carbon emissions.

Primary energy consumption estimated for 2010 was up by 4.4% on 2009, whereas it was up by about 26.8% from 2000, resulting into a rather modest compound annual growth rate (CAGR) equal to 2.4% since 2000. Results shows the tendential increase of 8.3% (75.2% as against 2000) in the Middle East and of 6.8% (72.9% as against 2000) in the Asia area, which confirms the "driver effect" of the emerging countries and is reflected in the compound annual growth rates, equal to 5.8% and 5.6% respectively. Coal dominates the scene, as it remains the most widely used source with a 6.6% tendential increase (slightly less than 50% as against 2000), similar to that of natural gas (+30% as against 2000). Noteworthy is the increase in hydroelectricity consumption, which in the same period under review, increased by 4.4% (+29% as against 2000). The share of renewables in total primary consumption, albeit increasing in the decade under review, is still very low (1.3%). Nevertheless, results pointing at a growth in their use are particularly brilliant, namely 211% more between 2000 and 2010, with a 12% compound annual growth rate. The increases recorded in the macro-areas under review are also particularly robust: +107% in the new continent (CAGR: +7.6%), +227% in the Asia-Pacific continent (CAGR: +16.7%), up to the European/Eurasian zone at +367% (CAGR: +12.6%).

Tab C.1.2 **Primary energy consumption (Mtoe)**

	2010*								2009						2000								
	Oil	Natural Gas	Coal	Nuclear	Hydro	Renew.	Total	Δ% '09-'10	Oil	Natural Gas	Coal	Nuclear	Hydro	Total	Oil	Natural Gas	Coal	Nuclear	Hydro	Renew.	Total	Δ% '00-'10	GAGR '00/'10
Americas	1286.5	888.5	594.8	213.5	317.9	49.5	3350.7	2.3%	1281.5	857.9	553.7	217.5	316.7	3227.3	1294.2	806.4	627.0	200.5	276.0	23.9	3228.1	3.8%	0.4%
Europe and Eurasia	908.3	1,005.3	473.0	266.8	184.5	68.4	2906.4	2.4%	913.9	952.8	456.4	265.0	182.0	2,770.1	929.4	886.2	525.6	267.4	188.5	14.6	2811.7	3.4%	0.3%
Asia and Pacific	1,249.4	493.4	2,312.0	130.7	243.3	34.6	4463.5	6.8%	1,206.2	446.9	2,151.6	125.3	217.1	4,147.1	990.7	263.3	1,087.4	113.3	116.7	10.6	2582.0	72.9%	5.6%
Africa	146.9	94.4	106.9	2.9	21.6	1.3	373.9	3.3%	144.2	84.6	107.3	2.7	22.0	360.8	117.6	51.5	90.2	3.1	17.0	0.3	279.7	33.7%	2.9%
Middle East	352.2	346.6	9.4	0.0	5.4	0.1	713.8	8.3%	336.3	311.0	9.2	--	2.4	659.0	230.2	168.1	7.3	--	1.8	0.0	407.3	75.2%	5.8%
Total	3,943.3	2,828.3	3,496.1	613.9	772.8	153.8	**11,808.3**	4.4%	3,882.1	2,653.2	3,278.3	610.5	740.2	**11,164.3**	3,562.1	2,175.5	2,337.6	584.3	600.0	49.4	**9,308.8**	26.8%	2.4%

*estimates; ^ For the calculation of the 2009/2010 % variation, renewable sources were separated from the total of the year 2009

Source: BP Energy Outlook, 2010 BP Statistical Review of World Energy 2010.

When analysing final energy consumption, one can clearly notice, in the long term too, the rise in electricity demand, which will be absorbed by emerging economies by 80% of the anticipated increase, estimated at 2.2% yearly until 2035[4]. More recent data in tendential terms shows sharp reductions in electricity consumption in all advanced economies (-4.5%) as predictable effect of the 2008 financial crisis, followed by the 2009 economic recession. By

3 This percentage is consistent with an energy process in line with the objective of keeping the global warming cap within 2°C by 2050 and of curbing the CO_2 concentration in the atmosphere to 450 parts per million (pap) by 2020.

4 WEO 2010, IEA.

contrast, also in this case, robust tendential increases characterised emerging and developing economies, first of all India (6.8%) followed by China (6.0%) and the Middle East (3.8%). The data was confirmed by the results related to the compound annual growth rate, showing upward trends between 2000 and 2009, particularly high and equal to 12% in China, and 6% in India and the Middle East respectively.

Domestic electricity consumption (Mtoe) Tab C.1.3

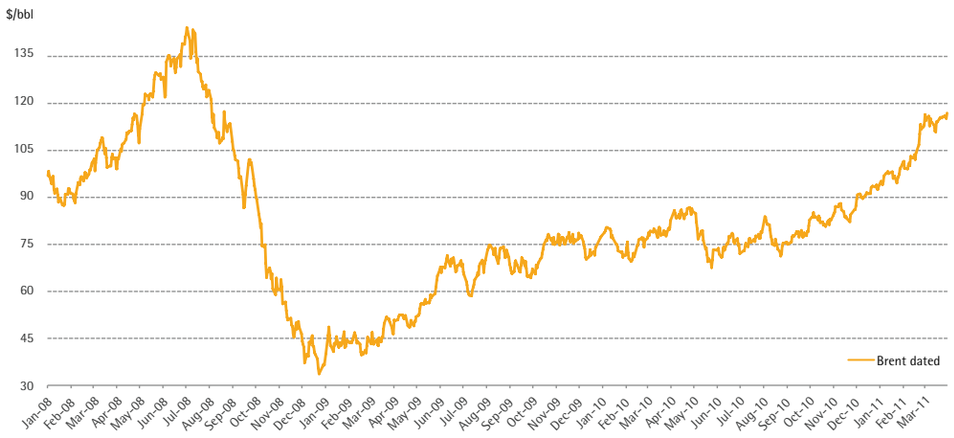
	2000	2006	2007	2008	2009	Δ% '08-'09	CAGR '00-'09
World	**13,133.7**	**16,258.0**	**17,050.9**	**17,401.1**	**17,146.3**	**-1.5%**	**3.0%**
OECD	8,491.0	9,304.8	9,514.4	9,563.6	9,135.6	-4.5%	0.8%
EU-27	2,627.9	2,934.1	2,951.5	2,959.0	2,811.3	-5.0%	0.8%
Europe and Eurasia	3,241.3	3,657.6	3,696.4	3,723.0	3,540.1	-4.9%	1.0%
North America	4,093.1	4,342.1	4,459.9	4,443.3	4,245.9	-4.4%	0.4%
USA	3,589.6	3,816.8	3,920.9	3,911.9	3,746.7	-4.2%	0.5%
Russia	692.9	797.8	820.7	836.7	800.3	-4.4%	1.6%
Central and S. America	791.7	965.6	1,006.3	1,039.8	1,038.8	-0.1%	3.1%
Asia & Pacific	3,558.5	5,440.8	5,954.2	6,190.5	6,343.5	2.5%	6.6%
China	1,142.8	2,445.2	2,814.7	2,971.9	3,149.1	6.0%	11.9%
Japan	957.2	997.5	1,024.7	1,037.0	961.6	-7.3%	0.1%
India	368.7	516.6	566.8	581.5	621.3	6.8%	6.0%
Africa	365.1	493.1	520.3	529.4	515.1	-2.7%	3.9%
Middle East	391.1	560.8	593.1	638.5	662.6	3.8%	6.0%

*compound annual growth rate
Source: BP, Statistical Review on World Energy, 2010.

1.1.2 The oil market

In 2010, the oil price, with a yearly average of the Brent at 79.85 $/bbl, suffered from the uncertainty affecting the global economic picture, showing significant fluctuations over the year (Fig. C.1.2).

Brent Dated daily prices ($/bbl) Fig C.1.2



Source: Thomson Reuters.

With an oscillation between 67 and 94 $/bbl and with a price increase of 29.3% on 2009 (-36.7% as against the 2008 levels), oil prices expressed and followed a trend similar to that of financial markets. This infers that the

expectations on economy and finance weighed on price-setting (Table C.1.4). The bullish and bearish patterns which characterised 2010 had an impact on volatility levels, which, albeit non-negligible, show lower indicesas compared with crisis and pre-crisis periods. In the first quarter of 2011 there was a new recovery of volatility, the highest if compared with the same period of the three preceding years (Table C.1.5), which indicates a strong pressure on prices due to recent uprisings in North Africa and the earthquake in Japan, causing the shutdown of the Fukushima nuclear plant.

Tab C.1.4 **Quarterly and yearly prices of the Brent ($/bbl)**

	1st Q	2nd Q	3rd Q	4th Q	Yearly
2008	96.72	121.18	103.93	55.48	97.26
2009	44.46	58.92	68.08	74.5	61.54
2010	*76.45*	*78.24*	*76.95*	*86.62*	***79.59***
2011	105.61	--	--	--	
Δ% 09-08	-54.03%	-51.38%	-34.49%	34.28%	-36.73%
Δ% 10-09	71.95%	32.79%	13.03%	16.27%	29.33%
Δ% 11-10	38.14%				

Source: processing of Thomson Reuters' data.

Tab C.1.5 **Quarterly volatility of the Brent**

	2008	2009	2010	2011
1st Q	6.19%	6.56%	*4.24%*	7.61%
2nd Q	9.11%	13.50%	*7.12%*	
3rd Q	13.76%	6.31%	*3.64%*	
4th Q	27.28%	4.56%	*4.66%*	
Average	14.08%	7.73%	*4.92%*	

Source: processing of Thomson Reuters' data.

During the first half of the 2010, the uncertainty of the European economic picture and the downgrade of Greece, Portugal, and Spain contributed to reducing prices, practically offsetting the rise occurred, between February and April, as a result of the good performances in the financial markets. Subsequently, the announcement of the EFSF[5] together with the appreciable results of the stress tests on European banks contributed to redressing market trends. In this context the euro, after a 15% depreciation between January and June 2010, started to revert its trend in the second half of the year and by the end of the year recovered a little bit more than what it had lost in the first part of 2010. Apparently this was brought about by the results of the economic report published by the FED at the end of July on the uncertainties surrounding the stability of the U.S economic recovery, which, in autumn, was followed the announcement of the strongly expansionary monetary policy to counter a weak economy.

The reasons behind the tensions on prices appear to be only partially explained by the economic environment being observed and are often too complex to be understood. This is particularly true in the presence of an oil market showing a rather high spare capacity (excess of output capacity available), equal to about 6 million bbl/d (Dec. 2010), above 7% of demand[6]. While speculation is likely to play an important role in the short term, heightening the tendential patterns of the market, two factors cannot be ignored, which are able to impact on recorded prices: a higher level of production costs weighing on the price equilibrium range, and the room for

5 The European Financial Stability Facility, announced on 9 May 2010, with unanimous agreement of the 27 EU countries, is a bond-issuing Special Purpose Vehicle. Borrowing through placement of EFSF-bonds in the international markets is targeted exclusively at temporarily helping Eurozone countries facing difficulties. The EFSF with a 3-year duration (June 2010 to 30 June 2013) could be transformed into a new permanent support mechanism from 1 July 2013.

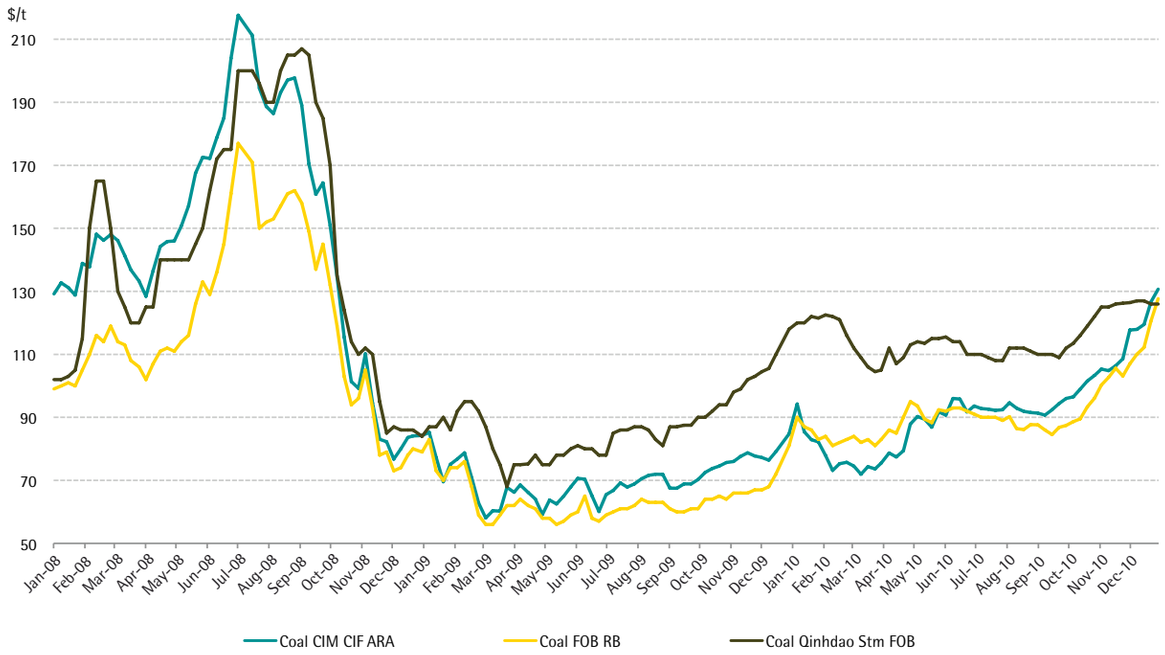
6 The indicator went down to 4.5% in April 2011, whereas it should stand at 4.8% in 2012 and 4% in 2015.

manoeuvre of the market in terms of available capacity influencing any risk premiums in the event of medium-term tensions.

1.1.3 The coal market

From the second half of 2009, the typical flow of coal in the main geographical macro-areas has been disrupted by the different speeds of economic growth, to such an extent that large amounts of South African product (historical reference product for the European market) are exported to India and other eastern countries, to meet the increasing demand of the Asian continent as against the drop of European demand (-6% in 2009). An epoch-making transformation, when one considers that the South African product, ever since it was first marketed, has almost always (about 98%) been destined for the Atlantic market alone, and in particular Europe.
In 2009 China experienced an import boom, reaching 92 million tonnes (M/t) of steam coal (+173% as against 2008), with a 47% collapse of exports (18 M/t). Similarly, in India imports grew by 49% (from 38 M/t to 56 M/t) in 2010.

Prices in the international coal market ($/t) Fig C.1.3



Source: processing of Thomson Reuters' data.

The availability of indices underlying these products on the one hand provided operators with the opportunity to enter into purchase contracts based on variable prices; on the other this caused price volatility, although at more moderate levels than for oil and natural gas.
The trend for average price indices in 2010 sharply rose to 92.5 $/t at the port of unloading of Rotterdam (CIM CIF ARA: +31.1%), to 91.7 $/t at the port of loading of Richards Bay-South Africa (FOB RB: +43.0%) and to 115.4 $/t for the Chinese price index (Qinhdao STM FOB: +32.4%).

Tab C.1.6 **Prices and price variations in the international coal market ($/t)**

	2008	2009	2010	Δ % '09/'08	Δ % '08/'10	Δ % '09/'10
Coal CIM CIF ARA	147.49	70.54	**92.51**	-52.2%	-37.3%	31.1%
Coal FOB RB	120.33	64.13	**91.70**	-46.7%	-23.8%	43.0%
Coal Qinhdao STM FOB	145.27	87.20	**115.42**	-40.0%	-20.6%	32.4%

Source: processing of Thomson Reuters' data.

1.1.4 The natural gas market

The gas industry continued to grow in 2010, favoured by a rallying economy and a harsh weather, causing consumption to grow slightly above pre-crisis levels. In 2010, recovery of demand was faster than expected both in the OECD area and in Asia and in some emerging economies. With regard to the Middle East, in many countries (Saudi Arabia, United Arab Emirates, Iran, Oman) gas consumption went up significantly in the petrochemistry, aluminium and electricity sectors, whereas in South America, Brazil recorded a strong growth (+16%) thanks to the high demand for electricity during the dry season[7].

This swift development took place in a context of large supply surplus, so that the world output grew by 4% in 2010, which translates into 120 billion m3, going beyond pre-crisis level by 1%. In particular the increase should stand at 8%, as a result of the recovery of domestic demand in the Russian Federation, triggered by temperatures that were lower than the seasonal average and by higher exports towards CIS[8] countries. In spite of higher than expected index-linked prices as against LNG spot prices, exports towards Europe also increased, by estimated over 4%, driven by the typical heating demand of winter months and favoured by the contraction of local production.

Lastly, in the United States, the increase in production (estimated at 2.8% in 2010) was made possible by the continuous development of shale gas (+20% in 2010). But this seems to be at risk in the near future due to the reduced interest on the part of companies to further invest in this resource because of low prices, about 4 $/million Btu. Most of the fields would actually require a clearing price of about 5 $ to guarantee a ROI of at least 10%. This evolution sparked renewed interest in favour of LNG liquefaction and export projects towards the USA, as they may be economically justified, thanks to a price spread slightly above 3$/Mbtu.

This brought about a significant rise in international trade via pipeline and by ship which should exceed 10% in 2010, after the sizable reduction (-11%) recorded in 2009.

When analysing prices over 2010, a significant increase of spot prices may be seen at the main hubs of the European continent (see Chapter C.4). This progression derives from the recovery of demand and a particularly harsh winter. By contrast, this is not the case with the spot prices recorded at the U.S. Henry Hub, which exhibited an average price equal to 4.38$/MMBtu (as against an average 3.93$/MMBtu in 2009). The average level in the first quarter of 2011 is even decreasing (4.17$/MMBtu), expressing an abundant supply of non-conventional gas, which broadly offsets the output drop of traditional gas fields. The return to a significant divergence in the price levels between the two continents is to be attributed to the high degree of regionalisation of European markets. This situation, among others, tends to strengthen the share of long-term import contracts indexed to oil products - which are expected to rise in the medium term - given the absence of a sufficiently liquid European single gas market. In the European continent, only 22%[9] of the wholesale trading of natural gas was managed through gas exchanges; the North American situation proved to be different instead.

The sharp rise of non-conventional gas supply in the USA mostly explains the recent decoupling between natural

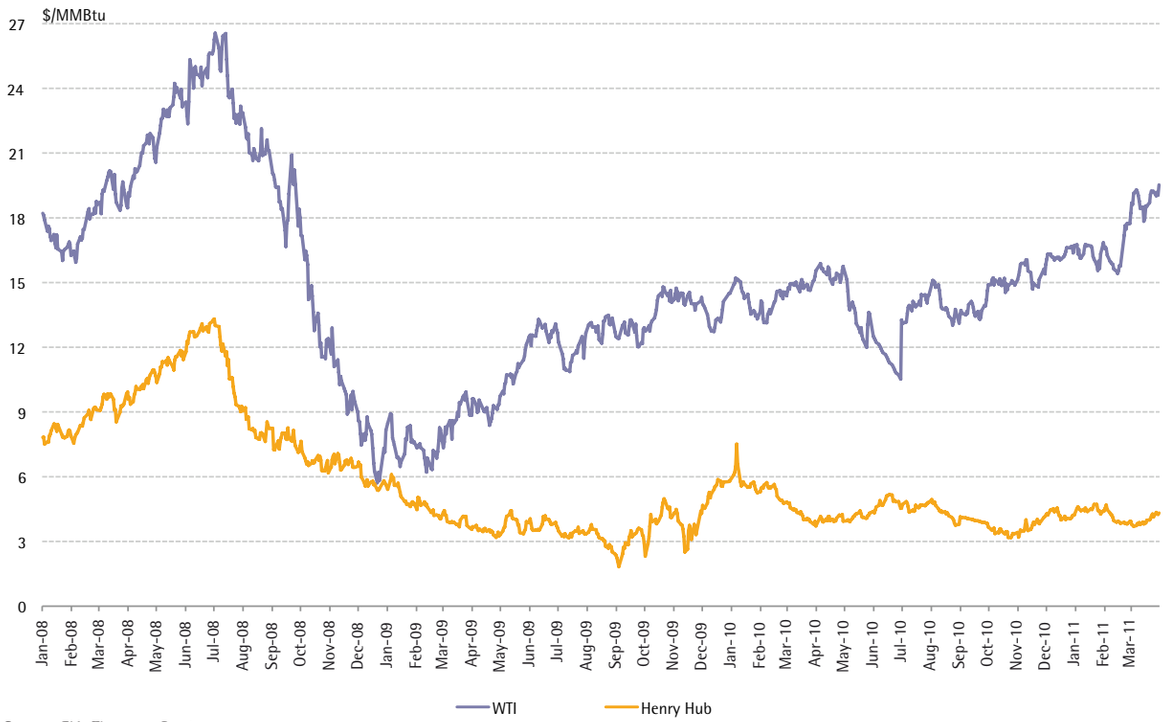
7 Cedigaz data, Annual Gas Report, Dec. 2010.

8 Commonwealth of Independent States: Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, Uzbekistan.

9 WEO, IMF, April 2011.

gas and oil prices. Currently, in North America,98.7%[10] of the wholesale trading of natural gas takes place through gas exchanges, that is hubs (as market centres). This is clearly evidenced by the trend comparison between the Henry Hub (HH) and the WTI (Fig .C.1.4) prices. If the trend of the two prices until the end of 2008 seemed to be aligned, the WTI price began to grow in January 2009, reaching a maximum of 91.4$/bbl at the end of 2010 (79.4$/bbl in 2010, +28.4% as against the average price in 2009 equal to 61.8$/bbl), whereas the price of gas simultaneously recorded a marked reduction (-11% as against 2009, -56.6% as against 2008). Since 2010, the WTI/HH ratio has somewhat displayed an increase, a sign of a clear rise of the WTI price considering that the oscillation range of the HH is narrow and around 4$/MMBtu.

WTI vs HH: daily spot prices ($/MMBtu) Fig C.1.4



Source: EIA, Thomson Reuters.

10 Note 7.

1.2 The Italian energy sector

1.2.1 The national energy balance

In the past decade the Italian energy sector has been affected by important institutional and market changes, with the aim to promote the security of energy supplies, energy efficiency and savings, to develop energy generation from renewable sources as well as the re-organisation of the electricity and natural gas markets.

In particular, between 2005 and 2009, the last year for which consolidated data exists, gross domestic consumption of primary energy has been adjusted downward by 8.8% (CAGR[11] equal to -2.3%), with a more marked fall in the last year due to the economic crisis (-5,7%), reaching 180.3 Mtoe[12]. The estimated data for 2010 - which discounts the recovery of the economic activity (GDP +1.3%) and of the per-capita gross domestic consumption (2.23 toe/million pps produced[13]) - projects a recovery of total primary-energy consumption (+1.8%[14]), which, however, is still lower than the levels recorded in 2000.

From a comparison with the GDP performance, a positive trend may be observed over the years 2005-2007 with a 1.2% average growth rate. On the other hand, in the same period primary-energy consumption on average fell by 1.5 %. In the subsequent two years, GDP recorded a declining growth rate, equal to 3.2% on average, in line with and broader than that of primary-energy consumption, as it reflected the negative international economic cycle.

A review of consumption by individual sources in the same period 2005-2009 evidences that, among fossil fuels, the most pronounced drop affects solid fuels, down by 23.3% (CAGR: -6.4%),followed by oil products, down by 14.0% (CAGR: -3.7%), and natural gas, down by 10.2% (CAGR: -2.7%). A similar situation may be found in gross electricity consumption, resulting from net imports, suffering a contraction of 8.5% (CAGR: -2.2%). In countertrend, electricity from renewable sourcesshows a 49.4% increase (CAGR: +10.6%)in the five-year period.

When focussing on the period 2008-2009, gross consumption of fossil fuels exhibited a contraction (-21.9% solid fuels, -8.1% natural gas, -7.5% oil), whilst gross electricity consumption and – as expected – renewables were on the rise with +12.3% and +18.8%, respectively (Table C.1.7).

11 Compound annual growth rate (CAGR).

12 Preliminary data from the Ministry of Economic Development.

13 In order to perform a consistent comparison between the countries being reviewed, energy intensity was computed using annual GDPs in million PPS (Purchasing Power Standards). The Purchasing Power Standard is an accounting unit used in international comparisons to eliminate the differences in price levels and in exchange rates and allow comparisons between the different European regions based on volumes or commodity units, rather than values.

14 AIEE data, March 2011.

National energy balance (2000 and 2005-2009) Tab C.1.7

Mtoe	2000	2005	2006	2007	2008	2009	2000	2005	2006	2007	2008	2009
	Solid fuels						Natural gas[3]					
Gross domestic consumption[1]	12.882	17.038	17.154	17.212	16.741	13.072	58.365	71.169	69.698	70.041	69.519	63.902
Conversion into electricity	-7.232	-11.892	-11.857	-11.937	-11.892	-10.183	-18.826	-25.284	-26.023	-28.292	-27.768	-23.769
Total final uses[2]	4.227	4.629	4.556	4.501	4.112	2.700	38.876	45.050	42.847	40.479	40.529	39.040
% share of the source in total gross domestic consumption	6.9%	8.6%	8.7%	8.9%	8.8%	7.2%	31.4%	36.0%	35.5%	36.1%	36.3%	35.4%
Δ% of gross domestic consumption in 2009 vs. other years	1.5%	-23.3%	-23.8%	-24.1%	-21.9%	-	9.5%	-10.2%	-8.3%	-8.8%	-8.1%	-
	Oil products						Renewable sources[4]					
Gross domestic consumption[1]	91.989	85.244	85.211	82.640	79.244	73.295	12.904	13.511	14.231	14.304	16.992	20.183
Conversion into electricity	-19.426	-9.434	-9.501	-7.248	-6.217	-5.069	-11.316	-11.598	-12.152	-11.703	-13.803	-16.377
Total end uses[2]	66.754	69.219	69.725	69.127	66.782	62.315	1.522	1.827	1.985	2.502	3.100	3.709
% share of the source in total gross domestic consumption	49.5%	43.1%	43.4%	42.6%	41.4%	40.6%	6.9%	6.8%	7.3%	7.4%	8.9%	11.2%
Δ% of gross domestic consumption in 2009 vs. other years	-20.3%	-14.0%	-14.0%	-11.3%	-7.5%	-	56.4%	49.4%	41.8%	41.1%	18.8%	-
	Electricity						Total					
Gross domestic consumption[1]	9.757	10.814	9.897	10.183	8.808	9.891	**185.897**	**197.776**	**196.191**	**194.200**	**191.304**	**180.343**
Conversion into electricity	56.800	58.208	59.533	59.180	59.680	55.398	-	-	-	-	-	-
Total end uses[2]	23.469	25.866	26.545	26.602	26.601	24.941	**134.848**	**146.591**	**145.658**	**143.211**	**141.124**	**132.705**
% share of the source in total gross domestic consumption	5.2%	5.5%	5.0%	5.2%	4.6%	5.5%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Δ% of gross domestic consumption in 2009 vs. other years	1.4%	-8.5%	-0.1%	-2.9%	12.3%	-	-3.0%	-8.8%	-8.1%	-7.1%	-5.7%	-

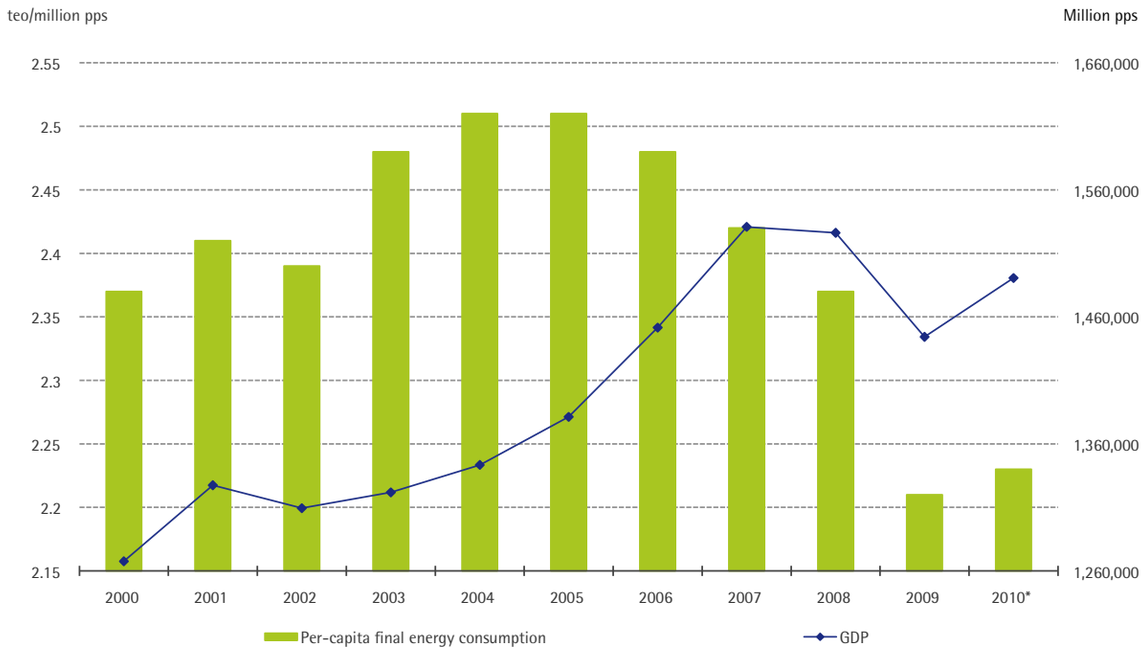
1 defined as the amount of energy produced at national level, plus imports, net of exports and changes in stocks; for electricity, it is equal to net imports
2 including consumption/losses in the energy sector.
3 starting from 2008 evaluated with a lower calorific value (LCV) of 8.190 kcal/m3 instead of 8.250 kcal/m3 for consistency with international statistics
4 net of pumped storage.

Source: Bilancio energetico nazionale (anni 2000 e 2005-2009), MSE.

The set of these changes practically did not modify the general picture of the national generating mix, where the share of fossil fuels, in particular oil (equal to 40.6%) and gas (35.4%), prevails today; this confirms the uniqueness of Italy with structural electricity imports and a modest contribution of solid fuels (7.2%). Lastly, there is a consolidation of the growing dynamics of the contribution of renewable sources, up to 11.2% in 2009.

Trends do not differ much when moving from the demand of primary energy to the demand of energy for final consumption, which recorded an increasing trend until 2005 and right after went down significantly, in particular in 2009 (-6.0%). Energy end uses as a whole diminished by 9.5% from 2005 to 2009. After a peak in 2005 (both for total and unit end uses), higher than GDP and population growth, a significant reversal of the trend may be seen starting from 2006; the reversal is mostly attributable to the crisis dating back to 2007 and to its subsequent impacts on the real economy of developed markets (Fig.C.1.5).

Fig C.1.5 **Per-capita final energy consumption and GDP (2000-2009)**



Source: Enerdata yearbook 2010 data processed by GME; Unfpa (2000-2010); Ameco database.

The tendential contraction of final consumption was equal to 6.0% reaching 132.7Mtoe, more remarkable than the drops of the four preceding years.

The most significant overall variations are reported below:

- a marked decrease in industry's consumption (-19.9%) in line with the sharp reduction in industrial production (-13.3%[15]);
- increased uses in the residential sector (+2.5%) especially related to climate instability;
- a significant drop of consumption in the transport sector (-2.7%).

An analytical observation of final consumption by source and sector reveals that the most important tendential variations are associated in particular with the contraction of electricity consumption (-15.3%) and of fossil fuels in the industry sector (solid -34.9%, oil -24.7%, gas -17.9%), as well as the drop of uses of oil products in the transport sector (-3.9%), which by contrast shows a marked increase in the use of renewable sources, in particular biofuels (+60.0%) and natural gas (+9.3%). The residential sector also recorded an increase in the use of gas (+4.7%) as well as that of renewable sources (+9.0%) (Table C.1.8).

Lastly, when looking at overall contributions of the individual sources by sector, it turns out that in 2009 the profile of the national energy mix has basically remained unchanged. As against 2008, data shows a predominant use of gas and electricity in the industry (72.4% of total consumption) and residential (85.4%) sectors, whereas oil covers almost the totality of the requirements of the transport sector (94.0%).

15 Source: Istat.

Energy end uses by source and use sector (Mtoe) Tab C.1.8

mtoe	2000	2005	2006	2007	2008	2009			2000	2005	2006	2007	2008	2009		
	Solid fuels						Δ '08-'09	CAGR '00-'05	Natural gas						Δ '08-'09	CAGR '00-'05
Industry	3.999	4.432	4.413	4.361	3.981	2.593	-34.9%	-12.5%	16.747	16.970	16.418	15.810	14.430	11.852	-17.9%	-8.6%
Transport	-	-	-	-	-	-	-	-	0.329	0.384	0.439	0.488	0.550	0.601	9.3%	11.8%
Residential uses	0.065	0.008	0.008	0.007	0.005	0.004	-20.0%	-15.9%	20.698	26.525	24.887	23.248	24.717	25.878	4.7%	-0.6%
Agriculture	-	-	-	-	-	-	-	-	0.118	0.171	0.150	0.158	0.137	0.142	3.6%	-4.5%
Non-energy uses	0.163	0.189	-0.135	0.133	0.126	0.103	-18.3%	-14.1%	0.984	1.000	0.953	0.775	0.695	0.567	-18.4%	-13.2%
Bunkers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**4.227**	**4.629**	**4.286**	**4.501**	**4.112**	**2.700**	**-34.3%**	**-12.6%**	**38.876**	**45.050**	**42.847**	**40.479**	**40.529**	**39.040**	**-3.7%**	**-3.5%**
Yearly Δ% vs 2009	-36.1%	-41.7%	-37.0%	-40.0%	-34.3%	-			0.4%	-13.3%	-8.9%	-3.6%	-3.7%	-		
	Oil products						Δ '08-'09	CAGR '00-'05	Renewable sources[1]						Δ '08-'09	CAGR '00-'05
Industry	7.500	7.495	7.659	7.145	7.019	5.284	-24.7%	-8.4%	0.228	0.265	0.292	0.368	0.368	0.394	7.1%	10.4%
Transport	40.400	42.568	43.069	43.385	41.540	39.934	-3.9%	-1.6%	-	0.157	0.153	0.159	0.662	1.059	60.0%	61.2%
Residential uses	7.200	6.625	5.959	5.111	5.127	4.768	-7.0%	-7.9%	1.160	1.252	1.371	1.775	1.840	2.006	9.0%	12.5%
Agriculture	2.600	2.617	2.588	2.457	2.386	2.407	0.9%	-2.1%	0.134	0.153	0.169	0.220	0.230	0.250	8.7%	13.1%
Non-energy uses	6.400	6.492	6.927	7.471	6.937	6.550	-5.6%	0.2%	-	0.000	0.000	0.000	0.000	0.000		
Bunkers	2.700	3.422	3.523	3.558	3.773	3.372	-10.6%	-0.4%	-	-	-	-	-	-		
Total	**66.800**	**69.219**	**69.725**	**69.127**	**66.782**	**62.315**	**-6.7%**	**-2.6%**	**1.522**	**1.827**	**1.985**	**2.522**	**3.100**	**3.709**	**19.6%**	**19.4%**
Yearly Δ% vs 2009	-6.7%	-10.0%	-10.6%	-9.9%	-6.7%	-			143.7%	103.0%	86.9%	47.1%	19.6%	-		
	Electricity						Δ '08-'09	CAGR '00-'05	Total						Δ '08-'09	CAGR '00-'05
Industry	11.726	11.899	12.114	11.999	11.614	9.832	-15.3%	-4.7%	40.176	41.061	40.896	39.683	37.412	29.955	-19.9%	-7.6%
Transport	0.732	0.853	0.879	0.895	0.932	0.905	-2.9%	1.5%	41.507	43.962	44.540	44.927	43.684	42.499	-2.7%	-0.8%
Residential uses	10.589	12.653	13.079	13.221	13.567	13.718	1.1%	2.0%	39.700	47.063	45.304	43.342	45.256	46.374	2.5%	-0.4%
Agriculture	0.422	0.461	0.473	0.487	0.488	0.486	-0.4%	1.3%	3.226	3.402	3.380	3.322	3.241	3.285	1.4%	-0.9%
Non-energy uses	-	-	-	-	-	-	-	-	7.500	7.681	8.015	8.379	7.758	7.220	-6.9%	-1.5%
Bunkers	-	-	-	-	-	-	-	-	2.700	3.422	3.523	3.558	3.773	3.372	-10.6%	-0.4%
Total	**23.469**	**25.866**	**26.545**	**26.602**	**26.601**	**24.941**	**-6.2%**	**-0.9%**	**134.809**	**146.591**	**145.658**	**143.211**	**141.124**	**132.705**	**-6.0%**	**-2.5%**
Yearly Δ% vs. 2009	6.3%	-3.6%	-6.0%	-6.2%	-6.2%	-			-1.6%	-9.5%	-8.9%	-7.3%	-6.0%	-		

(1) net of pumped storage

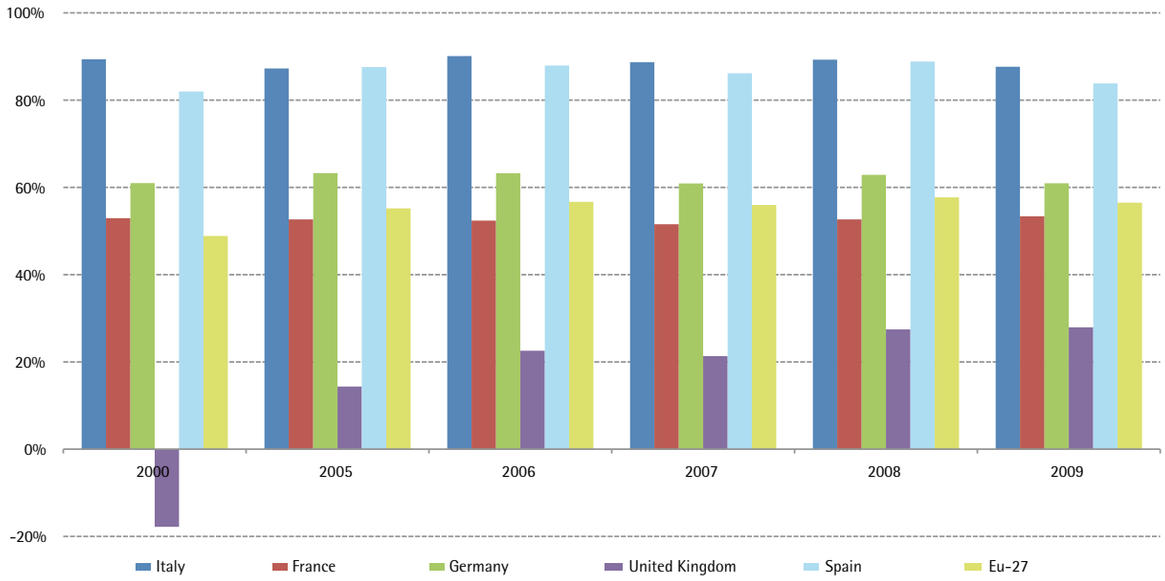
Source: Bilancio energetico nazionale (anni 2000 e 2005-2009), MSE.

The changes in the Italian energy system which are being observed influenced, as illustrated above, the performance and the composition of energy demand and supply. This new environment together with other components, such as those of an economic and climatic nature, contributed to outlining the characteristics of the Italian energy system, which, on the one hand, appears much more vulnerable than other EU countries in terms of supplies (Fig.C.1.6); on the other, it seems to possess a decreasing primary energy intensity[16] (Fig.C.1.7), equal to 116 toe/million pps, falling well below the European average (141toe/million pps).

The dependence of our national energy system on neighbouring countries in the past years (86% vs. about 55% for the EU-27) is practically unvaried in 2009 (-1.6% on 2008 clearly due to the global decline of demand). The same applies to the dependence structure of the other countries under review (France about 53%, Germany around 61%, Spain 87%). By contrast, the UK, a historically net energy exporter, has increasingly become a net importer since 2004, reaching a level of 27%; this dependence is due in particular to the marked reduction of coal output.

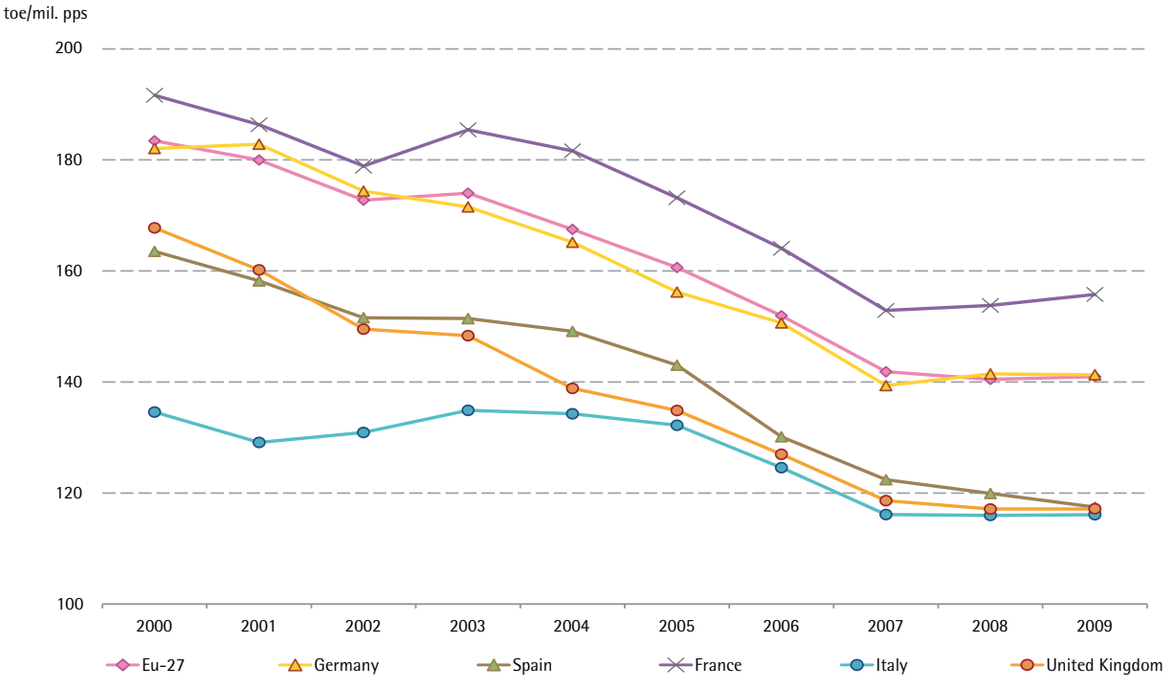
16 It is a statistical indicator which is calculated by dividing the gross domestic energy consumption by the GDP and which represents the amount of energy used to achieve one unit of income.

Fig C.1.6 **Energy dependence of some European countries (2000-2009)**



Source: Enerdata yearbook, 2010.

Fig C.1.7 **Trend of primary energy intensity in some European countries (toe/mil. pps)**



Source: AMECO17 database; Eurostat, Enerdata, 2010.

17 AMECO is the annual macro-economic database of the European Commission's Directorate General for Economic and Financial Affairs (DG ECFIN).

The energy intensity in industrialised countries generally is modest and lower than that of industrialising countries. The reason may be ascribed to a set factors, such as weak domestic demand, increased energy prices[18], scarce national energy sources, progressively increasing weight of the service sector in the economy. Furthermore, it is clear that the changes in consumers' preferences influence the improvement or deterioration of unit energy intensity and of unit energy consumption, which in turn depend on GDP and population levels.

To conclude, it must be pointed out that the improvement of energy efficiency over the past years at European level[19] may be attributed not so much to the enforcement of energy-saving promotion policies[20], as to the effects of the oil crisis in the early 1970s[21]. This caused considerable oil price hikes with the consequent reduction of energy intensity world-wide. European countries, between 2000 and 2009, saw a strong decline in the energy intensity trend, passing, in the EU-27, from 183 to 141 toe/million pps. Italy showed lower levels of energy intensity (from 134.5 to 116.3 toe/million pps) which depend on the specific structure of the industrial system, dominated by light industry and by small and medium-sized enterprises, which consume relatively little energy (scarcely energy-intensive) as against the other European countries under review. The latter are characterised by a production system with a predominance of the heavy industry and with more capital-intensive industrial investments. However, the rate of reduction of the indicator proved to be lower than in other European countries. Consequently, the initial advantage held by Italy is progressively narrowing.

In France, for instance, in the last decade a drop was recorded from 191 to 155 toe/million pps, thanks to the generation and consumption of electricity of nuclear origin. In Spain and in the United Kingdom, instead, the reduction was progressive, except for the two-year period 2006 and 2007, when the GDP rise was not offset by a growth of total and unit primary consumption, which, by contrast, experienced a decline.

Primary energy consumption in some European countries (2000 and 2007-2009) Tab C.1.9

	2009									2007							
Mtoe	Oil	Natural Gas	Coal	Nuclear	Hydro	RES	Total 2009	Δ% '08-'09	CAGR '00-'09	Oil	Natural Gas	Coal	Nuclear	Hydro	RES	Total 2007	CAGR '00-'07
Eu-27	623.1	413.9	231.5	206.6	73.9	153.3	1,702.4	-9.83%	-0.65%	707.9	433.1	316.7	212.1	70.1	153.9	1,893.8	0.54%
Italy	73.2	62.9	13.0	--	10.5	10.8	170.4	-6.63%	-0.39%	82.6	70.0	17.2	--	7.4	6.80	184.0	0.46%
France	87.5	38.4	11.3	105.6	13.1	6.9	262.7	2.82%	-0.31%	91.4	38.2	12.3	99.7	13.2	18.90	254.8	-0.65%
Germany	113.9	76.4	73.5	34.5	4.5	23.2	326.0	5.08%	-0.46%	112.5	74.6	85.7	31.8	4.6	33.38	309.2	-1.05%
United Kingdom	74.4	77.9	29.5	17.7	1.2	6.1	206.8	-1.95%	-0.96%	79.2	81.9	38.2	14.3	1.2	5.44	214.8	-0.54%
Spain	63.0	31.1	10.5	13.7	6.1	5.8	130.2	-10.88%	-0.49%	78.8	31.6	20.2	12.5	6.2	12.83	149.3	1.04%

	2008									2000						
Mtoe	Oil	Natural Gas	Coal	Nuclear	Hydro	RES	Total 2008	Δ% '07-'08	CAGR '00-'08	Oil	Natural Gas	Coal	Nuclear	Hydro	RES	Total 2000
Eu-27	703.4	440.9	293.8	212.7	73.1	164.1	1,888.0	-0.31%	0.50%	697.7	395.8	315.3	213.9	81.9	100.2	1,804.7
Italy	79.2	69.5	16.7	--	9.4	7.7	182.5	-0.82%	0.37%	92.5	58.0	13.0	--	10.0	3.00	176.5
France	90.8	39.4	11.9	99.6	13.7	21.3	255.5	0.28%	-0.62%	94.9	35.4	13.9	94.0	15.3	16.82	270.3
Germany	118.9	73.1	80.1	33.7	4.5	33.73	310.3	0.36%	-1.01%	129.8	71.5	84.9	38.4	4.9	10.43	339.9
United Kingdom	77.9	84.4	35.5	11.9	1.2	6.4	210.9	-1.84%	-0.75%	78.6	87.2	36.7	19.3	1.2	2.68	225.6
Spain	77.1	34.8	15.6	13.3	5.3	13.9	146.1	-2.15%	0.79%	70.0	15.2	21.6	14.1	7.7	7.42	136.1

Source: Enerdata Yearbook, 2010; Eurostat.

As a whole, between 2008 and 2009, economic recession brought about a drop of primary energy consumption

18 In this respect, an important variable affecting energy intensity is the fuel price. A high price means lower energy intensity, hence a more efficient use of energy. Here, efficiency is achieved through a new source of energy or a method for saving on the use of energy sources.

19 The annual average growth rate of energy efficiency in EU-27 was 1.5%; in Italy it stood at 0.3% (review period 1997-2006).

20 The final energy intensity, which has practically remained the same over the last years, amounts to 113 toe/million pps on average (2000-2009).

21 The energy crisis started in October 1973 was mainly caused by a sudden and unexpected interruption of the oil supply flow from OPEC (Organization of the Petroleum Exporting Countries) member States towards important oil-importing countries. Following the Arab-Israeli Yom Kippur war, Arab countries decided to suspend oil supplies towards the countries (USA and European countries) supporting the State of Israel. The oil price increased fourfold in 1974 reaching 12 $/ bbl (an all-time high for the time) and continued to rise throughout the 1970s and 1980s.

(Table C.1.9), which was particularly evident in countries where industrial production went down (-14.9% in the EU15+1)[22], including Spain, Italy (-3.9%) and the United Kingdom.

1.2.2 The gas system

Italy with its 78 billion m^3 of natural gas demand recorded in 2009 and with a share equal to 16% in the old continent (EU-27) is the third European market in terms of consumption after Germany and the United Kingdom (close to 91 billion m^3) and much higher than France and Spain. The Italian composition of gas consumption faithfully follows the European composition, with a certain predominance of consumption in the energy sector (38%) as against consumption in the household (27%) and industry (21%) sectors, whereas the British composition is unbalanced towards the energy (44%) and household (37%) sectors, the French one sustained by the household sector (42%) and Spain heavily driven by the energy (58%) sector (Table C.1.10).

Tab C.1.10 **Consumption, imports and storage capacity for European countries (2009)**

Consumption (billion m^3) (1)	Italy	France	Germany	Spain	UK	EU-27
Total consumption	**78.0**	**42.5**	**91.6**	**35.2**	**90.8**	**500.7**
Industry	16.4	10.3	21.6	8.9	10.7	103.0
Households	20.9	17.7	33.2	4.2	30.4	139.8
Energy uses	29.8	8.3	22.1	20.3	40.2	182.6
Services + other	10.9	6.2	14.7	1.9	9.5	75.2
National production	**7.9**	**0.9**	**15.4**	**0.1**	**62.8**	**195.8**
Total imports (billion m^3) (1)	**70.0**	**41.6**	**76.3**	**35.2**	**28.1**	**304.9**
% of imports in consumption	**90%**	**98%**	**83%**	**100%**	**31%**	**61%**
Imports from pipelines (2)	*96%*	*73%*	*100%*	*25%*	*75%*	*84%*
Russia	30%	17%	35%	-	-	29%
Algeria	31%	-	-	19%	-	8%
Libya	13%	-	-	-	-	2%
Other from non-EU-27	-	-	-	-	-	1%
EU 27	22%	57%	65%	6%	75%	45%
Imports from LNG terminals (2)	*4%*	*27%*	-	*75%*	*25%*	*16%*
Algeria	2%	16%	-	14%	4%	4%
Libya	-	-	-	2%	-	-
Other from non-EU-27	2%	10%	-	55%	20%	11%
EU 27	-	1%	-	4%	1%	1%
Storage (billion m^3) (3)	**14.4**	**8.9**	**19.5**	**5.9**	**4.8**	**70.4**

(1) Source: AEEG
(2) Source: BP
(3) Source: GIE; the Italian data includes strategic stocks equal to 5.1 billion m^3

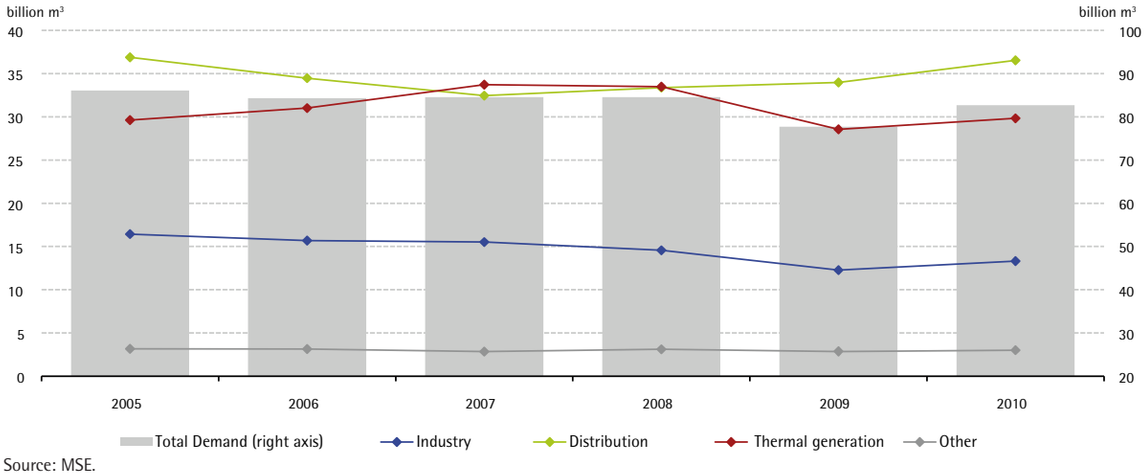
Propelled by thermal generation demand, which more than offset the continuous drops of the industry sector, Italy's natural gas consumption dynamics over the years have showed marked or significant upward trends, reaching peaks in 2005 with over 86 billion m3, and later revealed uncertain trends until 2008. After the collapse of consumption in 2009, induced by the heavy economic crisis, a sharp bounce in 2010 raised demand to 83 billion m3 (Fig. C.1.8). These upward dynamics place Italy above the 5% average level of European growth (EU-27) calculated in the 2009 crisis year as against 2000. Over this period Italy's consumption increased by 10%, second only to Spain (+104%[23])

22 Industrial production in the strict sense, except for the construction sector, DG ECFIN key indicators.

23 Source: AEEG.

– whose impressive growth above all reflects the reduced absolute dimension of initial consumption and is chiefly sustained by an expanding thermal generation sector and a significant economic growth – and much higher than the increases recorded in France (+8%).

Italian demand by sector Fig C.1.8



Source: MSE.

In Italy the increased needs have been mostly met with higher imports, which in 2009 covered 90% of consumption vs. a progressively diminishing share of national production. This data is in line with that of the main European economies, with the exception of the United Kingdom, whose production self-sufficiency, however, has been dwindling, so that 31% of its requirements in 2009 were covered by imports.

Nevertheless, the dependence of the Italian system on neighbouring countries is much more critical than the one of other countries for two reasons: i) more than 96% of the imported gas comes from a limited number of rigid infrastructures, such as pipelines, as the incidence of LNG terminals has so far been very low; ii) 76% of imports come from non-EU countries and are often characterised by a greater geo-political risk profile, such as Algeria (33%), Russia (30%), and Libya (13%)[24]. In the past few years Italy has been faced with some situations of supply criticality due to tensions between Russia and Ukraine (January 2006 and January 2009) and in Libya (March 2011), which were coupled, between 24 July and 24 December 2010, with technical problems on the transport network because of a fault in the Transitgas gas pipeline, which supplies Italy with gas from the Netherlands and Norway and which, in the first half of 2010 alone, accounted for 18% of import flows.

In spite of an increased availability guaranteed by the opening of the Greenstream gas pipeline, connected with Libya (from 2004, 8 billion m^3 yearly), and by the entry into operation of the LNG terminal in Rovigo (from 2009, 8 billion m3 yearly), these situations often generated price tensions, causing conditions (isolated in the early stage of Ukraine's crisis)of gas demand rationing and use of strategic gas stocks, limited to short periods due to their small extent as against the overall supply capacities of the Italian infrastructure.

Lastly, it is worth recalling that Italy, like other large importers, possesses large storage facilities that make it possible to shift supply from low-demand summer periods to peak-load winter periods, with a share of storage capacity in demand equal to 18%.

24 Germany, which also procures gas exclusively through pipelines, displayed a lower geographical risk profile owing to a prevailing share of imports from EU countries (65%). France and Spain, whose dependence on foreign supplies is even higher than the one of Italy, have a certain degree of security due to their choices in terms of supply infrastructure: pipelines connected with EU countries for France; and mostly LNG terminals for Spain.

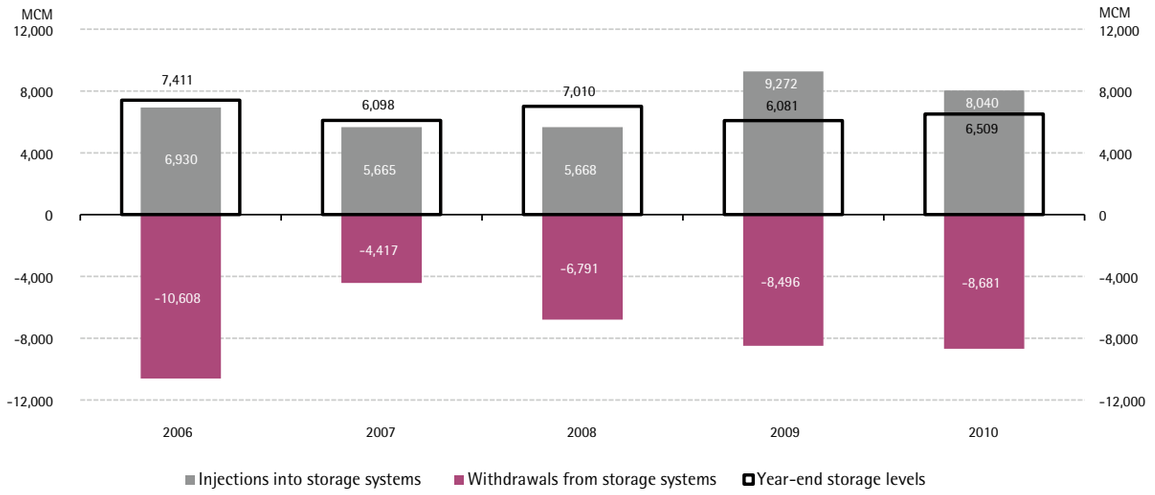
Tab C.1.11 **Snam Rete Gas's gas balance**

Demand	2010	2009	2008	2007	2006	2005	Δ% 2010/2009
Total withdrawal	82,675	77,680	84,526	84,534	84,310	86,101	6.4%
Industrial consumption	13,319	12,274	14,560	15,514	15,685	16,440	8.5%
Consumption for thermal generation	29,818	28,549	33,477	33,718	31,007	29,621	4.4%
Distribution systems	36,521	33,966	33,376	32,449	34,469	36,875	7.5%
Third-party grids and system cons.	3,018	2,892	3,114	2,854	3,149	3,165	4.4%
Supply							
Import	75,168	68,676	76,526	73,512	76,482	72,940	9.5%
National production	8,146	8,228	9,120	9,776	11,506	12,159	-1.0%
Storage systems	-641	776	-1,123	1,248	-3,678	1,001	-182.6%
PSV							
Average Price	23.3	18.4	29.1	21.3	-	-	26.8%
Min	18.0	12.2	23.6	13.4	-	-	47.5%
Max	30.0	37.0	35.2	28.8	-	-	-18.9%

Sources: Snam Rete Gas; Thomson-Reuters.

In respect of this structural scenario, the analysis of the dynamics emerged during 2010 (Errore. L'origine riferimento non è stata trovata.) shows a recovery of natural gas consumption in Italy, but at lower levels than what has been observed over the years right before the crisis and with volumes equal to 82,675 million m^3 (+6.4%). These bullish trends reflect, without distinction, increases in all sectors, more clearly in the industry sector, which goes up to 13,319 million m^3 (+8,5%), and in the household sector, standing at 36,521 million m^3 (+7.5%), the highest value in the last 5 years. The thermal generation sector, in turn, shows some signs of recovery, reaching 29,818 million m^3 (+4.4%), which confirms that it is still below the 4 pre-crisis years (up to -12%) as a result of the slow recovery of electricity demand and of the increasingly important role played by renewable sources in the Italian energy mix. The 2010 consumption increase was satisfied through a firm bounce of imports which came close to pre-crisis values – rising up to 75,168 million m^3 (+9.5%) – concurrently with a more limited withdrawal from storage systems than in 2009, closing the year with a negative balance and equal to -641 million m^3 (-182.6%). Consequently, storage system filling level at 31 Dec. was higher than in 2009 and equal to 6,509 million m^3 (+7%), ensuring an only temporary additional security margin to face the North-African crisis that broke out in the first months of 2011 (Fig.C.1.9). This crisis caused the total interruption of the Greenstream, the gas pipeline linking, via Gela, Italy with Libya, which during 2010 recorded flows towards our country for about 13% of total imports.

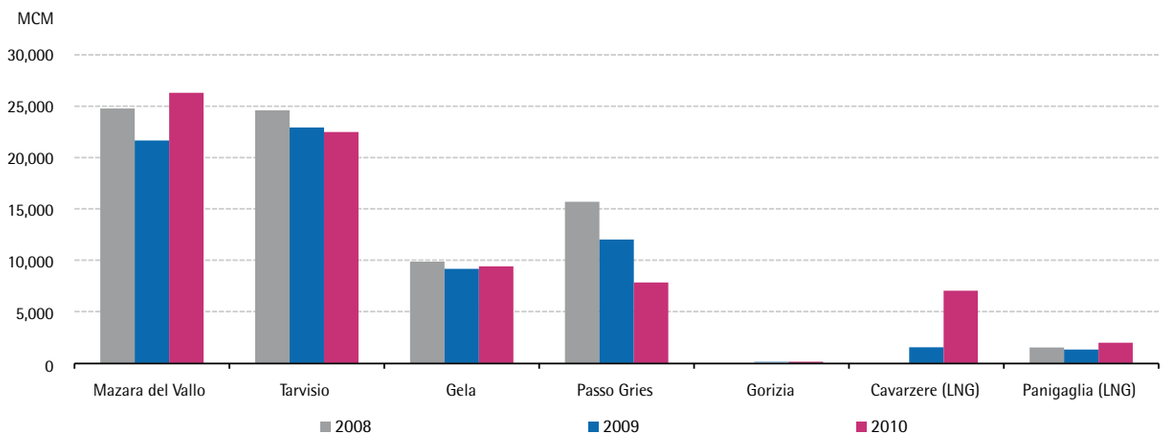
Italian gas storage volumes (million m³) Fig C.1.9



Sources: Snam Rete Gas; Stogit.

The growth of imports recorded in 2010 (Fig.C.1.10) was concentrated at the entry point of Mazara del Vallo, reaching 26,290 million m³ (+21%), and at the LNG terminal of Cavarzere (Rovigo), which supplied gas for 7,040 million m³ (+360%), as against a sharp contraction of flows from the Passo Gries entry point because of the aforesaid technical interruptions of the Transitgas pipeline, with imported volumes equal to 7,830 million m³ (-35%), halved with respect to 2008.

Italian imports by entry point (million m³) Fig C.1.10

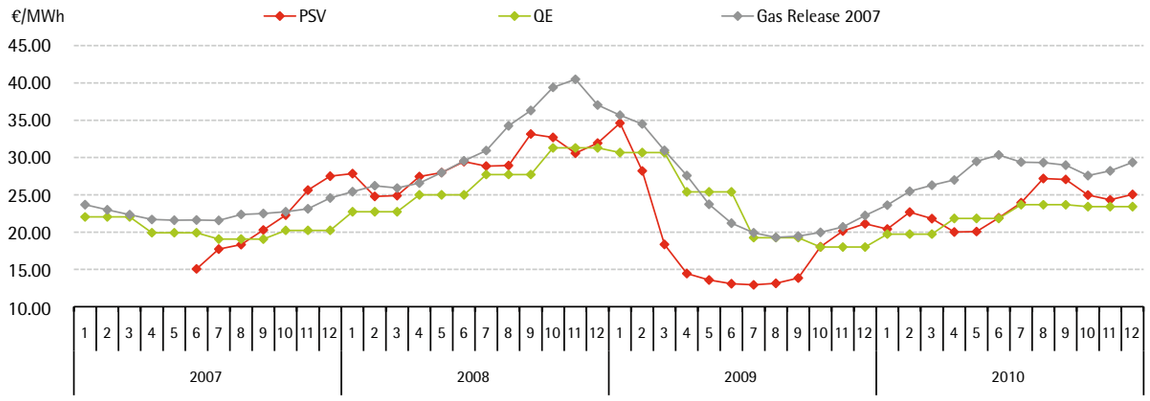


Fonte: Snam Rete Gas.

In this context of recovery, the QE index – gas price component associated with the coverage of raw material costs – showed continuous upward pressures until the month of July and then a constant trend until the end of the year (Fig.C.1.11). The same applies for the price related to the Gas Release 2007 – main gas formula indexed to the Italian market. This formula stabilised above the QE index with a constant growth in the first six months of the year and then an uncertain trend, albeit at higher levels, towards the end of the year. Within this environment, the PSV ("Punto di Scambio Virtuale" – virtual trading point) price – but for a few exceptions – stood at slightly higher levels than the QE index, and always markedly below the prices related to the Gas Release 2007, showing a rising trend until July, and then a constant trend until the end of the year. On a monthly basis, these upward trends inferred an acceleration

mostly concentrated in summer months and, in particular, characterised by low gas consumption levels. In detail, the prices recorded at the PSV in the first half of 2010 show values oscillating around 20-23 €/MWh and then edging up to the maximum yearly levels recorded in the months of August and September with values of about 27 €/MWh – sustained by the uncertainty about the technical interruptions affecting the Transitgas pipeline – and in the end returning to 25 €/MWh in the last three months of the year.

Fig C.1.11 **PSV price, QE, and Gas Release 2007 (€/MWh)**

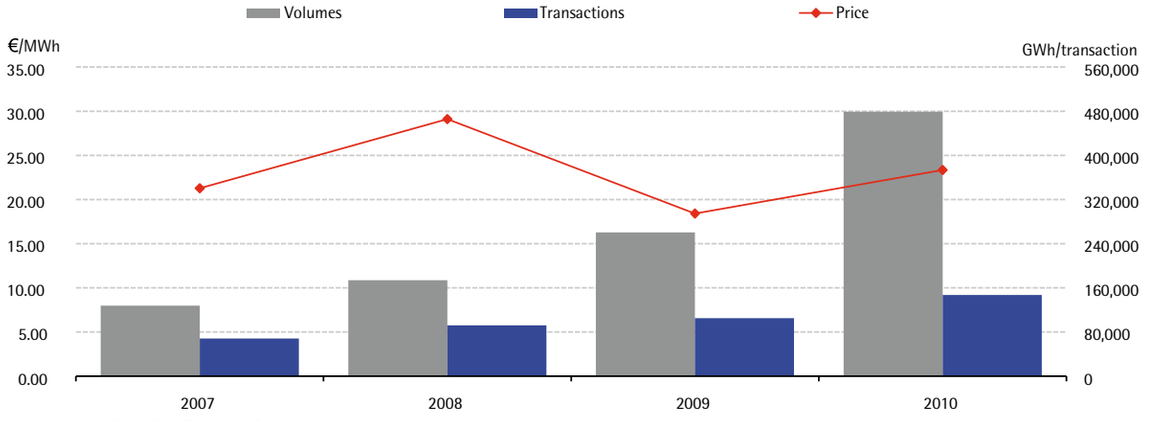


Source: Thomson-Reuters' data processed by GME.

On a year-on-year basis, the increase in natural gas demand, in conjunction with the growth of oil prices and the "Transitgas effect", favoured upward pressures on the prices registered at the PSV (Fig.C.1.12) which, after the collapse in the year of the crisis, show a steady recovery in 2010, reaching 23.34 €/MWh (+27%), definitely far from the maximum values of 2008 (-20%).

The price recorded at the PSV confirmed, among others, a price spread of about 6 €/MWh as against prices prevailing on other European marketplaces, reaching about 17 €/MWh under the pressure of oil price hikes (see Chapter C.4). Attention should be drawn to the soaring volumes traded at the PSV, which in 2010 rose above 479,000 GWh (+84%), nearly twice as much as the previous year and three times on 2008, as an effect of the Gas Release, anti-crisis measure adopted pursuant to law no. 102/2009 and AEEG's Decision ARG/gas 114/09of 7 August 2009.

Fig C.1.12 **Prices, Volumes and Transactions at PSV**



Sources: Snam Rete Gas; Thomson-Reuters.

1.2.3 The electricity system

The Italian electricity system in the last years is experiencing a phase of major changes, driven by three main phenomena: the response to the economic crisis that started two years ago and not yet fully overcome; the liberalisation process initiated at the end of the 1990s by Community directives on the single market; and a core change of the national consumption structure.

As far as consumption is concerned, the effects of the international economic crisis continued also in 2010, in spite of the initial signs of a recovery. After the slump in 2008 and the collapse in 2009, consumption as recorded by Terna rose again to 305.5 TWh, i.e. +1.9% from the value recorded last year in the heat of the international crisis, but still below 2005 values. The most interesting figure, however, concerns the distribution of consumption by sector. In particular, the effects of the crisis apparently impacted only industrial consumption. Its fall – which had slowly emerged in 2007 – strongly accelerated in 2009, losing in only one year more than 20 TWh, of which only 4 recovered in 2010, totally reducing the share of purchases passing from 50% in 2005 to 44% in 2010. By contrast, the crisis seems to have spared consumption in the agricultural and especially the service sectors. Indeed they displayed a constant growth as early as in 2005, which in particular led the service sector to grow from 27% to 31% in the review period (Fig.C.1.13). Moreover, in the space of five years, there was a plunge of consumption by pumped-storage plants, decreasing year by year, with a trend that partly may be ascribed to a constant narrowing of wholesale prices in peak-load and off-peak hours (Table C.2.5). It is worth noting that, in spite of the crisis, the annual peak load reached 56.4 GW, second only to the historical peak of 56.8 GW in December 2007, and for the third year in a row this was recorded in a summer month. This confirmed the trend in passing from the winter peak-load to the summer one, due to the progressive diffusion of heating & cooling systems (Table C.1.13).

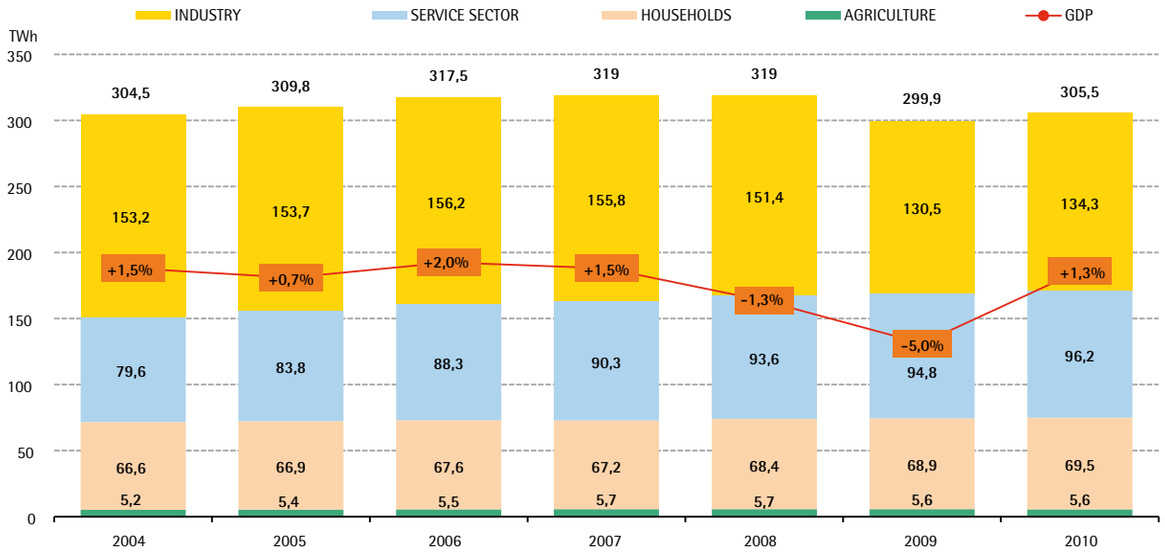
In spite of low demand, the national generating mix (including both renewable and coal- and gas-fired thermal plants) continued to grow in 2010, reaching 106.9 GW of net maximum capacity, with an increase of 5.5 GW (+5.4%) (Table C.1.13). In particular, the highlights for 2010 were: a) full operation of the new Erg's combined cycle of 480 MW in Sicily, which contributed to steadying the prices on the islands and decreasing concentration; b) the end of the process of conversion to coal firing of Enel's Torvaldaligaplant in central-southern Italy; with its low-cost energy, it contributed to rebalancing generation at local level; c) the further increase of the capacity installed in wind and PV systems/plants, whose net maximum capacity rose in 2010 alone by 2.7 GW (+45%), thereby generating 3% of the electricity supplied to the grid (10 TWh).

With this year's capacity increase, more than 21,000 MW of net maximum capacity have been added since 2005. This process had been initiated by the strong drive to infrastructural renovation of the last decade, induced by market liberalisation. The late 1990s saw a growth of investments in the sector, both through the improvement of the national transmission grid, which contributed to reducing congestions and integrating some poles of limited production[25], and through the progressive renovation of the generating mix, which was made more efficient by the new combined cycles and by RES plants. The investments in the new capacity were also paired by investments targeted at repowering obsolete gas-fired thermal plants or converting old oil plants to coal firing. The renovation of the generating mix definitely had positive impacts on the national electricity system, contributing to increasing the installed capacity and security margins, as well as curbing generation costs and market concentration, as evidenced by the data collected by GME in the MGP (see Chapter C.2.2.3). In addition, the high oversupply, favoured by the concomitant drop of consumption, created this year the conditions for a strong competition at the margin between combined-cycle producers, which set the basis to reduce cost margins and therefore to limit the impact of oil prices on the wholesale prices recorded in the MGP (see Chapter C.2.2.1).

25 In this connection, it is worth noting the removal of the constraints on the poles of limited production of Turbigo and Piombino, the increase of 1.5 GW of the NTC from neighbouring countries, the extension of the transit limit between northern and central-northern Italy, the completion of the line Matera-Santa Sofia, which eliminated the bottlenecks of most parts of southern Italy, and, above all, the commissioning of the new cable link between Sardinia and central-southern Italy (Sapei), which, after entering in full service, will increase by about 800 MW the interconnection capacity of the island with the peninsula. With the installation of the new, 1,000 MW, interconnection cable between Sicily and Calabria that is planned for 2013, the main congestions within the national electricity system will be sharply reduced or even removed.

Nevertheless, the extent of the investments injected was not able to eliminate the two main, closely interwoven, limits of the national electricity system: a poorly diversified generating mix, excessively dependent upon fossil sources, and the considerable share of demand covered by imports. From the first standpoint, in 2010, 66.1% of the electricity was generated from conventional thermal sources (Table C.1.12), of which more than two thirds by combined-cycle gas plants, which gradually replaced oil-fired conventional thermal ones, which were relegated to a residual role together with coal-fired ones. Hence, the replacement of fuel oil with natural gas as reference fuel has not reduced the dependence of the Italian generating mix on fossil fuels. In fact, Moreover, it has increased the role of a source (gas) characterised by a greater geo-political risk and by a wholesale price in the national market higher than the European average (Fig.C.4.4). From the second standpoint, the considerable renovation of the generating mix and the massive cut to generation costs has not reduced the dependence on imports from neighbouring countries, which in the last few years has ranged between 11.5% and 14.5% of requirements, still characterising Italy as the first country in Europe in terms of imported electricity volumes (Table C.1.14). This phenomenon is not related to a dimensional inadequacy of the generating mix – with 67.0 GW of average capacity available at peak load[26] in 2009,it can certainly cover national requirements – but rather to a mere cost-effectiveness of imports due to the higher cost of electricity in Italy as against foreign countries; a cost spread that has its historical genesis during the 1980s – with the nuclear ban and the low use of coal – and that the renovation of the generating mix managed to reduce, but not eliminate, because of, as mentioned before, the higher cost of gas prevailing in Italy unlike other European marketplaces[27].

Fig C.1.13 **Final consumption by sector and GDP**



Source: Terna.

26 The difference between net maximum capacity and available capacity at peak load may be ascribed to a variety of factors: for renewable power plants, to the physiological discontinuity of the primary source; for thermal power plants, to scheduled and unscheduled outages, to long-term conversions, to the limits imposed on injections into the grid by plants located in poles of limited production, as well as to the share of obsolete plants that have been reported, but are no longer in operation.

27 The higher generation cost is also compounded by the effects of the greater incidence of system charges and taxation.

Terna's electricity balance Tab C.1.12

TWh	2010	2009	2008	2007	2006	2005
TOTAL DEMAND	**330.5**	**326.1**	**347.1**	**347.6**	**346.2**	**339.8**
NATIONAL CONSUMPTION	305.5	299.9	319.0	319.0	317.5	309.8
GRID LOSSES	20.7	20.4	20.4	21.0	19.9	20.6
PURCHASES FOR PUMPING	4.3	5.8	7.6	7.7	8.8	9.3
NET GENERATION	**286.5**	**281.1**	**307.1**	**301.3**	**301.2**	**290.6**
HYDRO	53.2	52.8	46.7	38.0	42.9	42.4
THERMAL	218.4	216.1	250.1	254.0	250.2	240.9
GEOTHERMAL	5.0	5.0	5.2	5.2	5.2	5.0
WIND	8.4	6.5	4.9	4.0	3.0	2.3
PHOTOVOLTAIC	1.6	0.7	0.2	0.0	0.0	0.0
IMPORT/EXPORT BALANCE	**43.9**	**45.0**	**40.0**	**46.3**	**45.0**	**49.2**
IMPORTS	45.8	47.1	43.4	48.9	46.6	50.3
EXPORTS	1.8	2.1	3.4	2.6	1.6	1.1

Source: Terna.

NTC, maximum capacity and peak demand Tab C.1.13

GW	2010	2009	2008	2007	2006	2005
NET TRANSFER CAPACITY (winter)						
IMPORTS	**8.0**	**8.0**	**7.7**	**7.7**	**7.7**	**6.6**
EXPORTS	**3.6**	**3.6**	**3.2**	**3.2**	**n.a.**	**n.a.**
NET MAXIMUM CAPACITY	**106.9**	**101.4**	**98.6**	**93.6**	**89.4**	**85.5**
HYDRO	21.5	21.4	21.3	21.1	21.1	21.0
THERMAL	76.0	73.4	72.7	69.0	65.8	62.2
GEOTHERMAL	0.7	0.7	0.7	0.7	0.7	0.7
WIND & PHOTOVOLTAIC	8.7	6.0	4.0	2.8	1.9	1.6
AVG CAPACITY AVAILABLE AT PEAK LOAD	n.a.	67.0	63.5	61.2	58.9	56.3
PEAK DEMAND	56.4	51.9	55.3	56.8	55.6	55.0
DAY	*16 July*	*17 July*	*26 June*	*18 December*	*27 June*	*20 December*
TIME	12	12	12	17	11	18

** net of import capacity*

Source: Terna.

International comparisons – 2008 Tab C.1.14

GW	France	Germany	Italy	United Kingdom	Spain
GROSS MAXIMUM CAPACITY	**118.6**	**138.2**	**102.3**	**84.6**	**96.8**
NET TRANSFER CAPACITY (winter)					
IMPORTS	**10.7**	**16.9**	**7.7**	**2.1**	**3.2**
EXPORTS	**15.4**	**15.4**	**3.2**	**2.5**	**2.5**
TWh					
GROSS GENERATION	**574.0**	**633.2**	**319.1**	**390.0**	**313.4**
HYDRO	*12%*	*4%*	*15%*	*2%*	*8%*
WIND	*1%*	*6%*	*2%*	*2%*	*10%*
PHOTOVOLTAIC	*0%*	*1%*	*0%*	*0%*	*1%*
THERMAL	*11%*	*65%*	*82%*	*83%*	*62%*
GEOTHERMAL	*0%*	*0%*	*2%*	*0%*	*0%*
NUCLEAR	*77%*	*23%*	*0%*	*13%*	*19%*
NET GENERATION*	542.5	586.9	299.4	367.7	295.4
IMPORT/EXPORT BALANCE	-48.0	-20.0	40.0	11.0	-11.2
TOTAL DEMAND*	494.5	566.9	339.5	378.7	284.2
NATIONAL CONSUMPTION	**438.8**	**521.8**	**319.0**	**340.0**	**262.3**

** net of purchases for pumping*

Source: Terna.

2. ELECTRICITY MARKETS

In 2010, while recovery of demand was weak (+2%), overall traded volumes in the various energy markets managed by GME recorded their all-time peak, standing at 457 TWh (+14%).

This data predominantly reflects the strong growth potential of the forward transactions (+38%) concluded in the MTE, the regulated physical market, and on the PCE, the platform for the registration of bilateral transactions. Spot transactions, on the other hand, definitely contributed less to the increase in volumes; indeed, their mild recovery (+2%), sustained by the confirmed appreciation for the new MI, after a full year of operation, was slowed down by the further drop of on-exchange volumes experienced by the MGP (-6%).

Volume expansion was mainly favoured by the encouraging increase of liquidity on the PCE, driven above all by the growing hedging requirements expressed by participants in the present climate of uncertainty of markets. The significant increases in registered volumes (+34%), in the churn ratio and in the trading of standard products evidence, three years after the take-off of the PCE, a strengthening of its trading activity, which shows that it is more and more widely used as a platform for forward electricity trading.

Besides, equally appreciable was the increase driven by important reforms introduced in the functioning and in the structure of the electricity markets after to the transposition of Law 2/2009. The effects of these novelties have been clear in: i) the MTE, where the change in the guarantee system and the launch of new quarterly and yearly products caused volumes to rise above 6 TWh; this was a low result, albeit sharply growing on 2009 and with additional growth forecasts for 2011; and ii) the MI, where the organisation of two daily sessions, contributed to an increase of the volumes very close to 15 TWh (+22%).

The upswing of volumes traded in GME's energy markets, however, was partly mitigated by the second tendential decrease in a row observed in the MGP. Here, liquidity went down to 63% (-5 p.p.), in spite of a further increase in participating companies (134 companies, +18) and of a consolidation of liquidity of non-institutional participants at an all-time high of 35%. The gradual transfer of transactions from the MGP to the OTC market was influenced: i) on the demand-side, by the change of procurement strategy put in place by Acquirente Unico over the last three years; ii) on the supply-side, by the reduction of the spark spread to the new historical low of 3.6 €/MWh (-77%).

In an environment of robust fuel price upturn (Brent: +36% in €/bbl), the sharp reduction of the profit margin incorporated in the MGP price reflected the essential persistence of the Pun on lower values in the last five years, as a result of an intensified level of system overcapacity (maximum capacity: +5.5 GW) and a consequent improvement of market competitiveness (IOR: -2 p.p., IOM: -5.5 p.p., ITM ccgt: +8.3 p.p.).

In particular, the Pun was still at 64 €/MWh, characterised by a strong convergence of peak-load and off-peak prices and by a lower seasonal variability. These phenomena are unmatched in other European power exchanges, which, among others, were affected by other mildly upward price dynamics.

Within the spot markets managed by GME, the price expressed by the MGP was somewhat higher than the prices recorded in the two sessions of the MI, both at national and zonal level.

In this sense, a closer examination of the zones into which the two markets are organised highlights a consolidation of the low fragmentation of the continent and a progressive alignment of Sardinia's price with the peninsula, favoured by the entry into full operation of the more powerful cable link with central-southern Italy. Conversely, the price spread existing between the peninsula and Sicily remained high (about 30 €/MWh), albeit slightly diminishing in the second part of the year, when the island could rely on the entry into operation of new base-load and mid-merit capacity.

Lastly, compared with what emerged on 2010 prices, the price expectations expressed simultaneously by the MTE and the European forward markets for 2011 exhibit a moderate upward trend[1], predominantly translated into the increases recorded in the course of the year in oil market prices.

1 The reference price adopted was the last price available of the yearly base-load product for 2011.

2.1 Participation in the market

2010 recorded the new maximum number of companies participating in GME's electricity markets, up to 202, as a result of the most important increase observed ever since the exchange took off (+41).
The increase was recorded in all the markets managed by GME, leading to the maximum yearly hike the participation in the MGP, reaching 134 units (+18), and in the MI, up to 69 (+16).
In particular in regard to MI, please note the driving effect produced by its reform, which took place at the end of Oct. 2009. Under the reform, MI's operation was organised in two daily sessions, increasing its appeal (+30% more active companies as against last year).
Participation was slightly recovering in the MSD, after it was overhauled as of 1 January 2010 pursuant to Law 2/09 and to the implementing Decree of the Ministry of Economic Development of 29 Apr. 2009, with 23 participants (+3), and in the Electricity Account Registration Platform (PCE), where the growth (95 participants, +7) represented a reversal of the negative trend of the two previous years.
Only the MTE appears stable: the number of active participants is the same as in 2009 (15 vs. 16) (Table C.2.1).

Participation in the market Tab C.2.1

	2010	2009	2008	2007	2006	2005
Market participants	**202**	161	151	127	103	91
PCE (including MTE)						
Market participants with bids/offers	95	88	101	108	-	-
Market participants with supply offers	75	68	76	94	-	-
Market participants with demand bids	71	65	71	73	-	-
IPEX						
MTE						
Market participants with bids/offers	15	16	8	-	-	-
Market participants with supply offers	12	13	8	-	-	-
Market participants with demand bids	13	15	6	-	-	-
MGP (excluding PCE)						
Market participants with bids/offers	134	116	106	89	80	69
Market participants with supply offers	104	92	85	71	54	42
Market participants with demand bids	106	92	91	74	68	61
MA/MI						
Market participants with bids/offers	69	53	37	32	34	23
Market participants with supply offers	65	48	34	29	29	23
Market participants with demand bids	59	49	36	32	31	23
MSD						
Market participants with ex-ante MSD bids/offers	23	20	22	19	18	17
PAB						
Market participants with bids/offers	-	-	10	37	48	52

In terms of volumes, the amount of transactions recorded overall in the markets and on the platforms managed by GME reached its all-time high of 457 TWh (+14%), reinvigorating the definitely upward trend that began in 2006. The increase appears definitely higher than the one observed in the "Sistema Italia" (319 TWh, +2%) and in the national requirements recorded by Terna (330.5 TWh, +1.4%), and was driven by the sharp rise of forward transactions (243 TWh, +38%) - the latter progressively weighing more and more on the total, also as a result of trades dropping on the MGP exchange side (199 TWh, -6%) - as well as by that of volumes negotiated in the MI (15 TWh, +22%).

In particular, transactions soared in the forward markets (both transactions in the MTE and bilateral transactions registered on the PCE).

In the first case, the energy volume traded reached 6.29 TWh (vs. 0.12 TWh in 2009), reflecting the longer trading period to which longer-maturity (quarterly and yearly) products (launched on 1 November 2009 and for which participants immediately showed a special interest) were exposed.

In the second case, it is worth mentioning that, for the first time since its take-off, the PCE showed a simultaneous increase of registered volumes and nominated volumes to be delivered. The latter reached 119 TWh (+19%), strongly recovering after 3 years of consecutive decreases, while the former displayed a sharp rise, going up to 236 TWh (+34%). This signals the growing use of the trading activity, with the consequent strengthening of the positive trend of the churn ratio.

Besides, the trend in spot markets followed diverging directions with one another, showing a substantial growth of trades in the MI and a corresponding decrease in the MGP and MSD.

In particular in the MI, the flexibility options guaranteed by the two daily sessions introduced by the 2009 reform favoured a more extensive use of the market, whose volumes almost totalled 15 TWh (+22%), mainly concentrating in the MI1 (9.5 TWh). Although the increase may solely be ascribed to the longer period of operation of the two sessions (twelve months in 2010 vs. two in 2009), also the "homogenous" comparison performed on the final months of the year outlined an unchanged appreciation for the MI, showing ineffective tendential variations as against the encouraging results obtained upon take-off of the renovated market (Table C.2.2).

Within the "Sistema Italia", whose volumes show a modest upswing (+2%), the increase, as noted before, of the schedules implementing bilateral contracts (+19%) displaced the MGP, where transactions went down to a little below 200 TWh, signalling a 6% decline, which confirmed the downward trend that had started in 2009.

From the standpoint of sales, a possible interpretation of this change of strategy points at the lower profitability associated with exchange prices, anchored to last year's low levels due to a high degree of overcapacity and squeezed on rapidly increasing generation costs. In this context, the progressive loss of profit accrued in the exchange presumably motivated producers to fix their margins beforehand, by resorting to a larger extent to OTC transactions.

This explanation, among others, is corroborated by the analysis of the monthly trend of liquidity, without the usual seasonality, which revealed bearish dynamics of the exchange activity very similar to the negative progression shown during the year by the spark spread (Fig.C.2.2).

The decrease of the volumes traded as a whole on the exchange, on the demand side, may solely be ascribed to the procurement strategy implemented by Acquirente Unico, which during the last three years progressively transferred its purchases to the bilaterals market. In these three years, the weight of its transactions on the exchange, equal to 42 TWh net of the CIP-6 quota, passed from 41% to 24%, representing 54% of its overall requirements (85% in 2007).

By contrast, while demand rose modestly, the volumes purchased on the exchange by non-institutional participants proportionately recorded a more conspicuous recovery (110 TWh, +5 TWh), their liquidity going up to 35%, strengthening a multi-year trend that was already very positive (Fig.C.2.1).

Noteworthy is also, for the extent of its variations, the data concerning the use of the scheduled deviations on the PCE, which went down to about 200 GWh on the injection side (about -5 TWh) and up to 10 TWh on the withdrawal side (vs. 1 TWh in 2009). Three years after the entry into operation of the PCE and aided by the intervened contraction of volumes, this phenomenon confirms, just like the increase of the churn ratio, the more extended reliance on the flexibility options offered by the platform (Table C.2.3, Table C.2.4).

Volumes traded on GME's markets (TWh) Tab C.2.2

		2010		2009**		2008	2007	2006	2005
		TWh	delta %	TWh	delta %	TWh	TWh	TWh	TWh
	TOTAL VOLUMES (a+b+c+d+f+l) (****)	456.93	+14%	401.44	+1%	399.06	-	-	-
	SISTEMA ITALIA (d+e)	318.56	+2%	313.43	-7%	336.96	329.95	329.79	323.18
	Forward transactions (a+b+c)	242.87	+38%	176.47	+15%	154.22	97.28	-	-
(a)	MTE	6.29	+4936%	0.12	* 117.3%	0.06	-	-	-
(b)	CDE	0.10	-	-	-	-	-	-	-
(c)	PCE (***)	236.48	+34%	176.35	+15%	154.16	97.28	-	-
	Spot transactions (d+e+f)	333.18	+2%	325.36	-7%	349.16	346.01	348.16	342.90
(d)	MGP/Ipex	199.45	-6%	213.03	-8%	232.64	221.29	196.50	202.99
(e)	PCE/OTC contracts	119.11	+19%	100.39	-4%	104.32	108.66	133.29	120.20
(f)	MA/MI (g+h+i)	14.61	+22%	11.93	+3%	11.65	12.74	9.94	10.45
(g)	MA	-	-	9.30	* -19.9%	11.65	12.74	9.94	10.45
(h)	MI1	9.47	+465%	1.68	-	-	-	-	-
(i)	MI2	5.15	+440%	0.95	-	-	-	-	-
(l)	PAB	-	-	-	-	0.55	3.33	8.43	9.26
	Ex-ante MSD	21.75	-20%	27.16	+19%	22.84	26.60	26.44	24.66
(m)	MSD up	6.96	-44%	12.52	+8%	11.58	14.58	12.17	11.59
(n)	MSD down	14.80	+1%	14.65	+30%	11.26	12.03	14.27	13.07

(*) percentage changes reflect the different lengths of the periods of operation of the platforms (MTE in 2008).
(**) percentage changes are calculated on the yearly average volumes, to adjust them for the different number of hours in 2008.
(***) contracts registered on the PCE by trading year, net of contracts relating to the MTE and the CDE. The 2007 data was calculated beginning on April, the month when the platform took off.
(****) the data is not calculated for the years before 2008 for lack of homogeneity in computing the volumes of bilateral contracts.

Liquidity of the MGP Fig C.2.1

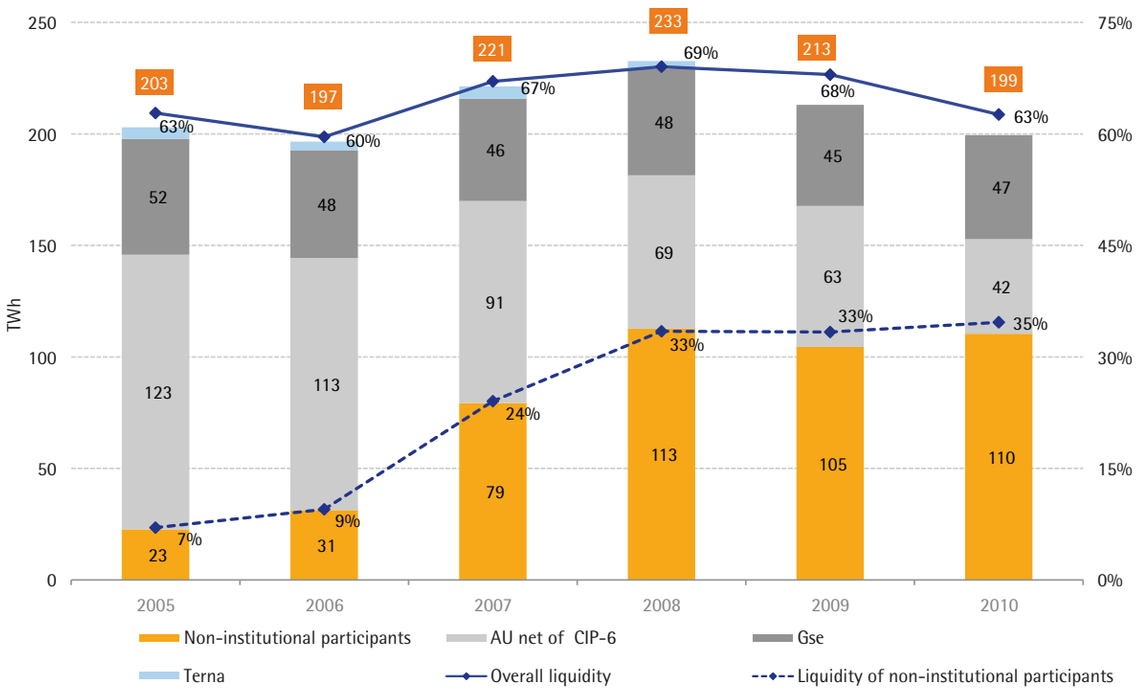
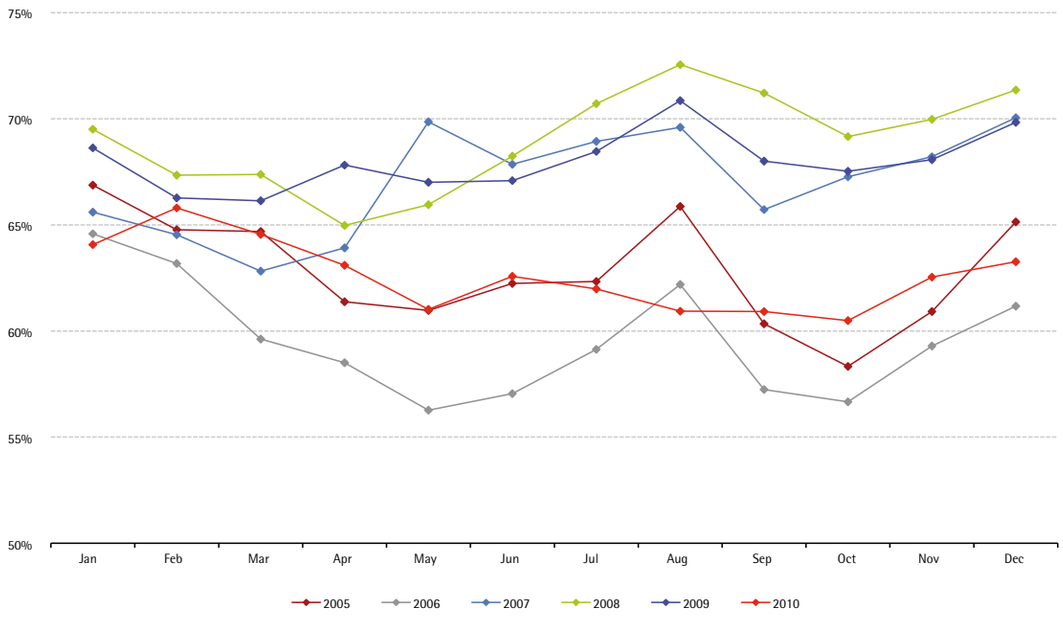


Fig C.2.2 **Monthly trend of liquidity of the MGP**



Tab C.2.3 **Composition of demand in the MGP**

	2010	2009	2008	2007	2006	2005	2010-2009	2010 structure
Ipex	**199,450,149**	**213,034,688**	**232,643,731**	**221,292,184**	**196,535,249**	**202,986,064**	**-6.4%**	**62.6%**
Acquirente Unico (AU)	48,468,535	70,700,952	79,448,673	106,570,141	132,230,746	139,179,980	-31.4%	15.2%
Other participants	134,317,300	134,481,029	137,922,614	99,756,337	49,717,421	47,682,936	-0.1%	42.2%
Pumped storage	2,853,292	2,891,281	5,108,149	6,340,347	7,443,272	8,087,174	-1.3%	0.9%
Neighbouring countries' zones	3,419,627	3,825,739	6,699,056	3,057,474	3,346,408	2,773,208	-10.6%	1.1%
Balance of PCE schedules	10,391,394	1,135,686	91,994	161	-	-	815.0%	3.3%
Additional bids/offers	-	-	3,373,245	5,567,723	3,797,402	5,262,767	-	-
OTC contracts	**119,111,417**	**100,390,479**	**104,317,566**	**108,657,023**	**133,254,781**	**120,198,786**	*18.6%*	*37.4%*
Neighbouring countries	408,869	436,389	559,701	726,452	1,285,567	1,143,298	-6.3%	0.1%
National - AU	41,846,549	24,246,640	19,502,059	16,166,432	20,768,233	25,153,421	72.6%	13.1%
National - other participants	87,247,392	76,843,137	84,347,800	91,764,300	111,200,980	93,902,066	13.5%	27.4%
Balance of PCE schedules	*-10,391,394*	*-1,135,686*	*-91,994*	*-161*	-	-	815.0%	-3.3%
PURCHASED VOLUMES	**318,561,565**	**313,425,166**	**336,961,297**	**329,949,207**	**329,790,030**	**323,184,850**	*1.6%*	*100.0%*
UNPURCHASED VOLUMES	**26,491,365**	**25,790,543**	**17,357,054**	**5,475,885**	**7,299,180**	**834,401**	*2.7%*	
TOTAL DEMAND	**345,052,930**	**339,215,709**	**354,318,351**	**335,425,092**	**337,089,209**	**324,019,251**	*1.7%*	

Tab C.2.4 **Composition of supply in the MGP**

	2010	2009	2008	2007	2006	2005	2010-2009	2010 structure
Ipex	**199,450,149**	**213,034,688**	**232,643,732**	**221,292,184**	**196,535,249**	**190,203,057**	**-6.4%**	**62.6%**
Market participants	120,956,056	131,158,116	147,438,784	142,990,379	123,564,850	133,900,904	-7.8%	38.0%
GSE	46,664,374	45,353,277	47,808,312	45,828,980	48,403,285	51,922,522	2.9%	14.6%
Neighbouring countries' zones	31,631,528	31,215,502	21,788,559	16,786,271	7,969,332	931,017	1.3%	9.9%
Balance of PCE schedules	198,191	5,307,793	7,985,871	12,528,950	13,581,232	-	-96.3%	0.1%
Additional bids/offers	-	-	7,622,206	3,157,605	3,016,550	3,448,614	-	-
OTC contracts	**119,111,417**	**100,390,479**	**104,317,565**	**108,657,023**	**133,254,781**	**132,981,793**	*18.6%*	*37.4%*
Neighbouring countries	17,122,515	19,108,051	26,013,295	33,782,919	42,000,374	51,831,818	-10.4%	5.4%
National	102,187,092	86,590,221	86,290,141	87,403,054	104,835,639	81,149,975	18.0%	32.1%
Balance of PCE schedules	-198,191	-5,307,793	-7,985,871	-12,528,950	-13,581,232	-	-96.3%	-0.1%
SOLD VOLUMES	**318,561,565**	**313,425,166**	**336,961,297**	**329,949,207**	**329,790,030**	**323,184,850**	*1.6%*	*100.0%*
UNSOLD VOLUMES	**190,936,033**	**185,806,695**	**158,390,774**	**150,274,210**	**126,041,639**	**122,038,970**	*2.8%*	
TOTAL SUPPLY	**509,497,598**	**499,231,861**	**495,352,071**	**480,223,417**	**455,831,669**	**445,223,820**	*2.1%*	

Always with reference to spot markets, the MSD also recorded decreasing volumes, down to 22 TWh (-18%), the lowest value since the launch of transactions. This drop concentrated on the volumes up, while volumes down essentially stabilised on the historical minima. This may be indicative of the increasing difficulties faced by participants in complying with the technical minimum constraints imposed by the plant management in the present condition of low demand (Table C.2.2).

2.2 The Day-Ahead Market (MGP)

2.2.1 The national single purchasing price (Pun)

2010 left Europe with a moderate recovery of the prices expressed on the main power exchanges. This recovery was compounded by the generalised increase in the cost of fuel and by growing, at times also conspicuous, demand. The growth observed in the continent, however, was not confirmed by Italy, where the wholesale price of electricity essentially stabilised on its yearly average, together with a lower intensity of its seasonal oscillations and the all-time minimum reached by the relationship between peak-load and off-peak prices, for the first time aligned to the peer values of other European listings.

In particular, the Pun stood at 64.12 €/MWh, remaining on the very low value of 2009 chiefly due to the reported overcapacity.

The steadying action generated by the modest recovery of demand (+1.6%) and by the further increase of the maximum capacity (+5.5 GW) (Table C.1.13) neutralised upward pressures originated by increasing generation costs, limiting or preventing the growth of prices and consequently causing a dramatic narrowing of the profit margin incorporated in them, as measured by the spark spread(3.6 €/MWh, -77%).

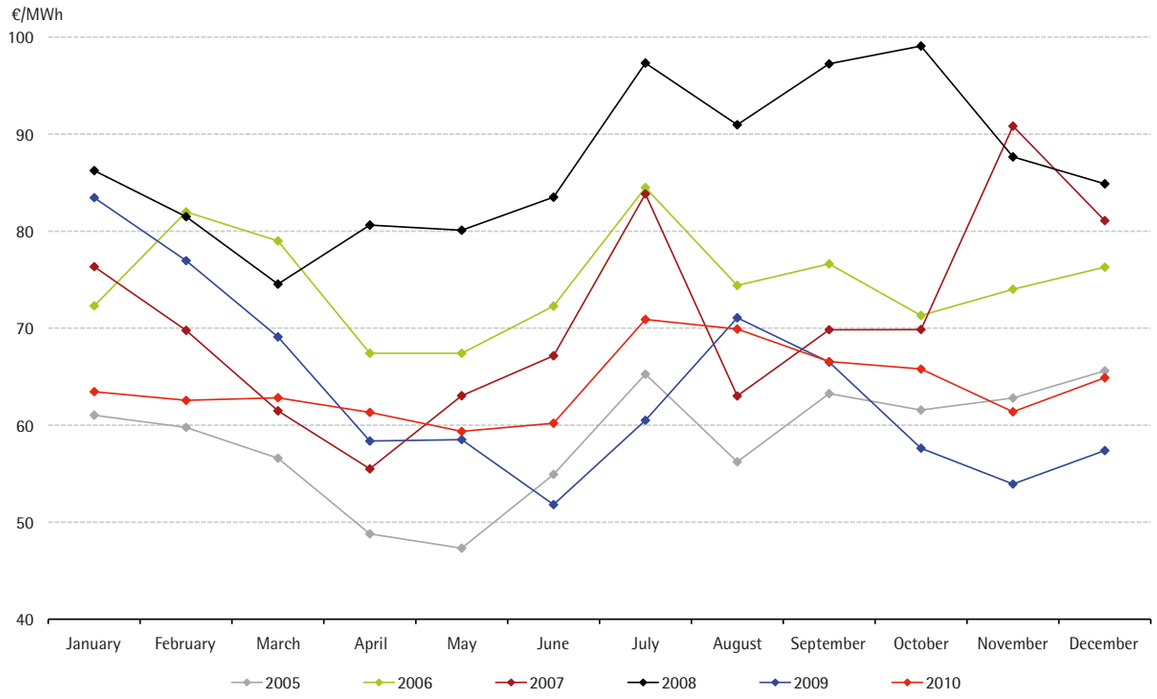
While the Pun showed an essential stability on a tendential basis, the analysis of the hourly dynamics of prices revealed the sudden acceleration of the convergence process between peak-load prices, down to the historical minimum of 76.77 €/MWh (-7.6%), and off-peak, up, instead, to 54.20 €/MWh (+12.2%), a lower level only compared with the 2008 figure. Observations show that the spread and the relationship between the two prices also dropped to their respective all-time lows of 22 €/MWh and 1.42, reflecting a different impact of overcapacity in the two hourly bands: very robust in peak-load hours, in the presence of an almost constant demand (+0.9%) and an increased degree of market competitiveness, less marked in off-peak hours, thanks to a larger increase of demand (+2.1%) and decreasing volumes offered at low cost in neighbouring zones (-3.6%).

Somewhat similar patterns also affected the relationship between holiday and off-peak prices, traditionally higher than 1 only in Italy, because of the structurally higher concentration level of supply. In 2010 the lower increase of the former, reaching 60.98 €/MWh (+2.9%), reduced, without eliminating, the gap with the latter (6 €/MWh), narrowing the respective relationship (1.13).

Yearly average PUN by hourly bands (€/MWh) Tab C.2.5

	2010		2009		2008		2007		2006		2005	
	€/MWh	Delta%	€/MWh	Delta%	€/MWh	Delta%	€/MWh	Delta%	€/MWh	Delta%	€/MWh	Delta%
Total	64.12	0.6%	63.72	-26.8%	86.99	22.5%	70.99	-5.0%	74.75	27.6%	58.59	-
Peak-load (a)	76.77	-7.6%	83.05	-27.4%	114.38	9.0%	104.90	-3.5%	108.73	23.8%	87.80	-
Off-peak (b)	57.34	7.4%	53.41	-26.4%	72.53	36.8%	53.00	-7.1%	57.06	32.1%	43.18	-
- Working day (b1)	54.20	12.2%	48.29	-28.7%	67.75	41.0%	48.06	-11.2%	54.12	28.4%	42.15	-
- Holiday (b2)	60.98	2.9%	59.27	-23.9%	77.88	33.0%	58.58	-2.8%	60.25	35.9%	44.33	-
a/b1	1.42	-17.6%	1.72	1.9%	1.69	-22.6%	2.18	8.6%	2.01	-3.6%	2.08	-
b2/b1	1.13	-8.3%	1.23	6.8%	1.15	-5.7%	1.22	9.5%	1.11	5.8%	1.05	-

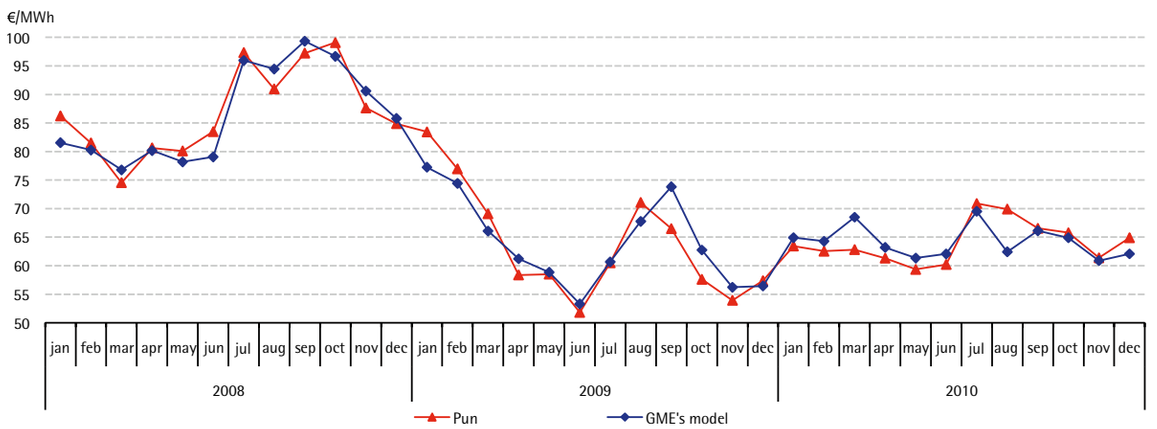
Fig C.2.3 **Monthly average PUN (€/MWh)**



With regard to the monthly trend, 2010 showed a low volatility of the Pun, only in part stressed by slow and gradual return to year-start values, as observed in the last part of 2010 after the summer peaks of July and August (Table C.2.5, Fig.C.2.3).

The monthly evolution of the Pun is driven by three key factors: i) generation costs, outlining its underlying trend; ii) demand, defining its typical seasonality, characterised by summer and winter peaks; iii) market concentration, which contributes to forming related price peaks. The solidity of this relationship is also substantiated in 2010 by GME's econometric model (for an insight see Box 2 of GME's Annual Report 2009, page 63), although in part it is weakened by overcapacity effects, above all in the first half of the year (Fig.C.2.4).

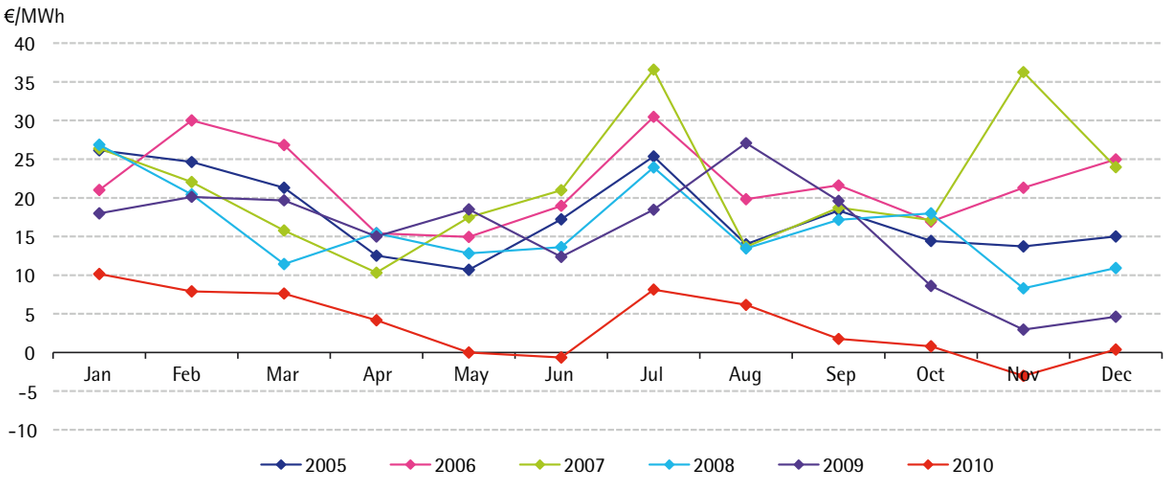
Fig C.2.4 **PUN estimate through GME's econometric model**



In the contingent situation of weak consumption, the new capacity, available between late 2009 and early 2010, squeezed and "froze" prices between 60 and 70 €/MWh, reducing their seasonal volatility[2] and triggering, with costs edging up, a progressive erosion of the spark spread.

In particular, the data expressed by this spread provides a measure of the heavy and rapid downsizing of the real average Pun, the wholesale price of electricity net of generation costs, down to the new historical minimum of 3.6 €/MWh (-77%) and characterised by a typical W-shaped trend, but with less marked monthly oscillations and gradually less intense peaks (Fig.C.2.5).

Monthly trend of the spark spread over the years (€/MWh) Fig C.2.5



Indeed, the markedly downward underlying trend, which gradually caused the spark spread to oscillate around zero in the last part of 2010, reflected the considerable recovery of generation costs, highlighted by the increase of ITEC ccgt[3] to 60.51 €/MWh (+25%) and originated by conspicuous hikes on oil markets.

In 2010, the Brent reached, in yearly average, 79.85 $/bbl (+29%), a value that is only lower than the data recorded in 2008, thanks to a strongly growing trend which, in the month of December, projected its prices above 90 $/bbl. The brusque loss of power of the euro towards the dollar, signalled by the additional fall of the exchange rate to 1.33 $/€ (-5%), among others, generated, in the conversion of prices in European currency, an intensification of these dynamics, spurring the tendential recovery of oil to +36% (Table C.2.6, Fig.C.2.6).

In this environment, the impact exercised on electricity prices by the modest rises of demand (tendential +1.6%) was neutralised both by the increasing net maximum capacity (+5.5 GW in 2010 and +21.5 GW since 2005), and by the consequent increase of competitiveness of the Italian market (IOR: -2 p.p., IOM: -5.5 p.p., ITM ccgt: +8.3 p.p. (see Chapter C.2.2.5).

As a result of these dynamics, the only interruptions to a trend that otherwise is definitely decreasing in the monthly evolution of the spark spread were recorded in the summer months, during which, in correspondence of the seasonal peak-load of demand and the high concentration (IOR: 15.5%, the highest value in the second half of 2010), prices climbed to their yearly maximum, reaching about 5/6 €/MWh above the average registered in the rest of the year[4]. Besides, the weakness and instability of the upward trend of demand were confirmed in autumn, when the volumes traded as a whole in the last four months of the year reached their all-time low, providing a minimum

2 In 2010 the standard deviation of monthly prices was equal to 3.6 €/MWh, as against the average 7.8 €/MWh of the preceding five years.

3 This is the index that is used as reference for an approximation of the generation cost of a combined cycle. In this case, the index value is correct for a 53% efficiency of combined-cycle plants.

4 In this connection, please note the particularly high value recorded by the Pun in the month of August, which coincides, among other things, with the more marked estimate error of the model. This confirms the unusual extent of the price.

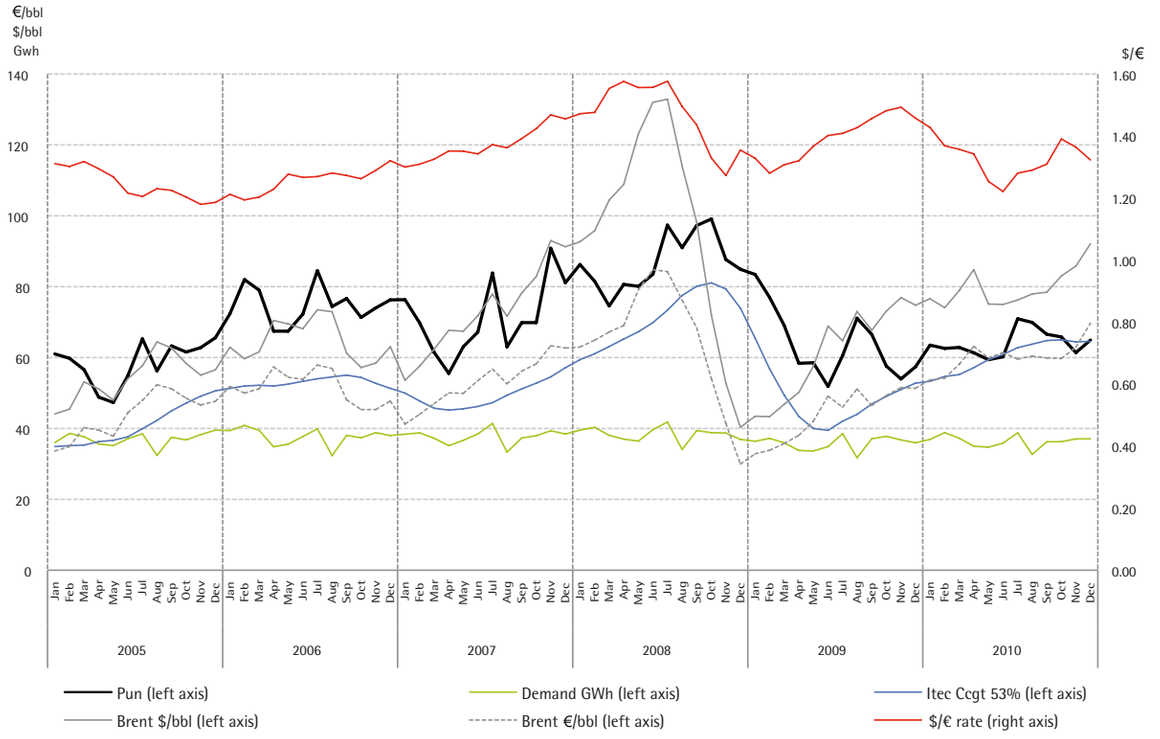
support to prices and contributing to the essential zeroing of the spark spread.

Tab C.2.6 **Changes of the PUN and of its determinants**

	2010		2009		2008	2007	2006	2005
	Value	Delta%	Value	Delta%	Value	Value	Value	Value
Pun (€/MWh)	64.12	+1%	63.72	-27%	86.99	70.99	74.75	58.59
Demand (MWh)	36,365	+2%	35,779	-7%	38,361	37,665	37,647	36,893
Brent ($/bbl)	79.85	+29%	61.67	-37%	97.26	72.39	65.14	54.24
Brent (€/bbl)	60.24	+36%	44.22	-33%	66.11	52.82	51.86	43.59
$/€ exchange rate	1.33	-5%	1.39	-5%	1.47	1.37	1.26	1.24
Combined-cycle generation cost (€/MWh)	71.08	+23%	57.88	-29%	81.92	53.80	62.73	51.87
Itec Ccgt (€/MWh)(2)	60.51	+25%	48.31	-32%	70.96	49.38	52.93	40.84
GCs (€/MWh)	5.15	+12%	4.61	+38%	3.35	4.18	3.38	2.60
CO_2 Ccgt (€/MWh)	5.41	+9%	4.96	-35%	7.61	0.24	6.43	8.42
Spark Spread (€/MWh)(1)	3.61	-77%	15.41	-4%	16.03	21.61	21.82	17.75

(1) the spark spread is calculated as the average of monthly differences between the PUN and ITECccgt at 53%, net of environmental charges (Green Certificates and CO2), weighted for the number of hours of each month.
(2) the ItecCcgt was recalculated considering a yield greater than and equal to 53%.

Fig C.2.6 **Monthly trend of the PUN and of its determinants (€/MWh)**



2.2.2 Zonal selling prices (PZ)

In 2010 the selling prices registered in the individual zones in which the Italian market is configured confirm the tendencies already emerged in the second half of 2009: the essential alignment of continental zones, the Sicilian isolation, and the progressive integration of Sardinia with the continent.

So in the peninsula, where prices remained homogenous and lower than in the islands (about 62 €/MWh), southern Italy strengthened its position of cheapest zone (59 €/MWh), achieved as a result of the geographical reorganisation adopted by Terna at the beginning of 2009, exhibiting, among others (the only one among continental zones) a slight downward tendency (-0.8%). This tendency, instead, proved to be more marked in Sardinia (-10.4%), where prices went back to a declining path to reach their 2007 levels (73.51 €/MWh), benefitting of the longest period of operation of the new interconnection with the continent (so-called Sapei), thus distancing the price of Sicily (89.71 €/MWh), which remained the highest (Table C.2.7).

Yearly average zonal prices (€/MWh) Tab C.2.7

€/MWh	2010		2009		2008		2007		2006		2005	
	Average	Tr. change	Average	Tr. change	Average	Tr. change	Average	Tr. change	Average	Tr. change	Average	Tr. change
PUN	64.12	0.6%	63.72	-26.8%	86.99	22.5%	70.99	-5.0%	74.75	27.6%	58.59	-
N ITALY	61.98	1.9%	60.82	-26.7%	82.92	21.1%	68.47	-7.0%	73.63	27.6%	57.71	-
CN ITALY	62.47	0.3%	62.26	-26.7%	84.99	16.7%	72.80	-2.9%	74.98	27.9%	58.62	-
CS ITALY	62.60	0.3%	62.40	-28.8%	87.63	20.0%	73.05	-2.6%	74.99	27.0%	59.03	-
SOUTH. ITALY	59.00	-0.8%	59.49	-31.9%	87.39	19.6%	73.04	-2.6%	74.98	27.0%	59.03	-
SICILY	89.71	1.8%	88.09	-26.4%	119.63	50.5%	79.51	0.7%	78.96	25.8%	62.77	-
SARDINIA	73.51	-10.4%	82.01	-10.7%	91.84	22.5%	75.00	-6.9%	80.55	33.4%	60.38	-
Total delta	30.71		28.60		36.71		11.04		6.92			
Continental delta	3.60		2.91		5.07		4.75		2.04			

The convergence between peak-load and off-peak prices observed at national level is shared by all zones. In the peninsula, prices in off-peak hours (51/53 €/MWh, +11/+14%) were very close to those in holiday hours (58/59 €/MWh, +1/+5%); in particular, southern Italy had the cheapest prices in the hours with the highest demand, hours on which - also in 2010 - the price spread with respect to the rest of the continent was concentrated (66.83 €/MWh, -9.7% vs. 73-75 €/MWh, -7/-9%). Sicily experienced similar trends; however, prices had less intense variations than at national level, both in peak-load (120.16 €/MWh, -3%) and off-peak (65.83 €/MWh, +8.6%) hours, confirming to be the highest in Italy. Within this context, the countertendential reduction of Sardinia comes to the fore once again. The greater cohesion of Sardinia with the continent favoured a significant price reduction in all hourly bands, more robust in peak-load (93.38 €/MWh, -13.8%) hours than in off-peak (62.84 €/MWh, -7.6%) and holiday (66.2 €/MWh, -9.2%) ones (Table C.2.8).

Average zonal prices by hourly bands (€/MWh) Tab C.2.8

€/MWh	**Total**		Peak-load		Off-peak		Off-peak working day		Off-peak holiday	
	Average	Tr. change	Average	Tr. change	Average	Tr. change	Average	Tr. change	Average	Tr. change
PUN	64.12	0.6%	76.77	-7.6%	57.34	7.4%	54.20	12.2%	60.98	2.9%
N ITALY	61.98	1.9%	73.39	-7.2%	55.86	9.3%	53.32	14.4%	58.80	4.6%
CN ITALY	62.47	0.3%	74.29	-8.6%	56.12	7.7%	53.35	13.7%	59.33	2.2%
CS ITALY	62.60	0.3%	74.98	-7.8%	55.95	7.0%	52.65	12.3%	59.78	2.3%
SOUTH. ITALY	59.00	-0.8%	66.83	-9.7%	54.80	5.9%	51.57	11.1%	58.55	1.2%
SICILY	89.71	1.8%	120.16	-3.0%	73.37	6.3%	65.83	8.6%	82.11	4.5%
SARDINIA	73.51	-10.4%	93.38	-13.8%	62.84	-7.6%	59.94	-5.9%	66.20	-9.2%
Total delta	30.71		53.33		18.57		14.26		23.56	
Continental delta	3.60		8.15		1.32		1.78		1.23	

However, 2010, while confirming the underlying trends that have progressively established themselves over the years, launched some signals whose future evolution may interestingly be assessed.

As a whole, northern Italy* is the zone which set the price on the most considerable share of volumes, both in the total (48%, -3 p.p.) and in the individual zones of the continent, although both cases show slight tendential drops. On the other hand, the weight of southern Italy* grew in a complementary fashion, which, apart from setting the price endogenously with more intensity (41%, +11 p.p.), saw a growth of its share both in the total (16%, +4 p.p.) and in the central zones of the peninsula. Besides, while Sicily continued to exhibit predominantly local dynamics, that also differed deeply from national ones, autonomously setting the price in 78% of the hours (+1 p.p.), the commissioning of the Sapei cable dramatically reduced Sardinia's isolation from the continent, causing the endogenous price-setting percentage (32%, -22 p.p.) to go down to its 2008 levels. Lastly, in this context the position of neighbouring zones grew more strongly, so that, thanks to the joint allocation criteria for cross-border capacity and to increasing integration between the markets, they acted as price makers in 17% of overall volumes, completing the escalation that has been underway since 2005 (Table C.2.9).

Tab C.2.9 **Price-setting percentage, by zone and by year (IZM)**

		Price-taking zone							
Price-making zone	Year	Total	For. countries	N Italy*	CN Italy	CS Italy	S Italy*	Sicily*	Sardinia
Foreign countries	**2010**	**17%**	**21%**	**18%**	**19%**	**17%**	**17%**	**6%**	**13%**
	2009	16%	18%	16%	17%	16%	19%	7%	10%
	2008	13%	15%	15%	13%	11%	11%	4%	10%
	2007	4%	19%	3%	1%	1%	1%	0%	0%
	2006	2%	11%	1%	0%	0%	1%	0%	0%
	2005	0%	2%	0%	0%	0%	0%	0%	0%
N Italy*	**2010**	**48%**	**55%**	**58%**	**53%**	**47%**	**31%**	**7%**	**32%**
	2009	51%	58%	61%	53%	53%	36%	10%	24%
	2008	46%	55%	56%	44%	34%	34%	10%	32%
	2007	48%	53%	66%	31%	26%	27%	11%	23%
	2006	47%	57%	66%	30%	28%	22%	10%	22%
	2005	48%	58%	60%	41%	30%	30%	12%	26%
CN Italy	**2010**	**4%**	**4%**	**4%**	**5%**	**4%**	**2%**	**1%**	**3%**
	2009	2%	2%	2%	3%	3%	2%	1%	2%
	2008	7%	7%	7%	11%	8%	7%	2%	8%
	2007	8%	6%	6%	15%	12%	12%	5%	11%
	2006	6%	5%	5%	11%	9%	7%	3%	7%
	2005	6%	6%	6%	9%	8%	7%	3%	6%
CS Italy	**2010**	**7%**	**7%**	**7%**	**8%**	**13%**	**6%**	**2%**	**7%**
	2009	8%	8%	8%	10%	12%	8%	2%	5%
	2008	11%	8%	8%	12%	23%	19%	4%	9%
	2007	14%	8%	9%	22%	28%	23%	9%	16%
	2006	18%	12%	13%	31%	34%	27%	12%	23%
	2005	24%	20%	20%	30%	38%	35%	15%	27%
S Italy*	**2010**	**16%**	**13%**	**10%**	**12%**	**15%**	**41%**	**6%**	**11%**
	2009	12%	9%	8%	10%	11%	30%	4%	4%
	2008	13%	10%	10%	14%	20%	24%	6%	10%
	2007	16%	10%	12%	22%	25%	28%	9%	17%
	2006	16%	11%	10%	21%	22%	35%	14%	16%
	2005	12%	10%	9%	14%	18%	20%	8%	13%
Sicily*	**2010**	**6%**	**1%**	**1%**	**1%**	**1%**	**0%**	**78%**	**1%**
	2009	7%	2%	2%	3%	2%	0%	77%	2%
	2008	6%	2%	1%	2%	2%	0%	73%	1%
	2007	8%	3%	3%	6%	6%	0%	65%	5%
	2006	7%	2%	2%	4%	4%	0%	60%	3%
	2005	7%	3%	3%	4%	5%	0%	61%	4%
Sardinia	**2010**	**2%**	**1%**	**1%**	**2%**	**2%**	**2%**	**1%**	**32%**
	2009	4%	3%	2%	3%	3%	3%	1%	54%
	2008	4%	3%	3%	4%	3%	3%	1%	31%
	2007	3%	1%	1%	4%	3%	7%	1%	28%
	2006	3%	2%	2%	3%	3%	7%	1%	29%
	2005	2%	1%	1%	2%	2%	5%	1%	24%

In 2010 the essential stability expressed by prices in tendential terms was paired by their reduced volatility, which fell to its lowest levels of the last four years in continental zones (8/10 €/MWh, 14/16%), and in Sardinia, plummeting after last year's exploit (20.3 €/MWh, 27%). These dynamics apparently have no bearing on Sicily, whose variability further increased (23.5 €/MWh, 28%) due to the mixed trend of prices during the year, reaching its maximum level in relative terms in holiday hours (Table C.2.10, Table C.2.11).

Volatility of yearly average zonal prices Tab C.2.10

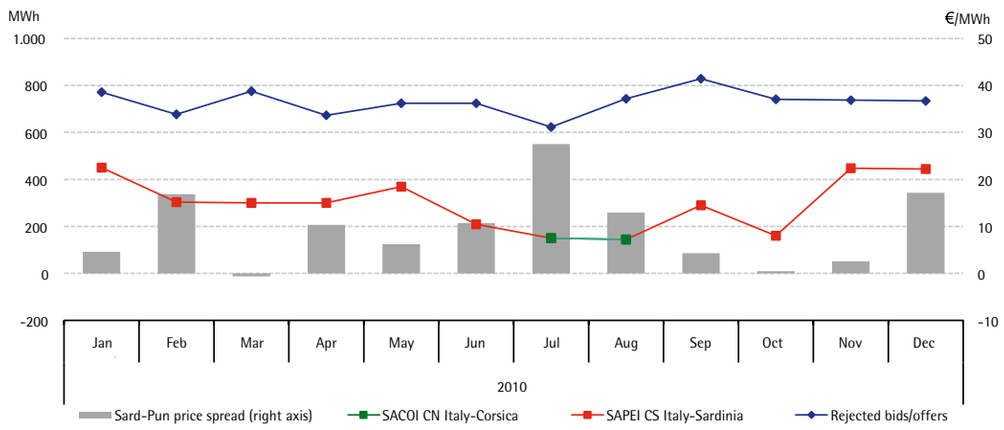
	IVA (€/MWh)						IVR (%)					
TOTAL	**2010**	**2009**	**2008**	**2007**	**2006**	**2005**	**2010**	**2009**	**2008**	**2007**	**2006**	**2005**
N ITALY	8.6	10.4	12.7	12.3	9.6	7.8	14%	18%	16%	17%	13%	14%
CN ITALY	9.0	11.5	13.0	11.2	9.0	7.4	14%	19%	16%	16%	12%	13%
CS ITALY	9.8	11.8	13.9	11.2	9.0	7.1	16%	20%	17%	16%	12%	13%
S ITALY	8.6	11.2	13.9	11.2	9.0	7.1	15%	19%	17%	16%	12%	13%
SICILY	23.5	19.4	30.6	15.3	13.4	10.5	28%	26%	29%	20%	18%	17%
SARDINIA	20.3	29.8	20.5	16.7	16.9	9.1	27%	37%	23%	23%	20%	16%

Volatility of yearly average zonal prices by hourly bands Tab C.2.11

	IVA (€/MWh)					IVR (%)				
2009	**Total**	Peak-load	Off-peak	Off-peak working day	Off-peak holiday	**Total**	Peak-load	Off-peak	Off-peak working day	Off-peak holiday
N ITALY	8.6	11.9	7.3	6.2	7.6	14%	15%	13%	12%	14%
CN ITALY	9.0	12.6	7.9	6.2	8.2	14%	16%	14%	13%	14%
CS ITALY	9.8	13.4	8.8	6.7	9.3	16%	17%	15%	14%	16%
S ITALY	8.6	10.5	8.2	6.3	8.8	15%	15%	14%	13%	15%
SICILY	23.5	29.3	24.2	17.2	24.0	28%	25%	30%	29%	30%
SARDINIA	20.3	26.4	18.2	15.9	18.1	27%	28%	27%	26%	27%

The gap in the level and in the variability generally expressed by prices tends to reflect the existence of structural differences between the zones. In the islands, in particular, the - historically low - interconnection capacity with the rest of the continent, on the one hand often makes it necessary to use domestic supply to meet their demand, on the other sets clear boundaries for the local market, thus limiting its development and competitiveness. This context gives rise to prices that on average are higher and extremely more sensitive to little variations in the requirements. Nevertheless, in 2010 a little step forward in this sense was made in Sardinia, where the opening of the new cable for interconnection with the peninsula helped reduce Sardinia's isolation and increase the level of integration with the continent, inducing on prices the consequences described above. Not surprisingly, the greater spread between Sardinia's zonal prices and the Pun occurs in the months of February, July, August and December, which are characterised by a partial or total unavailability of the cable and, to a lesser extent, by regular drops of domestic supply[5] (Fig.C.2.7).

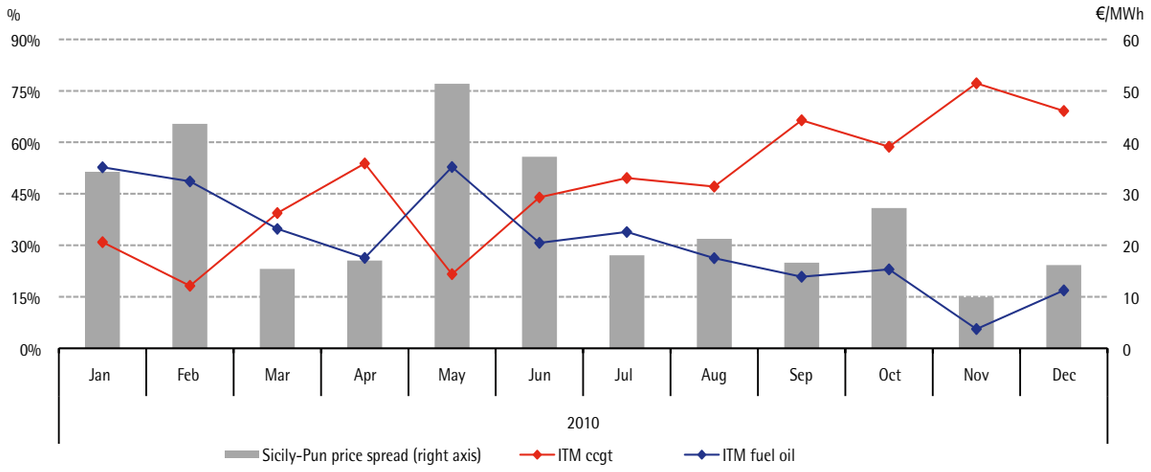
Key structural variables in the evolution of the price in Sardinia Fig C.2.7



5 In particular, in February and December, particularly high prices are only concentrated in those weeks where a collapse of the island's domestic supply is coupled with limited capacity reductions of the Sapei cable.

In Sicily, instead, the persistent structural differences with the rest of the continent held the price on a higher level than the Pun (by about 25 €/MWh), a gap reflecting the difference in generation costs at the margin incurred by the island, where the weight of fuel oil is still strong (for more information please refer to Box 3 of the Annual Report 2009). However, 2010 provided new minor elements also in the Sicilian context. The gradual entry of a new base-load and mid-merit capacity[6] brought about a decline of the weight at the margin for fuel oil (ITM fuel oil: -21 p.p.), whereby the impact of its generation cost (ITEC of fuel oil: +55%) on the Sicilian price (+1.8%) became negligible and in the second half of the year the spread with the Pun decreased[7] by about 15 €/MWh (Fig.C.2.8).
Lastly, please note that further changes in this scenario, with possible impacts on prices, may occur in 2011, pursuant to the fulfilment of the commitments made by Enel and Edipower towards AGCM in relation to their supply strategies[8].

Fig C.2.8 **Key structural variables in the evolution of the price in Sicily**



Lastly, with regard to foreign virtual zones and the poles of limited production, 2010 did not signal any significant variations, neither in the management, nor in the prices associated to both, which substantiated the indications emerged a year ago. For foreign virtual zones, the adoption of a resolution mechanism of cross-border congestions through periodical explicit auctions, in force since 2008 pursuant to the transposition of the Regulation (EC) 1228/03, also determined for 2010 the absence of separations from the neighbouring national zone and the consequent parity of prices. Thanks to their growing integration in the system, the neighbouring zones often acted as price maker, fixing the national price in 17% of the hours.
It must be pointed out, however, that the explicit auction mechanism does not provide any guarantees of an excellent allocation of the available cross-border capacity, neither in terms of its full utilisation, nor of its utilisation consistently with the price spread formed between neighbouring markets. An important step forward in this sense was made on a portion of the Italian-Slovenian border, where as of 1 January 2011 a market coupling

6 In 2010 in Sicily worth mentioning are the gradual commissioning of the new wind farms (240 MW) and the full operation of the combined-cycle plant of Nuce Nord (480 MW) and of the second, again a combined cycle, generating unit of Isab Energy (260 MW).

7 The price of the island, on average close to 95 €/MWh in the first half of 2010 and higher by about 33 €/MWh than the Pun, went down slightly below 85 €/MWh in the period July-December, in conjunction with similar demand levels, thereby shifting the spread with the national price to about 18 €/MWh.

8 More specifically, the commitments involve: i) for supply by Enel, the requirement to identify a bid cap equal to 190 €/MWh for 2011 and pegged to the price of the Brent for the years 2012 and 2013 (AGCM's measure no. 21960 – A423); and ii) for the plants of Edipower subject to tolling, a centralised management assigned to the dispatching user both for fuel procurement and bid/offer submission in the MGP; the bids/offers are submitted at a price equal to the standard variable cost in the hours where the plant has not been identified by Terna as indispensable for system security, otherwise equal to zero (AGCM's measure no. 21962 – I721).

mechanism is being operated, and aimed at reducing the cost associated with a not fully efficient utilisation of the interconnections through a process of implicit auction allocation of the cross-border capacity.
With regard to the poles of limited production, 2010 further consolidated the effectiveness of the solution adopted by Terna for the scheduled resolution of congestions generated by the insufficient transmission capacity at which the individual generating units are connected with the grid. 2010 showed very low splitting frequencies and minimum price spreads between the pole and the neighbouring zone, the only partial exception in 2010 being again the pole of Brindisi, which separated from southern Italy in 6.6% of the hours with an average spread of 1.35 €/MWh, which was brought about by restrictions due to the maintenance of the SOUTH-BRNN transit (Table C.2.12).

Differences of zonal price between geographical zones and poles of limited production Tab C.2.12

		Percentage of hours in which prices were different (%)						Average price spread (€/MWh)					
Reference Zone	Limited Production Pole	**2010**	2009	2008	2007	2006	2005	**2010**	2009	2008	2007	2006	2005
Northern Italy	Monfalcone	0.0%	0.0%	0.3%	0.6%	1.3%	0.0%	0.00	0.00	0.02	0.11	0.14	0.00
Southern Italy	Rossano	2.2%	2.7%	3.4%	2.3%	17.3%	2.6%	0.53	0.74	0.40	0.04	0.37	0.04
	Brindisi	6.6%	9.8%	3.9%	3.0%	21.4%	3.3%	1.35	2.46	0.45	0.07	0.70	0.09
	Foggia (*)	0.2%	0.4%	0.7%	4.9%	3.7%	-	0.01	0.19	0.60	3.09	2.61	-
Sicily	Priolo	0.1%	0.3%	3.4%	14.3%	15.3%	5.1%	0.14	0.14	1.17	1.07	2.28	0.60

* the calculated values are limited to the period in which the limited production pole was part of the "relevant grid", in particular in 2006

2.2.3 Demand and Supply

In 2010 the gap between supply and demand already observed in the last years continued to widen. In particular, the new installed capacity and the end of some processes of conversion of the generating mix produced an additional growth of supply, which more than balanced the narrow recovery of demand after the crisis in 2009. The new supply, concentrated in more cost-effective and efficient plants, favoured an improvement of the main concentration indices, also contributing to holding down prices in the continent and the islands.

2.2.3.1 Demand

The total actual electricity demand reported by Terna in 2010 was 330.5 TWh, namely a weak recovery as against the preceding year (+1.4%) badly hit by the international economic crisis. Similarly the overall purchases in the day-head market went up to 318.6TWh (+1.6%), but anyway remained at the minimum levels since the start of the market. The volumes of the MGP, practically in line with what happened in the previous years (Table C.2.13) were equal to 96% of the overall demand. The increase of purchases induced by economic recovery, overall equal to 314.7 TWh in the national zones (+1.8%), was driven by the northern zones (+2.5%), which together account for 65% of purchases as they incorporate most of the national industrial activity, followed to a lesser extent by central-southern Italy (+1.4%) and Sicily* (+1.5%).
The only exceptions concerned Sardinia, which was stable, and southern Italy*, the only zone sharply declining as against 2009 (-1.9%). Furthermore, it is worth pointing out that the further decrease of pumped-storage plant purchases as against the already low level of the previous year (-1.3%), partly ascribed to the constant narrowing of wholesale prices in peak-load and off-peak hours (Table C.2.5).
By contrast, the purchases in the neighbouring countries' zones overall went down to their all-time minima of 3.8 TWh (-10.2%), with drops between the -15.7% of Switzerland and the -53.5% of Austria, only in part offset by the

increases recorded on the French border (+0.21 TWh, +22.3%) (Table C.2.14).

Tab C.2.13 **Demand in the MGP and overall electricity demand (TWh)**

TWh	2010	2009	2008	2007	2006	2005
TOTAL DEMAND*	330.5	326.1	347.1	347.6	346.2	339.8
MGP VOLUMES	318.6	313.4	337.0	329.9	329.8	323.2
MGP VOLUMES/TOTAL DEMAND*	96%	96%	97%	95%	95%	95%

* including purchases by pumped-storage plants

Source: processing of Terna's and GME's data.

Tab C.2.14 **Volumes purchased in the MGP (TWh)**

*Zones**	*2010*	*2009*	*2008*	*2007*	*2006*	*2005*	*% change 2010/2009*	*Structure*
N Italy*	172.4	168.0	181.0	179.3	178.9	176.0	2.6%	54.1%
CN Italy	34.5	33.7	35.9	36.5	36.0	35.4	2.1%	10.8%
CS Italy	50.4	49.7	33.3	32.7	32.4	32.0	1.4%	15.8%
S Italy*	25.6	26.1	46.6	45.4	44.7	44.0	-1.9%	8.0%
Sicily*	20.0	19.7	20.5	19.9	20.0	19.1	1.5%	6.3%
Sardinia	11.8	11.8	12.3	12.4	13.2	12.8	-0.3%	3.7%
Italy	314.7	309.2	329.7	326.2	325.2	319.3	1.8%	98.8%
- pumped storage	2.9	2.9	5.1	6.3	7.4	8.1	-1.3%	0.9%
- end users	311.9	306.3	324.6	319.8	317.7	311.2	1.8%	97.9%
Neigh. coun.	3.8	4.3	7.3	3.8	4.6	3.9	-10.2%	1.2%
Total	**318.6**	**313.4**	**337.0**	**329.9**	**329.8**	**323.2**	**1.6%**	**100.0%**

The recovery of demand concentrated in the first half of the year growing by 3.1% through six tendential increases as against the worst affected months in 2009. This increase was recorded both in national consumption (+3.0%) and exports (+10.3%). Besides, the second half recorded stagnant consumption (+0.2%) which mediates a slight rise in the national zones (+0.6%) and a plunge of exports (-20.0%) concentrated in the last 4 months of the year (Fig. C.2.9). This drop, which also triggered the decrease on a year-on-year basis, above all reflects the exceptional levels of exports which characterised the last quarter of 2009, associated with criticalities of supply by the French generating mix.

Fig C.2.9 **Monthly trend of purchases in the MGP**

Demand remained not very elastic, with the index that is still stable on its 2009 value of 8.2%. In particular, the indicator at national level recorded the lowest level of the last 4 years (0.1%) while supply on the borders showed a buoyant growth; its share of elastic demand passed from 91.8% to 93.0% of the maximum value since the start of the market, thus highlighting the growing search for cross-border trading opportunities. These dynamics, among others, are witnessed on all borders with values between 92% and 100%. Lastly, as many as 87.3% of bids/offers with price limit (93.0%) were rejected, which showed that the price expressed was actually stringent (Table C.2.15).

Elasticity of demand Tab C.2.15

		SUBMITTED BIDS/OFFERS (net of pumped storage)						REJECTED BIDS/OFFERS (net of pumped storage)					
		2010	2009	2008	2007	2006	2005	2010	2009	2008	2007	2006	2005
N Italy*	MWh	18,283	305,725	703,304	292,061	51,475	506,843	13,767	252,144	567,078	221,708	23,364	12,636
	% of total	0.0%	0.2%	0.4%	0.2%	0.0%	0.3%	0.0%	0.1%	0.3%	0.1%	0.0%	0.0%
CN Italy	MWh	63,542	388,015	612,293	155,864	5,027	211,628	39,777	303,078	509,725	120,571	2,108	415
	% of total	0.2%	1.1%	1.7%	0.4%	0.0%	0.6%	0.1%	0.9%	1.4%	0.3%	0.0%	0.0%
CS Italy	MWh	8	393	480	3	7,483	123,164	8	-	480	3	161	359
	% of total	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
S Italy*	MWh	1	36	14	3	17	377,071	1	12	14	3	17	1,187
	% of total	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Sicily*	MWh	53,279	220,109	315,707	135,115	1,162	149,775	42,434	181,896	269,412	103,684	968	231
	% of total	0.3%	1.1%	1.5%	0.7%	0.0%	0.8%	0.2%	0.9%	1.3%	0.5%	0.0%	0.0%
Sardinia	MWh	158,324	245,105	236,124	80,867	9,050	40,059	69,615	201,155	198,078	63,561	2,058	1
	% of total	1.3%	2.0%	1.9%	0.6%	0.1%	0.3%	0.6%	1.7%	1.6%	0.5%	0.0%	0.0%
Pum. storage	MWh	30,359	78,439	171,990	142,218	109,451	124,397	17,833	24,089	56,184	36,626	44,895	44,819
	% of total	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Italy	MWh	293,437	1,159,384	1,867,921	663,913	74,215	1,408,540	165,603	938,285	1,544,786	509,529	28,678	14,829
	% of total	0.1%	0.4%	0.6%	0.2%	0.0%	0.4%	0.1%	0.3%	0.5%	0.2%	0.0%	0.0%
Neigh. coun.	MWh	28,016,290	26,710,804	18,838,282	6,453,700	8,358,740	1,963,543	26,307,928	24,828,168	15,756,084	4,928,580	7,225,607	775,122
	% of total	93.0%	91.8%	81.9%	74.1%	70.5%	41.9%	87.3%	85.3%	68.5%	56.6%	60.9%	16.5%
Total	MWh	28,309,727	27,870,188	20,706,203	7,117,613	8,432,955	3,372,083	26,473,532	25,766,454	17,300,870	5,438,109	7,254,284	789,951
	% of total	8.2%	8.2%	5.8%	2.1%	2.5%	1.0%	7.7%	7.6%	4.9%	1.6%	2.2%	0.2%

		SUBMITTED BIDS/OFFERS (net of pumped storage)						REJECTED BIDS/OFFERS (net of pumped storage)					
		2010	2009	2008	2007	2006	2005	2010	2009	2008	2007	2006	2005
France	MWh	8,092,780	8,737,147	6,954,190	66,915	4,387,462	495,202	7,621,630	8,356,081	6,442,873	1,165	4,150,191	193,680
	% of total	92.1%	93.6%	85.5%	19.7%	80.5%	38.1%	86.8%	89.5%	79.2%	0.3%	76.2%	14.9%
Switzerland	MWh	15,252,587	12,503,608	7,921,345	5,140,644	2,940,165	1,294,716	14,322,774	11,481,491	6,447,574	4,140,683	2,188,356	494,997
	% of total	93.9%	91.1%	84.8%	93.9%	66.8%	54.2%	88.2%	83.7%	69.0%	75.7%	49.7%	20.7%
Austria	MWh	1,013,817	1,126,975	779,224	750	533,829	172,526	1,002,335	1,111,029	722,411	-	514,324	86,176
	% of total	99.7%	98.6%	96.6%	6.0%	97.2%	66.4%	98.5%	97.2%	89.5%	0.0%	93.6%	33.2%
Slovenia	MWh	363,900	226,932	423,100	494,014	455,788	1,099	348,489	212,225	314,765	147,603	354,726	270
	% of total	100.0%	97.0%	71.2%	73.2%	89.9%	0.7%	95.7%	90.7%	53.0%	21.9%	70.0%	0.2%
Greece	MWh	3,293,206	4,116,142	2,760,423	751,377	41,496	-	3,008,301	3,667,342	1,827,661	638,279	18,010	-
	% of total	98.8%	97.0%	74.2%	41.7%	8.1%	0.0%	90.2%	86.5%	49.1%	35.4%	3.5%	0.0%
T.neigh. coun.	MWh	28,016,290	26,710,804	18,838,282	6,453,700	8,358,740	1,963,543	26,307,928	24,828,168	15,756,084	4,928,580	7,225,607	775,122
	% of total	93.0%	91.8%	81.9%	74.1%	70.5%	41.9%	87.3%	85.3%	68.5%	56.6%	60.9%	16.5%

2.2.3.2 Supply

Like in the last six years, 2010 recorded a significant increase of the available capacity of about 5.5 GW of net maximum capacity (Table C.1.13). In particular, please find below some of the events with the heaviest impact this year: a) the end of the coal conversion process of Enel's plant of Torvaldaliga, situated in central-southern Italy; b) the commissioning of Erg's new 480 MW combined cycle (Nuce Nord) in Sicily*; c) the new increase of 2.7 GW of net maximum capacity of wind and photovoltaic plants. The renovation of the generating mix contributed to the geographical rebalancing of supply, the decrease of the average generation cost and the improvement of market concentration and power, as well as to the present overcapacity status that induced the compression of margins for participants, as evidenced by the collapse of the spark spread.

The impact of the new installed capacity is quantitatively matched by the sixth consecutive increase of offered volumes, up to 509 TWh (+2.1%), the maximum historical value. The overall 10 TWh increase is almost completely sustained by the zones of central-southern Italy (+8.3%), southern Italy* (+6.4%) and Sicily* (+10.7%), in line with the aforesaid geographical location of the new capacity, thus offsetting the decreases in northern Italy* (-1.4%) and in neighbouring countries' zones (-2.1%) (Table C.2.16).

Tab C.2.16 **Yearly volumes offered in the MGP (TWh)**

*Zones**	*2010*	*2009*	*2008*	*2007*	*2006*	*2005*	*% change 2010/2009*	*Structure*
N Italy*	223.7	226.7	229.8	219.9	211.2	199.9	-1.4%	44%
CN Italy	39.4	38.2	38.4	38.2	34.0	36.1	3.2%	8%
CS Italy	66.8	61.6	40.7	40.1	40.5	53.0	8.3%	13%
S Italy*	75.7	71.1	86.1	78.1	69.3	54.6	6.4%	15%
Sicily*	32.4	29.2	29.7	29.6	29.3	30.4	10.7%	6%
Sardinia	17.7	17.2	18.1	18.6	18.7	18.4	2.9%	3%
Italy	455.6	444.2	442.8	424.4	403.0	392.4	2.6%	89%
Neigh. coun.	53.9	55.0	52.6	55.9	52.9	52.8	-2.1%	11%
Total	**509.5**	**499.2**	**495.4**	**480.2**	**455.8**	**445.2**	**2.1%**	**100%**

The joint effect of the decrease in commercial imports of about 1.4 TWh (-3.1%), as a result of the diminishing foreign supply, and the recovery of demand by a little more than 5 TWh, led to national generation increasing by 6.7 TWh (+2.5%), mostly concentrated in central-southern Italy (+15.3%) for the reasons explained above and, to a lesser extent, in central-northern (+7.3%) and northern Italy* (+1.0%). The islands together accounted for 10% of national sales and given their structural features are always importers. Sicily* registered an increase of sales (+1.8%) as a consequence of the new installed capacity, whereas sales diminished (-3.1%) in Sardinia, displaced by the lower- cost electricity coming from central-southern Italy through the new Sapei cable link (Tables C.2.17, C.2.18).

Tab C.2.17 **Yearly volumes sold in the MGP (TWh)**

*Zones**	*2010*	*2009*	*2008*	*2007*	*2006*	*2005*	*% change 2010/2009*	*Structure*
N Italy*	137.6	136.2	154.2	148.9	148.3	146.6	1.0%	43%
CN Italy	22.0	20.5	22.9	24.4	24.5	24.1	7.3%	7%
CS Italy	28.6	24.8	16.4	16.8	25.2	27.0	15.3%	9%
S Italy*	51.2	51.2	63.7	56.5	48.8	39.9	0.1%	16%
Sicily*	19.3	19.0	20.1	19.8	20.0	20.5	1.8%	6%
Sardinia	11.1	11.4	11.9	13.0	13.0	12.3	-3.1%	3%
Italy	269.8	263.1	289.2	279.4	279.8	270.4	2.5%	85%
Neigh. coun.	48.8	50.3	47.8	50.6	50.0	52.8	-3.1%	15%
Total	**318.6**	**313.4**	**337.0**	**329.9**	**329.8**	**323.2**	**1.6%**	**100%**

Yearly volumes rejected in the MGP (TWh) Tab C.2.18

*Zones**	*2010*	*2009*	*2008*	*2007*	*2006*	*2005*	*% ch. 2010/2009*	*Structure*
N Italy*	86.1	90.6	75.5	71.0	62.9	53.3	-4.9%	45%
CN Italy	17.4	17.7	15.5	13.8	9.5	12.0	-1.7%	9%
CS Italy	38.2	36.8	24.3	23.3	15.3	26.0	3.6%	20%
S Italy*	24.5	20.0	22.5	21.6	20.5	14.7	22.7%	13%
Sicily*	13.0	10.2	9.6	9.8	9.3	9.9	27.3%	7%
Sardinia	6.6	5.8	6.3	5.5	5.7	6.1	14.8%	3%
Italy	185.8	181.1	153.6	145.0	123.1	122.0	2.6%	97%
Neigh. coun.	5.1	4.7	4.7	5.3	2.9	0.0	8.5%	3%
Total	**190.9**	**185.8**	**158.4**	**150.3**	**126.0**	**122.0**	**2.8%**	**100%**

With reference to the share of supply at zero price, a decrease of the indicator at national level (passed from 72.0% to 68.6%)was observed; this result is to be ascribed to the fall of the OTC component (from 94.4% to 80.0%), as against an essential stability of the market component (from 38.7% to 38.2%). A detailed analysis of data evidences that this variation is mostly supported by the increase of overall OTC volumes[9], as already emerged in the drop of liquidity, and to a lesser extent by the increase of offered prices. Presumably this is related to the attempt by participants to oppose the downward trend of margins. In this respect, it is worth stressing that in central-southern Italy and in Sicily* the OTC component recorded an actual collapse and OTC volumes more than doubled as against 2009, causing these zones to have the lowest share of supply at zero price in the system (Table C.2.19).

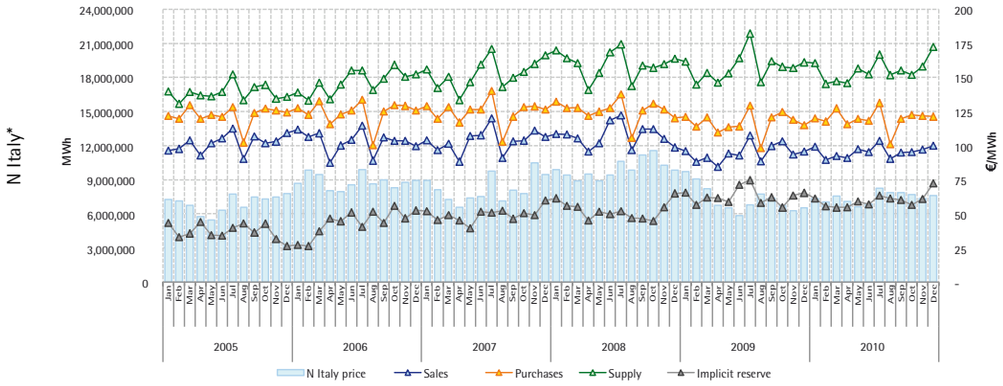
Volumes sold at zero price in the MGP Tab C.2.19

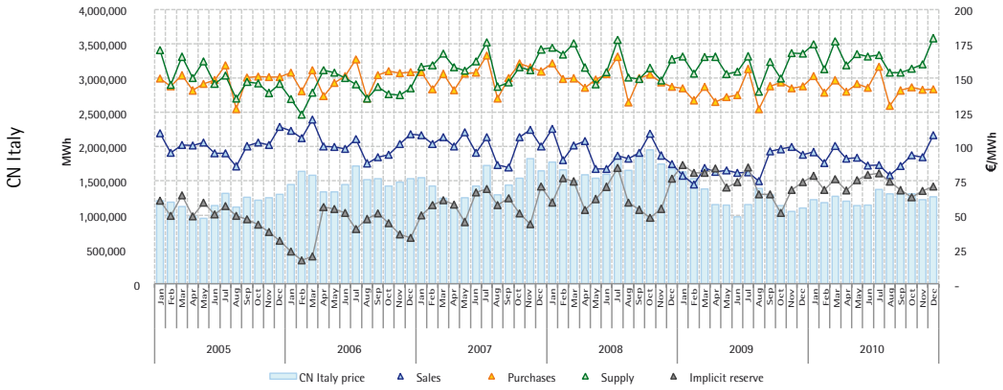
	Share of "Sistema Italia"						Share of IPEX						Share of PCE					
	Total						Total						Total					
	2010	2009	2008	2007	2006	2005	**2010**	2009	2008	2007	2006	2005	**2010**	2009	2008	2007	2006	2005
N Italy*	**62.3%**	65.3%	65.3%	66.6%	77.3%	69.5%	**32.6%**	32.9%	22.8%	27.0%	34.5%	30.3%	**82.1%**	93.5%	96.8%	94.2%	100.0%	100.0%
CN Italy	**88.4%**	89.8%	62.4%	63.8%	85.7%	75.4%	**31.2%**	32.1%	10.5%	12.6%	19.0%	13.8%	**95.6%**	98.4%	100.0%	100.0%	100.0%	100.0%
CS Italy	**55.0%**	70.0%	72.1%	59.8%	60.9%	55.3%	**37.9%**	34.8%	8.0%	17.6%	22.4%	25.0%	**26.1%**	97.0%	99.9%	99.9%	100.0%	100.0%
S Italy*	**74.4%**	80.0%	60.9%	56.8%	59.1%	64.6%	**31.6%**	39.7%	32.3%	26.0%	15.7%	19.5%	**95.9%**	100.0%	100.0%	98.9%	100.0%	100.0%
Sicily*	**46.4%**	39.8%	43.4%	39.8%	50.1%	53.5%	**15.3%**	14.5%	13.5%	7.2%	12.6%	10.5%	**21.8%**	51.4%	100.0%	100.0%	100.0%	100.0%
Sardinia	**74.7%**	70.9%	73.0%	69.9%	69.4%	73.8%	**7.2%**	2.7%	5.7%	9.1%	9.8%	8.7%	**70.8%**	76.5%	91.9%	99.8%	100.0%	100.0%
Neigh. coun.	**86.5%**	88.3%	91.2%	93.3%	97.2%	99.9%	**78.2%**	80.6%	79.9%	78.8%	81.3%	90.6%	**100.0%**	100.0%	100.0%	100.0%	100.0%	100.0%
Total	**68.6%**	72.0%	67.2%	67.0%	75.0%	72.3%	**38.2%**	38.7%	27.1%	26.2%	26.8%	23.8%	**80.0%**	94.4%	97.9%	96.7%	100.0%	100.0%

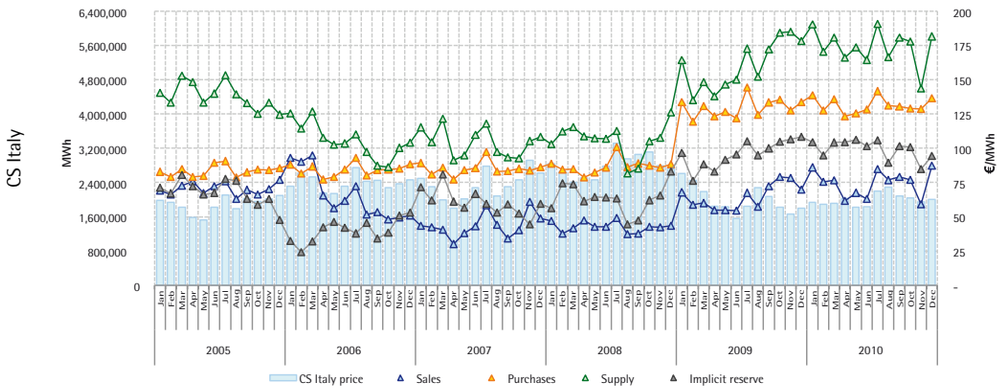
Lastly, when considering the monthly series of volumes (Fig. C.2.10) and of sales by source (Fig. C.2.13), the phenomena described so far are confirmed and some important data emerge explaining price dynamics. In particular the upward effect induced by the growth of consumption and by fuel prices is practically neutralised by the growth of sales by low-cost plants – such as RES, coal or combined cycle ones – which, by gradually displacing the more expensive conventional thermal plants, favoured stable zonal prices or only slightly recovering prices as against 2009. This phenomenon is particularly strong in central-southern Italy and in Sicily*, reflecting the geographical location of the new available capacity.

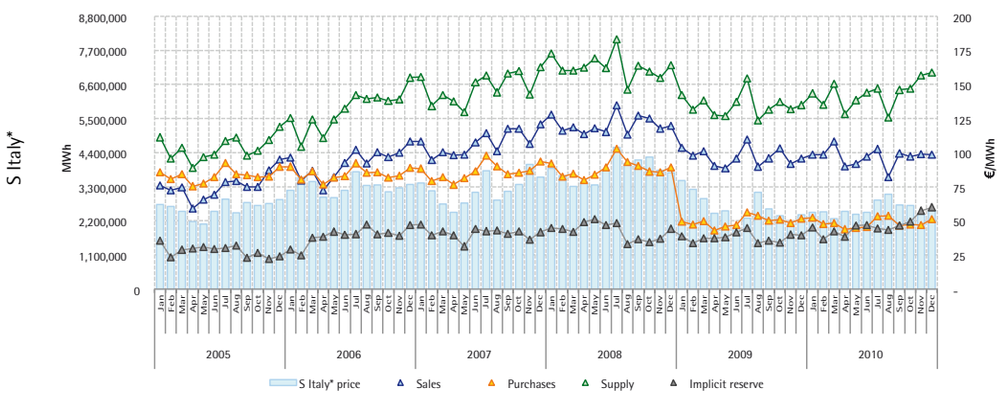
9 As part of the increase of nominated volumes on the PCE, this data signals an increase of the volumes of bilateral schedules notified with positive execution price, due to the higher risk of zero clearing prices induced by overcapacity. It is not by chance that this variation essentially affects the islands, where the effect of the new interconnection for Sardinia and of the new capacity in Sicily increased competition.

Fig C.2.10 **Monthly average volumes by zone**



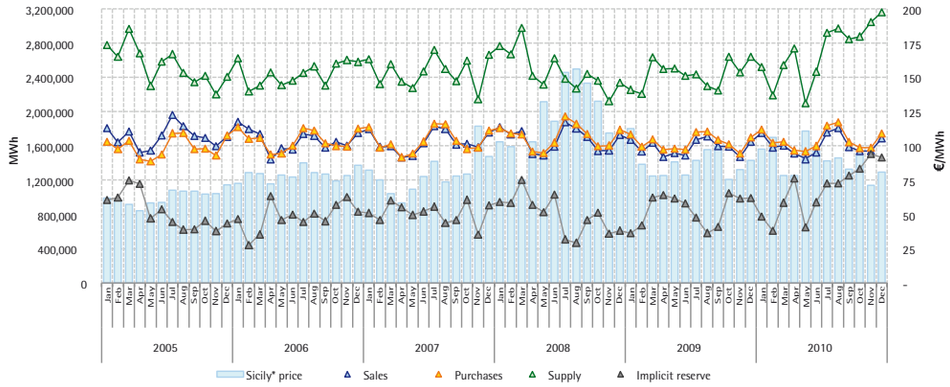




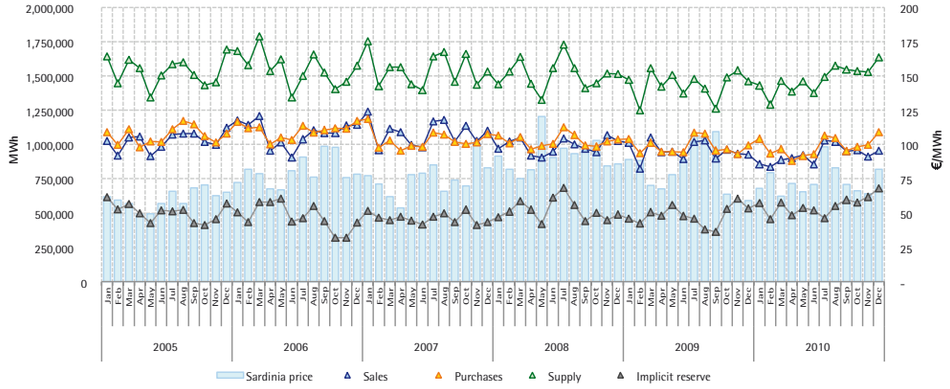


(continued) Monthly average volumes by zone Fig C.2.10

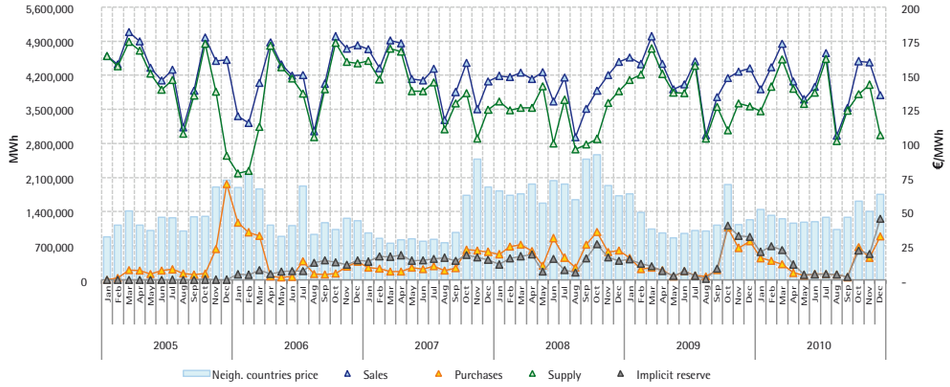
Sicily*



Sardinia



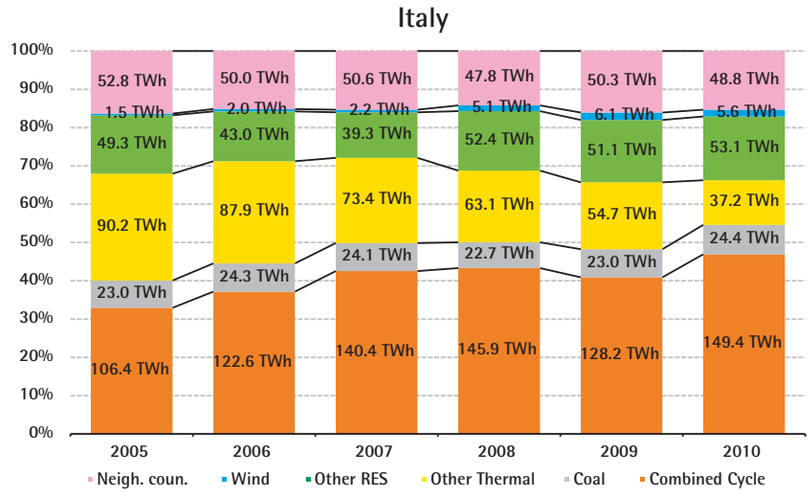
Neigh. countries



2.2.3.3 Sales by source and by technology

The year 2010 further consolidated the trend existing since the start of the market and relating to the gradual replacement of obsolete, conventional thermal plants with more efficient combined cycles. In detail, sales classified as "Other Thermal", which in 2005 accounted for 28% of the total, plummeted to their historical minimum of 37.2 TWh (-32.0%) equal to 12% of overall sales. Conversely, combined cycles grew to their maximum value, up to 149.4 TWh (+16.6%), accounting now for almost half of the sales in the system (47%). This technology - together with the growth of coal (+6.2%), sustained by the conversion of the plant of Torvaldaliga to coal firing and by the greater contribution of the item "Other RES" (+3.9%) - completely compensated for the growth of demand and declining imports (-3.1%). In countertrend, wind power reversed its upward trend of the last six years, down to 5.6 TWh (-7.1%) (Fig. C.2.11). This decrease, however, is limited to the MGP: indeed, the volumes of wind power recorded in the market deviate, for the first time, from Terna'sactual data, which, instead, show a firm growth of wind power generation to 8.4 TWh (+29.1%) (Table C.1.12). Zonal data show that northern Italy*, central-northern Italy and southern Italy* reflect the phenomena described at national level, slightly differing only for the slight drop of coal. Besides, central-southern Italy is characterised by the boom of sales by plants using this latter technology - in two years rising from 0 to 8.7 TWh, about 30% of zonal sales - which induced the only tendential decrease of combined cycles (-11.5%). While Sardinia practically remained stable, in Sicily* radical changes may be seen that were favoured by the commissioning of the new installed capacity: the sharp growth of sales (+27.2%) by combined-cycle (+15.0%) and wind power plants, which together accounted for 84% of sales on the islandscaused the item "Other Thermal" to reach its minimum value since the start of the market, confining it to an increasingly residual role (Fig. C.2.12).

Fig C.2.11 **Sales by technology and source**



Sales by technology and source, by zone Fig C.2.12

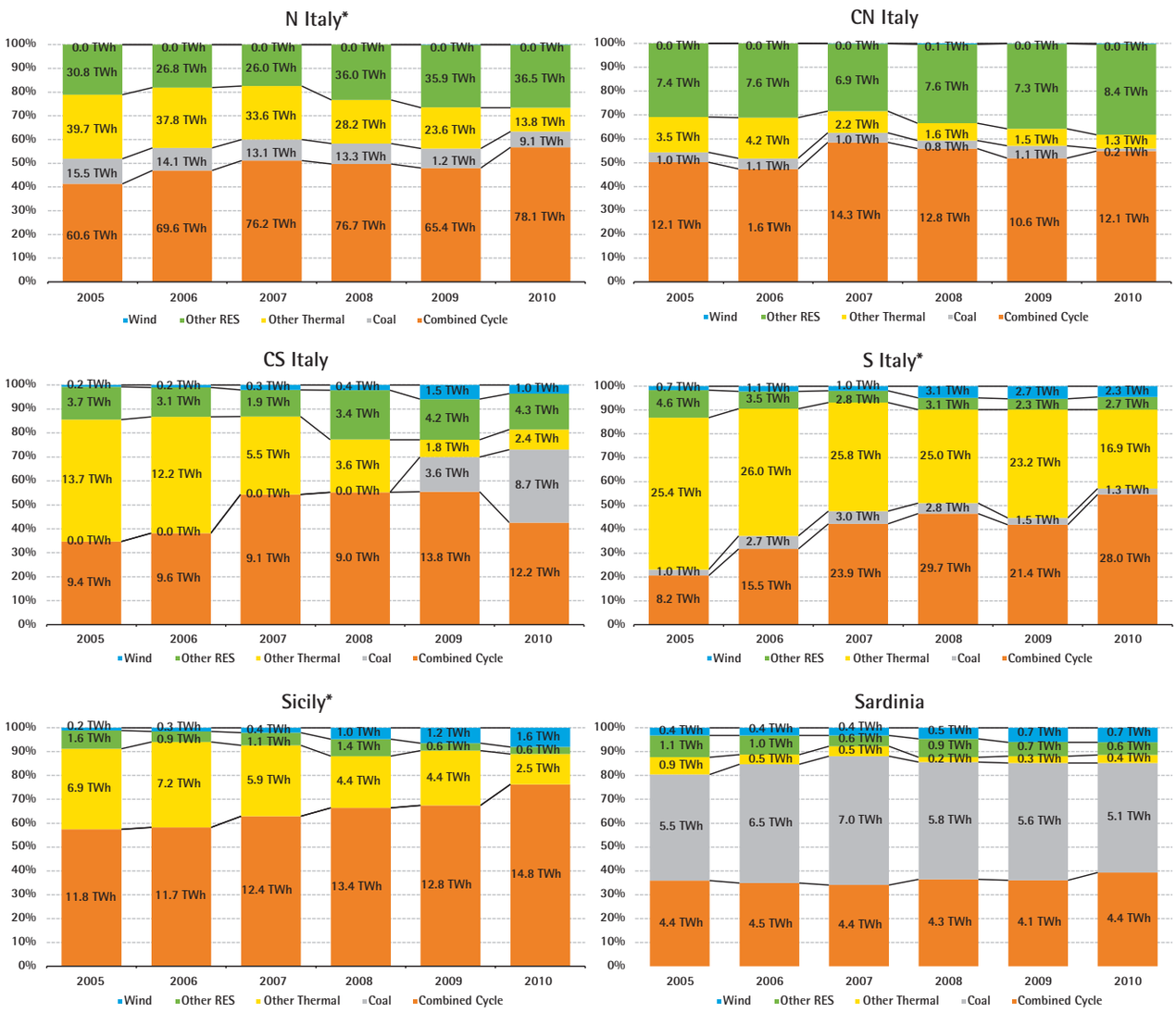
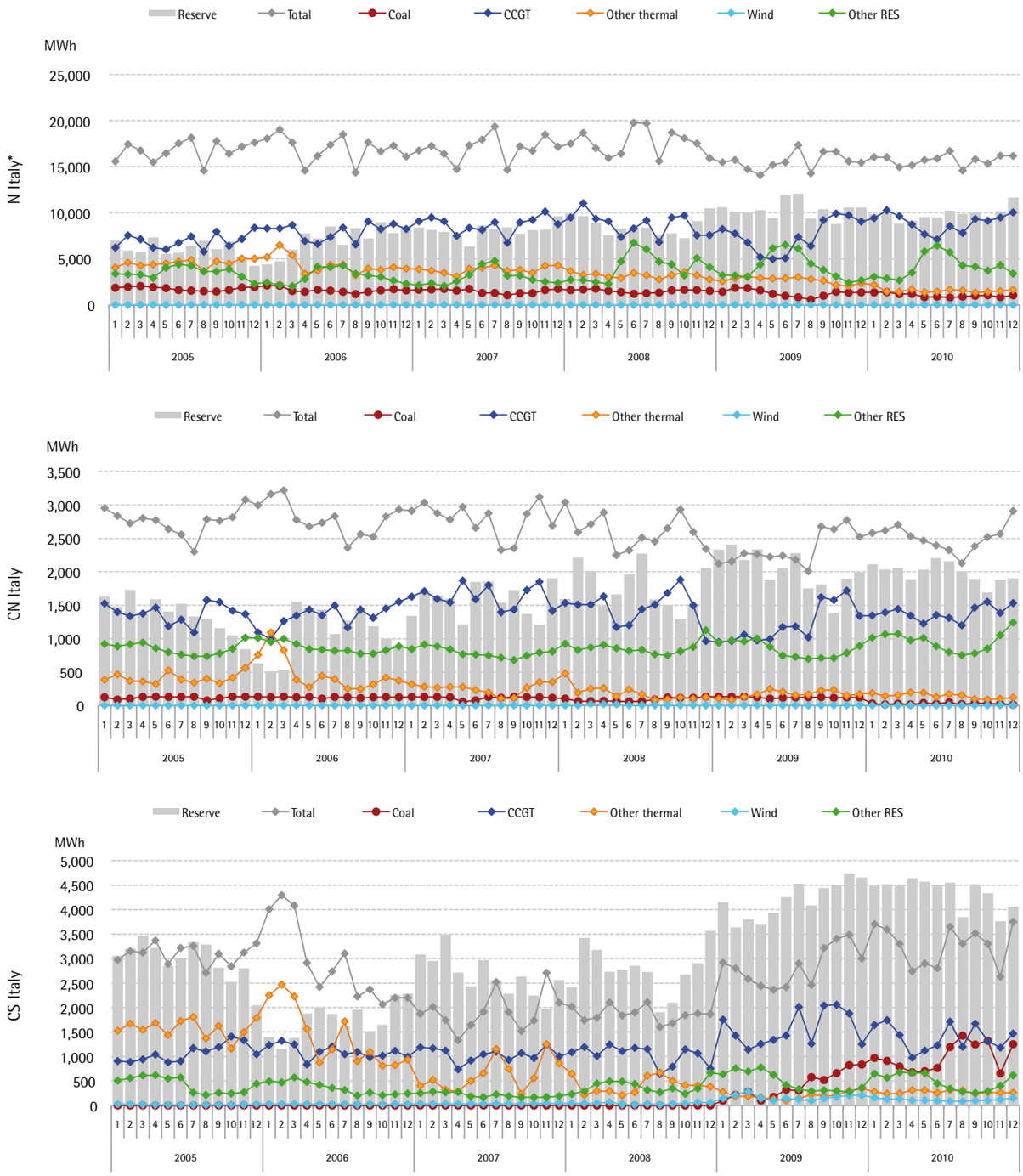
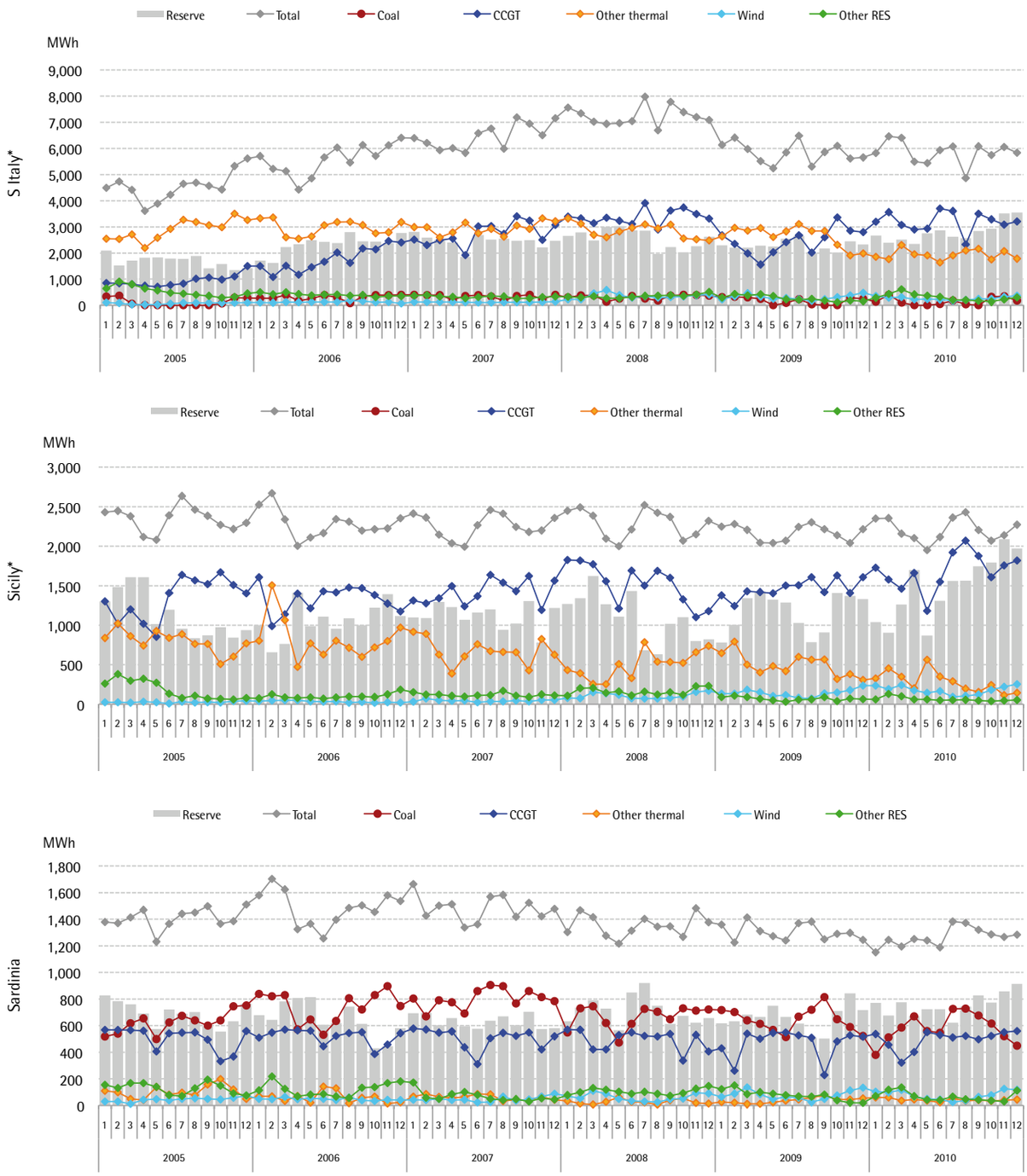


Fig C.2.13 **Monthly average sales by source and zone***



(continued) Monthly average sales by source and zone* Fig C.2.13



2.2.3.4 Performance by technology

The sharp growth of sales by combined-cycle plants is also substantiated by the improved performance indices of this technology, both in the number of units (+9) and in the number of hours of operation. The latter stood at 5,327, recovering from their 2009 all-time low (+459), but still below pre-crisis levels. The utilisation of plants classified as "Other Thermal" - mostly CHP, self-generation and waste-to-energy plants - is also increasing; the hours of operation of these plants reached a historical high equal to 6,156 hours. The growth of these two types of plants has repercussions on the whole segment of conventional thermal plants, giving rise to an actual switching-off of plants using the most expensive technologies –gas-fired and gas-turbine thermal plants - and an extensive reduction in the use of oil- and coal-fired plants. The latter show the fourth consecutive drop in the number of hours of operation and in the success rate, reaching the historical minima for both indices. The indices for renewable power plants (except those for wind power ones) were stable: in spite of the new bounce in the number of plants, up to 167 (+21), the lower utilisation already emerged from declining sales was confirmed, with the number of hours of operation down to the all-time minimum of 5,553. At zonal level the indices of combined-cycle plants faithfully reflect the national dynamics. The exceptional nature of Sicilian values is confirmed. The values stood well above the average and reflect the structural conditions of the island, where this technology is used to cover the base load: the growth in the number of hours of operation to the historical maximum (8,073) reflects the impacts of Erg's new combined-cycle plant. Lastly the examination of the spark spreads corroborates the compression of the margins for participants, associated with the widening gap of demand-supply, ranging from zero in southern Italy* to a little more of 32 €/MWh in Sicily*.

Tab C.2.20 **Performance indices, by year and technology**

	No. of units						Avg no.of hours with accepted bids/ offers						" Success rate (Sold volumes/offered volumes) "						Average revenue (€/MWh)					
	2010	2009	2008	2007	2006	Delta%	**2010**	2009	2008	2007	2006	Delta%	**2010**	2009	2008	2007	2006	Delta%	**2010**	2009	2008	2007	2006	Delta%
Coal	**24**	23	21	21	21	4%	**4,144**	5,614	6,728	7,261	6,888	-26%	**72%**	81%	88%	92%	90%	-11%	**65.74**	68.56	88.07	73.54	77.34	-4%
Combined Cycle (no GSE)	**105**	96	89	79	71	9%	**5,327**	4,868	5,678	6,300	6,061	9%	**74%**	73%	84%	85%	83%	1%	**67.40**	68.33	92.18	76.89	79.30	-1%
Natural gas	**6**	6	7	8	9	0%	**70**	160	1,083	1,832	3,966	-56%	**0%**	1%	10%	17%	44%	-68%	**96.23**	87.07	105.10	85.75	82.63	11%
Oil	**42**	43	44	44	50	-2%	**1,439**	1,973	2,207	2,726	3,379	-27%	**34%**	36%	39%	41%	52%	-7%	**65.12**	65.15	95.24	81.45	81.99	0%
Gas-turbine	**30**	29	30	29	29	3%	**86**	71	78	94	96	22%	**0%**	0%	1%	1%	1%	-8%	**128.46**	139.28	187.73	157.71	148.44	-8%
Other Thermal*	**46**	40	34	37	34	15%	**6,156**	5,053	5,073	5,085	5,545	22%	**87%**	90%	87%	87%	88%	-4%	**67.19**	70.81	97.94	76.99	80.16	-5%
Wind	**167**	146	104	70	61	14%	**5,553**	7,221	6,541	7,516	6,015	-23%	**100%**	100%	100%	100%	100%	0%	**68.32**	65.75	92.11	75.47	77.09	4%
Run-of-river hydro	**170**	167	167	164	137	2%	**7,023**	7,204	6,737	6,153	6,876	-3%	**87%**	90%	75%	72%	79%	-4%	**65.04**	64.34	90.58	79.88	83.08	1%
Modulation hydro	**137**	137	140	163	171	0%	**4,862**	4,612	4,053	3,560	4,286	5%	**52%**	56%	56%	57%	63%	-6%	**66.97**	69.52	98.39	89.08	91.14	-4%
Pumped-storage hydro	**22**	22	22	24	23	0%	**2,219**	2,180	2,132	1,567	2,149	2%	**14%**	14%	18%	16%	25%	3%	**76.42**	85.29	115.41	106.88	107.00	-10%
Other RES	**36**	35	32	32	32	3%	**7,987**	7,677	8,263	8,530	8,536	4%	**100%**	100%	100%	100%	100%	0%	**62.43**	62.17	84.83	72.64	74.97	0%

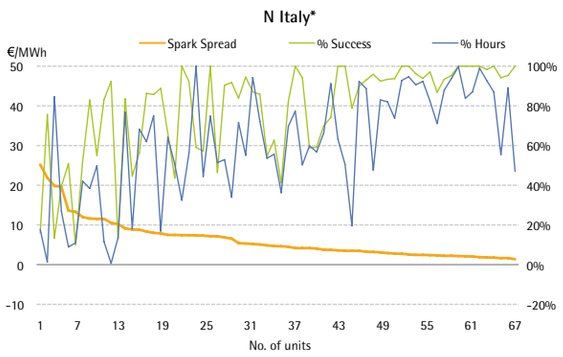
* Other Thermal: this item includes CHP, self-generation and waste-to-energy plants

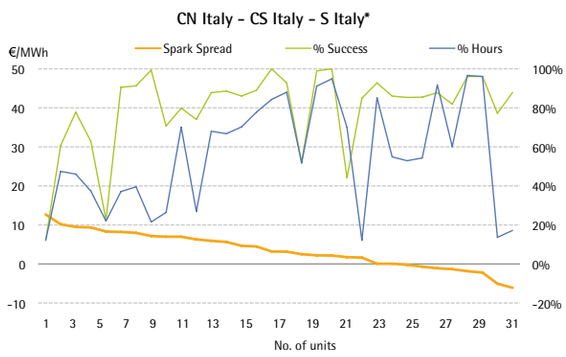
Combined-cycle performance indices, by year and zone Tab C.2.21

		No. of units						Avg no.of hours with accepted bids/ offers						" Success rate (Sold volumes/offered volumes) "						Spark Spread* (€/MWh)					
		2010	2009	2008	2007	2006	Delta%	2010	2009	2008	2007	2006	Delta%	2010	2009	2008	2007	2006	Delta%	2010	2009	2008	2007	2006	Delta%
Combined Cycle (no GSE)	N Italy*	68	66	63	57	53	3%	5,334	4,875	5,715	6,324	6,208	9%	73%	70%	82%	83%	80%	4%	5.31	16.75	18.18	24.81	26.34	-68%
	CN Italy	7	5	5	5	5	40%	5,659	4,451	5,125	6,598	4,975	27%	54%	42%	57%	74%	92%	29%	5.08	14.82	21.30	27.89	23.62	-66%
	CS Italy	10	8	3	3	3	25%	4,570	4,422	5,644	5,766	6,363	3%	80%	86%	89%	87%	85%	-7%	7.15	19.06	23.45	36.88	32.66	-63%
	S Italy*	15	13	15	10	7	15%	4,729	4,785	5,284	6,409	5,237	-1%	77%	83%	92%	95%	97%	-7%	-0.21	12.81	21.52	28.59	25.53	-102%
	Sicily*	5	4	3	4	3	25%	8,073	6,432	7,823	5,709	6,901	26%	85%	90%	92%	92%	90%	-5%	32.60	40.42	51.27	29.39	24.05	-19%
	Sardinia																								
	Total	**105**	96	89	79	71	9%	**5,327**	4,868	5,678	6,300	6,061	9%	**74%**	73%	84%	85%	83%	1%	**6.94**	18.20	21.46	26.47	26.34	-62%

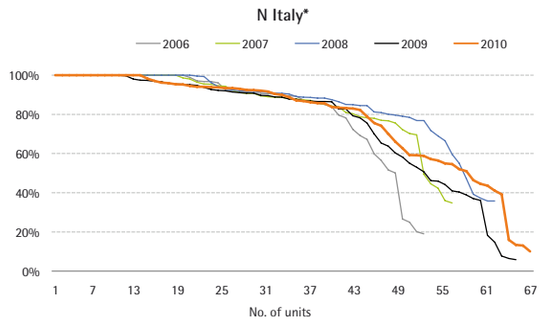
(*) the index is calculated for each zone as the average, for each unit, of the difference between the zonal price and the variable cost of generation, net of environmental charges (GCs and CO2), weighted for the sales related to each unit.

Combined-cycle performance indices in 2010 and by zone Fig C.2.14





Spark spread duration curve of combined cycles, by year and zone Fig C.2.15



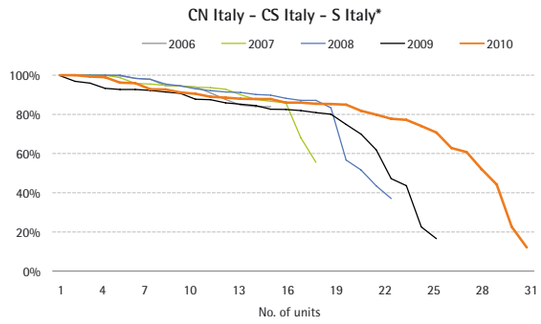
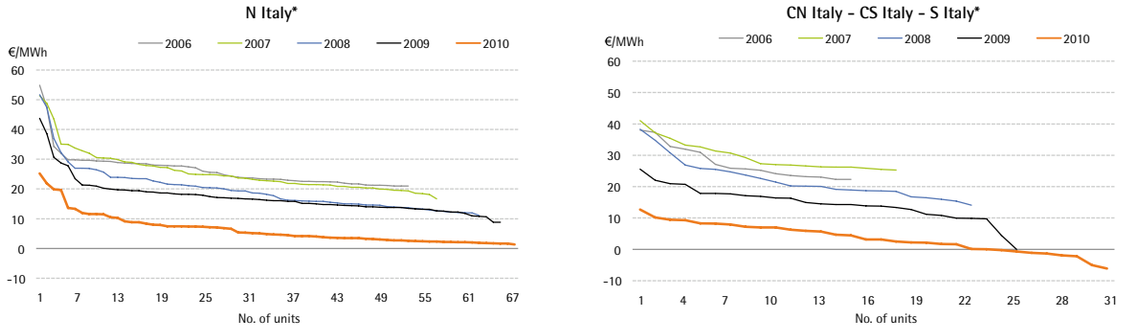


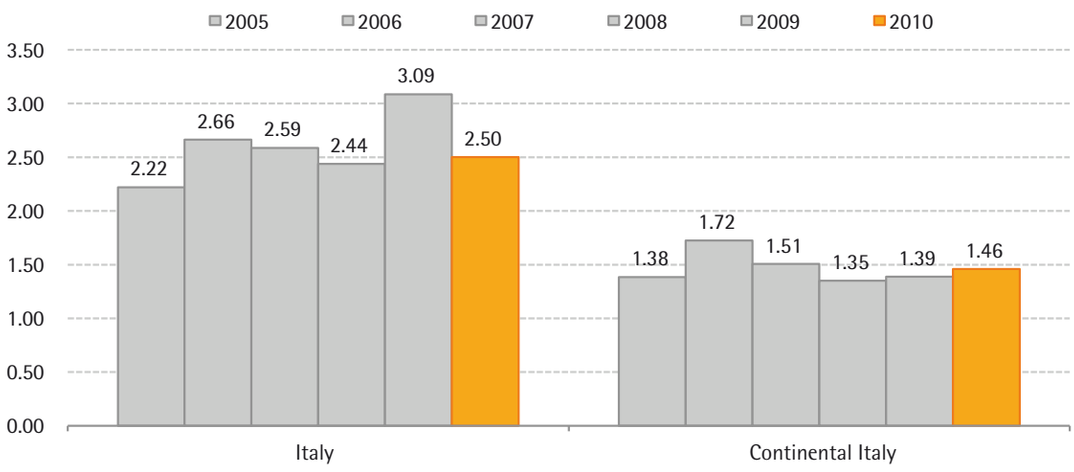
Fig C.2.16 **Success rate duration curve of combined cycles, by year and zone**



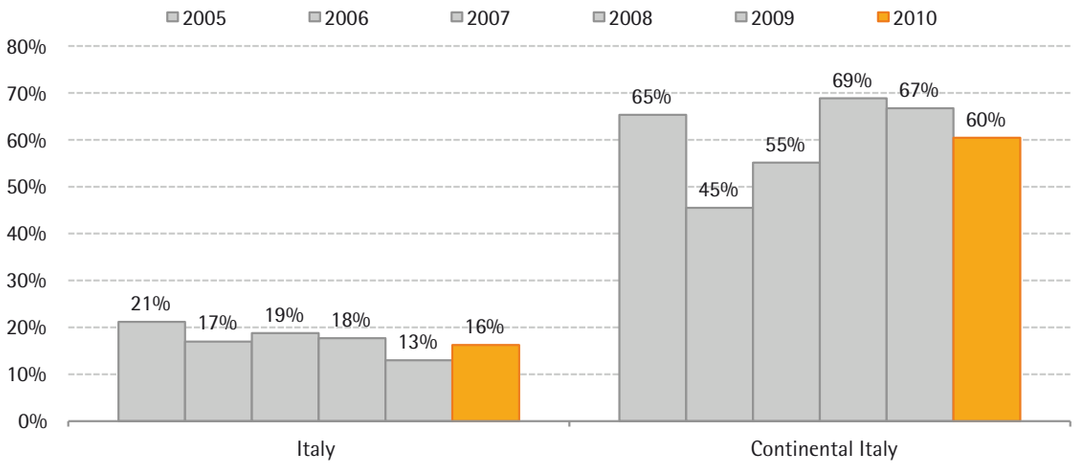
2.2.4 Zonal Configurations

In 2010 the zonal fragmentation calculated on the whole system is decreasing both in the average number of market zones, down to 2.50, and in the percentage of hours with the united system, up to 16%. These data reflect the full operation of the new interconnection with Sardinia (Sapei), launched at the end of 2009, whose effects, among others, contributed to the drop of the prices on the island (Figs. C.2.17, C.2.18). By contrast, a slight growth of both indices within the mainland, favoured by the fall of imports on the French border, is observed. On the latter border, the decreasing imports both in terms of flow, down by about 200 MWh on average per hour, and in terms of frequency of utilisation in this direction, down to 96.9% of the hours as against the values approaching 100% of other borders. This decrease favoured higher electricity flows from southern to northern Italy – evidenced by the percentage of hours in which northern Italy imported electricity from central-northern Italy, up to the historical maximum of 22.3% (Table C.2.22) – which generated frequent saturations on the "SUD-CSUD" (S-CS Italy) and "CSUD-CNOR"(CS-CN Italy) transits. The rent is still standing at maximum values, albeit the slight contraction as against 2009 (-8.5%), sustained exactly by the input of these two transits that overall went up by 32% on the previous year, finally accounting for 56% of the total. The remaining part is collected on the "SUD-BRNN" (S Italy-Brindisi") transit, that is decreasing due to the greater restriction of the interconnection (-44%), and on the "NORD-CNOR" (N-CN Italy) transit, for the reasons described above that went down to the historical minimum (-72%), and on the interconnections with Sicily and Sardinia. On both islands the rent is in line with the value of the previous year, evidencing in Sicily the absence of significant variations, and in Sardinia, the opposed and balanced effects of the narrower price spread between the island and the continent and the higher transmission capacity of the Sapei cable. (Fig. C.2.20).

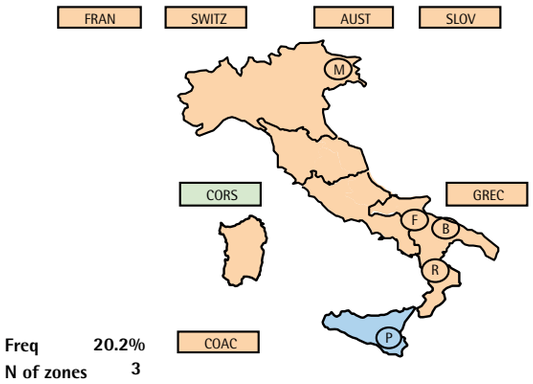
Fig C.2.17 **Average number of market zones**



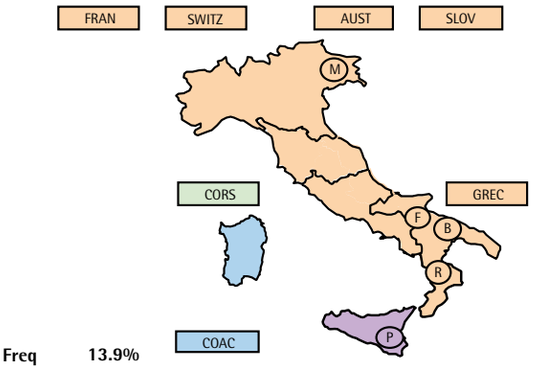
Non-splitting frequency Fig C.2.18



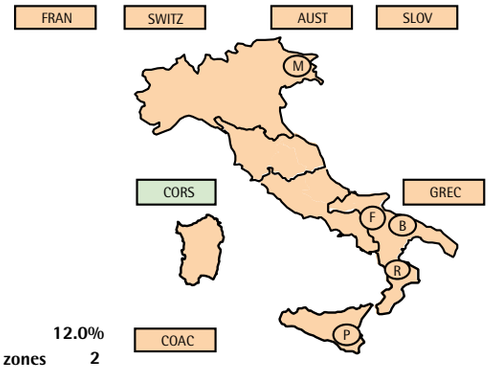
Most frequent market configurations Fig C.2.19



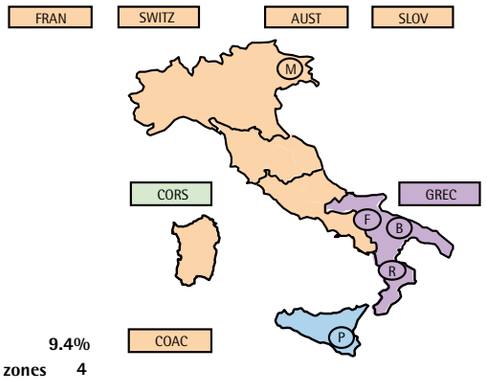
Freq 20.2%
N of zones 3



Freq 13.9%
N of zones 4

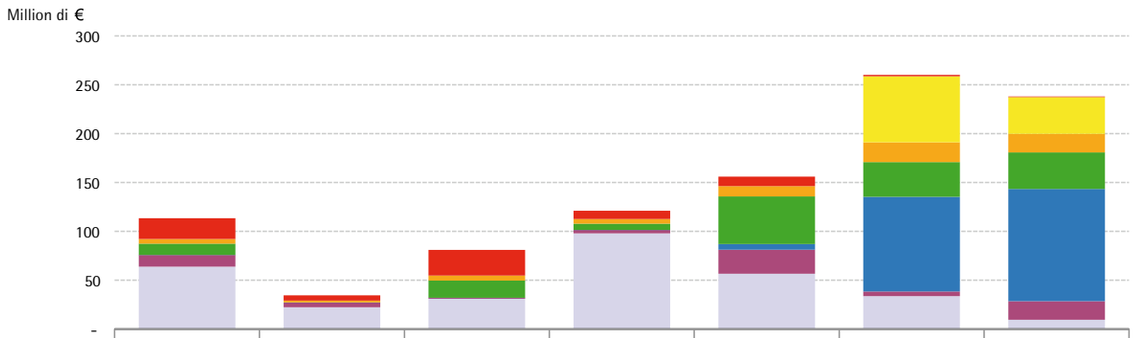


Freq 12.0%
N of zones 2



Freq 9.4%
N of zones 4

Fig C.2.20 **Yearly national congestion rent, by transit**



	2004	2005	2006	2007	2008	2009	2010
OTHER	21,132,248	5,308,481	26,219,576	8,460,492	9,645,193	1,448,770	644,310
S ITALY - BRINDISI	-	-	-	-	-	67,531,709	37,580,164
SARDINIA - ITALY	4,765,841	1,833,624	5,157,725	4,832,876	10,551,724	20,244,071	19,079,481
SICILY - ITALY	11,551,123	203,174	17,503,777	6,352,509	48,832,015	35,543,450	37,324,842
CS - S ITALY	19,688	72,032	123,232	49,654	5,800,894	96,834,147	114,869,418
CN - CS ITALY	12,093,243	4,716,131	1,059,518	3,438,543	24,513,285	4,745,172	19,086,979
N - CN ITALY	63,790,399	22,366,837	30,942,370	97,908,810	56,587,625	33,773,629	9,465,227
National total	113,352,542	34,500,278	81,006,198	121,042,884	155,930,735	260,120,948	238,050,420

Tab C.2.22 **Management of transits**

	Transit		Average limit		Average flow		Used		Saturated		Inhibited	
	From	To	*MWh*		*MWh*		*% hours*		*% hours*		*% hours*	
			2010	2009	2010	2009	2010	2009	2010	2009	2010	2009
(a)	France	N Italy	2,186	*(2,421)*	1,921	*(2,132)*	96.9%	*(98.7%)*	-	*(-)*	-	*(-)*
	N Italy	France	1,454	*(1,565)*	490	*(327)*	3.1%	*(1.3%)*	-	*(-)*	-	*(-)*
(a)	Switzerland	N Italy	3,681	*(3,281)*	2,565	*(2,457)*	99.8%	*(99.7%)*	-	*(0.2%)*	-	*(-)*
	N Italy	Switzerland	3,000	*(2,622)*	555	*(293)*	0.2%	*(0.3%)*	-	*(-)*	-	*(-)*
(a)	Austria	N Italy	275	*(208)*	186	*(195)*	99.0%	*(99.5%)*	-	*(-)*	-	*(-)*
	N Italy	Austria	124	*(137)*	35	*(30)*	0.3%	*(-)*	-	*(-)*	-	*(-)*
(a)	Slovenia	N Italy	373	*(365)*	324	*(346)*	99.9%	*(99.7%)*	-	*(-)*	-	*(-)*
	N Italy	Slovenia	47	*(29)*	80	*(93)*	0.1%	*(0.2%)*	-	*(-)*	-	*(-)*
	Monfalcone	N Italy	1,726	*(1,722)*	686	*(685)*	99.4%	*(99.4%)*	-	*(-)*	-	*(-)*
	N Italy	Monfalcone	10,000	*(10,000)*	-	*(-)*	-	*(-)*	-	*(-)*	-	*(-)*
	N Italy	CN Italy	3,264	*(3,201)*	1,426	*(1,630)*	77.7%	*(91.5%)*	3.2%	*(6.0%)*	-	*(-)*
	CN Italy	N Italy	1,639	*(1,573)*	760	*(433)*	22.3%	*(8.5%)*	0.7%	*(0.1%)*	-	*(-)*
	CN Italy	Corsica	46	*(166)*	94	*(144)*	30.3%	*(67.9%)*	81.7%	*(52.7%)*	64.3%	*(14.0%)*
	Corsica	CN Italy	32	*(115)*	62	*(89)*	5.4%	*(18.0%)*	66.0%	*(19.6%)*	64.3%	*(15.8%)*
	Corsica	Sardinia	56	*(1,535)*	76	*(106)*	18.7%	*(61.4%)*	25.7%	*(38.9%)*	16.8%	*(4.3%)*
	Sardinia	Corsica	69	*(162)*	54	*(91)*	64.5%	*(34.2%)*	73.8%	*(19.7%)*	16.8%	*(5.7%)*
	CN Italy	CS Italy	1,795	*(1,896)*	585	*(691)*	30.5%	*(41.8%)*	3.0%	*(1.3%)*	-	*(-)*
	CS Italy	CN Italy	2,084	*(2,183)*	990	*(735)*	69.5%	*(58.2%)*	6.5%	*(1.3%)*	-	*(-)*
	CS Italy	S Italy	10,000	*(10,000)*	-	*(-)*	-	*(-)*	-	*(-)*	-	*(-)*
	S Italy	CS Italy	3,883	*(3,961)*	3,104	*(2,996)*	100.0%	*(100.0%)*	23.5%	*(17.0%)*	-	*(-)*
	CS Italy	Sardinia	213	*(397)*	203	*(213)*	57.6%	*(77.7%)*	46.8%	*(12.9%)*	27.9%	*(-)*
	Sardinia	CS Italy	273	*(433)*	102	*(112)*	14.5%	*(22.3%)*	28.2%	*(0.5%)*	27.9%	*(-)*
	Foggia	S Italy	1,877	*(1,964)*	662	*(897)*	95.7%	*(96.9%)*	0.2%	*(0.4%)*	-	*(0.2%)*
	S Italy	Foggia	10,000	*(10,000)*	-	*(-)*	-	*(-)*	-	*(-)*	-	*(-)*
	S Italy	Rossano	10,000	*(10,000)*	123	*(105)*	7.4%	*(8.0%)*	-	*(-)*	-	*(-)*
	Rossano	S Italy	2,035	*(1,972)*	994	*(803)*	92.5%	*(92.0%)*	2.2%	*(2.7%)*	-	*(-)*
	Rossano	Sicily	164	*(163)*	121	*(123)*	78.8%	*(79.2%)*	64.3%	*(63.3%)*	1.9%	*(3.3%)*
	Sicily	Rossano	196	*(193)*	97	*(94)*	19.3%	*(17.5%)*	10.8%	*(10.8%)*	1.9%	*(3.3%)*
	Priolo	Sicily	802	*(793)*	499	*(549)*	98.2%	*(94.5%)*	0.1%	*(0.3%)*	-	*(-)*
	Sicily	Priolo	10,000	*(10,000)*	70	*(121)*	1.7%	*(4.9%)*	-	*(-)*	-	*(-)*
	S Italy	Brindisi	10,000	*(10,000)*	-	*(-)*	-	*(-)*	-	*(-)*	-	*(-)*
	Brindisi	S Italy	4,969	*(4,753)*	3,418	*(3,342)*	100.0%	*(100.0%)*	6.6%	*(9.8%)*	-	*(-)*
	Brindisi	Greece	517	*(601)*	145	*(224)*	6.1%	*(16.0%)*	-	*(-)*	-	*(-)*
	Greece	Brindisi	436	*(473)*	368	*(378)*	73.6%	*(67.3%)*	-	*(-)*	-	*(-)*

(a) the transit limit is calculated as the sum of the import/export capacities allocated under explicit auctions by the TSOs.

2.2.5 Concentration and market power

The growth of supply recorded in 2010, in an environment of weak recovery of demand, strengthened the trend already observed in the last years. This confirmed the improvement of concentration and market power and the resulting change in the competitive strategies observed in the market[10] (Table C.2.23, Figs. C.2.21, C.2.22, C.2.23, C.2.24, C.2.25, Table C.2.24, Figs. C.2.26, C.2.27, C.2.29, C.2.30).

Italy. At national level the concentration of supply has remained unchanged: CR5[11] stabilised at 65%. Please note, among others, an invariability of the market share of the main participants, among which Enel ranks first with 28%. Conversely, an improvement is recorded for both the share of sales guaranteed under non-contestable conditions (IORq), down to the all-time low of 15% (-2 p.p.), and the competition at the margin (IOM), with the value of the first operator falling to 22% (-5 p.p.). The first operator's drop reflects the growth together with Enel of other price-setters: among them – apart from Edison (14%), E.On (9%) and A2A (8%) – many other parties emerge which together account for 42%. Among these operators a less and less negligible share sets the price from neighbouring countries' zones (17%), which confirmed the phenomenon already noted in 2008 relating to a particular buoyant supply on the borders, limited to specific periods of the year, when the price spread with the neighbouring exchanges narrows. Furthermore, the growing role of other operators was also corroborated by the new increase in the price-setting index of combined cycles (ITM), the typical technology of new comers, which in 2010 reached its historical maximum (56%).

The analysis of stated data in the various zones where the system is configured showed a fundamental homogeneity in continental zones, except the countertendential trend of central-southern Italy, and the specific dynamics of the islands.

Continental zones. The concentration in the continental zones – measured by the Hirschmann-Herfindahl Index (HHI) – confirms northern Italy* as the only competitive zone (1,345), closely followed only by the southern Italy* zone (1,868), which moved close behind the first threshold of competitiveness. The indicator is stable in northern Italy* and improving in the other zones, with the exception of central-southern Italy. In this zone, the HHI worsened due to the increase of Enel's market share, rising to 42% (+13 p.p.), sustained by the higher low-cost supply resulting from the end of the coal conversion process of the plant of Torvaldaliga. This event had similar effects also on the values of other unilateral market power indices, in terms of frequency (IORh) and volumes (IORq), sharply worsening in central-southern Italy as compared with the stability or the improvements in the other zones. Both indices signalled the greater competitiveness of northern* and southern Italy* zones, ranking central zones at the bottom. Nevertheless, it is worth recalling that, when examining these figures, central Italy zones played a residual role in price setting (11%). Hence they essentially feature as price takers, as against the role of price makers of northern* (48%) and southern Italy* (16%) zones (Table C.2.9). Lastly, with reference to price-setting indices, continental zones faithfully reflect the dynamics that arose at national level as a result of the low degree of zonal fragmentation.

Sicily*. 2010 recorded important changes for Sicily* aided by the growth of base-load supply, generated by Erg's combined cycle of about 480 MW, by the return to service of one of Gee's plants of about 250 MW and by the always increasing number of wind farms. The new input of electricity yielded remarkable changes, reducing Enel's and Edison's market shares, passing from 57% to 50% and from 8% to 4% respectively, thereby diminishing the unilateral market power, with the IORq down to its historical minimum of 15% (-10 p.p.), and above all in the price-setting indices, as the existing merit-order has been altered completely. Hence, at the margin, the gradual transition from more expensive oil-fired plants of Edipower's tollers to Enel's combined cycles led to the boom of Enel's IOM, passing from 36% to 54%, and of the ITM for the combined cycle, climbing to its all-time high of 48% (+21 p.p.). These novelties favoured a considerable adjustment to the structural limits of the island, although as

10 GME's Annual Report 2009, page 102.

11 Concentration Ratio 5 (CR5) means the cumulated share of the top five market participants. The same index may be calculated with reference to a different number of participants.

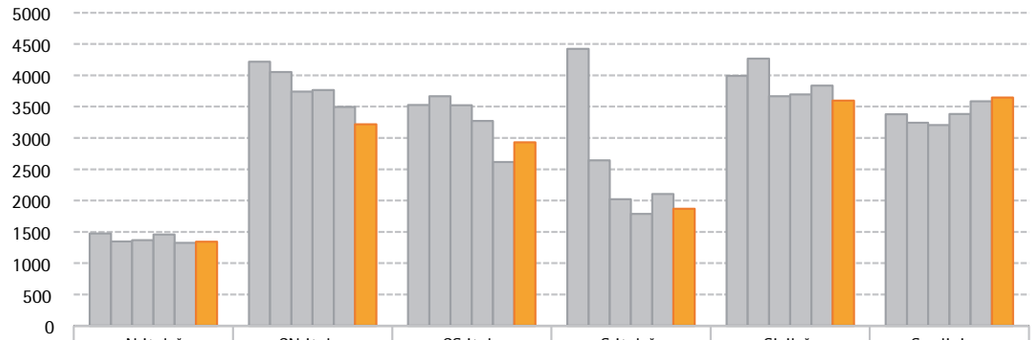
yet no significant effects have been registered on the main concentration indices, as evidenced by the CR3, up to 89% (+5 p.p.), and by the HHI, on a downward path, but still on very high values (3,596). Looking forward, these criticalities could definitely be overcome with the strengthening of the interconnection between Sicily and Calabria planned for 2013.

Sardinia. The full operation of the Sapei cable led to considerable improvements in unilateral market power and price-setting indices. The greater input of electricity from the continent triggered the reduction of the IORh (58%) and the IORq (7%), with both reaching the minimum values at geographical and temporal level. In addition, the consequent lower splitting degree from the continent caused a decline of the hours of autonomous price setting for the island. The hours went back from 54% in 2009 to 32% in 2010, with impacts on all price-setting indices. The major effects are observed on E.On's IOM, plunging to 9% (-16 p.p.), and on the ITM for the combined cycle, rising to 38% (17 p.p.), albeit still on lower levels than in the other zones. Lastly, no impacts are registered on concentration indices, which confirmed the last position for Sardinia, both in terms of CR3 (97%) and HHI (3,647). The analysis of purchase-related HHI substantiated previous findings from the past years, showing how the wholesale market is much more competitive on the demand side than on supply side. The index, that among others, has been extensively improving on 2009, ranges between about 1,000 of northern Italy* – which therefore is competitive on both sides of the market – and 2,700 of Sicily*, recording a good competition level also in central zones. (Fig. C.2.31). Then, looking at other markets through a review of the CR3 it may be observed that the MGP is the least concentrated, ranging between 52% and 54% on both sides of the market, followed by the MSD (65%, 50%) and by intra-day adjustment markets, all with values higher than 84% (Table C.2.25).

Tab C.2.23 **Yearly zonal sales in the MGP**

Market Participant	Year	Total	Neigh. countries	N Italy*	CN Italy	CS Italy	S Italy*	Sicily*	Sardinia
ENEL S.P.A.	**2010**	**28%**	**16%**	**26%**	**32%**	**42%**	**30%**	**50%**	**23%**
	2009	28%	16%	25%	36%	29%	34%	57%	26%
	2008	29%	18%	29%	38%	23%	30%	53%	26%
	2007	29%	17%	27%	38%	29%	34%	52%	26%
	2006	32%	21%	25%	43%	48%	42%	57%	25%
	2005	32%	2%	28%	40%	49%	61%	55%	24%
GSE	**2010**	**15%**	**0%**	**9%**	**44%**	**20%**	**15%**	**29%**	**43%**
	2009	14%	0%	10%	44%	26%	16%	20%	42%
	2008	14%	0%	9%	45%	30%	14%	24%	40%
	2007	14%	0%	9%	44%	24%	14%	26%	35%
	2006	15%	0%	10%	45%	18%	17%	26%	36%
	2005	17%	0%	13%	50%	19%	22%	26%	39%
EDISON TRADING S.P.A.	**2010**	**9%**	**1%**	**14%**	**3%**	**3%**	**17%**	**4%**	**0%**
	2009	9%	1%	13%	3%	2%	16%	8%	0%
	2008	10%	1%	12%	3%	1%	17%	6%	0%
	2007	10%	2%	13%	3%	2%	17%	7%	0%
	2006	9%	3%	12%	2%	0%	16%	7%	0%
	2005	7%	1%	11%	5%	0%	5%	8%	0%
ENI S.P.A.	**2010**	**8%**	**1%**	**13%**	**4%**	**0%**	**13%**	**1%**	**0%**
	2009	7%	2%	11%	2%	0%	11%	1%	0%
	2008	6%	2%	10%	0%	1%	9%	2%	0%
	2007	7%	3%	10%	0%	1%	12%	3%	0%
	2006	7%	3%	10%	0%	0%	11%	1%	0%
	2005	6%	1%	11%	0%	0%	5%	0%	0%
E.ON S.P.A.	**2010**	**5%**	**4%**	**6%**	**9%**	**0%**	**1%**	**1%**	**31%**
	2009	6%	4%	7%	6%	0%	2%	1%	30%
	2008	7%	4%	10%	4%	0%	2%	1%	29%
	2007	7%	5%	11%	3%	0%	1%	0%	34%
	2006	8%	5%	13%	5%	1%	1%	0%	34%
	2005	8%	1%	13%	4%	2%	2%	0%	33%
Other	**2010**	**35%**	**78%**	**33%**	**9%**	**34%**	**23%**	**16%**	**3%**
	2009	35%	76%	33%	8%	43%	21%	14%	2%
	2008	34%	76%	30%	10%	44%	29%	14%	5%
	2007	33%	73%	30%	12%	45%	23%	12%	6%
	2006	29%	69%	29%	5%	33%	13%	9%	6%
	2005	31%	95%	25%	2%	30%	5%	11%	4%

Yearly HHIs for sales in the MGP Fig C.2.21



	N Italy*	CN Italy	CS Italy	S Italy*	Sicily*	Sardinia
2005	1474	4219	3526	4421	3991	3378
2006	1345	4051	3666	2641	4267	3241
2007	1369	3742	3524	2020	3668	3207
2008	1460	3765	3272	1786	3696	3384
2009	1325	3495	2616	2105	3836	3585
2010	1345	3216	2929	1868	3596	3647

Yearly HHIs by hourly bands for sales in the MGP Fig C.2.22

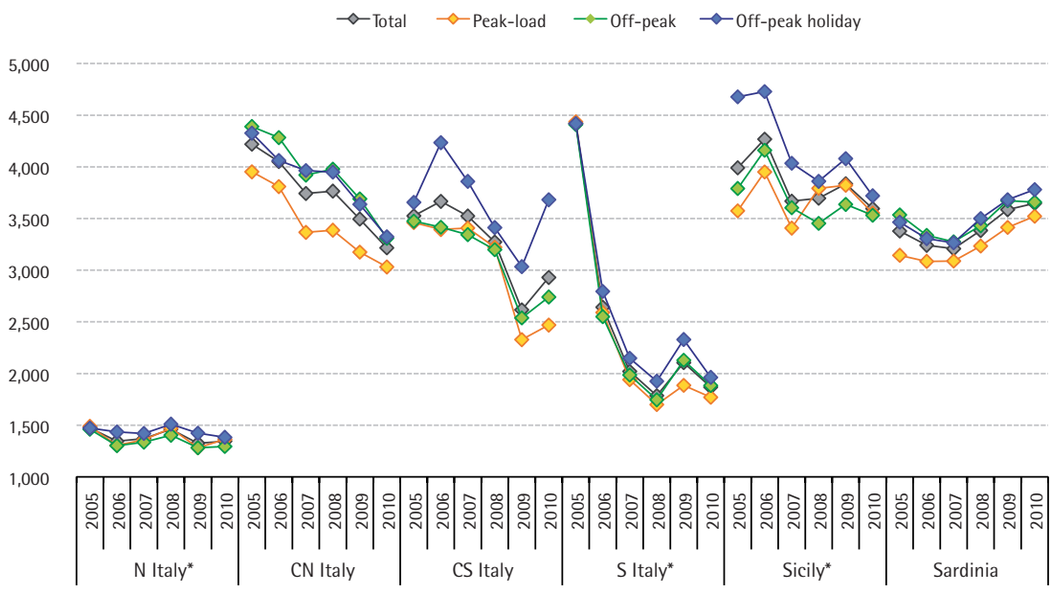
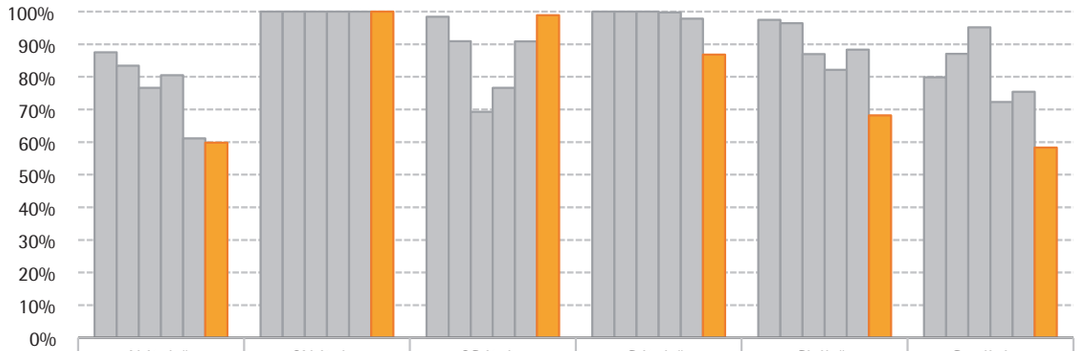
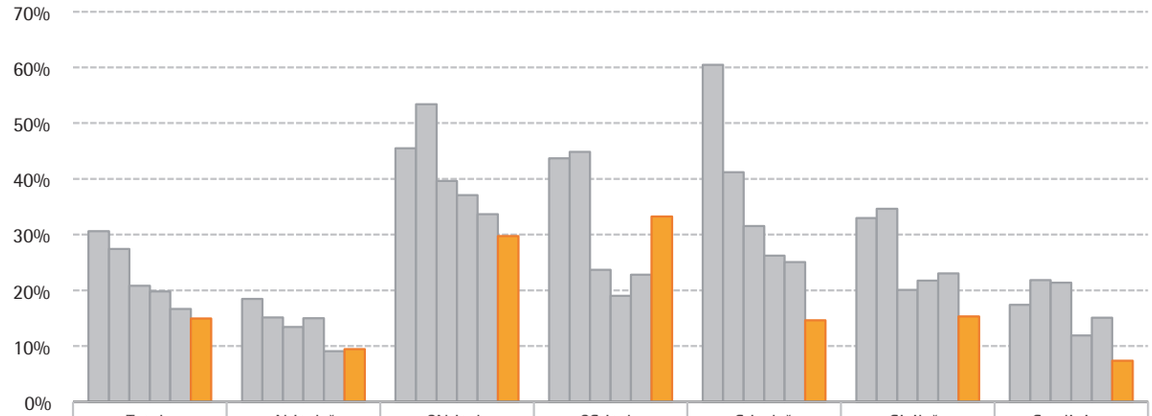


Fig C.2.23 **Frequency with which at least one market participant was necessary**



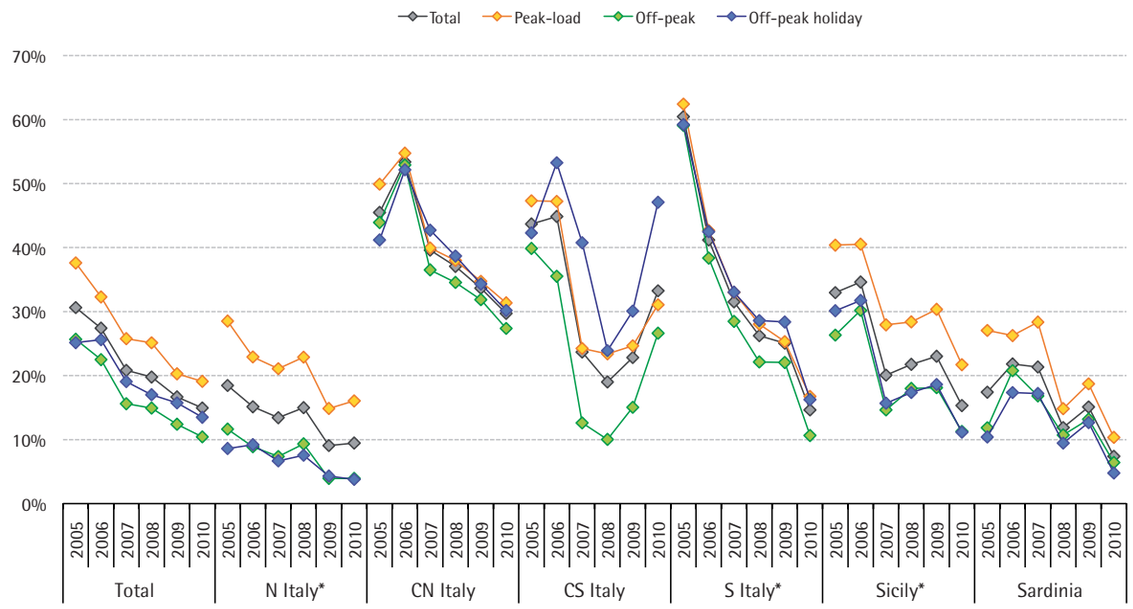
	N Italy*	CN Italy	CS Italy	S Italy*	Sicily*	Sardinia
2005	88%	100%	98%	100%	97%	80%
2006	83%	100%	91%	100%	96%	87%
2007	77%	100%	69%	100%	87%	95%
2008	81%	100%	77%	100%	82%	72%
2009	61%	100%	91%	98%	88%	75%
2010	60%	100%	99%	87%	68%	58%

Fig C.2.24 **Share of sales under non-contestable conditions**



	Total	N Italy*	CN Italy	CS Italy	S Italy*	Sicily*	Sardinia
2005	31%	18%	45%	44%	60%	33%	17%
2006	27%	15%	53%	45%	41%	35%	22%
2007	21%	13%	40%	24%	32%	20%	21%
2008	20%	15%	37%	19%	26%	22%	12%
2009	17%	9%	34%	23%	25%	23%	15%
2010	15%	9%	30%	33%	15%	15%	7%

Share of sales under non-contestable conditions, by hourly bands Fig C.2.25



Price-setting operator index, by zone in which the price has been set Tab C.2.24

Market Participant	Year	Total	Neigh. countries	N Italy*	CN Italy	CS Italy	S Italy*	Sicily*	Sardinia
ENEL S.P.A.	**2010**	**22%**	**19%**	**19%**	**21%**	**20%**	**18%**	**54%**	**37%**
	2009	27%	26%	26%	29%	27%	24%	36%	40%
	2008	51%	48%	47%	54%	61%	57%	45%	53%
	2007	77%	62%	72%	91%	93%	92%	79%	83%
	2006	88%	78%	88%	95%	96%	96%	86%	86%
	2005	89%	87%	88%	92%	95%	94%	84%	88%
EDISON TRADING S.P.A.	**2010**	**14%**	**14%**	**15%**	**13%**	**13%**	**16%**	**18%**	**9%**
	2009	15%	14%	15%	13%	14%	15%	28%	5%
	2008	12%	11%	12%	10%	9%	11%	25%	7%
	2007	7%	8%	10%	2%	2%	2%	12%	2%
	2006	3%	4%	4%	1%	1%	1%	10%	1%
	2005	4%	4%	4%	3%	2%	2%	12%	1%
E.ON S.P.A.	**2010**	**9%**	**9%**	**10%**	**9%**	**9%**	**6%**	**2%**	**9%**
	2009	9%	9%	10%	9%	9%	5%	2%	25%
	2008	5%	5%	5%	5%	4%	5%	4%	15%
	2007	2%	2%	2%	2%	1%	1%	1%	9%
	2006	2%	2%	2%	1%	1%	1%	0%	10%
	2005	1%	1%	1%	1%	1%	1%	0%	8%
A2A TRADING S.R.L.	**2010**	**8%**	**8%**	**8%**	**8%**	**8%**	**10%**	**5%**	**5%**
	2009	9%	9%	9%	9%	9%	10%	10%	4%
	2008	6%	7%	7%	5%	4%	4%	8%	4%
	2007	4%	4%	5%	1%	1%	1%	3%	1%
	2006	1%	2%	2%	0%	0%	0%	1%	0%
	2005	2%	3%	3%	1%	1%	1%	1%	1%
TIRRENO POWER S.P.A.	**2010**	**5%**	**5%**	**6%**	**5%**	**8%**	**4%**	**1%**	**4%**
	2009	3%	3%	3%	3%	4%	2%	0%	1%
	2008	1%	1%	2%	1%	2%	1%	0%	1%
	2007	1%	1%	1%	1%	1%	1%	0%	1%
	2006	0%	0%	0%	0%	0%	0%	0%	0%
	2005	0%	0%	0%	1%	1%	1%	0%	1%
Other	**2010**	**42%**	**46%**	**42%**	**44%**	**42%**	**46%**	**20%**	**36%**
	2009	36%	38%	36%	37%	37%	43%	24%	24%
	2008	25%	27%	27%	24%	20%	22%	18%	20%
	2007	9%	24%	9%	3%	2%	3%	5%	4%
	2006	5%	14%	4%	2%	2%	2%	3%	3%
	2005	3%	5%	3%	2%	1%	2%	3%	2%

Fig C.2.26 **First operator's price-setting operator index by hourly bands**

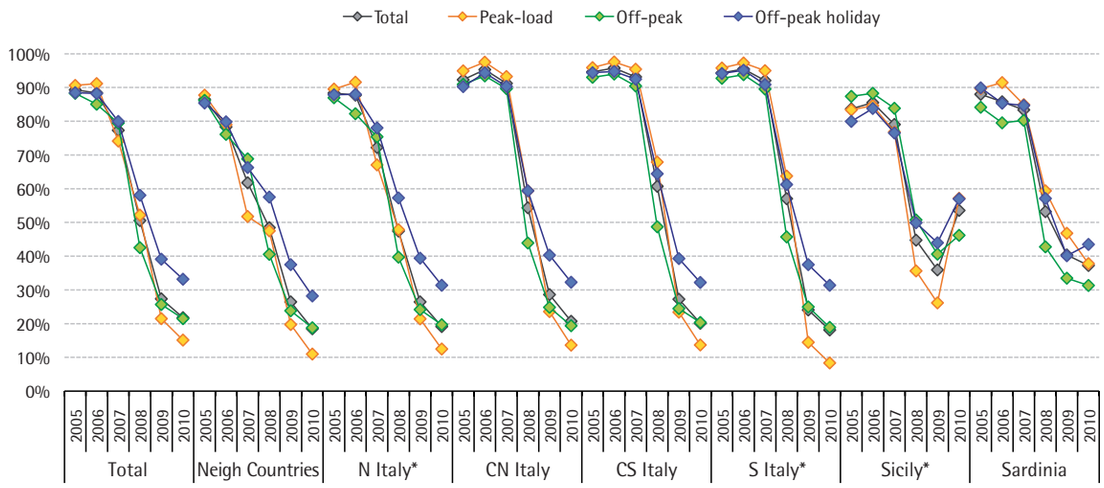
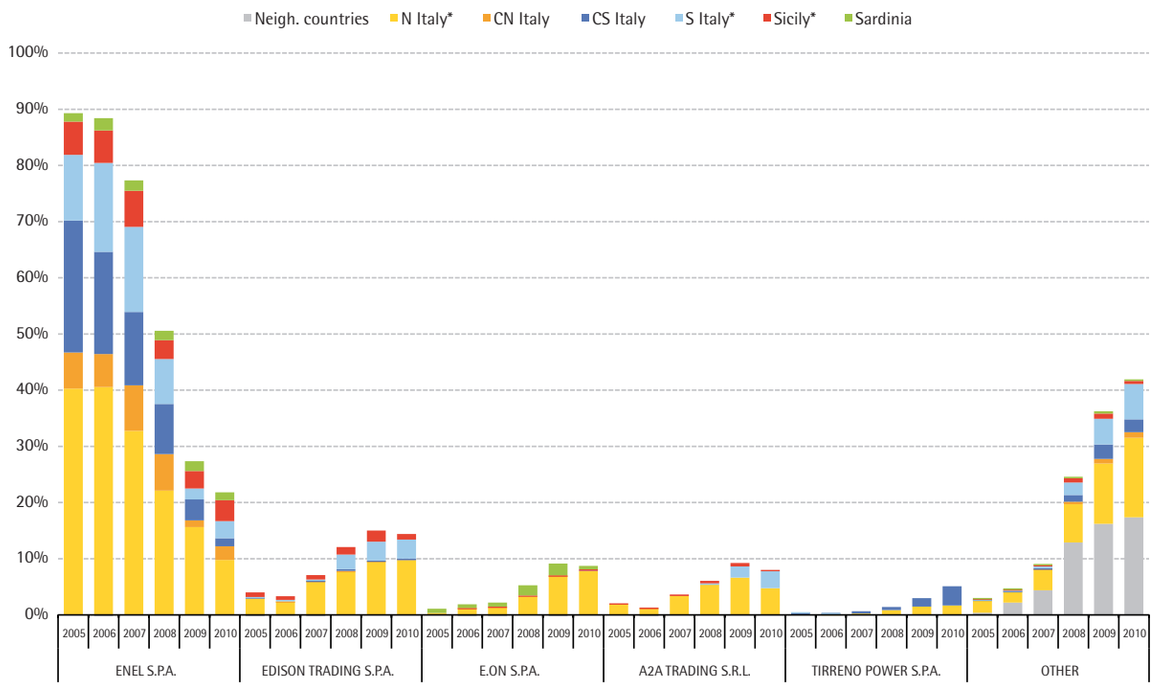
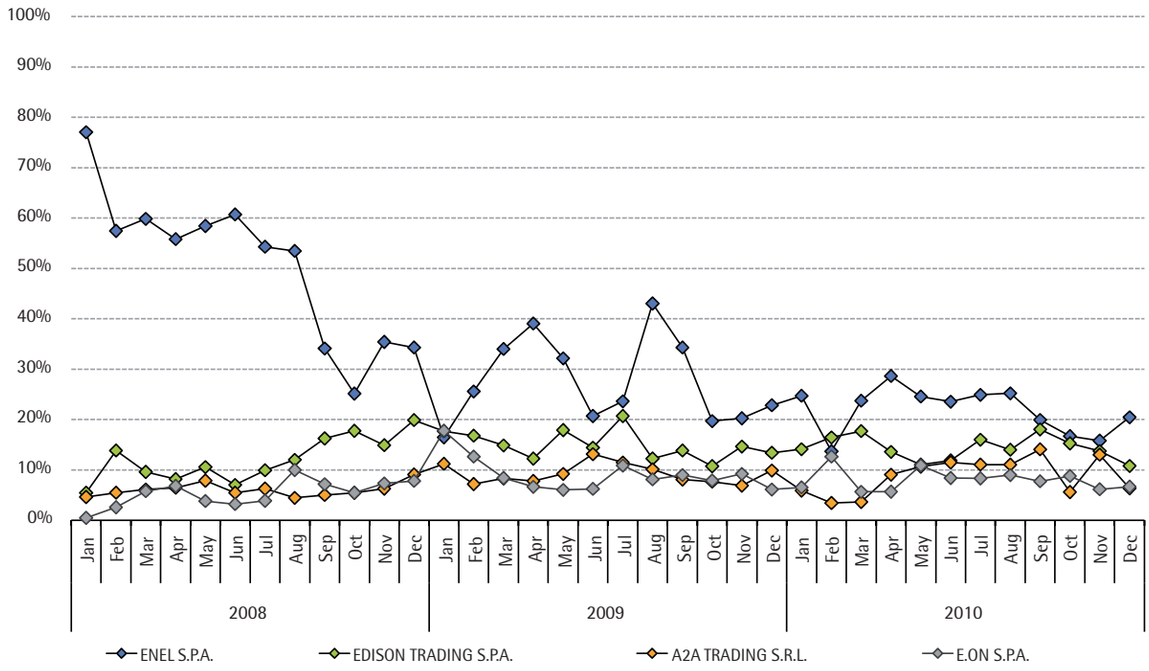


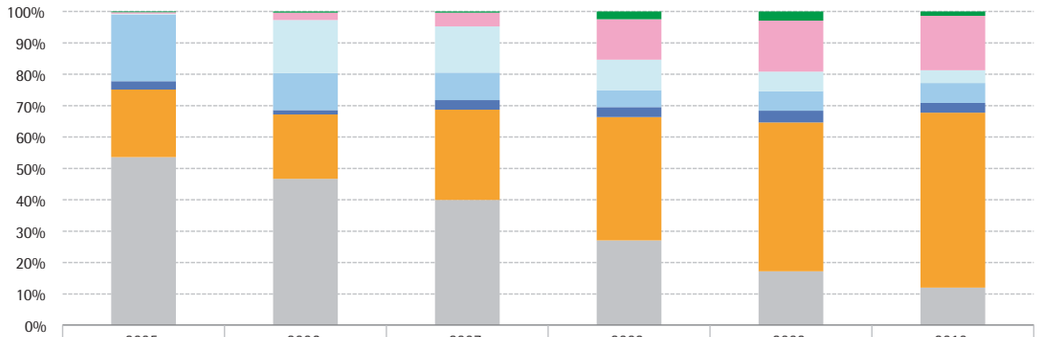
Fig C.2.27 **Price-setting operator index, by zone in which the price has been set**



Monthly price-setting operator index by operator Fig C.2.28



Price-setting technology index Fig C.2.29



	2005	2006	2007	2008	2009	2010
Other	0%	0%	0%	2%	3%	1%
Neigh. countries	0%	2%	4%	13%	16%	17%
Pumped-storage hydro	0%	17%	15%	10%	6%	4%
Modulation hydro	21%	12%	9%	5%	6%	6%
Run-of-river hydro	3%	1%	3%	3%	4%	3%
CCGT	21%	21%	29%	39%	47%	56%
Conventional thermal	54%	47%	40%	27%	17%	12%

Fig C.2.30 **Price-setting technology index, by hourly bands**

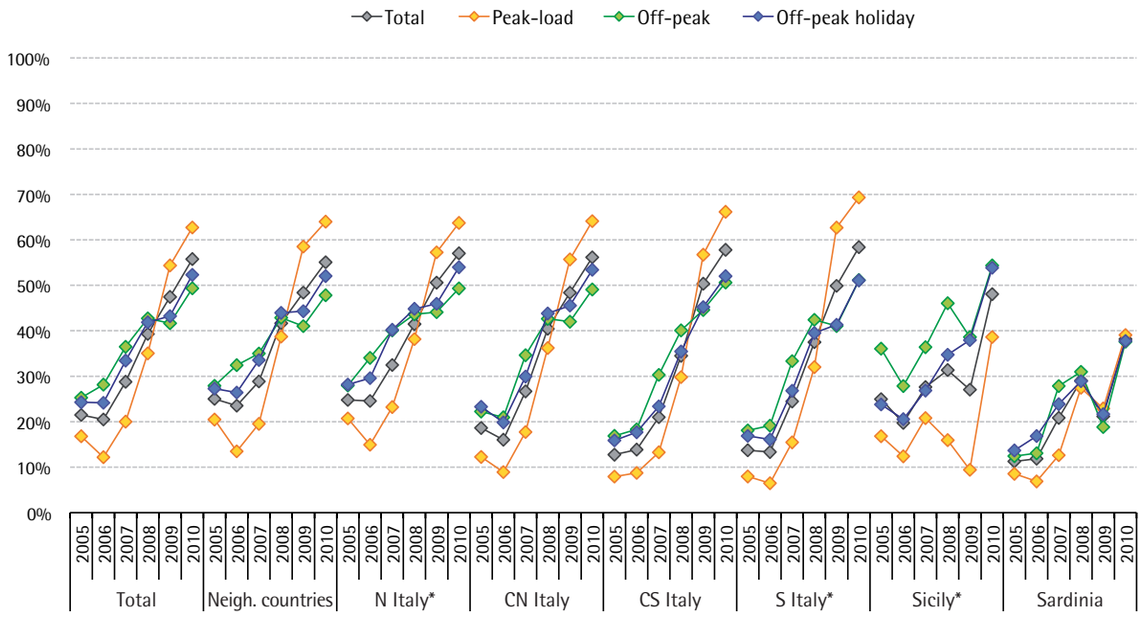
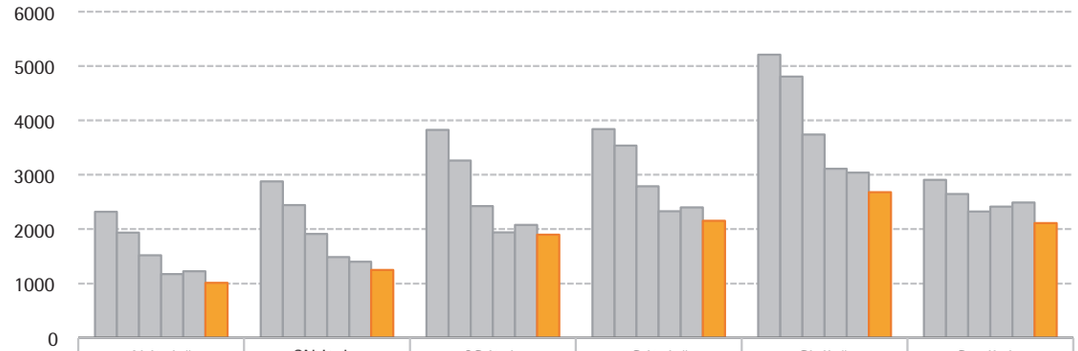


Fig C.2.31 **HHI for purchases in the MGP**



	N Italy*	CN Italy	CS Italy	S Italy*	Sicily*	Sardinia
2005	2321	2880	3825	3838	5208	2908
2006	1934	2445	3264	3538	4805	2645
2007	1518	1913	2424	2789	3742	2326
2008	1174	1488	1943	2330	3109	2416
2009	1226	1402	2078	2402	3038	2492
2010	1010	1249	1898	2155	2682	2111

CR3 in the different markets Tab C.2.25

		MGP		MA		MI1		MI2		MSD	
		Sales	Purchases	Sales	Purchases	Sales	Purchases	Sales	Purchases	Sales	Purchases
Total	**2010**	**52%**	**54%**			**87%**	**86%**	**84%**	**84%**	**65%**	**50%**
	2009	52%	59%	89%	85%	88%	85%	85%	83%	66%	56%
	2008	53%	56%	93%	92%					79%	51%
	2007	53%	61%	95%	95%					83%	65%
	2006	56%	62%	96%	96%					89%	74%
	2005	58%	64%	95%	93%					97%	86%
N Italy*	**2010**	**52%**	**46%**			**91%**	**85%**	**90%**	**85%**	**60%**	**45%**
	2009	50%	52%	91%	88%	89%	87%	91%	87%	71%	53%
	2008	51%	50%	92%	91%					72%	48%
	2007	51%	56%	94%	95%					82%	64%
	2006	50%	58%	95%	95%					86%	68%
	2005	54%	60%	93%	91%					96%	81%
CN Italy	**2010**	**84%**	**53%**			**97%**	**94%**	**92%**	**87%**	**100%**	**99%**
	2009	86%	56%	95%	87%	97%	98%	92%	96%	100%	99%
	2008	89%	57%	99%	99%					100%	99%
	2007	91%	61%	100%	100%					100%	100%
	2006	93%	62%	100%	100%					100%	100%
	2005	94%	66%	100%	100%					100%	100%
CS Italy	**2010**	**75%**	**65%**			**96%**	**97%**	**94%**	**97%**	**85%**	**86%**
	2009	72%	68%	99%	97%	96%	99%	95%	97%	93%	86%
	2008	86%	68%	99%	98%					100%	100%
	2007	87%	69%	99%	99%					100%	100%
	2006	90%	71%	99%	100%					100%	100%
	2005	91%	74%	100%	100%					100%	100%
S Italy*	**2010**	**62%**	**67%**			**77%**	**95%**	**83%**	**89%**	**76%**	**66%**
	2009	66%	72%	83%	97%	82%	97%	88%	92%	76%	76%
	2008	61%	71%	98%	97%					89%	77%
	2007	65%	71%	98%	96%					98%	92%
	2006	75%	72%	98%	98%					99%	99%
	2005	88%	75%	99%	99%					100%	100%
Sicily*	**2010**	**89%**	**76%**			**97%**	**93%**	**94%**	**90%**	**100%**	**100%**
	2009	84%	80%	94%	90%	96%	99%	97%	97%	100%	100%
	2008	83%	80%	93%	92%					100%	100%
	2007	85%	79%	93%	95%					100%	100%
	2006	90%	83%	95%	98%					100%	100%
	2005	89%	87%	95%	97%					100%	100%
Sardinia	**2010**	**97%**	**71%**			**98%**	**96%**	**93%**	**94%**	**100%**	**100%**
	2009	98%	79%	98%	94%	98%	94%	97%	93%	100%	100%
	2008	81%	75%	95%	99%					90%	97%
	2007	94%	74%	100%	100%					100%	100%
	2006	94%	74%	100%	100%					100%	100%
	2005	96%	79%	100%	100%					100%	100%

2.3 INTRA-DAY MARKET (MI)

The Intra-Day Market (MI) took off beginning on 31 Oct. 2009, in compliance with Law 02/2009, and replaced the Adjustment Market (MA). The Intra-Day Market takes place on the day preceding the day to which supply offers and demand bids refer and in the period between the closing of the MGP and the opening of the MSD. In 2010 it consisted of two sessions (MI1 and MI2), organised in the form of implicit auctions through which participants can better control the status of power plants and update the withdrawal schedules of consuming units, taking into account the most recent information about the status of their plants, the electricity requirements for the following day and market conditions.

With the introduction of the MI, electricity trades aimed at updating commercial positions in the MGP, equal to 14.6 million MWh, in 2010 reached an all-time high. In the two sessions of the MI, prices were almost perfectly aligned a few cents below the average purchasing price of the MGP.

2.3.1 Prices

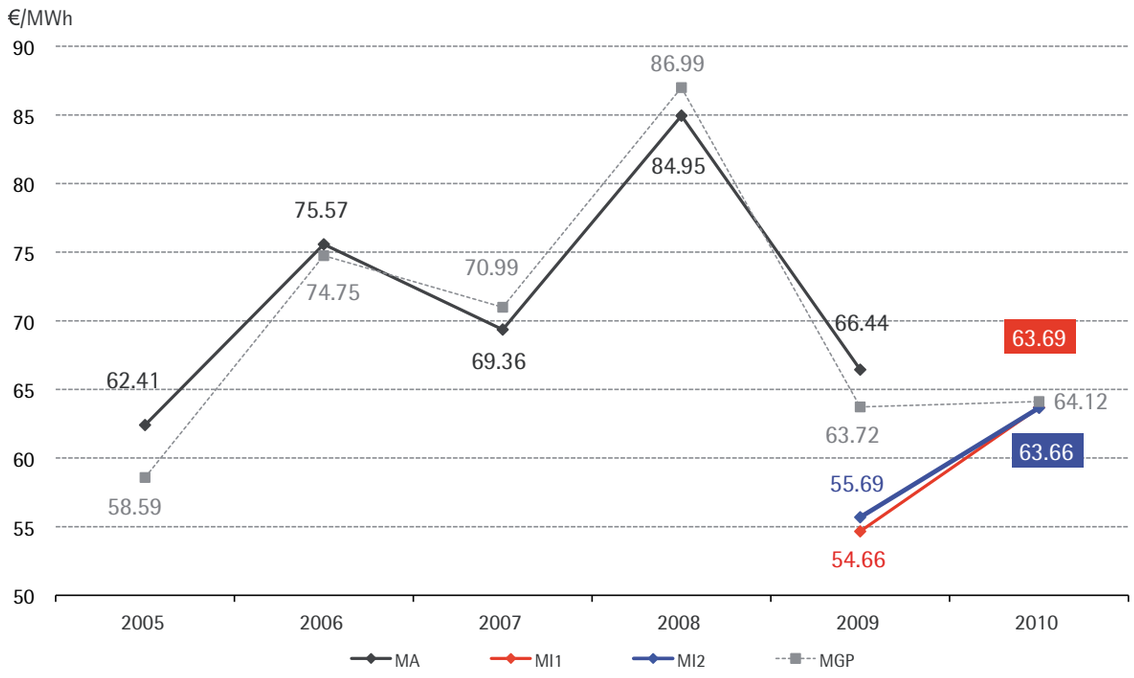
In 2010 the two sessions of the Intra-Day Market, on average, did not register any significantly different prices in the various hourly bands (base load, peak-load and off-peak hours). The average price weighted for the MI1 purchases was by some cents above the MI2 one, which, however showed a slightly higher volatility (Table C.2.26). The average base-load price of the MI1 and MI2, equal to 63.69 and 63.66 €/MWh respectively, was also lower than the similar price recorded in the MGP (64.12 €/MWh) (Fig.C.2.32).

The comparison with the previous year is not very significant, both in the level and in the volatility of prices; in 2009, the Intra-Day Market only operated in the last two months, replacing, as recalled above, the Adjustment Market. However, it must be pointed out that the average prices recorded in the MI in 2010 were lower than those of the MA in the four previous years (Fig.C.2.32).

Tab C.2.26 **Purchasing price (€/MWh)**

	2010				2009					
	January - December				January - October		November - December			
	MI1		MI2		MA		MI1		MI2	
	Average	IVR	Average	IVR	Average	IVR	Average	IVR	Average	IVR
Base-load	**63.69**	**0.17**	**63.66**	**0.19**	**66.44**	**0.20**	**54.66**	**0.20**	**55.69**	**0.21**
Peak-load	73.44	0.17	73.36	0.19	82.11	0.20	68.65	0.20	69.09	0.20
Off-peak	56.96	0.17	56.42	0.19	55.25	0.19	46.29	0.19	46.92	0.20

Purchasing price: yearly trend (€/MWh) Fig C.2.32



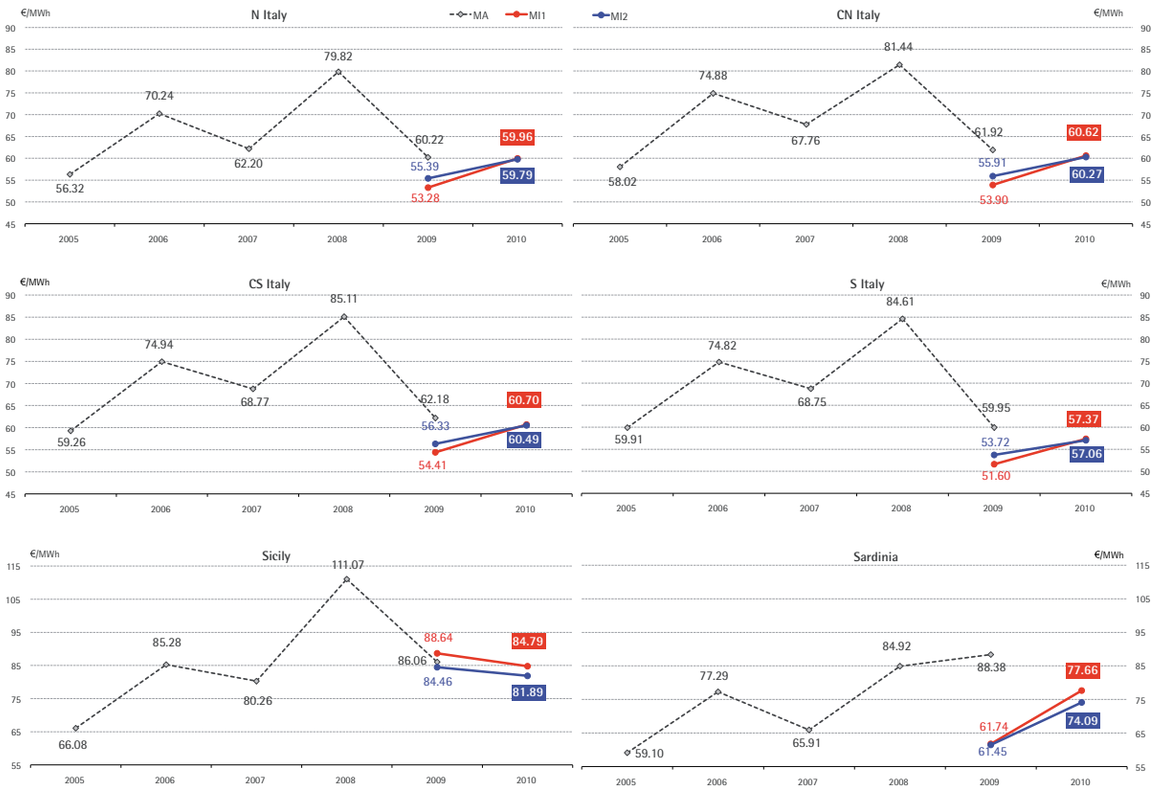
Also at zonal level, and in particular for continental geographical zones, the average prices of the MI1 were a few cents above those of the MI2; in the two islands, instead, the price delta between the two sessions was about 3 €/MWh. The ranking of zonal prices - exactly the same as that of the zonal prices of the MGP - saw, in both sessions, southern Italy on the lowest level, a few cents above 57 €/MWh, and Sicily on the highest level, well beyond 80 €/MWh (Table C.2.27).

The two islands showed greater price volatility as against continental zones. In all the zones, except Sardinia, price volatility of the MI2 session was slightly higher than the one of the MI1 (Table C.2.27 and Fig.C.2.33).

Zonal prices: yearly summary Tab C.2.27

	2010				2009					
	January - December				January - October		November - December			
	MI1		MI2		MA		MI1		MI2	
	Average	IVR	Average	IVR	Average	IVR	Average	IVR	Average	IVR
N Italy	59.96	0.16	59.79	0.18	60.22	0.20	53.28	0.20	55.39	0.21
CN Italy	60.62	0.17	60.27	0.18	61.92	0.22	53.90	0.21	55.91	0.22
CS Italy	60.70	0.18	60.49	0.19	62.18	0.22	54.41	0.22	56.33	0.22
S Italy	57.37	0.17	57.06	0.18	59.95	0.22	51.60	0.22	53.72	0.22
Sicily	84.79	0.37	81.89	0.40	86.06	0.30	88.64	0.31	84.46	0.31
Sardinia	77.66	0.37	74.09	0.32	88.38	0.44	61.74	0.43	61.45	0.43

Fig C.2.33 **Zonal prices in the MA**



2.3.2 Volumes

In 2010, in the two sessions of the Intra-Day Market, 14.6 million MWh were traded, with a 22.5% increase compared with the 11.9 million MWh traded in 2009 in the Adjustment Market, in the first ten months, and in the Intra-Day Market in the last two. The introduction of the two sessions of the MI, therefore, drove the electricity trades aimed at updating the commercial positions held in the MGP to their all-time high (Table C.2.28, Table C.2.29 and Fig.C.2.34). Hence the share of volumes of the MI vs. the MGP rose to 4.6% (3.8% in the previous year).

If in the two sessions of the MI prices were tendentially aligned, the volumes traded in the MI1, amounting to 9.5 million MWh, accounted for a little less than 2/3 of overall volumes; the remaining 5.1 million MWh were traded in the MI2.

At zonal level the most significant growth, in percentage terms, was recorded in southern Italy, in Sicily and in the neighbouring countries' zones, both on the supply side and on the demand one, and in Sardinia on the demand side.

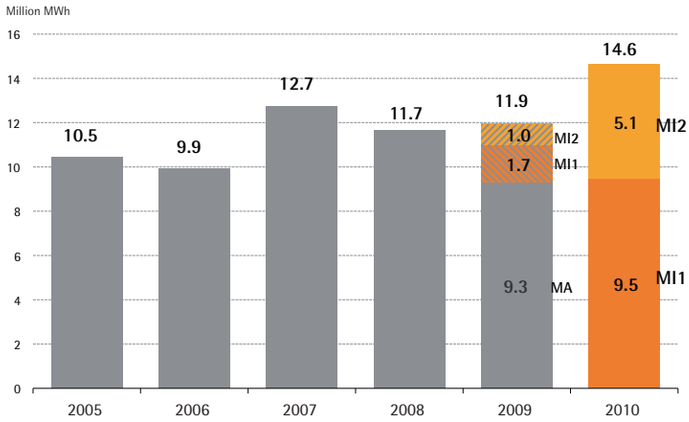
Tab C.2.28 **Sold volumes**

	2010			2009				Change
	January - December			*January - October*	*November - December*		*January - December*	
MWh	**MI1**	**MI2**	**Total**	**MA**	**MI1**	**MI2**	**Total**	**Total**
N Italy	5,416,730	2,974,448	8,391,178	5,166,349	959,231	542,929	6,668,509	*25.8%*
CN Italy	739,842	377,605	1,117,447	737,083	132,928	84,796	954,807	*17.0%*
CS Italy	949,592	617,728	1,567,320	1,572,868	182,399	115,391	1,870,657	*-16.2%*
S Italy	889,510	633,219	1,522,730	749,944	164,531	117,100	1,031,575	*47.6%*
Sicily	1,064,012	366,160	1,430,172	652,761	127,143	51,053	830,957	*72.1%*
Sardinia	389,971	172,970	562,941	406,039	108,674	41,833	556,546	*1.1%*
Italy	**9,449,657**	**5,142,130**	**14,591,787**	**9,285,043**	**1,674,904**	**953,103**	**11,913,050**	**22.5%**
Neigh.countries	15,785	7,331	23,116	16,509	881	333	17,723	*30.4%*
Total	**9,465,442**	**5,149,461**	**14,614,903**	**9,301,552**	**1,675,786**	**953,436**	**11,930,774**	**22.5%**

Purchased volumes Tab C.2.29

	2010			2009				Change
	January - December			*January - October*	*November - December*		*January - December*	
MWh	MI1	MI2	Total	MA	MI1	MI2	Total	Total
N Italy	4,685,718	2,814,808	7,500,526	5,024,106	813,374	552,317	6,389,796	*17.4%*
CN Italy	708,269	322,599	1,030,868	608,757	231,609	67,744	908,110	*13.5%*
CS Italy	779,434	698,534	1,477,967	917,712	153,846	127,694	1,199,252	*23.2%*
S Italy	2,057,212	694,699	2,751,911	1,721,512	273,338	116,896	2,111,747	*30.3%*
Sicily	598,480	360,657	959,137	571,130	91,657	47,040	709,827	*35.1%*
Sardinia	471,204	192,866	664,070	323,892	86,761	41,730	452,383	*46.8%*
Italy	**9,300,316**	**5,084,163**	**14,384,479**	**9,167,108**	**1,650,586**	**953,421**	**11,771,115**	**22.2%**
Neigh.countries	165,126	65,298	230,424	134,444	25,200	15	159,659	*44.3%*
Total	**9,465,442**	**5,149,461**	**14,614,903**	**9,301,552**	**1,675,786**	**953,436**	**11,930,774**	**22.5%**

Volumes traded in the MA Fig C.2.34



The principal participants of the Intra-Day Market were the owners of injection points, whose purpose, as previously indicated, is to modify the generating schedules defined in the MGP. The owners of withdrawal points (wholesalers), admitted to the MA only beginning on 1 Jan. 2009, predominantly traded on the demand side. Their sales, like in the previous year, only accounted for 0.8% of the total sales, whereas the share of purchases stood at 4.2% (4.4% in 2009) (Fig.C.2.35).

Electricity trades in the MI primarily brought about a decrease of the generating schedules of the units of southern Italy and an increase of the schedules of the units of northern Italy and Sicily. The national zones recorded much lower variations. Trades in the neighbouring countries' zones caused generation to mount by 24 MWh on average per hour. The analysis by type of plant infers that combined-cycle and hydro generation replaced thermal and coal generation (Fig.C.2.36).

Sales and purchases, by type of plant Fig C.2.35

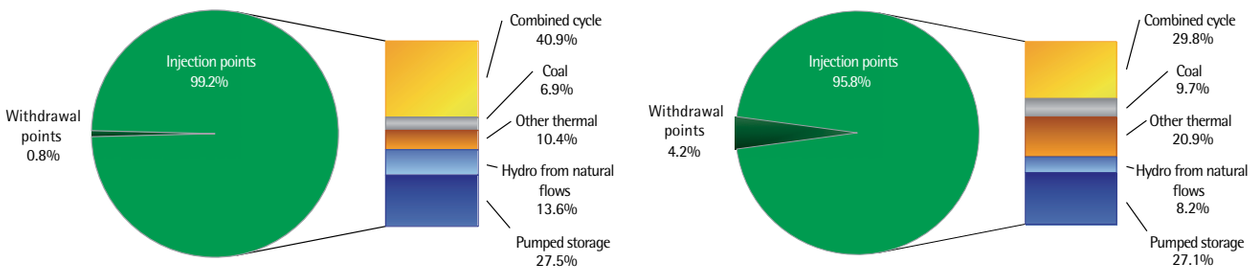
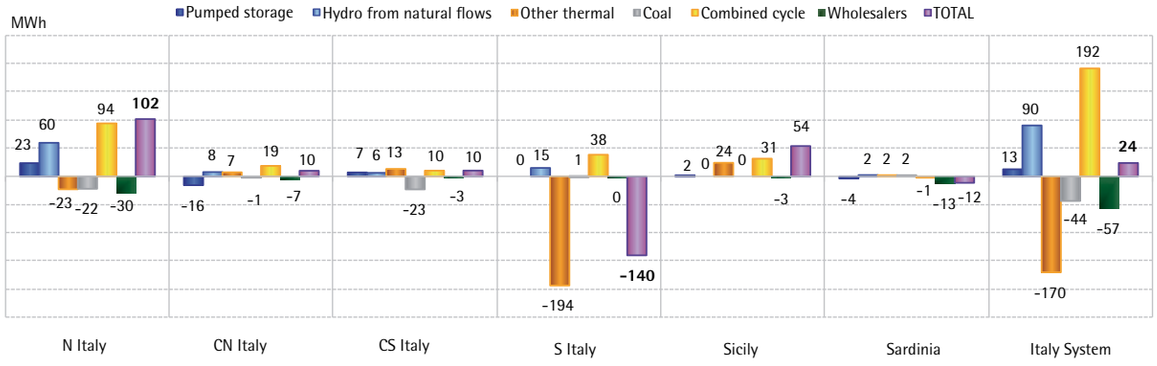


Fig C.2.36 **Balance of sales/purchases, by type of plant. Hourly average**



2.4 ANCILLARY SERVICES MARKETS (MSD)

The Ancillary Services Markets is the instrument where Terna S.p.A. procures the necessary resources to manage and control the system.

The MSD consists of a scheduling stage (ex-ante MSD) and of a Balancing Market (MB).

In the ex-ante MSD, supply offers and demand bids are selected for the applicable periods of the calendar day following the one in which the market sitting closes. Terna accepts electricity supply offers and demand bids to procure reserve, solve congestions, and balance injections with withdrawals on the grid.

The Balancing Market (MB) is the venue for selecting supply offers and demand bids for the applicable periods of the day of operation of the MB; it takes place in multiple sessions where Terna accepts electricity supply offers and demand bids in order to perform the secondary regulation service and balancing electricity injections with withdrawals in real time.

In 2010, Terna on the one hand sharply reduced its purchases in the ex-ante MSD, and, on the other, increased the already conspicuous sales of 2009, thus setting a record on both sides.

2.4.1 EX-ANTE MSD

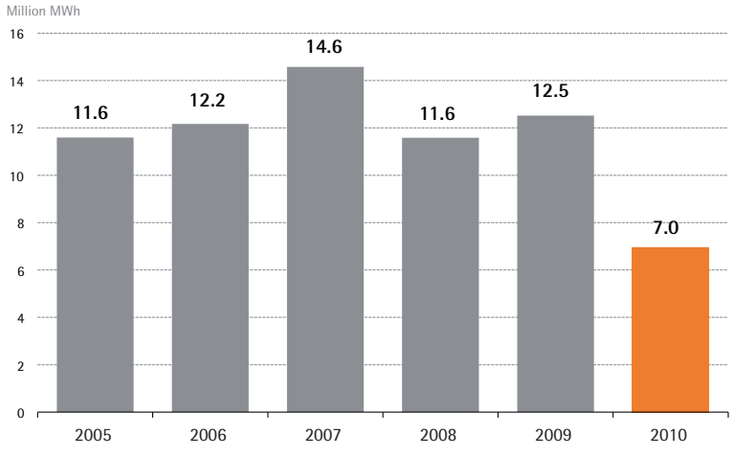
In 2010 in the ex ante MSD up, Terna purchased 7.0 million MWh (equal to 794 MWh on average per hour) down by 44.4% on 2009 and equal to 2.2% of the purchases in the MGP (vs. 4.0% in the previous year). At zonal level the decline in Terna's purchases ranged between -24.8% of Sicily and -64.4% of central-southern Italy (Table C.2.30).

The trend of the yearly series gives evidence of the sharp contraction in the volumes bought by Terna in the ex-ante MSD in 2010, decreasing to the lowest level since the start of the market, after fluctuating, in previous years, around 12 million MWh, with a peak at 14.6 million MWh in 2007 (Fig.C.2.37).

Volumes traded in the ex-ante MSD up Tab C.2.30

MWh	2010 Total	2010 Hourly Avg	2010 % of total	2010 Share/MGP	2009 Total	2009 Hourly Avg	2009 % of total	2009 Share/MGP	Change %
N Italy	1,962,572	224	28.2%	1.1%	3,210,126	366	25.6%	1.9%	*-38.9%*
CN Italy	695,620	79	10.0%	2.0%	1,335,907	153	10.7%	4.0%	*-47.9%*
CS Italy	944,125	108	13.6%	1.9%	2,655,547	303	21.2%	5.3%	*-64.4%*
S Italy	1,186,942	135	17.1%	4.6%	1,896,181	216	15.1%	7.3%	*-37.4%*
Sicily	1,273,152	145	18.3%	6.4%	1,692,832	193	13.5%	8.6%	*-24.8%*
Sardinia	893,473	102	12.8%	7.6%	1,728,430	197	13.8%	14.6%	*-48.3%*
Italy	**6,955,884**	**794**	**100.0%**	**2.2%**	**12,519,023**	**1,429**	**100.0%**	**4.0%**	**-44.4%**

Volumes traded in the ex-ante MSD up Fig C.2.37



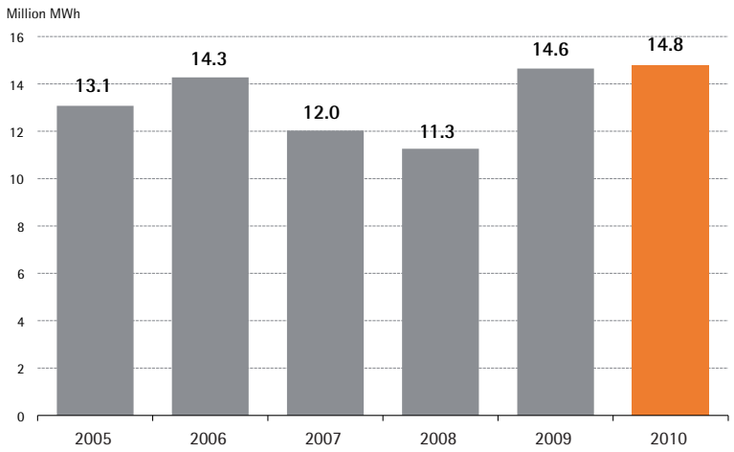
In 2010, in the ex-ante MSD down, Terna sold 14.8 million MWh (1,689 MWh on average per hour) with a 1.0% increase on the previous year. The volumes sold in the MSD accounted for 4.6% of those traded in the MGP (vs. 4.7% in 2009). At zonal level, a robust growth in southern Italy (+44.4%) and in central-northern Italy (+22.2%) was recorded; the increase of northern Italy (+1.0%) was lower, the other zones declined, Sardinia stood out (-73.1%) (Table C.2.31).

The trend of the yearly series highlights that the volumes sold by Terna in the ex-ante MSD in 2010 recorded for the second year in a row an absolute maximum value (Fig.C.2.38).

Volumes traded in the ex-ante MSD down Tab C.2.31

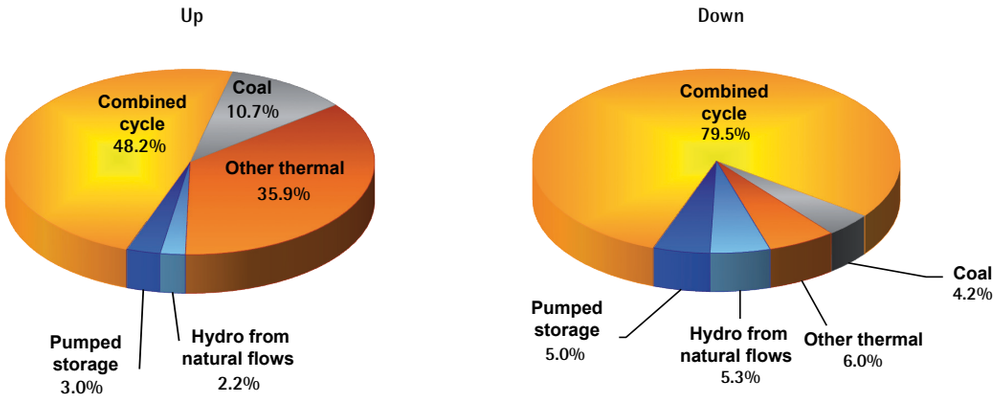
MWh	2010 Total	2010 Hourly Avg	2010 % of total	2010 Share/MGP	2009 Total	2009 Hourly Avg	2009 % of total	2009 Share/MGP	Change %
N Italy	8,663,769	989	58.5%	5.0%	8,581,229	980	58.6%	5.1%	*1.0%*
CN Italy	408,683	47	2.8%	1.2%	334,422	38	2.3%	1.0%	*22.2%*
CS Italy	1,053,568	120	7.1%	2.1%	1,141,573	130	7.8%	2.3%	*-7.7%*
S Italy	3,099,246	354	20.9%	12.1%	2,146,715	245	14.7%	8.2%	*44.4%*
Sicily	1,262,157	144	8.5%	6.3%	1,288,017	147	8.8%	6.5%	*-2.0%*
Sardinia	310,611	35	2.1%	2.6%	1,153,305	132	7.9%	9.7%	*-73.1%*
Italy	**14,798,034**	**1,689**	**100.0%**	**4.6%**	**14,645,260**	**1,672**	**100.0%**	**4.7%**	**1.0%**

Fig C.2.38 **Volumes traded in the ex-ante MSD down**



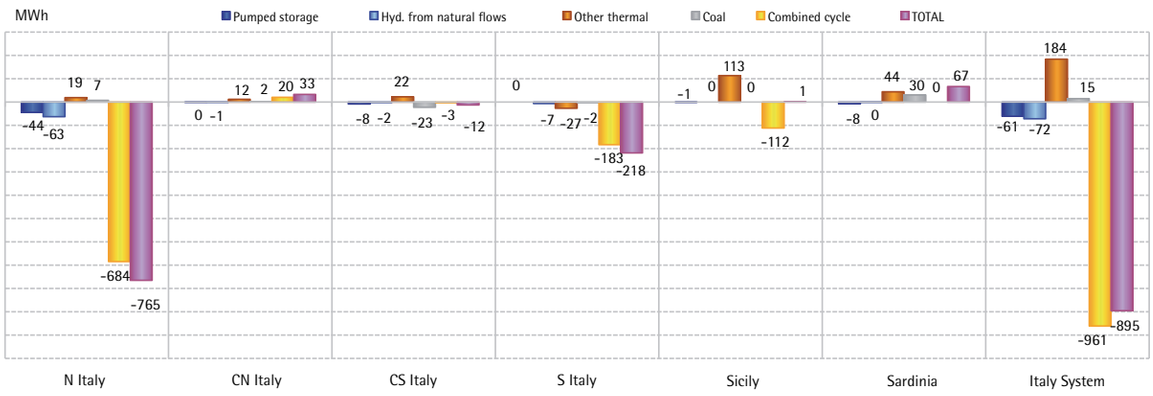
In relation to the type of plants, in 2010 an increase was registered in the share of purchases by Terna in the ex-ante MSD up from combined-cycle plants, climbing up to 48.2% (vs. 46.3% in 2009 and 32.2% in 2008). Also the percentage of coal was up to 10.7% (7.2% in 2009). Terna's purchases from conventional thermal plants plummeted, down to 35.9% (vs. 38.9% in 2009 and 57.5% in 2008).
Also Terna's sales in ex-ante MSD down, which, it is worth recalling, causes a reduction in the generating schedules, recorded a strong increase of the share of combined cycles, up to 79.5% from 67.1% in 2009. The shares of all the other plants went down (Fig.C.2.39).

Fig C.2.39 **Volumes traded in the ex-ante MSD, by type of plant**



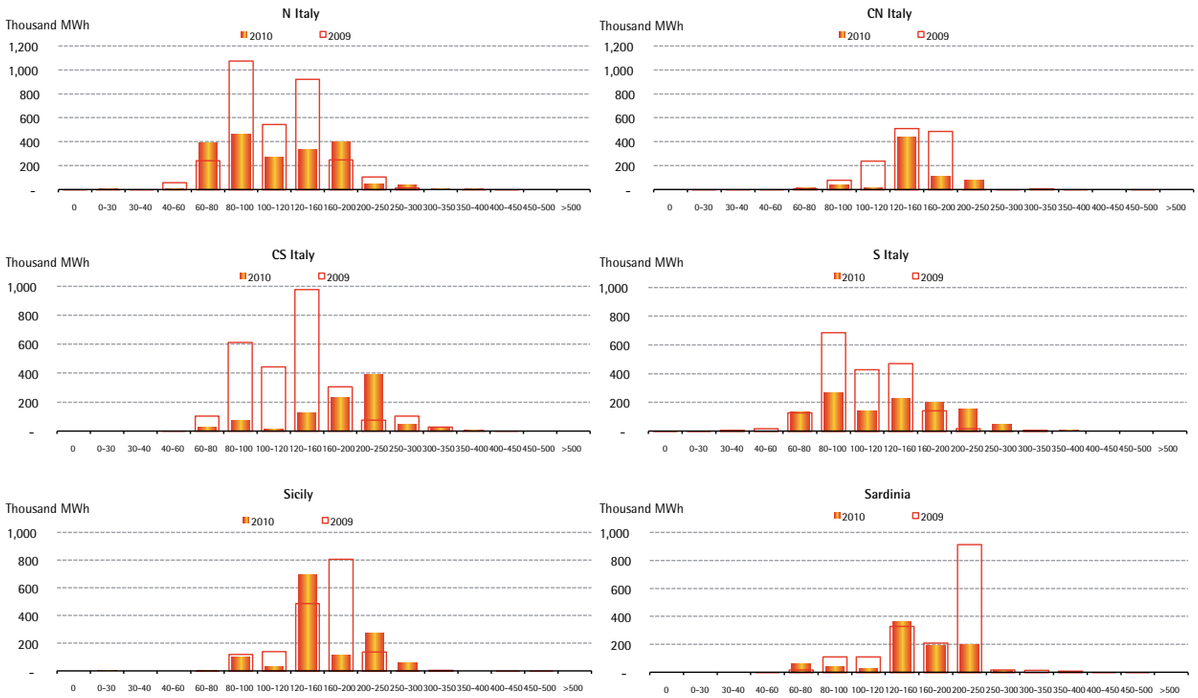
Overall, in the ex-ante MSD, the sales of Terna exceeded the purchases, on average per hour, by 895 MWh, reducing the generation by combined-cycle plants in northern Italy, and, to a lesser extent, of southern Italy and Sicily (Fig.C.2.40).

Balance of sales/purchases by Terna in the ex-ante MSD, by type of plant. Hourly average Fig C.2.40



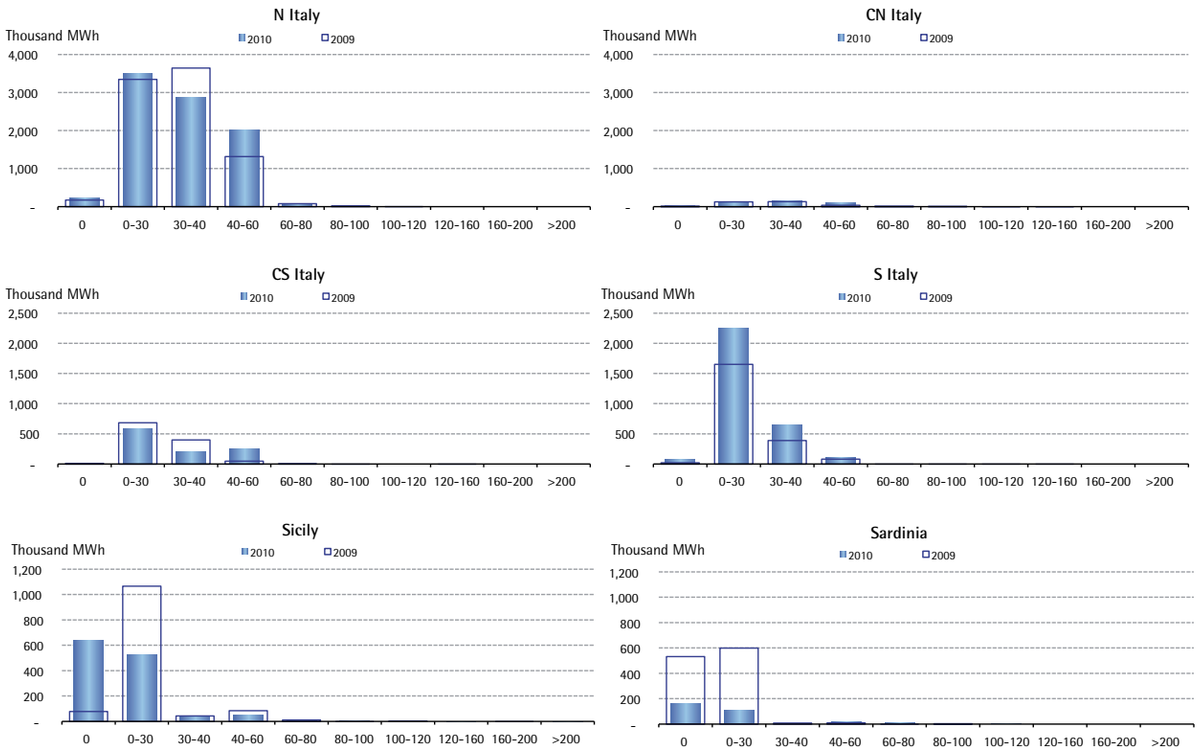
Under the remuneration rules of bids/offers adopted in the MSD (see Chapter B.1.2) no key price may be computed, as is the case for the other markets operated by GME. Nonetheless, in order to provide a summary representation of the structure of prices, please find below the function of distribution of the volumes accepted in the ex-ante MSD by class of offered price. The distribution of volumes bought by Terna in 2010 by class of price displays, in particular in continental zones, a decrease of the volumes in the classes from 80 to 160 €/MWh (Fig.C.2.41).

Volumes in the ex-ante MSD up, by price class Fig C.2.41



The distribution of volumes sold by class of price showed considerable increases of Terna's sales in Sicily in the class 0 €/MWh, in southern Italy in the classes 0-40 €/MWh and in northern Italy in the class 40-60 €/MWh (Fig.C.2.42).

Fig C.2.42 **Volumes in the ex-ante MSD down, by price class**



2.5 ELECTRICITY ACCOUNT REGISTRATION PLATFORM (PCE)

The Electricity Account Registration Platform (PCE) represented an important milestone in the evolution of the electricity market, as it introduced greater flexibility, so that each participant can engage in trading, reselling or repurchasing (depending on its requirements) anything previously purchased/sold on the PCE. The platform is the venue for registration of commercial transactions of purchase/sale concluded off the bidding system (so-called bilateral contracts), the volumes from the Forward Electricity Market (MTE) and the Electricity Derivatives Delivery Platform (CDE) and the related physical injection and withdrawal schedules.

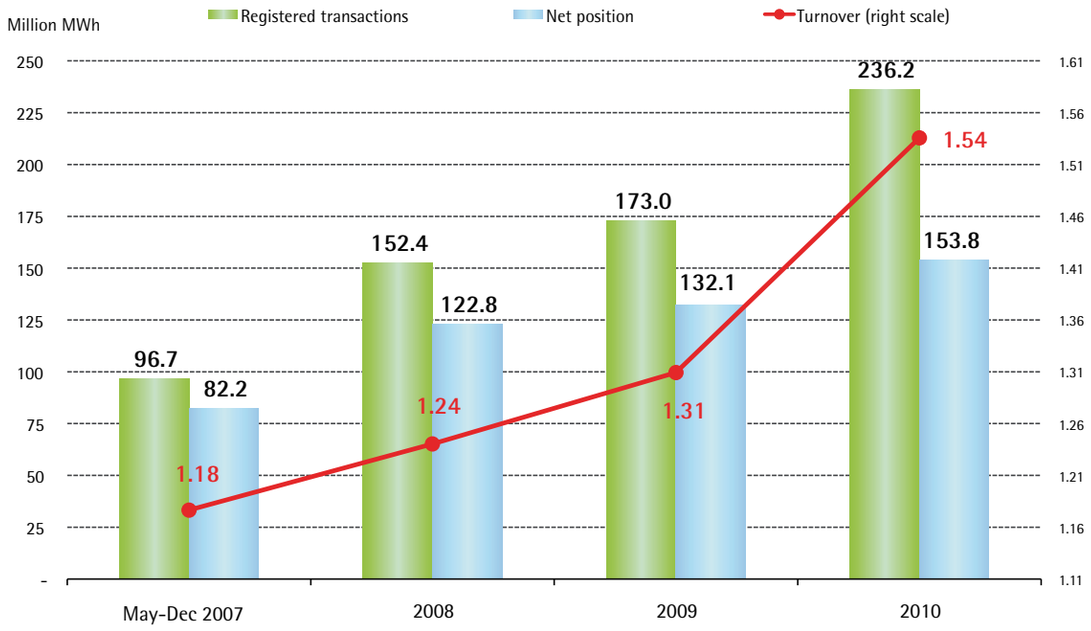
The transactions registered on the PCE, with delivery-making/-taking in the year 2010, overall amounted to 236.2 million MWh with an increase by 36.5% as against the previous year. This considerable performance substantiated and strengthened the clear tendency outlined in the years subsequent to the launch of the PCE in May 2007 (Fig.C.2.43).

All the registered transactions resulted in a net position of forward electricity accounts of 153.8 million MWh, up by 16.4% as against the previous year.

Therefore, the turnover, namely the relationship between registered transactions and net position, under the influence of the former, soared to 1.54 in 2010.

These dynamics testify that the PCE is increasingly and better used by participants as an important flexibility instrument in the management of electricity portfolios (Fig.C.2.43).

Registered transactions, net position and turnover Fig C.2.43



The transactions registered on the PCE, with delivery-making/-taking in the year 2010, predominantly, precisely 235.0 million MWh, originated from bilateral contracts. The Forward Electricity Market (MTE) generated transactions for 1.1 million MWh, whereas only 97,000 MWh derived from the CDE platform (Table C.2.32).

Registered transactions, by type and net position Tab C.2.32

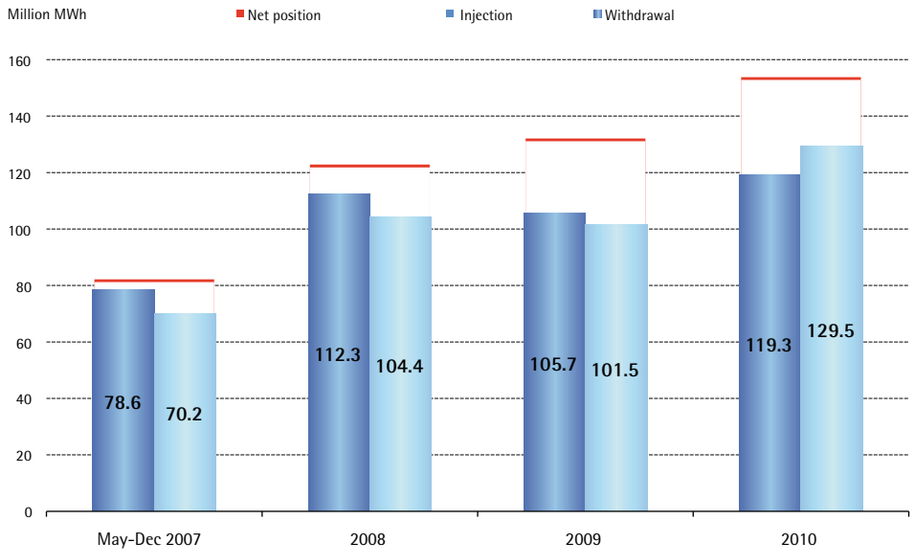
Profile	Number	MWh	*% Change*	*Structure*
Base-load	7,860	72,977,500	101.3%	*30.9%*
Off-peak	1,729	10,376,043	15.2%	*4.4%*
Peak-load	3,071	16,718,071	62.4%	*7.1%*
Week-end	10	12,240	-5.6%	*0.0%*
Total Standard	12,670	100,083,855	80.1%	*42.4%*
Non-Standard	24,598	134,920,843	15.0%	*57.1%*
OTC contracts	**37,268**	**235,004,697**	35.9%	*99.5%*
MTE	49	1,111,303	1272.0%	*0.5%*
CDE	2	97,392	-	*0.0%*
Total PCE	**37,319**	**236,213,392**	**36.5%**	*100.0%*
Net position		**153,805,704**	**16.4%**	*65.1%*

The physical schedules registered on the PCE, after the drop in 2009, gave a clear sign of recovery in 2010. In particular, the physical schedules registered in the injection accounts amounted to 119.3 million MWh (of which 23.9 million MWh with price limit) with a 12.9% increase on 2009. The physical schedules registered in the withdrawal accounts amounted to 129.5 million MWh (all without price limit) and they also recorded a 27.6% growth (Table C.2.33, Fig.C.2.44).

Tab C.2.33 **Registered injection and withdrawal schedules**

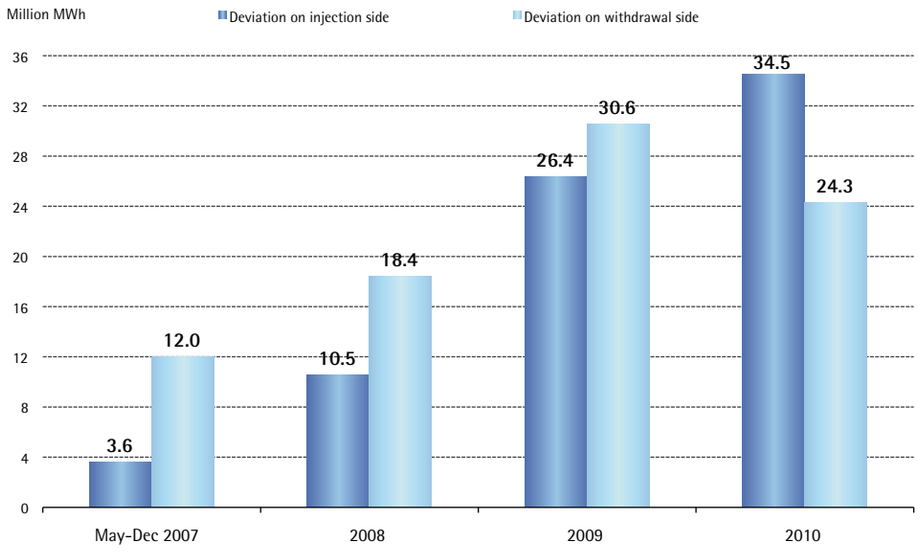
	Injection accounts			Withdrawal accounts		
Profile	Total	Change	Structure	Total	Change	Structure
Base-load	54,801,066	84.7%	29.0%	91,153,935	112.2%	32.2%
Off-peak	7,871,086	-10.9%	4.2%	12,881,000	40.2%	4.5%
Peak-load	14,479,531	45.3%	7.7%	18,956,611	78.3%	6.7%
Week-end	13,800	-30.7%	0.0%	10,680	78.0%	0.0%
Total Standard	77,165,483	59.2%	40.8%	123,002,226	95.9%	43.4%
Non-Standard	111,857,759	17.2%	59.2%	160,401,316	15.2%	56.6%
Registered transactions	**189,023,242**	**31.3%**	**100.0%**	**283,403,542**	**40.2%**	**100.0%**
Net position	**153,805,704**	**16.4%**	**81.4%**	**153,805,704**	**16.4%**	**54.3%**
Schedules						
Requested	121,051,193	12.3%		129,547,883	27.6%	
of which with price limit	*25,280,053*	*219.7%*		*724*	*-68.3%*	
Registered	**119,309,608**	**12.9%**		**129,502,810**	**27.6%**	
of which with price limit	*23,915,905*	*307.3%*		*0*	*-100.0%*	
Rejected	1,741,585	-15.8%		45,073	120.8%	
of which with price limit	*1,364,148*	*-33.0%*		*724*	*128.0%*	
Balance of registered schedules	**198,191**	**-96.3%**		**10,391,394**	**815.0%**	

Fig C.2.44 **Registered physical schedules**



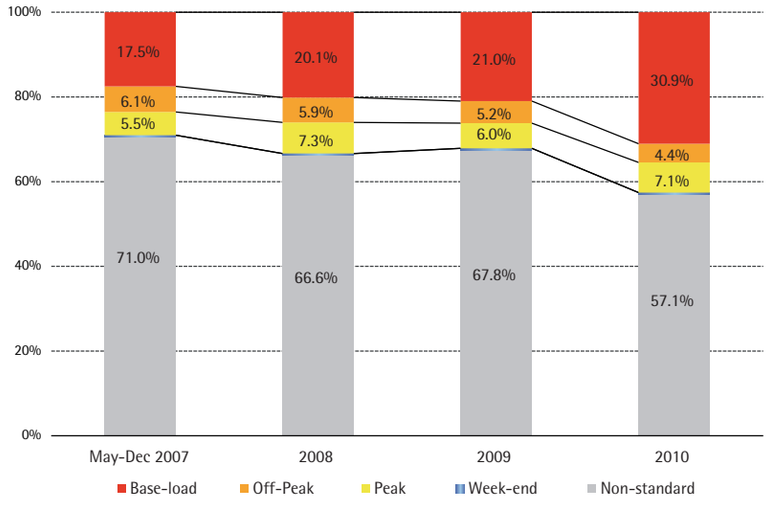
The yearly trend of scheduled deviations gave evidence of the increasing use by participants of this further flexibility instrument (Fig.C.2.45). In particular, the scheduled deviations on the injection side, the highest since the launch of the platform, in 2010 for the first time exceeded those of withdrawal accounts.

Scheduled deviations Fig C.2.45



While non-standard contracts also in 2010 were the most commonly used by participants (57.1% of the total), standard contracts, and among them base-load ones (more than doubled as against one year earlier), displayed a greater growth dynamics (Table C.2.32). The increasing role played by standard contracts signals the trend towards contractual forms similar to those that are more widely used outside the national boundaries.

Structure of registered transactions, by type of contract Fig C.2.46



The following paragraphs deal with some of the characteristics of the contracts registered on the PCE in 2010 – e.g. duration, advance with respect to delivery and type of forward electricity accounts involved - and with the main dynamics at play. Non-standard contracts were mostly used with delivery periods of one week (52.2%). By contrast, standard contracts covered longer delivery periods. In particular, the monthly contracts accounted for 68.9% of the base-load ones and 46.3% of peak-load ones; on the other hand, off-peak contracts with delivery period of 1 week amounted to 74.6% (Table C.2.34). As a whole, the percentage of contracts of short maturity, i.e. shorter than or equal to one week, was down (from 68.5% to 60.2%) whereas the percentage of contracts with longer delivery periods moved in the opposite direction (climbing up from 31.5% to 38.8%). These indicators corroborate and strengthen the trends already emerged in the previous year.

Tab C.2.34 **Registered contracts by duration (%)**

	Duration						
Profile	1 Day	>1 Day	1 Week	>1 Week	1 Month	>1 Month	Total
Base-load	0.5%	3.9%	18.5%	1.8%	68.9%	6.3%	100%
Off-peak	0.4%	11.9%	74.6%	3.5%	9.7%	0.0%	100%
Peak-load	1.7%	14.9%	31.3%	1.7%	46.3%	4.1%	100%
Week-end	5.9%	94.1%	-	-	-	-	100%
Total Standard	0.7%	6.6%	26.5%	2.0%	59.0%	5.3%	100%
Non-Standard	19.8%	7.8%	52.2%	3.1%	15.4%	1.6%	100%
Total	**11.7%**	**7.3%**	**41.3%**	**2.6%**	**34.0%**	**3.2%**	**100%**
	(17.7%)	(8.7%)	(42.1%)	(6.0%)	(24.8%)	(0.7%)	(100.0%)

The values of the previous year are shown between parentheses.

The two types of contracts also differ in a second aspect, as a natural consequence of the first (different duration): non-standard contracts were registered at a time closer to the time of delivery (88.2% 2-5 days before); on the contrary, 56.9% of the standard contracts were registered more ahead of time (more than 5 days ahead). The percentage of contracts registered on the last useful day before delivery fell from 19.2% to 15.2% (Table C.2.35).

Tab C.2.35 **Registered contracts by advance with respect to delivery (%)**

	Advance					
Profile	2 Days	3 Days	4 Days	5 Days	>5 Days	Total
Base-load	5.1%	10.3%	13.3%	4.4%	66.9%	100%
Off-peak	5.4%	40.7%	45.1%	6.2%	2.6%	100%
Peak-load	3.4%	22.8%	22.5%	4.5%	46.8%	100%
Week-end	90.2%	9.8%	-	-	-	100%
Total Standard	4.9%	15.5%	18.1%	4.6%	56.9%	100%
Non-Standard	22.9%	18.6%	37.9%	8.9%	11.8%	100%
Total	**15.2%**	**17.3%**	**29.5%**	**7.1%**	**30.9%**	**100%**
	(19.2%)	(9.1%)	(28.7%)	(14.5%)	(28.4%)	(100.0%)

The values of the previous year are shown between parentheses.

The flexibility offered by the PCE also emerged in the reduction of the share of contracts with a dominantly physical nature, where the seller holds an injection account and the purchaser holds a withdrawal account. This share dropped from 78.6% in 2009 to 67.9% in 2010 to the benefit, above all, of the share of contracts where both counterparties held withdrawal accounts, which went from 18.0% in 2009 to 24.7% (Table C.2.36).

Tab C.2.36 **Registered contracts by types of accounts where they were registered (%)**

	FORWARD ELECTRICITY ACCOUNT: Sells → Buys				
Profile	Inj → With	With → Inj	Inj → Inj	With → With	Total
Base-load	67.3%	1.9%	3.0%	27.9%	100%
Off-peak	53.6%	10.1%	6.0%	30.2%	100%
Peak-load	75.5%	3.1%	4.0%	17.4%	100%
Week-end	73.5%	19.6%	-	6.9%	100%
Total Standard	67.3%	2.9%	3.5%	26.4%	100%
Non-Standard	68.3%	2.6%	5.6%	23.5%	100%
Total	**67.9%**	**2.7%**	**4.7%**	**24.7%**	**100%**
	(78.6%)	(2.2%)	(1.2%)	(18.0%)	(100.0%)

The values of the previous year are shown between parentheses.

2.6 Forward Markets: MTE and CDE

In Italy regulated forward electricity markets - including the physical market (MTE), operated by GME, and the financial market (IDEX), operated by Borsa Italiana - were introduced in November 2008. In 2010, after more than two years of operation (during which a series of adjustments were made in terms of microstructure, functioning of the guarantee system and offered products, aimed at increasing accessibility of these markets for participants), trades had a growing, albeit limited, trend, amounting to about 21.7 TWh when considering the two markets together.

In parallel, although the economic cycle was characterised by a moderate volatility of prices, the volumes of forward transactions on OTC platforms soared. In the course of 2010, these volumes reached the same levels as those recorded in the underlying spot market[12].

Volumes of electricity traded in Italy in 2010 (data in TWh) Tab C.2.37

MARKETS	Volumes
Spot Market	**318.6**
Forward Market	321.7
of which	
MTE	*6.3*
IDEX	*15.4*
*OTC**	*300*

** Estimate based on the data from the main European brokers*
Source: GME, Borsa Italiana and European brokers.

The growth of OTC markets is partly due to historical reasons, as they were established a few years before their corresponding regulated markets, and partly to structural factors, pertaining to the operating modes of the markets. Actually, the main brokerage platforms only provide participants with an instrument to enter and display selling and/or purchasing prices, thus favouring the matching of demand and supply. The counterparties, however, are required to agree on the main clauses with respect to the execution, the timing of payments and any terms for the provision of the required guarantees by the purchaser. Contracts are thus managed vey similarly to traditional bilateral contracts, whereby they are perceived by participants as less burdensome both from a technical and a cost standpoint, as they do not need a dedicated trading structure and daily monitoring of positions to address any necessary margin (cash) adjustment in case of adverse price movements. A similar approach also has its drawbacks in terms of credit-risk management, which proves less efficient than the standards offered by regulated markets.

2.6.1 Trend of trades in the MTE

After two years in which the volumes traded in the MTE had remained at maximum 0.2 TWh, during 2010 trades exceeded 6 TWh. A low figure, if assessed against the size of the spot market, accounting for about 2% of this market, and the more so if compared with the volumes traded in the foreign forward regulated markets. This growth, albeit low with respect to the size of the spot market, constitutes an important sign of vitality of the market, that today gathers nearly half of the volumes exchanged in the financial market IDEX (15.4 TWh), and exhibits an important countertrend as against the 2.6% drop recorded by the latter. The greater access to the market for participants was spurred, starting from November 2009, by the important novelties introduced in the

12 Source: data from the main European brokers.

MTE, ranging from the extension of offered contracts, with the addition of quarterly and yearly (both base-load and peak-load) ones, to the introduction of a margining system to partially cover the positions held based on bank guarantees and/or cash, integrated with the other markets managed by GME. Some development potentials remain, however, which have not yet been fully exploited for a variety of reasons which may be summarised as follows:

- the market is relatively young and took off later than the other main platforms offering similar products;
- the main changes to the microstructure, in particular the reduction of margins[13], have been at play for a few months and their beneficial effects on liquidity could not yet be felt;
- the MTE, subject to dispatching rules as laid down in the regulations in force, is restricted to the participants entitled to register contracts on the PCE and therefore has a merely physical nature[14]; as a result access is easier for financial operators, who are known to provide a considerable contribution in terms of liquidity;
- the market is still poorly integrated with the main negotiating systems used by traders, which favour trading on multiple national markets simultaneously, also for the purpose of exploiting any arbitrage opportunities that may arise.

The participants which concluded contracts in the MTE amounted to 8 and on a monthly basis a certain volatility was observed in the activity levels: the highest values were recorded in the months of February (119 transactions), March and July (75 transactions), whereas in January and June no trades occurred (see Table C.2.38).

Tab C.2.38 **Trend of trades in the MTE**

Period	Volumes		Transactions	No. Active participants		
Month	No. of contracts	Total (MWh)	No.	Purchase	Sale	Total
Jan-10	0	0	0	0	0	0
Feb-10	297	437,260	119	5	5	6
Mar-10	302	549,592	75	4	5	7
Apr-10	83	35,222	25	2	2	4
May-10	221	555,114	31	3	3	6
Jun-10	0	0	0	0	0	0
Jul-10	905	2,387,975	75	2	4	5
Aug-10	10	2,640	1	1	1	2
Sep-10	240	1,425,185	18	2	4	6
Oct-10	1	780	1	1	1	2
Nov-10	237	730,176	11	2	4	5
Dec-10	70	161,500	4	1	2	3
Total	**2,366**	**6,285,444**	**360**	**8**	**7**	**8**
Jan-11	55	113,850	3	2	1	3
Feb-11	610	560,005	23	2	9	10
of which OTCs						
Feb-11	380	235,640	6	1	5	6

13 For further details on this aspect, please refer to para. 2.6.2

14 In order to register contracts on the PCE, evidence must be provided as to the entitlement to submit offers/bids for physical injection and/or withdrawal points.

In terms of volumes, if in the first half of the year the activity concentrated on shorter maturities, starting from July a shift took place towards contracts with yearly delivery period and the underlying volumes increased at each individual transaction. This is partly due to seasonal factors, as the time is approaching when participants begin to procure (consumption side) electricity and to allocate (supply side) the production of the following year, and partly to the decrease of the margins required in the MTE, which obviously have a greater impact on contracts with longer delivery period. Please note that in July alone about 2.4 TWh were traded, accounting for 38% of overall yearly volumes (see Table C.2.39).

At the beginning of 2011, the first two months recorded 26 transactions, a total of 0.673 TWh (+54.1% on a tendential basis) which, similarly to what had occurred in the same period of the previous year, concentrated on monthly and quarterly contracts.

The main trends emerged with reference to the use of the MTE by participants may be summarised as follows:

- in line with any reasonable expectations for a physical market, the absence of the component of pure trading, with the exception of the months of February and March, can be noted, not just for contracts with short maturity, but also for yearly, both base-load and peak-load, contracts (see Table C.2.40);
- signs are emerging which apparently are indicative of participants becoming increasingly more aware of the importance of a proper management of the counterparty risk. In February 2011, for the first time since MTE has become operational, six OTC transactions, totalling 0.235 TWh, were registered for clearing and settlement purposes;
- on average the advance of the transactions registered in the MTE with respect to the start of the delivery period of traded contracts ranged from minimum 1 (August and December) to maximum 3.8 months (May). Conversely, the value of this indicator, in the first two months of 2011 rose to 5 in January and 4.7 in February. These figures apparently confirmed the extension of the reference maturity of market participants.

Trend of trades in the MTE by trading period Tab C.2.39

Period	Monthly contracts			Quarterly contracts			Yearly contracts			Advance*
Month	No. of trans.	No. of contracts MW	Total MWh	No. of trans.	No. of contracts MW	Total MWh	No. of trans.	No. of contracts MW	Total MWh	Months
Jan-10	0	0	0	0	0	0	0	0	0	-
Feb-10	23	100	52,720	93	182	253,140	3	15	131,400	3.2
Mar-10	22	137	41,064	47	129	193,168	6	36	315,360	2.8
Apr-10	19	67	16,884	6	16	18,338	0	0	0	1.8
May-10	17	108	55,080	6	53	87,234	8	60	412,800	3.8
Jun-10	0	0	0	0	0	0	0	0	0	-
Jul-10	44	520	247,820	12	175	300,555	19	210	1,839,600	3.3
Aug-10	1	10	2,640	0	0	0	0	0	0	1
Sep-10	8	60	17,585	0	0	0	10	180	1,407,600	2.7
Oct-10	0	0	0	1	1	780	0	0	0	6
Nov-10	0	0	0	2	7	12,576	9	230	717,600	2.5
Dec-10	0	0	0	3	60	73,900	1	10	87,600	1
Total 2010	**134**	**1,002**	**433,793**	**170**	**623**	**939,691**	**56**	**741**	**4,911,960**	
Jan-11	0	0	0	3	55	113,850	0	0	0	5
Feb-11	10	460	293,470	13	150	266,535	0	0	0	4.7
of which OTCs										
Feb-11	6	380	235,640	0	0	0	0	0	0	1

* Average time lag (weighted for the number of transactions) between the trading month and the month of the beginning of the delivery period

Tab C.2.40 **MTE: evolution of traded volumes and positions opened in yearly contracts (delivery 2011)**

	No. of base-load contracts			No. of peak-load contracts		
	Traded*	Pos. open#	Ratio**	Traded*	Pos. open#	Ratio**
Jan-10	0	0	-	0	0	-
Feb-10	15	15	1.00	0	0	-
Mar-10	51	51	1.00	0	0	-
Apr-10	51	51	1.00	0	0	-
May-10	91	91	1.00	20	20	1.00
Jun-10	91	91	1.00	20	20	1.00
Jul-10	301	301	1.00	20	20	1.00
Aug-10	301	301	1.00	20	20	1.00
Sep-10	451	451	1.00	50	50	1.00
Oct-10	451	451	1.00	50	50	1.00
Nov-10	451	451	1.00	280	280	1.00
Dec-10	461	461	1.00	280	280	1.00

* progressive data including all contracts traded by the end of the month under review
\# the data indicates the number of open positions at the end of the month under review
**it is the ratio of traded volumes to open positions. If > 1,it indicates the existence of trading activity

It is interesting to point out that on IDEX the distribution of the trades by delivery period has evolved in an opposite direction with respect to the pattern described above that became manifest in the MTE; a trend emerged, whereby participants reduced their maturity and more massively resorted to IDEX in order to make adjustments to their energy portfolio at the beginning of the delivery period; this adversely affected the management of long-term positions which should be covered by yearly contracts. The structure of maturity for trades showed a significant increase of the volumes pertaining to monthly contracts (+35.4%), a fundamental stability of quarterly ones (+0.2%) and a fall (-9.9%) of the yearly one, which traditionally has the most considerable weight (see Table C.2.41).

Tab C.2.41 **Volumes traded on IDEX by type of contract (data in MWh)**

Contracts	1st Q 2010	2nd Q 2010	3rd Q 2010	4th Q 2010	Total	Yealy % differ.
Monthly	301,377	678,000	644,570	882,806	2,506,753	35.4%
Quarterly	747,695	1,266,405	881,282	229,165	3,124,547	0.2%
Yearly	1,357,800	3,565,320	2,487,840	2,365,200	9,776,160	-9.9%
Total	**2,406,872**	**5,509,725**	**4,013,692**	**3,477,171**	**15,407,460**	

Source: Borsa italiana's data processed by GME.

This phenomenon may also have been favoured by the less burdensome management of liquidity related to monthly contracts with respect to those with longer delivery period, as a result of the daily cash adjustment mechanism of margins (mark to market) that is in force on IDEX.

With respect to prices, in the MTE the variation range of trading and check prices[15] became progressively narrower, albeit with some exceptions (e.g. base-load and peak-load contract with delivery October 2010), for all maturities and delivery profiles (see Table C.2.42 and Table C.2.43). This occurred also in response to the volatility trend on spot markets, which during the year was rather low revealing a bearish trend.

A partial trend reversal, instead, is beginning to emerge for farther delivery periods (e.g. third and fourth quarter 2011 with base-load profile).

Lastly, from a structural standpoint, please note, all things being equal, a greater variability of prices for contracts

15 The trading prices refer to any contracts successfully concluded in the market, whereas check prices are computed on a daily basis, even in the absence of trades, and are used to evaluate the available amount of the guarantees provided by participants.

with longer delivery period, as reasonably to expect given the longer trading period (12 months for quarterly and yearly contracts, vs. 3 months of monthly contracts).

Trend of prices in the MTE for base-load contracts Tab C.2.42

Product	Trading period			Trading price			Check price			
	Start	End	Sittings	Max	Min	Weigh. Avg	Max	Min	Average	Last
BL-M-2009-12	02/11/2009	27/11/2009	20	60.50	58.00	59.10	74.75	58.00	64.25	58.00
BL-M-2010-01	02/11/2009	29/12/2009	40	-	-	-	78.75	63.97	67.97	63.97
BL-M-2010-02	02/11/2009	28/01/2010	60	-	-	-	66.16	62.85	64.51	62.85
BL-M-2010-03	30/11/2009	25/02/2010	60	60.50	59.20	59.93	60.51	57.63	59.95	59.30
BL-M-2010-04	30/12/2009	30/03/2010	63	59.90	59.00	59.60	63.00	59.00	59.85	60.00
BL-M-2010-05	29/01/2010	29/04/2010	63	59.80	59.00	59.30	63.00	59.00	60.22	63.00
BL-M-2010-06	26/02/2010	28/05/2010	64	64.65	63.00	63.56	67.00	60.37	63.95	63.30
BL-M-2010-07	31/03/2010	29/06/2010	63	77.80	77.80	77.80	77.80	70.00	71.39	70.50
BL-M-2010-08	30/04/2010	29/07/2010	65	68.30	66.80	67.45	68.98	66.90	68.86	66.90
BL-M-2010-09	31/05/2010	30/08/2010	66	-	-	-	73.35	69.75	71.72	69.75
BL-M-2010-10	30/06/2010	29/09/2010	66	71.10	63.10	68.85	72.25	65.00	67.98	65.60
BL-M-2010-11	30/07/2010	28/10/2010	65	-	-	-	70.97	66.70	69.89	66.70
BL-M-2010-12	31/08/2010	29/11/2010	64	-	-	-	71.56	65.50	68.30	65.50
BL-M-2011-01	30/09/2010	29/12/2010	63	-	-	-	69.75	69.75	69.75	69.75
BL-M-2011-02	*29/10/2010*	*30/12/2010*	*43*	-	-	-	*66.32*	*66.32*	*66.32*	*66.32*
BL-M-2011-03	*30/11/2010*	*30/12/2010*	*22*				*64.90*	*61.81*	*64.48*	*64.90*
BL-Q-2010-01	02/11/2009	28/12/2009	39	-	-	-	70.50	62.43	65.43	65.50
BL-Q-2010-02	02/11/2009	29/03/2010	102	60.70	59.90	60.34	63.00	59.45	61.75	61.05
BL-Q-2010-03	02/11/2009	28/06/2010	165	72.50	65.95	66.78	72.50	66.00	68.77	70.77
BL-Q-2010-04	02/11/2009	28/09/2010	231	72.20	66.10	70.17	72.25	66.10	69.15	67.85
BL-Q-2011-01	29/12/2009	28/12/2010	255	73.10	67.40	71.06	74.00	65.95	70.23	67.01
BL-Q-2011-02	*30/03/2010*	*30/12/2010*	*194*	-	-	-	*68.00*	*63.00*	*65.03*	*63.00*
BL-Q-2011-03	*29/06/2010*	*30/12/2010*	*131*	*63.5*	*63.5*	*63.5*	*74.00*	*63.50*	*70.63*	*70.01*
BL-Q-2011-04	*29/09/2010*	*30/12/2010*	*65*	-	-	-	*70.35*	*67.00*	*69.59*	*69.60*
BL-Y-2010	02/11/2009	28/11/2009	39	63.90	63.90	63.90	68.00	66.01	66.73	66.01
BL-Y-2011	29/12/2009	28/12/2010	255	70.25	67.10	68.79	72.80	65.90	69.10	67.42

Contracts still being traded as of 28 February 2011 are shown in italics.

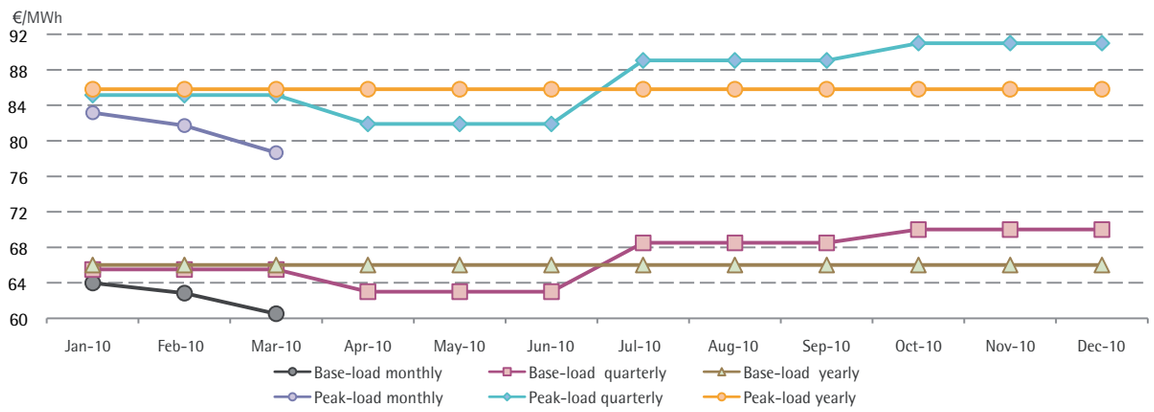
Tab C.2.43 **Trend of prices in the MTE for peak-load contracts**

Product	Trading period			Trading price			Check price			
	Start	End	Sittings	Max	Min	Weigh. Avg	Max	Min	Average	Last
PL-M-2009-12	02/11/2009	27/11/2009	20	84.50	79.00	81.55	97.18	79.00	85.28	79.00
PL-M-2010-01	02/11/2009	29/12/2009	40	-	-	-	102.38	83.16	88.36	83.16
PL-M-2010-02	02/11/2009	28/01/2010	60	-	-	-	86.41	81.71	83.90	81.71
PL-M-2010-03	30/11/2009	25/02/2010	60	72.70	71.50	72.34	78.66	71.50	77.37	72.40
PL-M-2010-04	30/12/2009	30/03/2010	63	72.60	70.00	71.31	81.90	70.00	75.81	70.00
PL-M-2010-05	29/01/2010	29/04/2010	63	72.85	70.10	71.26	77.81	70.10	73.51	70.10
PL-M-2010-06	26/02/2010	28/05/2010	64	77.00	72.20	74.59	78.48	72.20	75.73	74.20
PL-M-2010-07	31/03/2010	29/06/2010	63	-	-	-	91.03	87.50	90.02	87.50
PL-M-2010-08	30/04/2010	29/07/2010	65	82.50	80.40	81.33	89.67	80.02	86.51	80.40
PL-M-2010-09	31/05/2010	30/08/2010	66	85.60	85.60	85.60	85.60	81.20	84.04	85.60
PL-M-2010-10	30/06/2010	29/09/2010	66	84.60	75.25	80.72	93.93	75.25	81.27	75.25
PL-M-2010-11	30/07/2010	28/10/2010	65	-	-	-	83.00	83.00	83.00	83.00
PL-M-2010-12	31/08/2010	29/11/2010	64	-	-	-	89.70	76.00	84.10	76.00
PL-M-2011-01	30/09/2010	29/12/2010	63	-	-	-	80.91	80.91	80.91	80.91
PL-M-2011-02	*29/10/2010*	*30/12/2010*	*43*	-	-	-	*76.93*	*76.93*	*76.93*	*76.93*
PL-M-2011-03	*30/11/2010*	*30/12/2010*	*22*	-	-	-	*78.22*	*75.28*	*75.68*	*75.28*
PL-Q-2010-01	02/11/2009	28/12/2009	39	-	-	-	91.65	81.09	85.05	85.15
PL-Q-2010-02	02/11/2009	29/03/2010	102	78.25	72.00	74.56	81.90	72.71	79.00	72.98
PL-Q-2010-03	02/11/2009	28/06/2010	165	87.35	87.30	87.33	89.05	85.40	88.15	85.40
PL-Q-2010-04	02/11/2009	28/09/2010	231	87.65	85.70	86.40	91.00	80.88	86.96	80.88
PL-Q-2011-01	29/12/2009	28/12/2010	255	79.50	78.73	78.87	90.99	77.64	86.79	77.64
PL-Q-2011-02	*30/03/2010*	*30/12/2010*	*194*	-	-	-	*85.15*	*73.00*	*78.98*	*73.00*
PL-Q-2011-03	*29/06/2010*	*30/12/2010*	*131*	-	-	-	*96.20*	*77.35*	*83.69*	*81.21*
PL-Q-2011-04	*29/09/2010*	*30/12/2010*	*65*	-	-	-	*85.42*	*81.61*	*81.73*	*81.61*
PL-Y-2010	02/11/2009	28/11/2009	39	-	-	-	88.40	85.81	86.76	85.81
PL-Y-2011	29/12/2009	28/12/2010	255	88.90	77.60	79.35	90.79	78.11	85.36	78.38

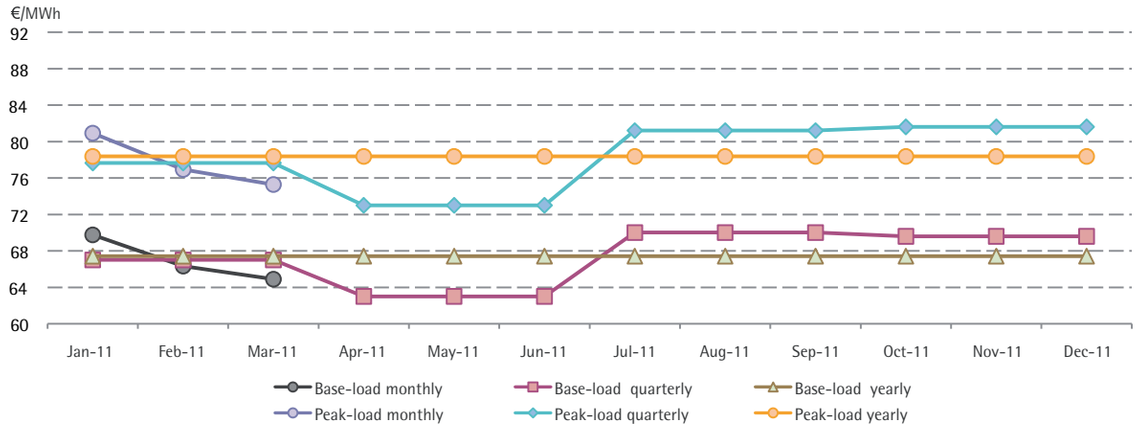
Contracts still being traded as of 28 February 2011 are shown in italics.

The forward curve, between the end of 2009 and the end of 2010, deeply changed, as an increase was recorded in the prices of base-load contracts, which was rather marked for monthly contracts and for that of the 1st quarter. In parallel, peak-load contracts moved in the opposite direction, with decreases that were very strong, both for quarterly contracts (from 7.51 €/MWh for the 1st quarter to 9.39 €/MWh for the 4th quarter) and for the yearly contract, which fell from 85.81 to 78.38 €/MWh. This gave rise to a sharp reduction of the spread between base-load and peak-load prices, which is particularly evident in the following Fig.C.2.47.

Fig C.2.47 **MTE forward curve as at 28 December 2009**



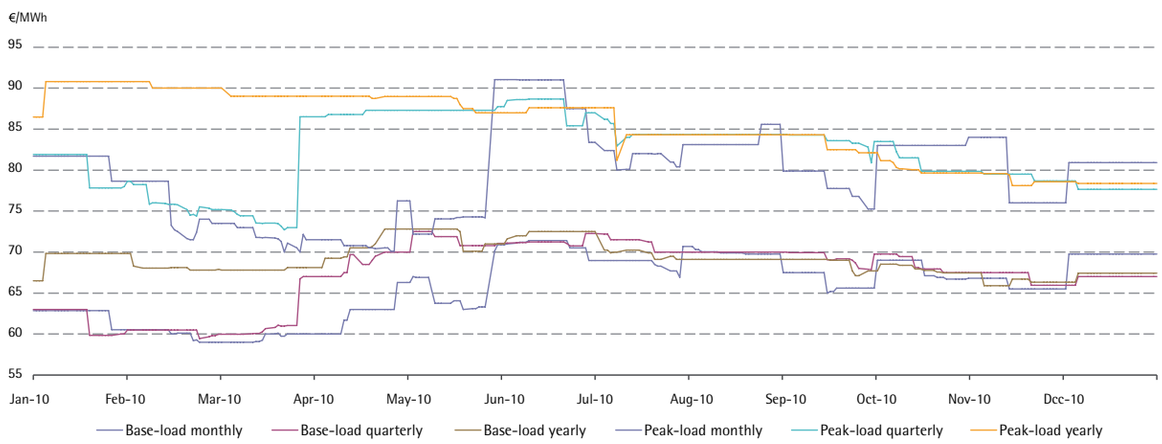
MTE forward curve as at 28 December 2010 Fig C.2.48



Furthermore, at graphical level, please note the contraction, in relative terms, of prices in the 2nd quarter, as against those in the 1st quarter, which increased their spread, bringing it to levels that are in line with those that could be expected due to seasonal cycles. Indeed, although they were less marked in 2010 than in the past, these cycles continue to characterise spot prices, in response to the trend of national electricity consumption. This element should not be underestimated, because it appears to testify the increased efficiency of the market and its ability to provide reliable price signals.

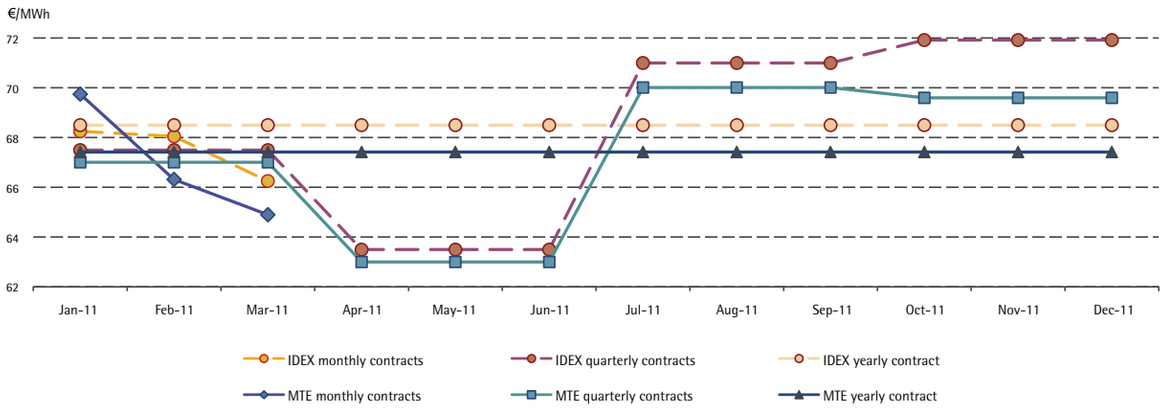
The dynamic analysis of the price trend, for each type of product, emphasises the progressive reduction of the spread between base-load and peak-load prices, a phenomenon, among others, in line with what happened in the spot market (see Fig.C.2.49).

Evolution of check prices (front month, front quarter and front year) in the MTE in 2010 Fig C.2.49



Moreover, no significant discrepancies emerged with the trend of the forward curve of the market IDEX (Fig.C.2.50), which are ascribable, as stressed above, to the structural differences charactering the two markets and, however, remain within the bids/asks in the respective order books.

Fig C.2.50 **Forward curve of MTE as at 28 December and of IDEX as at 27 December 2010**



Source: Borsa Italiana's data processed by GME.

The alignment of the two markets is confirmed by the fact that the correlation between the prices, for all the products which recorded a given liquidity, was very high, reaching a maximum of 0.94 for the monthly contract of December 2010. Furthermore the average daily price spread has never exceeded 1.69 €/MWh (see Table C.2.44).

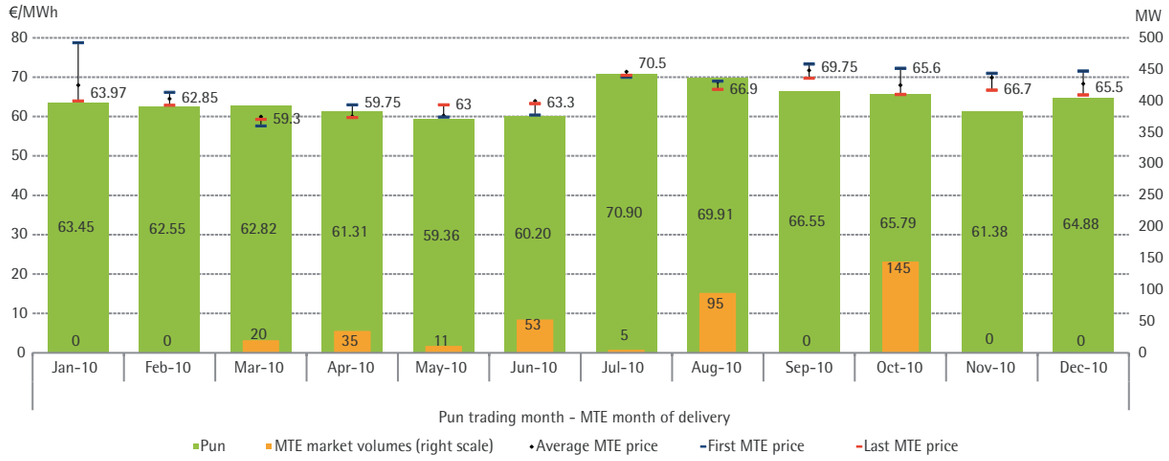
Tab C.2.44 **Correlation between the prices in the MTE and on IDEX (August-December 2010)**

Contracts Base-load	Number Sittings	Correlation	Avg daily Δ (€/MWh)
BL-M-2010-09	21	-0.31	0.32
BL-M-2010-10	43	0.65	0.51
BL-M-2010-11	64	0.88	0.60
BL-M-2010-12	63	0.94	1.61
BL-M-2011-01	62	0	1.69
BL-M-2011-02	42	0	-0.66
BL-M-2011-03	21	0.03	-1.19
BL-Q-2010-04	41	0.82	1.09
BL-Q-2011-01	104	0.91	0.98
BL-Q-2011-02	107	0.51	0.75
BL-Q-2011-03	107	0.55	-0.23
BL-Q-2011-04	66	0.18	-0.15
BL-Y-2011	104	0.78	-0.01

Source: GME and Borsa Italiana.

Lastly, it must be pointed out that the prices registered in the MTE may be considered good indicators of spot prices. With reference to monthly base-load contracts, the spread between the last price observed in the trading period and the PUN achieved amounted to 0.36 €/MWh on average, with maximum 4.37 €/MWh in November and minimum -3.57 €/MWh in March (see Fig.C.2.51).

Comparison between spot (PUN) and forward (MTE) monthly prices Fig C.2.51



2.6.2 Evolution of the guarantee system in the MTE

The significant growth of trades in the MTE, as mentioned before, is mostly ascribable to the new elements introduced in November 2009 in the market microstructure. A fundamental role was played by the new guarantee system, which for the purposes of managing risk relies on three parameters, determined on the basis of price volatility and the correlation existing between the prices of the various contracts offered:

- α which has the function to cover, in case of adverse price movements, the exposure resulting from net positions held by participants. In a first stage, the parameter was set to 40% for base-load contracts and to 50% for peak-load ones. On 9 Apr. 2010, as may be inferred from the table below, a more complex structure was introduced which on the one side led to a general reduction of the hedge ratio, aimed at making the guarantee system less burdensome for participants, and, on the other, to take into account the forward structure of price volatility which, all things being equal, tended to grow near the beginning of the delivery period.

Parameter α applicable in the MTE since 9 Apr. 2010 Tab C.2.45

PERIOD	Parameter α
Base-load	
Month m+1	25%
Month m+2	20%
Month m+3	15%
Month m+4	12%
Other months (> m+4)	10%
Peak-load	
Month m+1	30%
Month m+2	25%
Month m+3	20%
Month m+4	17%
Other months (> m+4)	15%

- β which takes into account the correlation between the prices of base-load and peak-load contracts and therefore represents a discount factor (equal to 70%) applied to the margins required on positions of opposite sign held by participants on these contracts with the same delivery period;
- γ which is similar to the previous one, as it represents a discount factor (70%) applied to positions of opposite sign on base-load and peak-load contracts with different delivery periods.

2.6.3 The CDE

On 26 Nov. 2009 in compliance with the Decree of the Ministry of Economic Development of 29 Ap. 2009, which contained provisions aimed at integrating the activities carried out by the MTE and IDEX, the possibility was introduced for electricity operators to request the physical delivery of any contracts concluded in the financial market. To this end GME joined, as qualified participant, the clearing and settlement system of CC&G, thereby undertaking to ensure cash settlement of variation margins and spread deriving from contracts for which the physical delivery option was exercised. With regard to electricity operators, GME records their positions on delivery on the PCE and settles the related payables/receivables within the time limits applicable in the electricity market.
This mechanism, which entailed the creation of a dedicated platform, the CDE (Electricity Derivatives Delivery Platform), was intended to facilitate participation by electricity operators in the financial market as well as to provide another flexibility instrument for an efficient management of the market and counterparty risk. This is the reason why GME intervened to take on the task of countering any risks related to the time lag characterising the cycle of the settlement of payments in the financial market and in the underlying physical market.
After more than a year of operation, unfortunately it must be stressed that the use by operators of the physical delivery option has been particularly modest and below expectations, because on the CDE, as may be gathered from the following table (Table C.2.46), only two operations were recorded for overall 97,392 MWh, a very marginal figure compared with cash-settled volumes on IDEX.

Tab C.2.46 **Registrations on the CDE deriving from the exercise of the physical delivery option on IDEX**

Date of registration	Month of delivery	Sign	No. of contracts	Volumes (MWh)	Registration price (€/MWh)	CTV (€) Registered contracts	PUN value (€/MWh)	PUN-registration price spread (€/MWh)	CTV balance Registered Position (€)
27-Jan-10	Feb 2010	Purchase	1	672	60.38	40,575	62.55	2.17	1,458
28-Jun-10	Jul 2010	Purchase	130	96,720	69.03	6,676,582	70.90	1.87	180,866
Total			**131**	**97,392**		**6,717,157**			**182,325**

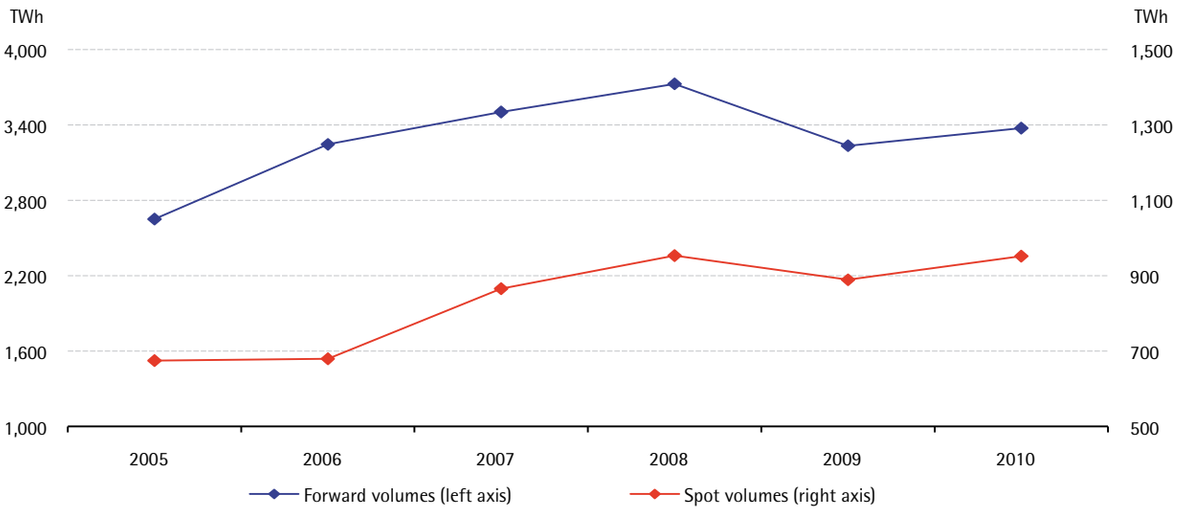
2.7 International comparisons[16]

In Europe in 2010 the moderate increase of volumes traded in total on the exchanges signalled a slight recovery of the activities in the main spot and forward electricity markets, after the collapse suffered by transactions during 2009. Therefore, operation on the exchanges picked up again, but at a slightly lower rate as against those registered during its booming stage, interrupted by the economic crisis in 2009.

In line with the historical evolution, the total amount of trades followed, also in 2010, similar trends in the two types of market, favouring a return of day-ahead transactions to the record levels of 2008 (+7%) and a more modest recovery of futures trades (+4%), which remained below the values of 2007 (Fig.C.2.52).

In this connection, it must be pointed out, however, that the data related to spot markets is strongly influenced by the soaring trades recorded in the German area (+52%), where, by law, RES plant-generated volumes flowed into the exchange (Fig.C.2.53, Table C.2.47).

Trend of spot and forward volumes in Europe (TWh)[17] Fig C.2.52



Nonetheless, in spite of an overall upward trend, the analysis of the data at national level reveals local dynamics that are often different and diverging with one another.

In 2010, focussing on the largest markets, clear signs of a recovery of trades only emerged on the exchanges situated in the German and in the Scandinavian areas, to which, among others, may be ascribed the predominant share of spot and futures volumes traded in Europe. In particular, the increase of transactions was particularly marked in Germany both in the spot market, for the reasons described above, and in the derivatives market (+18%), following, instead, more limited dynamics in the Scandinavian region, where, while forward trades slightly went down (-3%), the increase recorded in the day-ahead market brought NordPool volumes back to their historical highs of 2008 (+5%).

Besides, a different situation emerged in the Mediterranean area, where referring to the more mature spot markets, the downward trend that began in 2009 continued throughout 2010, fuelled by a sluggish national demand and, in

16 The data by country for this section refer to prices and volumes notified by the following exchanges:
- Scandinavian area: NordPool (spot), Nasdaq OMX (forward)
- Germany: EPEX (spot), EEX (forward)
- France: EPEX (spot), EEX (forward)
- Italy: GME (spot), GME and Borsa Italiana (forward)
- Spain: Omel (spot), OMIP (forward).

17 Volumes are calculated as the sum of the quantities traded on the exchanges listed in note 16.

Italy, by the growing use of OTC channels by AU in order to implement its procurement strategy (Fig.C.2.54, Table C.2.48).

Fig C.2.53 **Volumes traded in forward markets in the main European exchanges (TWh)**

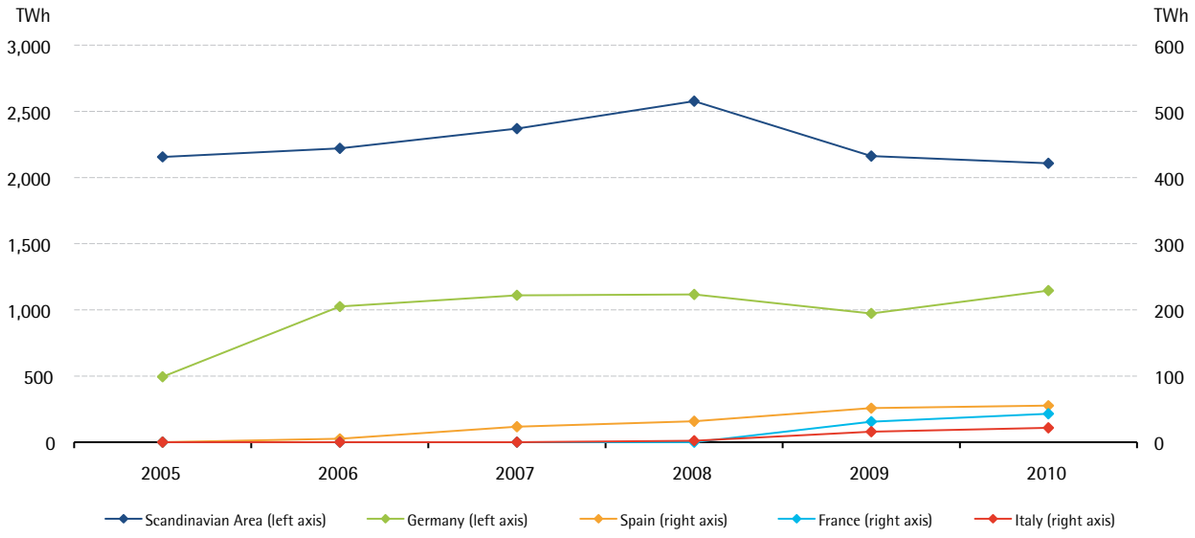
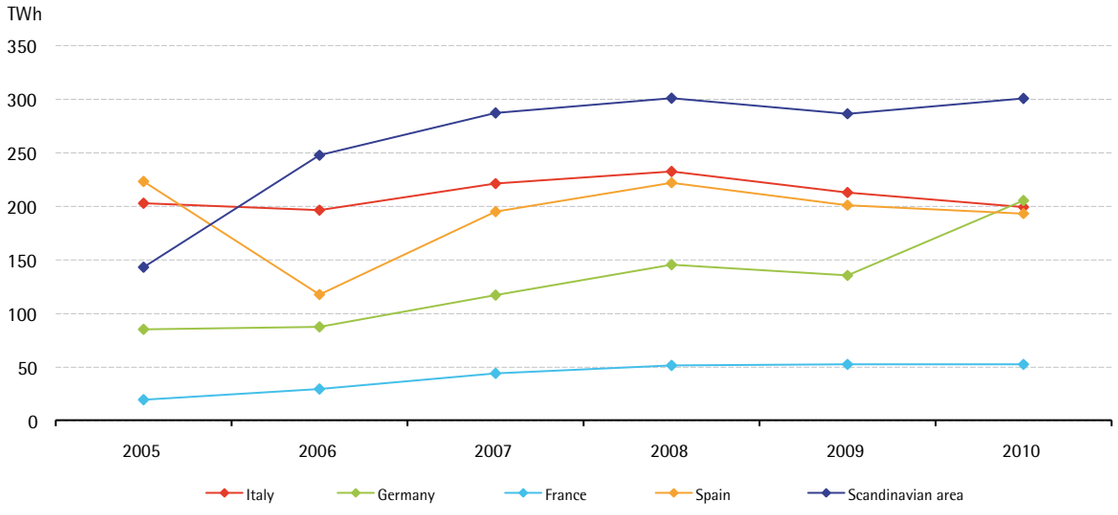


Fig C.2.54 **Volumes traded in spot markets in the main European exchanges (TWh)**



As a consequence of these dynamics, trades in Italy and in Spain dropped for a second time in a row (-4/-6%), thereby reaching levels that were close to their respective all-time minima.

In the two countries positive signs, on the other hand, and partially in countertrend with the data observed in spot markets, came from the younger forward markets, whose activity in 2010 was moderately growing, albeit still much lower than the operation achieved by the corresponding spot markets. Trades on the Mediterranean exchanges are not absolutely comparable to those on the consolidated exchanges of central-northern Europe (which alone concentrate more than 95% of forward traded volumes in our continent). Indeed, they strengthened their trend of progressive growth, reaching 22 TWh in Italy (taking into account both the volumes negotiated in GME's physical market, and those registered in Borsa Italiana's financial market) and 55 TWh in Spain. In particular, in our country,

in the second year of full operation of the markets, derivatives trades stood at the same levels as reached by Omip in the first years of activity. Today, after four years, Omip more than doubled those volumes. In this sense, it is worth stressing that the encouraging increase of volumes traded in the Italian futures markets (+36%), albeit still limited for the preference given by participants to unregulated trading channels (in this regard see para. C.2.6), actually concentrated in the market with physical delivery, signalling a positive response by the participants to the adjustments made by GME, both in terms of functioning and offered products.

Yearly volumes in the main European spot markets (TWh) Tab C.2.47

Reference Area	2010	2010/2009 change	2009	2008	2007	2006	2005
Italy (GME)	199	*-6%*	213	233	221	197	203
Germany (EPEX)	206	*52%*	136	146	117	88	85
France (EPEX)	53	*0%*	53	52	44	30	20
Spain (OMEL)	193	*-4%*	201	222	195	118	223
Scandinavian Area (Nasdaq OMX)	301	*5%*	286	301	287	248	143

Yearly volumes in the main European forward markets (TWh) Tab C.2.48

Reference Area	2010	2010/2009 change	2009	2008	2007	2006	2005
Italy	22	*36%*	16	2.3	-	-	-
- physical market (GME)	*6*	*5150%*	*0*	-	-	-	-
- financial market (Borsa Italiana)	*15*	*-3%*	*16*	*2.3*	-	-	-
Germany (EEX)	1,146	*18%*	973	1,116	1,110	1,025	494
France (EEX)	43	*38%*	31	-	-	-	-
Spain (OMIP)	55	*7%*	51	32	23	5	-
Scandinavian Area (Nasdaq OMX)	2,108	*-3%*	2,162	2,577	2,369	2,220	2,156

On the other hand, the evolution dynamics followed by the exchanges were essentially aligned, as may be inferred from a review of the prices expressed by European spot and forward electricity markets. This strengthened the underlying trend becoming consolidated over the years. In both types of market, national prices, while replicating, in terms of level, the structural differences existing between the electricity systems of the individual countries, followed very similar trends over the last five years, which confirmed the high degree of interaction and mutual influence.

The comparison between the dynamics of spot and futures prices over time revealed a generalised efficiency of forward markets, measured by the good capability to send correct price signals, anticipating, if not always the price level, anyway the future price evolution.

Fig C.2.55 **Historical trend of the settlement price of the yearly product in its last listing day (€/MWh)**

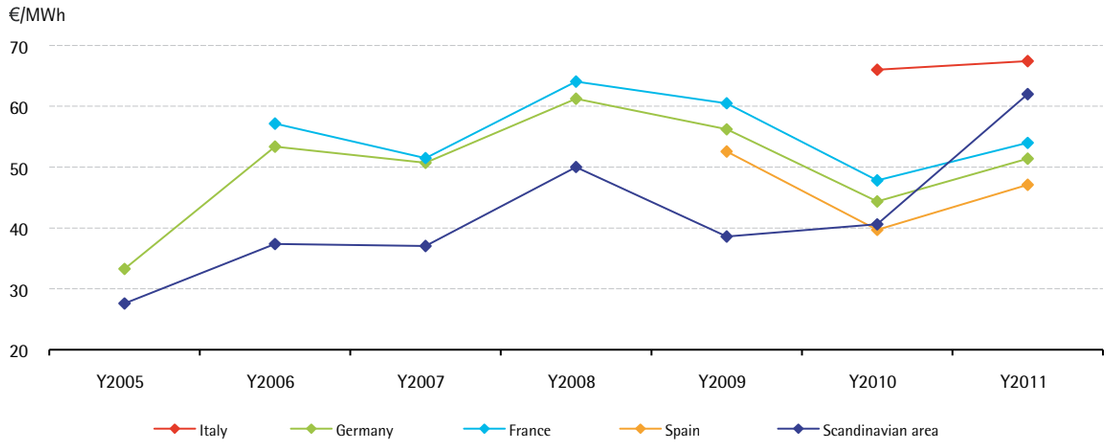
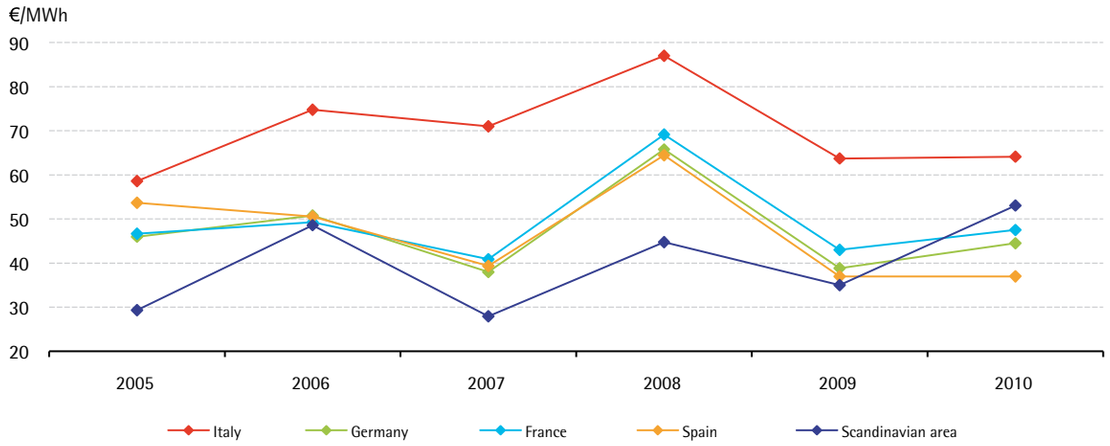


Fig C.2.56 **Historical trend of the spot price in the main European power exchanges (€/MWh)**



In this background, in 2010 spot prices expressed by the main European power exchanges, while remaining far from their maximum levels of 2008, showed again a moderate upward trend, driven above all, in the last part of the year, by the progressive escalation of fuel costs and by the recovery of demand, more intense in central Europe than in the Mediterranean area.

Thanks to these dynamics, prices stood at 44/51 €/MWh in the markets operated by Epex (+6/15%) and at 53 €/MWh (+51.5%) on NordPool, which went up to its all-time high as a result of structural and non-contingent causes (Table C.2.49).

Tab C.2.49 **Yearly average spot prices in the main European power exchanges (€/MWh)**

	2010		2009	2008	2007	2006	2005
Reference Area	Average	Tr. ch.	Average	Average	Average	Average	Average
Italy (GME)	64.12	0.6%	63.72	86.99	70.99	74.75	58.59
Germany (EPEX)	44.49	14.5%	38.85	65.76	37.99	50.79	45.98
France (EPEX)	47.50	10.4%	43.01	69.15	40.88	49.29	46.67
Scandinavian Area (NordPool)	53.06	51.5%	35.02	44.73	27.93	48.59	29.33
Spain (OMEL)	37.01	0.1%	36.96	64.44	39.35	50.53	53.68
PUN-PME	19.03	-20.2%	23.85	20.38	32.24	24.28	12.43

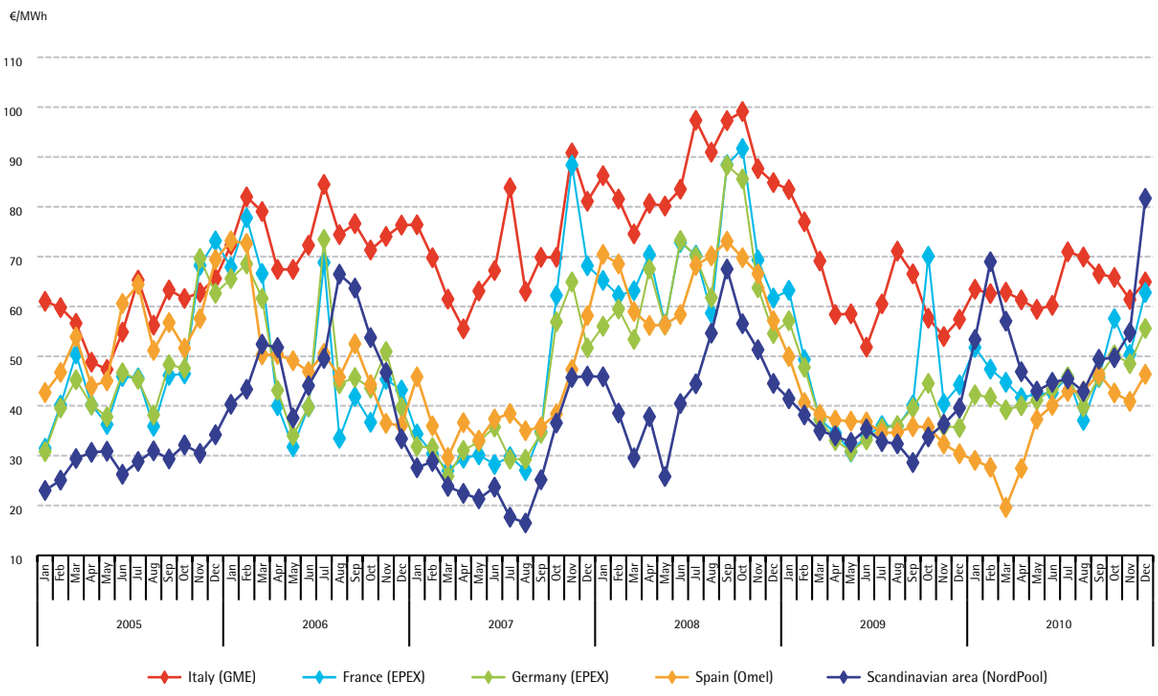
The structural delay observed in the transposition of the variations in the Brent, in conjunction with the growing base-load supply surplus, absolutely detracted from the impact of the oil hike in the Italian electricity market, where the price instead continued to remain on the low levels of 2009 (64.12 €/MWh), showing peculiarities that are unparalleled on other exchanges. Particularly significant, in this regard, were the sharp price decrease in the peak-load hours (-7.6%), which favoured the convergence of the peak-load/off-peak ratio on continental values (1.42), and the mitigation of the typical seasonal cycling, which is still very marked in the other countries and partially observed only in summer months in Italy (Table C.2.1,Table C.2.50, Fig.C.2.57).

Between Italy (Pun) and the rest of Europe (PME) this translated into a strong contraction of the price spread, down to the all-time low of 19 €/MWh (about -5 €/MWh, -20.2%), a value which reflects the higher costs of a generating mix that is still too unbalanced towards generation from gas and where the input of coal and renewable sources, albeit growing, is residual (Table C.2.50).

Average spot prices by hourly bands in the main European exchanges (€/MWh) Tab C.2.50

Year 2010	Total		Peak-load		Off-peak		Off-peak working day		Off-peak holiday	
Reference Area	Average	Tr. ch.	Average	Tr. ch.	Average	Tr. ch.	Average	Tr. ch.	Average	Tr. ch.
Italy (GME)	64.12	0.6%	76.77	-7.6%	57.34	7.4%	54.20	12.2%	60.98	2.9%
Germany (EPEX)	44.49	14.5%	55.25	7.2%	38.71	20.7%	40.07	20.4%	37.14	21.0%
France (EPEX)	47.50	10.4%	59.29	1.1%	41.17	18.8%	42.09	21.0%	40.11	16.2%
Scandinavian Area (NordPool)	53.06	51.5%	59.01	53.8%	49.86	50.0%	50.70	51.4%	48.89	48.4%
Spain (OMEL)	37.01	0.1%	42.08	4.2%	34.28	-2.4%	34.18	-0.3%	34.40	-4.7%
PUN-PME	19.03	-20.2%	20.72	-30.7%	18.12	-12.1%	13.71	-6.2%	23.24	-15.4%

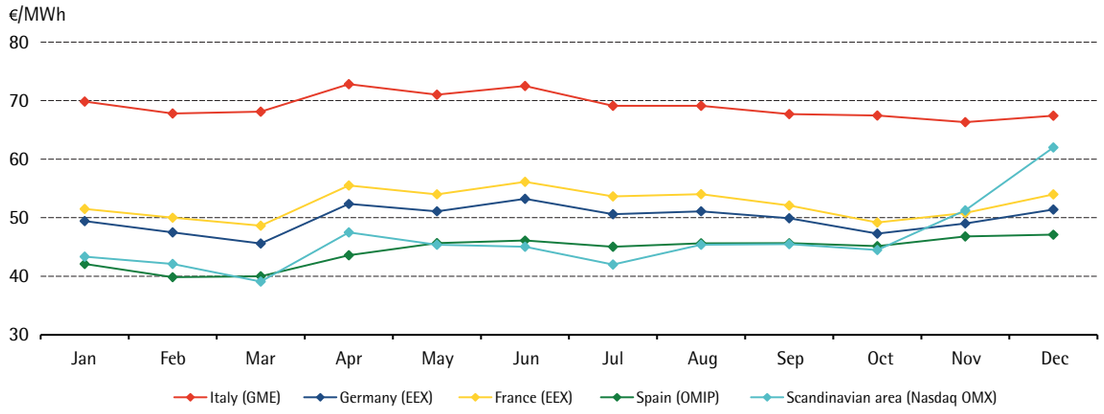
Monthly trend of prices in the main European exchanges (€/MWh) Fig C.2.57



The indications from forward electricity markets for 2011 appear to be moving towards the direction of a consolidation of the trends emerged in 2010 on spot markets, so as to confirm the ranking of the exchanges and to signal, in a context of general and moderate upswing of prices, a further narrowing of the gap between Italian prices and French and German ones, passing from 19.5 to 13.3 €/MWh and from 22.5 to 16 €/MWh respectively between the end of March and the end of December 2010 (Fig.C.2.58).

The analysis of the monthly trend of the product Cal 2011 showed essentially similar dynamics on all the exchanges, characterised by a reduced intra-year volatility, interrupted in all the markets by the increases registered in April and in the last part of the year, in response to upward movements of fuel prices. The only noticeable exception was found on the Scandinavian exchange, where the product climbed by more than 15 €/MWh due to spot price tensions.

Fig C.2.58 **Trend of the settlement price of the yearly product 2011 in the last listing day of each month of 2010 (€/MWh)**



3. ENVIRONMENTAL MARKETS

3.1 Green Certificates Market (MCV)

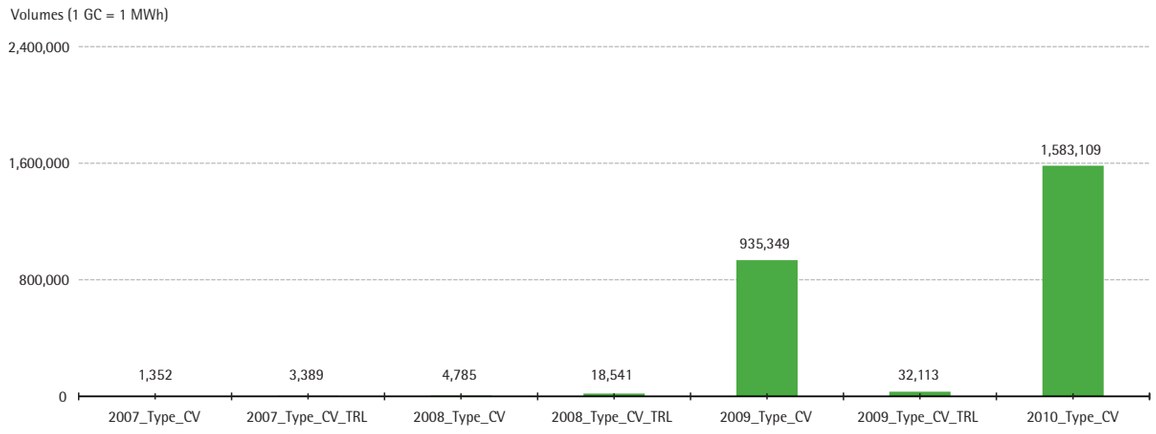
Also in the course of 2010 the number of participants in the Green Certificates Market (MCV) continued to grow: at the end of 2010 they amounted to 620, increasing by 123 participants, as against 497 at the end of 2009.
The operational management of the MCV involved the organisation and management of 49 sessions of the regulated market, during which participants negotiated 2,578,638 Green Certificates, with a total value above 217 million.
The weighted average price of the Green Certificates traded in the aforesaid market sessions was 84.41 €/MWh.
The Green Certificates with reference year 2010 are the most commonly traded in the course of the year, accounting for about 61% of the total number of Green Certificates negotiated in the regulated market, followed by the Green Certificates with reference year 2009, which accounted for about 36% of total Green Certificates.
Table C.3.1 is a summary of the main statistics of trades in the regulated market during 2010:

Trades in the MCV – 2010 Tab C.3.1

	Type of GCs ("CV")				Type of GCs for co-generation combined with district heating ("CV TRL")		
Reference Year	**2010**	**2009**	**2008**	**2007**	**2009**	**2008**	**2007**
GCs traded in the MCV	1,583,109	935,349	4,785	1,352	32,113	18,541	3,389
Total value	130,037,561	82,573,404	417,663	119,139	2,633,439	1,595,028	294,365
Min price	78.00	79.50	75.00	87.50	79.00	79.50	80.00
Max price	88.80	89.90	88.55	88.40	87.20	88.30	88.00
Avg price of GCs	82.14	88.28	87.29	88.12	82.01	86.03	86.86

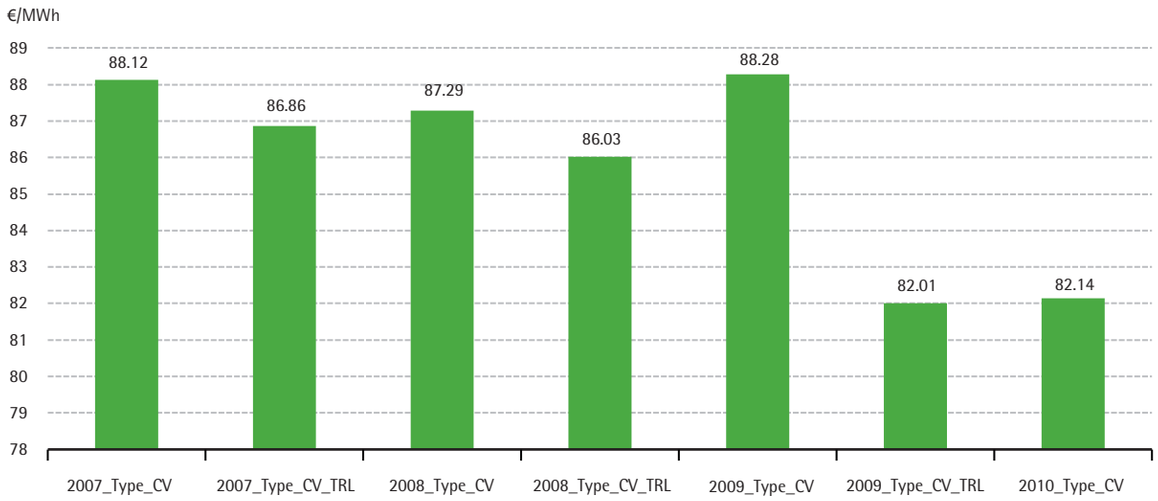
The graph in Fig.C.3.1 displays the volumes traded in 2010 grouped by type:

Number of transactions by type (2010) Fig C.3.1



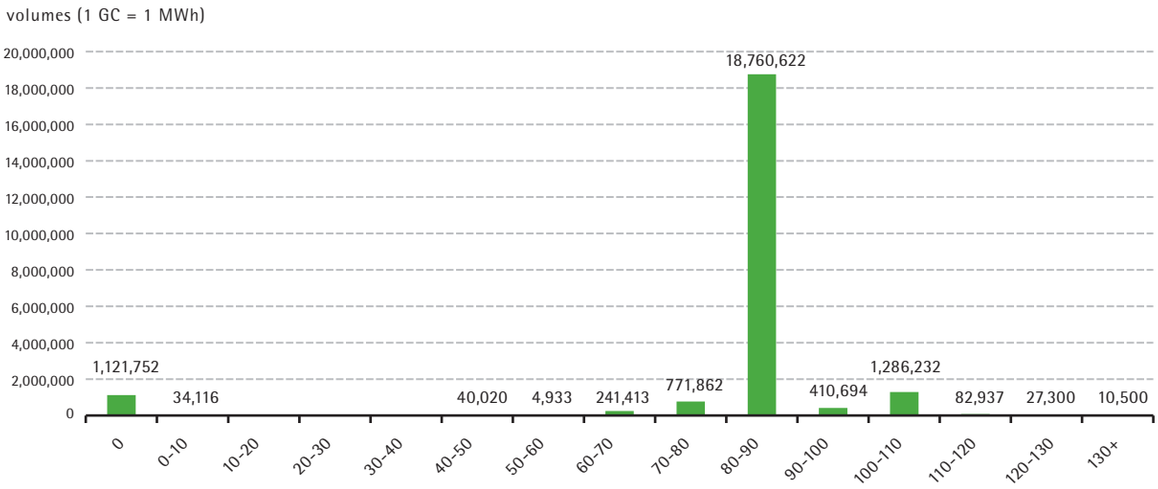
The next graph, as shown in Fig.C.3.2, contains the weighted average prices regarding all sessions in 2010 for each type of certificate:

Fig C.3.2 **Weighted average prices on volumes by type (2010)**



Apart from the trades made in the regulated market, Green Certificates were also negotiated through bilateral contracts. It must be recalled that since 2009 it has become compulsory to register all bilateral transactions, specifying their price, on the Green Certificates Bilaterals Registration Platform (PBCV), a functionality provided by GME. During 2010, contracts registered via the PBCV accounted for a total volume of certificates equal to 22,792,381. Table C.3.2 shows the volumes divided by class of price:

Tab C.3.2 **Bilaterally traded GCs by price group in 2010 (€/MWh)**

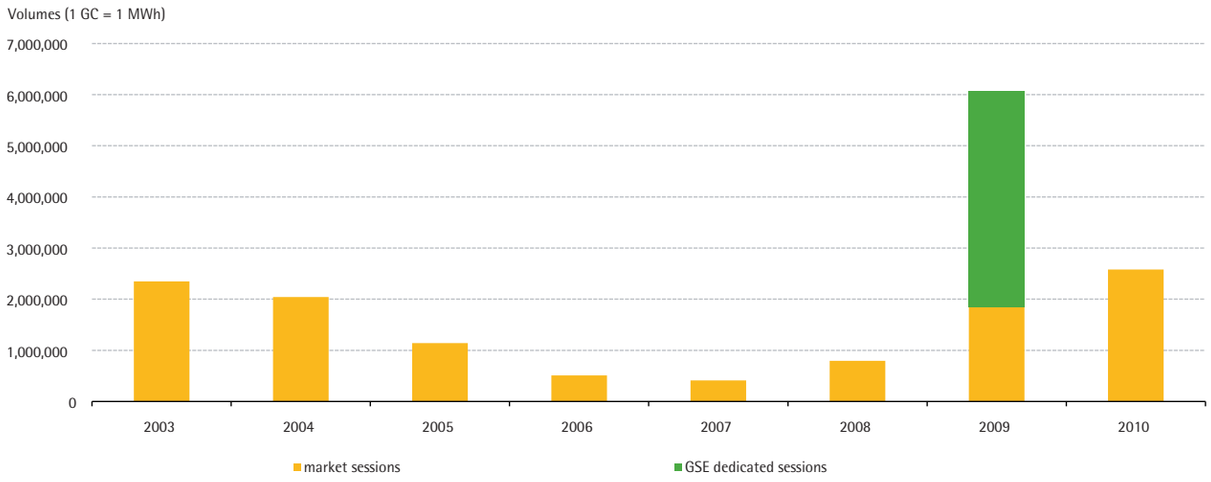


Historical analysis of volumes

From the standpoint of the historical development of the volumes of certificates traded in the regulated market, after a constant decrease of Green Certificates traded in the period 2003-2006, chiefly due to GSE's diminished participation in the market, in the light of the growing supply of certificates by new RES producers, from 2007 on, volumes picked up again, year by year, following a ripening path of the market. This is also to be attributed to the amendment of the regulated market rules, whereby, as of November 2008, the central counterparty was introduced. With GME acting as the only counterparty in the market, guaranteeing the payment of transactions, participants' confidence in the regulated market increased. At the same time, administrative-accounting procedures connected with participation in a regulated market were streamlined.

Please find in Fig.C.3.3 below a graph with the volumes traded in the regulated market over the years:

Number of GCs traded in GME's regulated market Fig C.3.3



It is worth recalling that in 2009 GSE resorted to dedicated sessions where access was restricted to any participants that as at 31 March of the same year possessed a sufficient number of Green Certificates, as necessary to fulfil their obligation. The volumes for 2009 therefore suffered from this circumstance, with an additional amount above 4 million Green Certificates.

Historical analysis of prices

Historically, the price movements of Green Certificates were often related to variations in the legislative framework and/or to changes in the demand/supply balance. In particular, three distinct phases may be identified in terms of price volatility:

- phase a), relating to the period between 2003 and 2006, when prices followed an upward trend
- phase b), relating to the period between 2007 and 2008, when prices sharply decreased as against the levels of the preceding four years
- phase c), relating to the year 2009, when prices regained ground reaching average levels as against the whole period.

In phase a), the prices of Green Certificates essentially grew for two reasons. The first is to be ascribed to a market environment where the demand of obliged parties was higher than the supply of "private" RES producers (i.e. without considering the supply of Green Certificates represented by GSE, the owner of the Green Certificates relating to the CIP-6 plants[1] contracted by GSE). In a similar context, the producers with Green Certificates to be sold, as they knew about the excess of demand and were aware of the fact that GSE would not displace private supply allowing all the other Green Certificates to be sold in the market, set the selling price close to GSE's reference price. This price constituted and constitutes, today as well, a cap for market values.

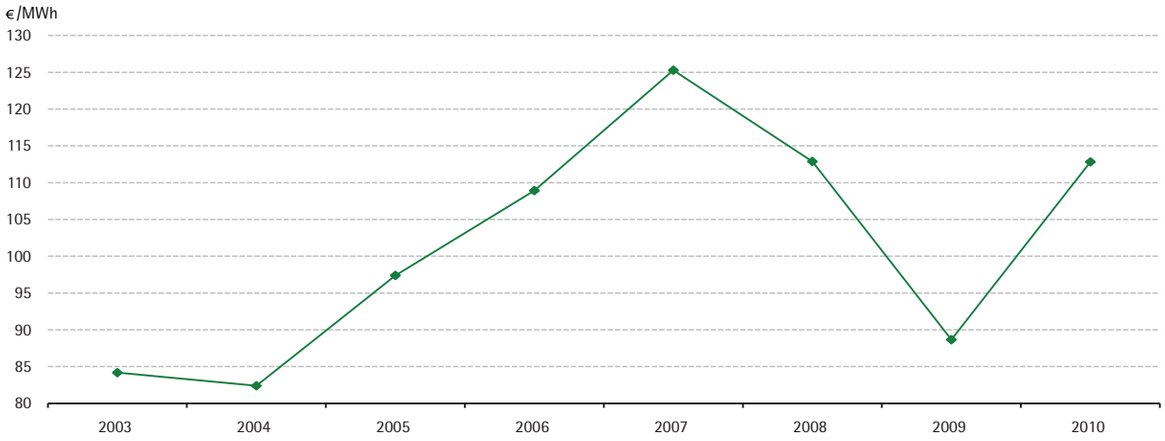
The second reason is that GSE's reference price increased every year within the 2003-2006 period, except for one year in which it almost remained constant. This price was calculated on a yearly basis as the difference between the average cost paid by GSE to purchase the electricity produced by CIP-6 plants and the revenues obtained by the sale of the same electricity in the market[2]. Over time, plants with expiring CIP-6 agreements tendentially were less expensive than

1 After the entry into force of the Legislative Decree no. 79 of 16 March 1999 (the so-called "Bersani Decree), the ownership of all CIP-6 agreements with which until then any generation of electricity from renewable sources had been incentivised, passed from ENEL to Gestore della rete di trasmissione nazionale (GRTN, today GSE). With regard to the electricity generated from renewable sources alone (thus disregarding other eligible sources), that was purchased under the agreements, GSE issues to itself Green Certificates and places them in the market at a price set by law.

2 Law no. 244 of 24 Dec. 2007 amended the mechanism for the calculation of GSE's reference price, limiting the possibilities of an increase. Under the new mechanism, the price is computed as the difference between 180 € and the average price of electricity calculated by AEEG for the year preceding the year which the Green Certificates refer to.

the plants commissioned and benefitting from the feed-in tariff, with the resulting net increase of GSE's costs. With a practically stable electricity price in the period, the price of Green Certificates owned by GSE increased year by year. Thanks to the excess of demand described above, Green Certificates recorded increasing peaks in the market every year, going beyond 120 €/MWh as against 82-84 €/MWh at the beginning of the period.
Fig.C.3.4 contains the graph on the trend of the reference price of GSE's Green Certificates over the years:

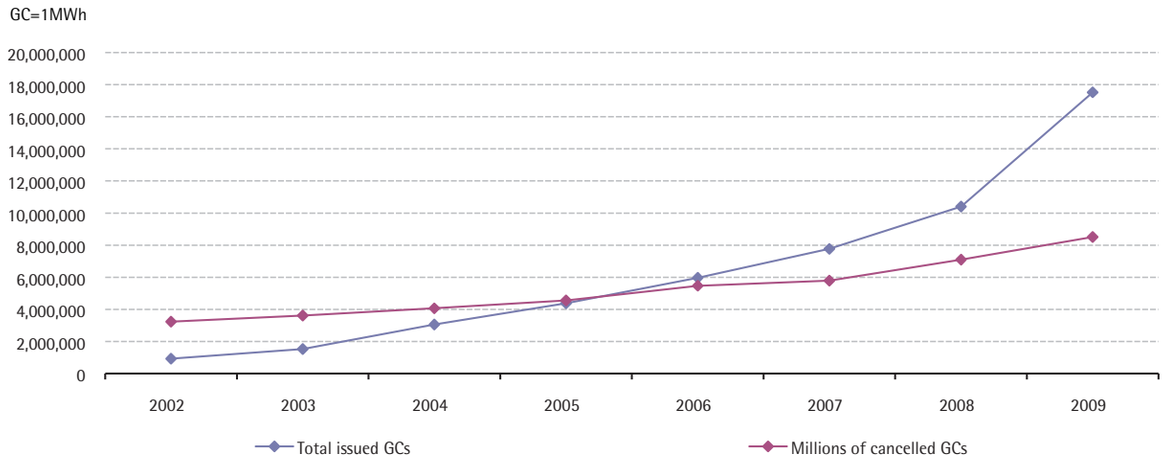
Fig C.3.4 **Reference price for GSE's GCs**



Source: GSE's data processed by GME.

The price rise during phase a) anyway stimulated investments in new RES plants, which helped increase installed capacity and the number of private Green Certificates in supply. In phase b) the relationship between obliged demand and private supply was overturned, bringing about a situation of supply surplus in which GSE no longer intervened in the market by selling its Green Certificates, as private supply was more than enough to cover demand. Private producers for the first time were in a position where they had to compete with one another to succeed in selling the Green Certificates in the market, thus causing the price to fall. This situation continued for most of 2008, when price minima below 60 €/MWh were recorded. As the projections on the growth of demand, determined by the increase of the obligation percentage, displayed a situation of structural supply surplus, and the investments made would risk achieving an insufficient rent, if the situation had persisted, the Italian law-maker intervened by introducing, with the Decree 18 Dec. 2008, the transitional provision providing for the purchase by GSE of Green Certificates exceeding those that were necessary for the obliged parties, in every year of the 2009-2011 period.
The graph in Fig.C.3.5 shows the trend of issued Green Certificates as against those that are necessary to meet the obligation over the years:

Issued GCs and cancelled GCs Fig C.3.5



Source: GSE's data processed by GME.

Phase c), initiated with the introduction of stated provision, is characterised by a relative stability of prices, thanks to the automatic scheme implemented. GSE, acting as the purchaser of last resort, was able to fully take up the supply surplus, guaranteeing a perfect balance of the market. Lately, the Legislative Decree no. 28 of 3 Mar. 2011 (see Box II), provided that the purchase price of the excess Green Certificates is no longer equal to the price average in the markets of Green Certificates in the three years before the purchase year, but it is equal to 78% of GSE's reference price for Green Certificates, or the difference between 180 € and the average price of electricity for the year before the purchase year, as calculated by AEEG.

Box 2 THE NEW DECREE INCENTIVISING RENEWABLES

The Legislative Decree no. 28 of 3 March 2011, implementing Directive 2009/28/EC on the promotion of the use of the energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC introduced some new elements. The most important novelties are as follows:

- the present mechanism incentivising the generation of electricity from renewable sources, based on Green Certificates, shall remain in force for all new plants commissioned before 31 Dec. 2012;
- the mandatory quota of RES-E that producers and importers from conventional sources are required to inject into the grid (art. 11, paras. 1 and 2 of the Legislative Decree no. 79 of 16 March 1999), equal to 7.55% for 2012, shall be linearly reduced beginning in 2013 until reaching zero by 2015;
- generation by all plants commissioned after 31 December 2012 will be supported under general criteria, which will ensure a fair remuneration of investment and operation costs. Moreover, the duration of the support will be equal to the average useful lifetime of the specific technology of the plant. The incentive will be constant throughout the support period and granted under private-law contracts with GSE;
- the amount of the incentive for plants below a given threshold – different for the different sources and anyway not below 5 MW – will be differentiated by technology and equal to the one applicable upon commissioning of the plant;
- for plants above the aforementioned threshold, the incentive will be determined through Dutch auctions (each concerning a capacity quota to be installed for each source or technology) organised by GSE.

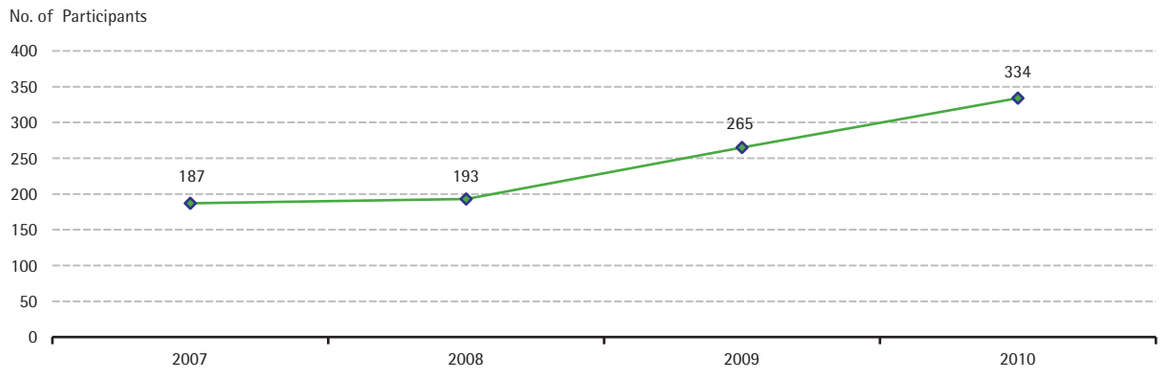
With regard to incentivising the electricity generated by photovoltaic plants, the Decree in question envisages that the provisions on the Conto Energia (feed-in scheme) under the Decree of the Ministry of Economic Development of 6 Aug. 2010 shall continue to apply only for the plants entering in operation by 31 May 2011. For plants commissioned later than this date, the applicable tariffs were set out in the Decree of the Ministry of Economic Development of 5 May 2011 supporting electricity generated from solar photovoltaic plants, laying down new rules on how to incentivise electricity generation from photovoltaic plants.

With regard to the Guarantees of Origin (GO), the new Decree specifies once again that the Guarantees of Origin are only intended for use by suppliers of electricity from renewables to provide evidence to final customers of the share or the electricity quantity from renewable sources in their energy mix (the so-called fuel mix disclosure). As of 1 January of the year after the entry into force of the Decree updating the methods to issue, approve and use the Guarantees of Origin, electricity suppliers shall only use the Guarantees of Origin for the fuel mix disclosure.

3.2 Energy Efficiency Certificates (TEE)

The Energy Efficiency Certificates Market (MTEE) in 2010 recorded an increase in the number of participants and the volumes of Energy Efficiency Certificates traded both in the market and bilaterally (vs. the 2009 values).
At 31 December 2010 the participants in the Energy Efficiency Certificates Register were 418 as against 349 at the end of 2009. Of the 418 participants in the Register, 334 applied for and obtained the status of market participants.

No. of MTEE Participants Fig C.3.6



In the course of 2010 the Energy Efficiency Certificates issued by GME, after the authorisation by the Autorità per l'Energia Elettrica e il Gas (Authority for electricity and gas, AEEG), were 2,817,261 , of which:

- 1,852,297 of type I (certifying electricity savings);
- 775,471 of type II (certifying gas savings);
- 189.493 of type III (certifying primary energy savings).

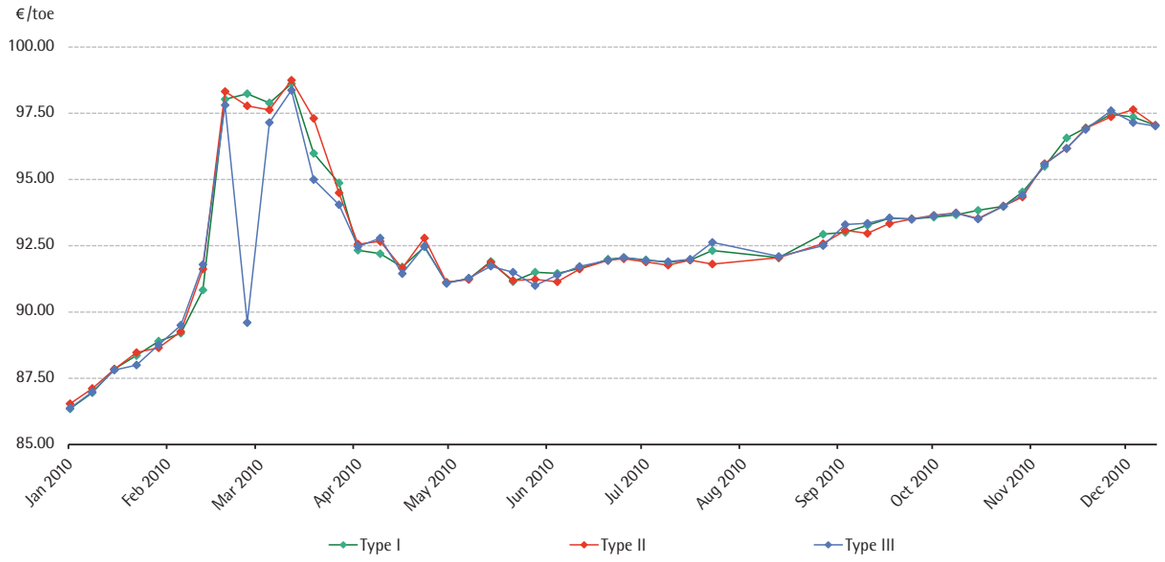
With regard to the trades in the regulated market, overall 980,095 certificates were negotiated in 2010. The most traded certificates were those of type I (580,688) followed by those of type II (322,970) and type III (76,437). The average prices weighted for the volumes were equal to 93.19 €/TEE, 92.60 €/TEE, 93.24 €/TEE for certificates of type I, II, and III respectively.
Table C.3.3 contains the main statistics on the sessions of the regulated market in 2010:

Volumes and prices by type of TEEs (2010) Tab C.3.3

	Type I	Type II	Type III
Volume of traded TEEs (no. of TEEs)	580,688	322,970	76,437
Minimum price (€/TEE)	82.00	82.51	82.00
Maximum price (€/TEE)	100.00	100.00	99.95
Weighted average price (€/TEE)	93.19	92.60	93.24

Please find below, in Fig.C.3.7, the graph illustrating the trend of weighted average prices of each session in 2010:

Fig C.3.7 **TEE prices in GME's market - sessions of January-December 2010**



In the course of 2010, and for the first time since launching the Energy Efficiency Certificates Market, the price of the certificates exceeded, albeit slightly, the value of the tariff contribution. It must be stressed that obliged distributors receive, for each Energy Efficiency Certificate surrendered for cancellation, a tariff contribution to cover part of the incurred costs and equal, in respect of the obligation year 2010, to 92.22 €/toe. The price of Energy Efficiency Certificates moved close to 100€/toe, both in the month of March and towards the end of the year, because of the perception of most market participants that the Energy Efficiency Certificates issued and still outstanding were fewer than the number of Energy Efficiency Certificates required for meeting their obligation.
When looking at the total of certificates issued from the take-off of the dedicated Register to 31 December 2010, this amount was 8,024,643. In particular, issued certificates amounted to:

- 5,724,767 of type I (electricity);
- 1,886,192 of type II (gas);
- 413,684 of type III (primary energy).

The total number of Energy Efficiency Certificates that were necessary to fulfil the obligations for the years between 2005 and 2009 (included) was about 6.5 million Energy Efficiency Certificates, to which 4.3 million were added to meet the obligation in 2010, expiring on 31 May 2011, for overall 10.8 million:

Yearly Mtoe/yr for energy-saving obligations for electricity and gas Distributors Tab C.3.4

Obligation year	Actual obligations of electricity distributors (Mtoe/yr)	Actual obligations of gas distributors (Mtoe/yr)	Cumulated total of TEEs necessary for fulfilment (Mtoe/yr)
2005	0.10	0.06	0.16
2006	0.19	0.12	0.46
2007	0.39	0.25	1.10
2008	1.20	1.00	3.30
2009	1.80	1.40	6.50
2010	2.40	1.90	10.80

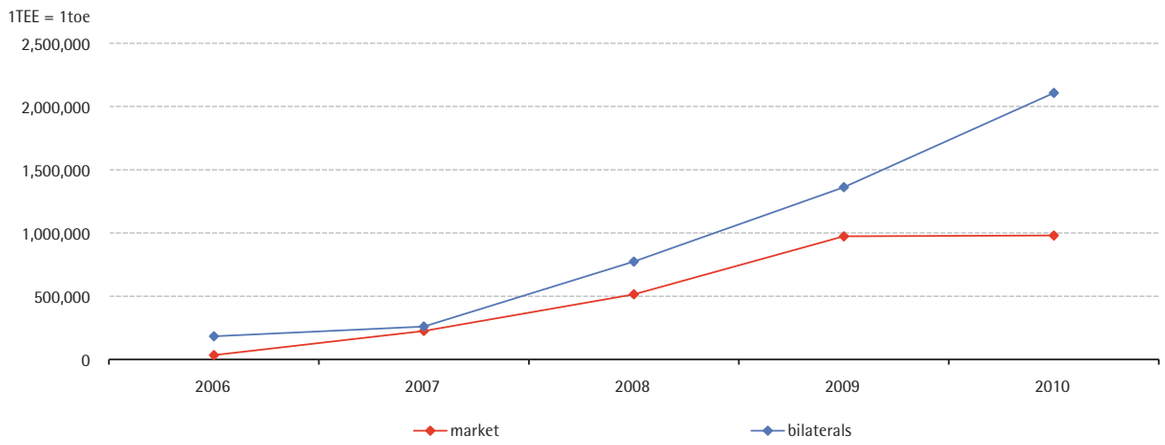
Source: Ministerial Decrees 20/07/04 as subsequently amended and supplemented.

A situation of scarce Energy Efficiency Certificates may arise, if, in the first part of 2011, less than 2.8 million Energy Efficiency Certificates are issued (10.8 million minus the 8.02 already issued at the end of 2010).

Historical analysis of volumes

The volumes of Energy Efficiency Certificates traded in the market followed a positive trend although, as may be noted in the graph below, the growth of OTC volumes was higher than that of trades in the regulated market.

MTEE and OTC volumes (GME) Fig C.3.8



The tendency to conclude bilateral contracts rather than negotiate the Energy Efficiency Certificates via the regulated market is probably explained by the need, for large obliged distributors, to procure conspicuous quantities of certificates with the lowest possible number of transactions. Supply in the regulated market was rather fragmented and mainly consisted of ESCOs possessing a limited number of Energy Efficiency Certificates. This is the reason why large distributors tried to conclude bilateral, including multi-year, contracts with the participants that are able to ensure them a quantity of certificates meeting their needs, then resorting to the regulated market for residual quantities.

Historical analysis of prices

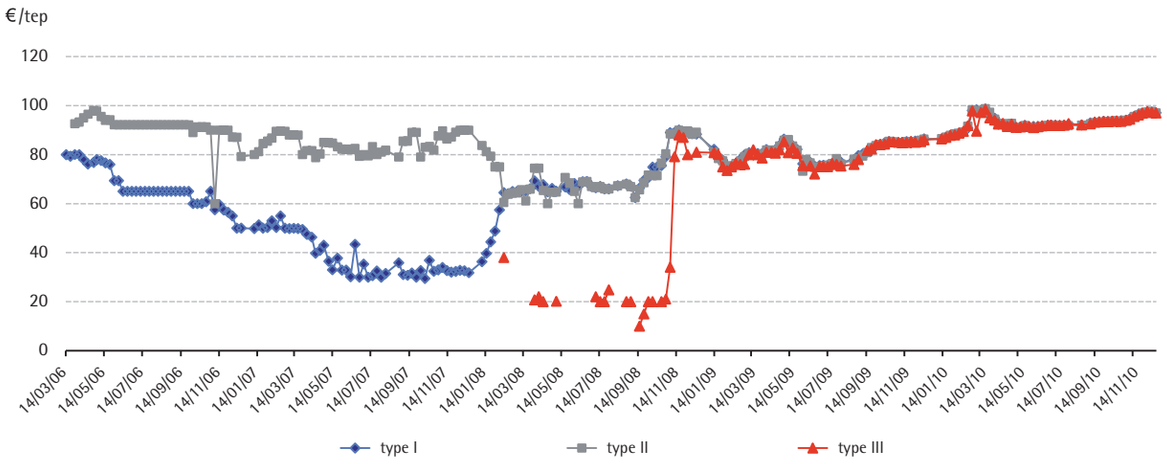
At the beginning of the support mechanism, the circumstance for which, on the one side, electricity distributors had to fulfil their obligation with at least 50% of Energy Efficiency Certificates of type I, and similarly, gas distributors with at least 50% of Energy Efficiency Certificates of type II, caused the prices of the two types to differentiate. In particular, the higher supply of type-I certificates as against that of type-II certificates, also as a result of the greater feasibility and cost-effectiveness of electricity-saving projects, resulted in a downward pressure on the prices of type I, whereas the prices of type-II certificates remained relatively close to the value of the tariff reimbursement, at the time amounting to 100 €/toe.

Type-III certificates actually were not traded, as obliged distributors were not entitled to receive the tariff reimbursement, if they cancelled that type of certificates.

At the end of 2007, the Ministerial Decree of 21 Dec. introduced the equivalence of type-I and type-II certificates in the use of the two types of certificates for the purposes of fulfilling the obligation, allowing price realignment. Furthermore, article 7, para. 3 of the Legislative Decree 115/08 stated that "...savings of forms of energy other than electricity and natural gas not to be used for transport are equalised to natural- gas savings", thus equalising type-III certificates, representing primary-energy savings, to type-II certificates, certifying natural-gas savings.

As a result, obliged distributors, for the purposes of fulfilling their obligation, could receive the applicable tariff reimbursement also by submitting type-III certificates, thus beginning trading also of this type of certificates at prices that quickly adjusted to the price level of the other two types.

Fig C.3.9 **TEE prices in the regulated market - March 2006 - December 2010**



The Ministerial Decree of 21 Dec. 2007 also introduced an automatic rebalancing mechanism of the market, whereby AEEG was to verify, beginning in 2008, the number of exceeding Energy Efficiency Certificates in respect of the obligations and still owned, at 1 June of each year, of the ESCOs and of the companies hiring energy managers (Law 10/91).

Should this quantity exceed by more than 5% the national saving target, the targets of the successive years would be increased by said excess quantities. The introduction of this provision helped reduce price volatility in the years 2008, 2009, and 2010.

3.3 Emission allowances (EUA)

With regard to the functioning of the Emissions Trading Market and its trades, during 2010, on the different European platforms, overall 5.12 billion EUAs were negotiated, with a 0.6 % negative variation on the previous year. Below, fig. C.3.10 contains the graph illustrating the trend of weekly prices of trades of 2010, of emission allowances (EUAs expiring in December 2010), recorded in the three main European forward markets (NordPool, EEX, ECX).

Prices of EUAs in NordPool, EEX, ECX (2010) Fig C.3.10

Source: NordPool, EEX, ECX data processed by GME.

The forward prices of emission allowances expiring in December 2010 fluctuated between minimum 12.53 €/t CO_2 and maximum 15.94 €/t CO_2.

In the market regulated and managed by GME, slightly more than 40 million EUAs were traded during 2010. Please note, however, that GME suspended, as of 1 December 2010 and until further notice, any transactions in the Emissions Trading Market regulated and managed by GME, in light of the unusual trends of negotiations as found in the latest market sessions and, in particular, of allegedly irregular or illegal conducts.

The allegedly irregular conducts by some participants were compounded, towards the end of 2010, by EUA thefts in some European registries. Following this, the European Commission ordered, on 19 January 2011, the concurrent closure of said registries to be able to increase the security levels required both for admission to the system and access to the trading platforms.

As a result of the temporary closure of all national registries, transactions were suspended on all the platforms organised for trading allowances with physical delivery, as it was impossible to transfer traded EUAs from the selling participant's to the purchasing participant's ownership account.

The European scenario of emissions

The European Commission on 1 April 2011 preliminarily announced that CO_2 emissions from industrial installations under the European Emission Trading Scheme (ETS), introduced by Directive 2003/87/EC, grew by 3.5% (3.3% for Italy) in 2010 on the previous year, due to an increase in energy demand and industrial production[3].

The data indicates a positive recovery movement as against the phase of deadlock and negative growth that had arisen in previous years, when emission levels had dropped. This decrease in the emissions, however, had been caused by a level of economic activity suffering from the world crisis, rather than as a result of structural measures, such as, for example, the increases in electricity generation from renewable sources or in energy efficiency in industrial processes.

As in 2009 emissions dropped by about 11.6% on the previous year, their increase in 2010 shows that industrial production was almost back to its 2008 levels.

3.4 The evolution of environmental policies: international comparison

With regard to environmental issues, 2010 was a year where an economic recovery was registered almost all over the world; in tendential terms[4], the GDP in the United States went up by 2.8%, by 1.7% in the United Kingdom and by 1.3% in Italy.

In the first months of 2011, however, the results obtained in 2010 were countered by the strong political tensions in North African countries and the events regarding the nuclear disaster in Japan after the earthquake.

These events of an unforeseeable and extraordinary nature led world economies to a moment of deep consideration and to a status of uncertainty about any foreign and energy policy decisions to be taken in the immediate future.

Currently, any attempt to predict the forthcoming environmental scenarios will be based on the in-depth estimate of the damage caused by the Fukushima's nuclear disaster. This motivated, at the moment, the Italian government to give up their plans to re-start the nuclear energy programme. At European and international level this also called for careful monitoring of the safety systems and the maintenance status of operational nuclear sites.

The first reactions by the European Commission, apart from the activities adopted to control the safety status of European nuclear sites, envisage the implementation of a detailed action plan to achieve the predefined long-term targets without relying on nuclear power.

Nonetheless, at a time when new impetus was given to the investments in low-carbon sectors, it is essential for all countries, and in particular for Italy, to create and maintain a stable legislative framework which may favour private capital flows that are needed to support the investments. Countries with stable legislative frameworks, such as, for example, Germany, had the opportunity of attracting numerous investors – so as to trigger an important development for industrial sectors related to low environmental impact technologies - and reaching important targets in terms of percentage of renewable sources in the national energy consumption. In Italy so far no industrial cycle has yet established itself in the sectors of renewable sources/energy efficiency, missing an important chance offered by the envisaged incentive plans. By way of example, most of wind turbines and solar panels installed in Italy thanks to the incentivising scheme of Green Certificates and the "conto energia" are manufactured abroad, as well as the components used in said systems.

The important challenge facing Italy today is effectively exploiting support mechanisms, in order to develop an Italian industry of "low-carbon" technologies. This will make it possible to focus on an environmentally sustainable

3 As part of the Kyoto Protocol (Decision 2002/358/EC of the Council, of 25 April 2002) the 15 countries that at the time of the adoption belonged to the EU (EU-15) undertook to cut collective greenhouse gas emissions by 8% as against the defined reference year (1990) between 2008 and 2012. Within this collective commitment, each Member State of the EU-15 must attain a specific national emission target that is binding, for the purposes of the EC law. http://europa.eu/legislation_summaries/environment/tackling_climate_change/l28060_it.htm
Subsequently, on 23 January 2008, the EU Commission issued the 20/20/20 package with three quantity targets to be achieved by 2020: reducing greenhouse gas emissions by 20%, obtaining 20% of the energy from renewable sources and cutting energy consumption by 20%.
http://europa.eu/legislation_summaries/environment/tackling_climate_change/l28060_it.htm

4 http://www.istat.it/salastampa/comunicati/in_calendario/stimapil/20110215_00/

development, which may help attain the targets indicated by the European Union, with low costs for the collectivity and with important opportunities of development for real economy.

4. GAS MARKETS

2010 ended showing unmistakable signs of a recovering gas demand which, as against the previous year dramatically plagued by the deep crisis hitting hard across all sectors and without distinction in all developed economies, rose very close to 83 billion m³ (+6.4%), thus standing below the levels recorded in the immediately preceding, pre-crisis 3 years (about -2%) (see C.1.2.2)(Table C.4.1).

Tab C.4.1 **Snam Rete Gas's gas balance (in million m³)**

Demand	2010	2009	2008	2007	2006	2005	Δ% 2010/2009
Total withdrawal	82.675	77.680	84.526	84.534	84.310	86.101	6,4%
Industrial consumption	13.319	12.274	14.560	15.514	15.685	16.440	8,5%
Consumption by thermal power plants	29.818	28.549	33.477	33.718	31.007	29.621	4,4%
Distribution systems	36.521	33.966	33.376	32.449	34.469	36.875	7,5%
Third-party grid & system consumption	3.018	2.892	3.114	2.854	3.149	3.165	4,4%
Supply							
Imports	75.168	68.676	76.526	73.512	76.482	72.940	9,5%
National production	8.146	8.228	9.120	9.776	11.506	12.159	-1,0%
Storage systems	-641	776	-1.123	1.248	-3.678	1.001	-182,6%
PSV							
Average Price	23,3	18,4	29,1	21,3	-	-	26,8%
Min	18,0	12,2	23,6	13,4	-	-	47,5%
Max	30,0	37,0	35,2	28,8	-	-	-18,9%

Against this backcloth, the gradual start of the different market platforms developed and managed by GME is set, aimed at spot and forward natural gas trading, which in 2010 registered trades for volumes of overall 2,535.61 million m³[1], close to 3% of the yearly national demand. The participation on these platforms still appeared limited owing to the peculiarities of the contracts traded and the take-off right before the end of the year with regard to spot trading.

Tab C.4.2 **Participation in GME's gas markets**

Markets	Admitted particip.	Participants with bids/offers			Participants with matchings		
		Sale	Purchase	Total	Sale	Purchase	Total
P-Gas	**53 (55)**	**21(13)**	**21(11)**	**34 (20)**	**4 (3)**	**13 (6)**	**16 (9)**
Imports segment		20 (9)	3 (0)	21 (9)	1 (0)	1 (0)	2 (0)
Royalties segments		3 (3)	20 (13)	22 (15)	3 (3)	13 (6)	16 (9)
M-Gas	**19 (27)**	**1 (5)**	**1 (9)**	**1 (12)**	**1 (5)**	**1 (9)**	**1 (12)**
MGP-gas contin.trading stage		1 (4)	0 (9)	1 (11)	0 (3)	0 (9)	0 (11)
MGP-gas auction-trading stage		1 (4)	1 (7)	1 (10)	1 (2)	1 (2)	1 (3)
MI		0 (3)	0 (3)	0 (6)	0 (3)	0 (3)	0 (6)

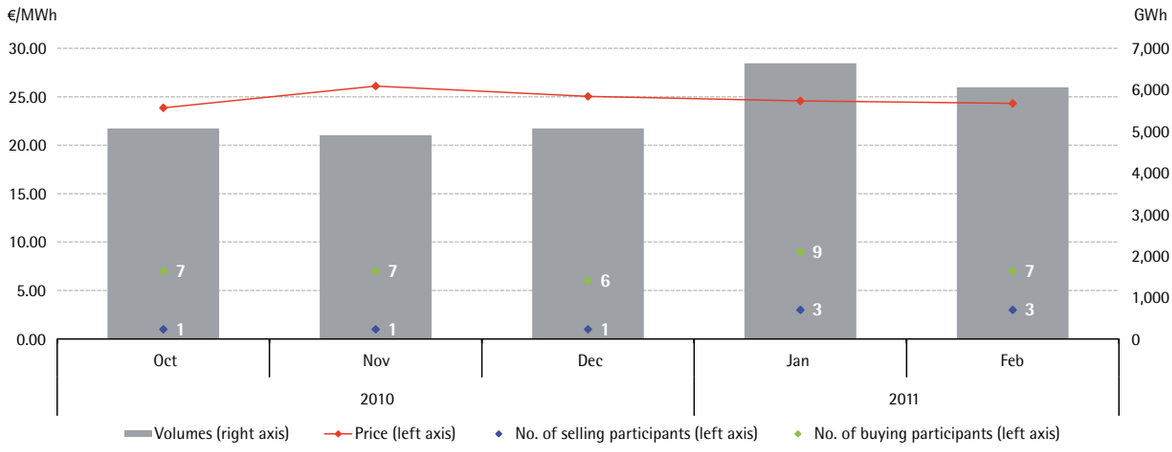
The data between parentheses refer to the first 3 months of 2011 (21 Mar. 2011)

1 This data refers to volumes traded in the MTE in 2010 irrespective of the delivery period.

In detail, on 10 May 2010, the P-Gas – initially consisting only of the "Imports" segment – entered into operation and was intended to facilitate the transfer of quotas of imported gas by the parties that were required to fulfil their obligations pursuant to Law-Decree 7/07 and the Decree of the Ministry of Economic Development of 18 March 2010. On this platform – all participants authorised to perform transactions on the Punto Virtuale di Scambio (virtual trading point, PVS), whether or not obliged – are given the possibility to negotiate, on a continuous trading basis, products with fixed or index-linked price, which are not standardised and with monthly and yearly delivery. The activity in the Imports segment was extremely scant due to the low appeal of the selling prices offered by obliged parties (Table C.4.2). In particular, while the supply side saw a more conspicuous participation, above all by obliged participants, purchasers' participation proved extremely limited, leading to only one matching during the year in respect of the yearly product 2010/2011, for a volume equal to 0.43 million m3 at a price of 23.36 €/MWh, corresponding only to the fixed component of the contract.

Subsequently, thanks to the Decree of the Ministry of Economic Development of 6 August 2010, the P-Gas platform was supplemented by the "Royalties" segment, where the quotas of gas produced domestically and owed to the State are offered, pursuant to Law no. 40 of 2 April 2007. This segment is organised under the auction-trading mechanism, with one auction for each order book, on non-standardised products with monthly delivery. Ever since its start, this segment showed robust liquidity as a result of the provisions defined in P-Gas Regulations on offer/bid submission, which require sellers to offer a price equal to the QE index and purchasers to offer a price not lower than the QE index, thus leaving to demand the task of setting the price. Under these terms, the most active participants were obviously those on the demand side and often supply offers were fully matched only during the first trading day, with traded volumes amounting to 2,535.07 million m^3 and a weighted average price of 24.74 €/MWh.

Trades in the Royalties' segment Fig C.4.1



Lastly, on 13 December the spot gas market became operational and consisted of the day-ahead market (MGP-gas) and the intra-day market (MI-gas). Unlike on the P-Gas, participation in these markets is completely voluntary, without price and volume limits to offers/bids. The MGP-gas market consists of two successive stages: i) under the continuous trading mechanism and ii) under the auction trading mechanism. The continuous-trading stage opens three days before the gas-day to which offers/bids refer, whereas the auction-trading stage takes place in the last of the stated three days. The MI-gas instead consists of a single session under the continuous trading mechanism, during a period between the day before and the day to which offers/bids refer. Having started operation two weeks before year end, these spot markets in 2010 recorded a participation that was still very low, both in terms of submission of bids/offers and concluded contracts, with only one matching for 0.11 million m^3 at a price of 25 €/

MWh concluded in the auction stage of the MGP-gas. However, it is worth pointing out that the markets showed an increasing interest by participants, over the first three months of 2011, chiefly concentrated in the continuous-trading stage of the MGP-gas market, with trades totalling more than 105,000 MWh (9.61 million m^3).

Fig C.4.2 **Natural gas: price comparison**

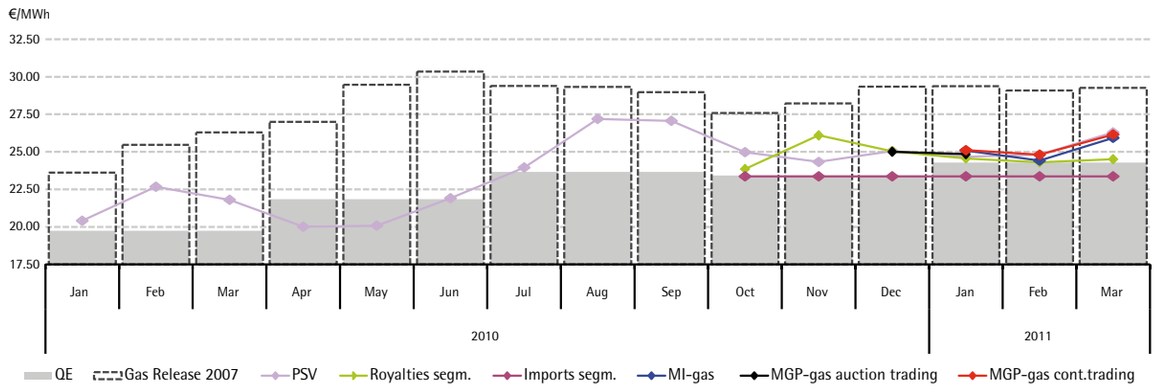
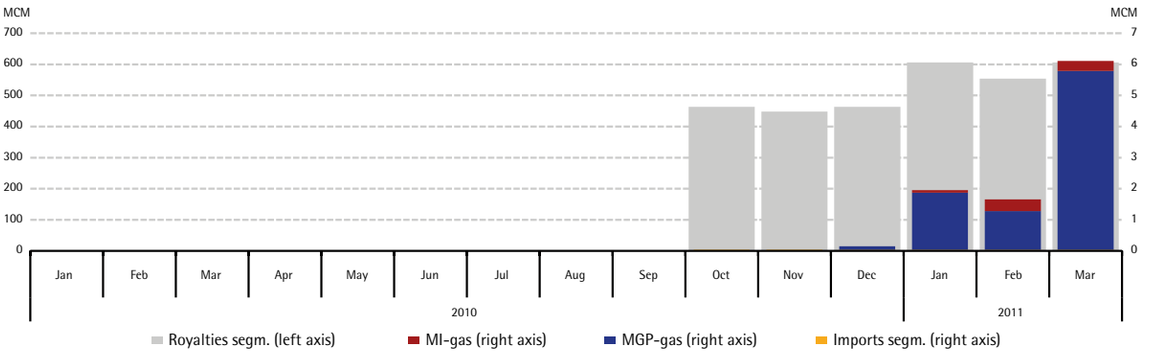
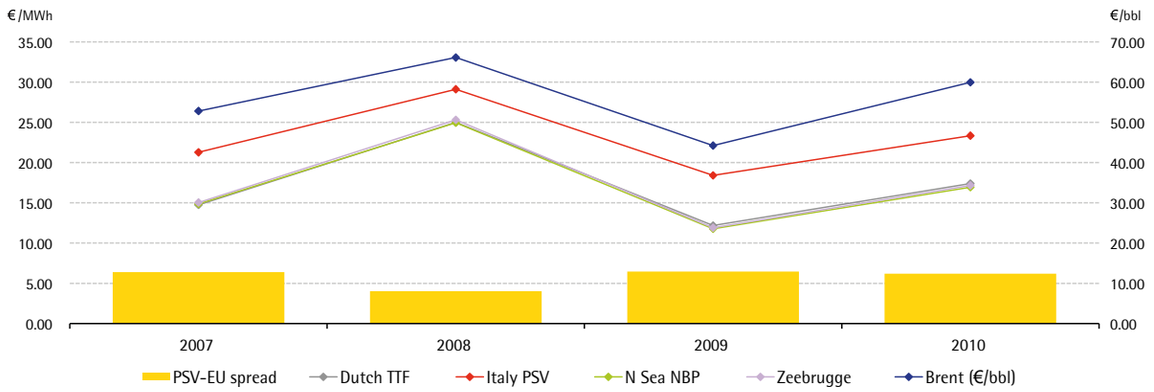


Fig C.4.3 **Natural gas: volume comparison**



The data listed in the spot market (Fig.C.4.2), albeit essentially aligned to the prices existing at the PSV, still preclude a comparison with the spot prices prevailing at the other European hubs. To this end, the prices at the PSV must still be used as reference parameter. In this sense the aforementioned increase in gas demand, in conjunction with the oil price hike, contributed to supporting the gradual growth of gas prices throughout 2010. In detail, the QE index and the price related to the Gas Release 2007 (GR07) formula recorded – in the first six months of the year – strong upward trends and then showed less marked dynamics during the subsequent months, with the QE practically stable on yearly peak levels until the end of 2010 and the GR07 progressively falling until October, later followed by a new trend reversal. In this context, the prices registered at the PSV passed from 20.41 €/MWh in January to 25.05 €/MWh in December, reaching the yearly peak levels registered in the months of August and September (slight above 27 €/MWh) sustained by the uncertainty due to the technical interruptions in the Transitgas pipeline. The bullish dynamics emerged in the prices at the PSV reflected the growth trends at play at international level and showed – after the general collapse recorded in the course of 2009 – upward pressures of natural gas prices in all the major European marketplaces, mainly sustained by the increase in oil prices (Fig.C.4.4). The Italian reference price – up to 23.34 €/MWh (+27%) – confirmed a spread of more than 6 €/MWh as against all other European prices, which amounted to around 17 €/MWh (+44%).

Prices at European hubs Fig C.4.4

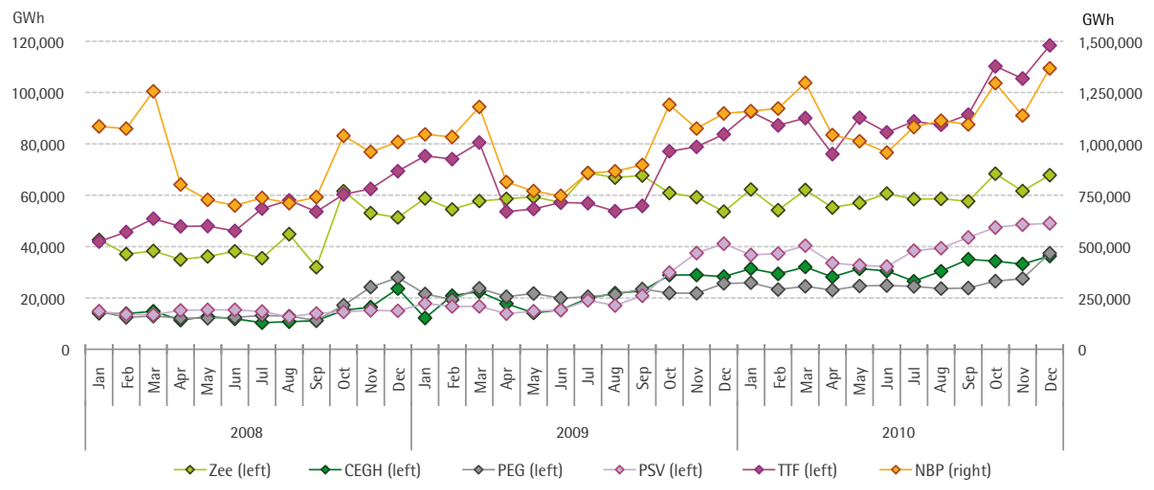


The growth patterns observed on prices revealed an environment of sharp rises of transactions at most European hubs (Table C.4.3). In particular, trades markedly increased close to the Italian reference, thus reaching their all-time record level with volumes equal to 479,151 GWh (+83.9%), in accordance with the Gas Release pursuant to Law no. 102/2009 and the Decision AEEG of 7 August 2009 ARG/gas 114/09. Strong increases in traded volumes were also recorded at the Austrian (+49.5%) and Dutch (+40%) hubs, followed by the French (+18.5%) and the English (+18.1%) hubs, while volumes remained more or less stable in Belgium.

Volumes of gas traded at European hubs Tab C.4.3

European hubs (data in GWh)	Reference	2010	2009	2008	Δ% 2010/2009
NBP	United Kingdom	13,733,843	11,627,961	10,844,971	+18.1%
TTF	The Netherlands	1,122,150	801,593	639,038	+40.0%
Zeebrugge	Belgium	724,008	723,082	505,588	+0.1%
PSV	Italy	479,151	260,591	173,742	+83.9%
CEGH	Austria	378,662	253,336	166,018	+49.5%
PEG	France	309,691	261,420	183,270	+18.5%

Volumes of gas traded at European hubs Fig C.4.5



LIST OF ABBREVIATIONS

ACER	Agency for the Cooperation of Energy Regulators
AEEG	Autorità per l'Energia Elettrica e il Gas (Authority for electricity and gas)
AGCM	Autorità Garante per la Concorrenza e il Mercato (competition regulator)
AHAG	Ad Hoc Advisory Group
AIEE	Associazione Italiana Economisti dell'Energia
AU	Acquirente Unico (Single Buyer)
BBL	Barrel of oil
BEN	Bilancio Energetico Nazionale (national energy balance)
BP	British Petroleum
CACM	Capacity Allocation and Congestion Management
CC&G	Cassa di Compensazione e Garanzia
CCT	Fee for Assignment of Rights of Use of Transmission Capacity
CDE	Electricity Derivatives Delivery Platform
EC	European Commission
CEGH	Central European Gas Hub
CER	Certified Emission Reduction
CFD	Contract-for-Differences
CH	Clearing House
CIP-6	Resolution 6/1992 by the Comitato Interministeriale Prezzi(CIP - Interministerial Committee on Prices)
CV	Green Certificates (GCs)
ECC	European Commodity Clearing
EEX	European Energy Exchange
EFET	European Federation of Energy Traders
EIA	Energy Information Administration
ENTSO-E	European Network Transmission System Operators for Electricity
ENTSO-G	European Network Transmission System Operators for Gas
EPEX	European Power Exchange
ERGEG	European Regulators' Group for Electricity and Gas
ERIs	Electricity Regional Initiatives
ESCO	Energy Service Company
ETS	Emission Trading Scheme
EUA	Emission Unit Allowance
Eurelectric	Association of the Electricity Industry in Europe
EUROPEX	Association of European Energy Exchanges
EXAA	Energy Exchange Austria
IMF	International Monetary Fund
GC	Green Certificate
GJ	Gigajoule
GME	Gestore dei Mercati Energetici
LNG	Liquefied Natural Gas
GRIs	Gas Regional Initiatives
GSE	Gestore dei Servizi Energetici
GW	Gigawatt
GWh	Gigawatt-hour
HHI	Hirschmann Herfindal Index

IDEX	Italian Derivatives Energy Exchange
IEA	International Energy Agency
IFIEC	International Federation of Industrial Energy Consumers
IOM	Price-setting Operator Index
IOR	Residual Supply Index
IPEX	Italian Power Exchange
ISPRA	Istituto Superiore per la Protezione e la Ricerca Ambientale (Environmental Protection and Research Institute)
ISTAT	Istituto di Statistica (Italian National Institute of Statistics)
ITEC®	Italian Thermoelectric Cost
ITM	Price-setting Technology Index
IZM	Price-setting percentage, by zone and by year
LCH	London Clearing House
MA	Adjustment Market
MB	Balancing Market
MCP	Market Clearing Price
MCV	Green Certificates Market
MEF	Ministry of Economy and Finance
MGP	Day-Ahead Market
MGP-GAS	Day-Ahead Gas Market
MI	Intra-Day Market
MI-GAS	Intra-Day Gas Market
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortisation
MPE	Spot Electricity Market
MSD	Ancillary Services Markets
MSE	Ministry of Economic Development
MTE	Forward Electricity Market
MW	Megawatt
MWh	Megawatt-hour
MZ	Zonal Market
NBP	National Balancing Point
OECD	Organisation for Economic Co-operation and Development
OMEL	Operador del Mercado Iberico de Energia
OMIP	Iberian Power Derivatives Exchange
OPEC	Organisation of Petroleum Exporting Countries
OTC	Over The Counter
PAB	Demand-Side Bilaterals Adjustment Platform
PBCV	Green Certificates Bilaterals Registration Platform
PCE	Electricity Account Registration Platform
PCG	Project Co-ordination Group
PCR	Price Coupling of Regions
PEG	Point d'Echange de Gaz
P-GAS	Platform for the trading of quotas of imported gas and royalties
GDP	Gross Domestic Product
PSV	Punto di Scambio Virtuale (Virtual Trading Point)
PUN	Single National Purchasing Price
PX	Power Exchange

PZ	Zonal Price
EBIT	Earnings Before Interest
ROE	Return on Equity
ROI	Return on Investment
RTN	National Transmission Grid
TEE	Energy Efficiency Certificates
TOE	Tonne of oil-equivalent
TSO	Transmission System Operator
TTF	Title Transfer Facility
TW	Terawatt
TWh	Terawatt-hour
EU	European Union
UIC	Ufficio Italiano Cambi (Italian Foreign Exchange Office)
UNEP	United Nations Environment Program
UNFCCC	United Nations Framework Convention on Climate Change
UNMIG	Ufficio Nazionale Minerario per gli Idrocarburi e la Geotermia (National Office for Mining, Hydrocarbons and Geothermal Resources)

GLOSSARY

Acquirente Unico (AU)
Company ("Società per Azioni") created by Gestore della Rete di Trasmissione Nazionale (now Gestore dei Servizi Energetici - GSE), with the task of guaranteeing the availability of electricity to cover the demand of captive customers by purchasing the required electrical capacity and reselling it to distributors on non-discriminatory terms and making it possible the application of a single national tariff to final customers. To do so, AU may purchase electricity in the Power Exchange or through Bilateral Contracts.

Agency for the Cooperation of Energy Regulators (ACER)
EU agency established in 2010 pursuant to Reg. 713/2009 (Third Energy Package). The Agency was created at EU level with the aim of assisting national authorities in fulfilling their regulatory tasks and, where necessary, of coordinating their actions.

Ancillary Services Markets (MSD)
Venue for the trading of supply offers and demand bids in respect of ancillary services. Terna S.p.A. uses this market to relieve intrazonal congestions, procure reserve capacity and balance injections and withdrawals in real time. Participation in the MSD is restricted to units that are authorised to supply ancillary services and bids/offers may be submitted only by the related dispatching users. Participation in the MSD is mandatory. The MSD produces two separate results: 1) the first result (ex-Ante MSD) concerns the bids/offers that Terna S.p.A. has accepted on a scheduled basis for relieving congestions and creating an adequate reserve margin; 2) the second result (ex-post MSD) concerns the bids/offers that Terna S.p.A. has accepted in real time for balancing injections and withdrawals (by sending balancing commands). Bids/offers accepted in the MSD determine the final injection and withdrawal schedules of each offer point. In the MSD, bids/offers are accepted by economic merit order, taking into account the need for ensuring the proper operation of the system. Bids/offers accepted in the MSD are valued at the offered price (pay as bid).

Arbitrage
In finance, the purchase of goods or securities exploiting market inefficiencies in order to obtain a sure profit. The function of arbitrageurs is essential to ensure a correct price-setting mechanism, as their transactions help redress price discrepancies, if any, as soon as they appear.

Autorità Garante per la Concorrenza e il Mercato (AGCM)
Better known as the Antitrust Authority, it is an independent authority established by Law no. 287 of 10 October 1990 (The Competition and Fair Trading Act). AGCM also has jurisdiction regarding misleading advertising and comparative advertising, as provided for in Title III, Chapter II of Legislative Decree 206 of 6 Sep. 2005, and regarding the conflict of interests, pursuant to Law no. 215 of 20 July 2004.

Autorità per l'Energia Elettrica e il Gas (AEEG - Electricity & Gas Regulator)
Independent Regulator established by Law no. 481 of 14 November 1995 with the task of guaranteeing the promotion of competition and efficiency in the electricity & gas sectors. With regard to GME's activity, AEEG is responsible, among others, for defining rules for merit-order dispatch and market power control mechanisms.

Bilateral contract (Bilateral or Over-The-Counter Contract or OTC Contract)
Contract of supply of electricity concluded off the power exchange between a producer/wholesaler and an eligible customer. The price for the supply, as well as the injection and withdrawal profiles are freely agreed by the parties. However, the hourly injections and withdrawals must be reported to Terna S.p.A., which will verify their consistency

with transmission constraints on the national transmission grid.

Cascading
Procedure under which quarterly and yearly forward contracts (futures, forwards and Contracts for Differences) are replaced upon maturity with an equivalent number of contracts of shorter maturity. The new positions are opened at a price equal to the final settlement price of the original contracts.

Churn Ratio
Measure of the liquidity degree of gas hubs, calculated as the ratio of volumes of traded gas to volumes of delivered gas.

CIP-6
Resolution no. 6 adopted in 1992 by Comitato Interministeriale Prezzi (CIP - Interministerial Committee on Prices). The resolution promotes the construction of plants for generation of electricity from renewable and/or so-called "assimilated" sources, as per Law 9/91. GSE purchases the electricity generated by such plants under art. 3.12 of Legislative Decree 79/99, and sells it in the Power Exchange under art. 3.13 thereof. In the years elapsing from the approval of Legislative Decree 79/99 to the start of the Power Exchange, GSE sold such electricity to final customers by selling yearly and monthly electricity bands (similar to Bilateral Contracts). From 1 January 2005, GSE offers CIP-6 electricity directly in the Power Exchange: market participants with CIP-6 allocations are required to enter into a Contract for Differences with GSE, under which they undertake to procure the volumes of electricity corresponding to their allocations in the Electricity Market.

Clean Development Mechanism (CDM)
One of the flexible mechanisms identified in the Kyoto Protocol to help developing countries to switch from their present development model to a less carbon-intensive one. Through the CDM, a developed country invests in a project of emission reduction or greenhouse gas capture in a developing country. In this way, the developing country may have access to a less polluting technology, while the industrialised country and/or its companies may reduce their costs of compliance with emission reduction constraints.

Clearing House
Institution, within securities exchanges, that guarantees successful fulfilment of the obligations underlying the transactions concluded by participants. It acts as a central counterparty, replacing the contractual parties which originally conclude a contract.

Clearing Price
It generally identifies the electricity price that is set in the Day-Ahead Market and in the Intra-Day Market in each hour, at the intersection of demand and supply curves, and such as to balance demand with supply, maximise social well-being and perform efficient transactions. In case of market splitting into 2 or multiple zones, both in the Day-Ahead Market and in the Intra-Day Market, the clearing price may be different in each market zone (zonal price). In the Day-Ahead Market, the zonal clearing price may be applied to all supply offers, to demand bids submitted in respect of mixed units and to demands bids submitted in respect of consuming units belonging to virtual zones. Demand bids in respect of consuming units that belong to geographical zones are always valued at the National Single Price (PUN). In the Intra-Day Market, in case of market splitting into 2 or multiple zones, the zonal clearing price is applied to all supply offers and demand bids.

Coefficient of Variation
Volatility index expressed in percentage terms and given by the ratio of the standard deviation to the average

value of prices.

Constrained Zone ("Point of Limited Production" or "Pole of Limited Production")
Set of generating units connected to one portion of the national transmission grid without withdrawal points and whose maximum generation exportable to the rest of the grid is lower than the maximum possible generation owing to insufficient transmission capacity. In the Italian market it is defined as a virtual national zone.

Contract-for-Differences (CFD)
Contract under which two parties exchange financial flows on the basis of the difference between a price specified in the same contract (strike price) and the price arising in the underlying market at given maturities and for predetermined volumes. For hedging purposes, the portfolio of AU includes two-way CFDs. GSE holds similar CFDs for the electricity volumes that it purchases from CIP-6 power plants. In this case, the purchasing counterparties are – pro quota – AU and a group of operators. In each applicable period, GSE will pay the difference (multiplied by the quantity of the underlying electricity), if positive, and receive the difference, if negative. One-way CFDs are actually call options. In this case, the purchaser pays an upfront premium and, if the market price of the underlying exceeds the strike price established in the CFD, the purchaser receives the difference from the counterparty; otherwise, no financial flows will arise.

Day-Ahead Market (MGP)
Venue for the trading of electricity supply offers and demand bids for each hour of the next day. All electricity operators may participate in the MGP. In this market, supply offers may only refer to injection and/or mixed points and demand bids only refer to withdrawal and/or mixed Points. GME accepts bids/offers by merit order, taking into account the transmission limits notified by Terna S.p.A. Accepted supply offers are remunerated at the zonal clearing price. Accepted demand bids are remunerated at the National Single Price (PUN). Accepted bids/offers determine the preliminary injection and withdrawal schedules of each offer point for the next day. Participation in this market is optional.

Day-Ahead Gas Market (MGP-GAS)
Venue for the trading of gas supply offers and demand bids in respect of the applicable period following the one in which the auction-trading sitting of the same MGP-GAS ends. All operators authorised to carry out transactions at the Virtual Trading Point (PSV) may participate in the MGP-GAS. The MGP-GAS takes place in two successive stages: in the first stage, transactions take place under the continuous-trading mechanism; in the second stage, they take place under the auction-trading mechanism. In the MGP-GAS, gas demand bids and supply offers are selected in respect of the calendar gas-day following the one on which the auction-trading session ends.

Derivatives Contract
Financial instrument whose price and valuation depend on the value of an another commodity, defined underlying instrument. This category includes options and futures.

Electricity Account Registration Platform (PCE)
Electronic platform for registering bilateral contracts. The PCE introduces significant elements of flexibility with respect to the Bilaterals Platform used previously. The operation of the PCE is covered by AEEG's Decision 111/06 and by the relevant Rules issued by GME. Five types of contracts may be registered on the PCE: four contracts of standard type (base-load, peak-load, off-peak, week-end) and one contract of non-standard type. Market participants may register data concerning the volumes and delivery duration of their forward contracts up to two months in advance of the date of physical delivery.

Electricity Derivatives Delivery Platform (CDE)
Platform organised by GME to allow the exercise of the option of the physical delivery for electricity futures contracts negotiated on IDEX.

Emission Allowance (or Unit)
Certificate worth 1 tonne of CO2 emissions, which may be traded and used to demonstrate compliance with the obligation to hold down greenhouse gas emissions, as defined in the Emission Trading Scheme.

Emission Trading Scheme (ETS)
Scheme of greenhouse gas emission allowance trading between European Union's member countries. Emissions trading is one of the mechanisms identified in the Kyoto Protocol.

Energy Efficiency Certificates (TEE) or (White Certificates)
White Certificates established by the Decrees issued by the Ministry of Productive Activities, jointly with the Ministry of Environment and Land Protection, on 20 July 2004 (Ministerial Decrees 20/7/04). They give evidence of energy savings that electricity and gas distributors with over 50,000 customers are required to achieve. Energy Efficiency Certificates, which are issued by GME after authorisation by AEEG, are valid for five years starting from the year of reference.

Ex - Ante MSD
The ex-ante MSD consists of three scheduling substages: MSD1, MSD2 and MSD3. The sitting for bid/offer submission into the ex-ante MSD is a single one and opens at 3:30 p.m. of the day before the day of delivery and closes at 5:00 p.m. of the day before the day of delivery. The results of the ex-ante MSD are made known within 2:00 p.m. of the day of delivery. In the ex-ante MSD, Terna accepts energy demand bids and supply offers to relieve residual congestions and create reserve margins.

Fee for Assignment of Rights of Use of Transmission Capacity (CCT)
Hourly fee, as defined in art. 43 of AEEG's Decision 111/06 (as subsequently amended and supplemented). For injection schedules and withdrawal schedules (only if the withdrawal schedules refer to mixed points or withdrawal points belonging to neighbouring countries' virtual zones) registered in accordance with the PCE Rules, this fee is equal, for each hour, to the product between: 1) the difference between the National Single Price and the zonal price of the zone where the dispatching points are located; 2) the forward electricity account schedule resulting from the Day-Ahead Market (MGP). Both in the MGP and in the MI, the fee for GME, in each hour is equal to the difference between the purchasing value and the selling value of Power Exchange volumes.

Forward Contract
Contract for trading an asset where price-quantity terms are set upon concluding the contract. The contract will be executed at a future predefined date. Hence, it qualifies as a sale/purchase with deferred delivery.

Forward Electricity Market (MTE)
Venue where forward electricity contracts with delivery and withdrawal obligation are traded.

Futures Contract
Forward contract characterised by the standardisation of its main clauses. This contract may be traded in regulated markets.

Gestore dei Mercati Energetici (GME)
Company ("Società per azioni") established by Gestore dei Servizi Energetici - GSE. GME is vested with the economic management of the electricity and natural gas market under principles of transparency and objectivity. GME also manages the Environmental Markets (Green Certificates Market, Energy Efficiency Certificates Market, Emissions Trading Market) and has taken over the management of the P-GAS platform. The main purpose of the P-GAS is to allow Participants to comply with their obligation to bid a quota of imported gas produced in non-European countries in the regulated market, as per art. 11 of Legislative Decree 7/07.

Gestore dei Servizi Energetici (GSE)
Publicly-owned company ("società per azioni") playing a central role in promotion, support and development of renewable sources in Italy. GSE's sole shareholder is the Ministry of Economy and Finance, which exercises its shareholder rights together with the Ministry of Economic Development. GSE controls two subsidiaries: Acquirente Unico (AU) and Gestore dei Mercati Energetici (GME).

Green Certificates (GCs)
Certificates giving evidence of generation of electricity from renewables (RES-E), in compliance with art. 5 of the Ministerial Decree of 24 October 2005 (as amended). Producers and importers of electricity from non-renewable sources exceeding 100 GWh/year are required to inject a given quota of RES-E into the power grid (renewable quota obligation). Green Certificates are issued by GSE for the first twelve years of operation of RES-E plants. Conversely, the electricity generated by RES-E plants, which have gone into operation or have been repowered since 1 January 2008, is certified as RES-E for the first 15 years of operation of the same plants. Green Certificates, each of which is worth 1 MWh, may be purchased or sold in the Green Certificates Market (MCV) by parties with deficits or surpluses of generation from renewables.

Green Certificates Bilaterals Registration Platform (PBCV)
The Green Certificates Bilaterals Registration Platform (PBCV) is an electronic platform enabling Participants to register and settle their bilateral transactions on Green Certificates (transfer of ownership) in accordance with the provisions laid down in the PBCV Rules.

Greenhouse gases
See Kyoto Protocol

Herfindahl-Hirschman Index (HHI)
Aggregate market index measuring the degree of concentration and dispersion of volumes offered and/or sold by market participants. The value of the HHI may range from 0 (perfect competition) to 10,000 points (monopoly). If the value is below 1,200, the market is competitive; if it is above 1,800, it is poorly competitive. The HHI is computed on an hourly basis by aggregating the volumes offered and/or sold (including those covered by bilateral contracts) by the individual market participants (on the basis of their belonging group): the volumes pertaining to CIP-6 contracts are included in the computation and assigned to market participant GSE.

IDEX
The segment of the financial derivatives market (IDEM) organised and managed by Borsa Italiana S.p.A., where financial electricity derivatives are traded.

Intra-day Gas Market (MI-GAS)
Venue for the trading of gas demand bids and supply offers in respect of the gas-day corresponding to the one on which the session ends. The MI-GAS takes place in a single session under the continuous-trading mechanism.

Intra-Day Market (MI)
Venue for the trading of electricity supply offers (sale offers) and demand bids (purchase offers) in respect of each hour of the next day, which modify the injection and withdrawal Schedules resulting from the MGP. GME accepts bids/offers submitted into the MI by merit order, taking into account the transmission limits remaining after the MGP. Accepted bids/offers are remunerated at the zonal clearing price. Accepted bids/offers modify the preliminary schedules and determine the revised/updated injection and withdrawal schedules of each offer point for the next day. Participation in the MI is optional.

Italian Power Exchange (IPEX)
Name under which the Italian Power Exchange is known abroad.

Kyoto Protocol
International environmental treaty signed in the Japanese city from which it takes its name. The treaty was signed on 11 December 1997 by over 160 countries on the occasion of the Conference of the Parties (COP3) to the United Nations Framework Convention on Climate Change (UNFCCC) and global warming. The treaty entered into force on 16 February 2005, after its ratification by Russia. The treaty requires industrialised countries to sharply cut down their emissions of pollutants (carbon dioxide and five other greenhouse gases, i.e. methane, nitrogen oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride) by at least 5.2% from their 1990 levels (base-year) in the 2008-2012 period. The protocol also covers the trading (purchase and sale) of greenhouse gas emission allowances.

Liquefied Natural Gas (LNG)
Natural gas that is subject to a liquefaction process for ease of transport on gas carriers. At destination, LNG is converted to its original status through special re-gasification facilities.

Liquidity
Ratio of volumes traded on the exchange (in the MGP) to total volumes (including bilateral contracts) traded in the "Sistema Italia".

Macro-Zone
Aggregation of geographical and/or virtual zones that is conventionally defined for the production of statistical market indices. A macro-zone has a low frequency of market splitting and a homogeneous trend of selling prices. From 1 Apr. 2004 to 31 Dec. 2005, macro-zones were as follows: NORD (northern Italy, including northern zones, Monfalcone, Turbigo), CENTRO SUD (central-southern Italy, including central-northern zones, central-southern zones, southern zones, Piombino, Rossano, Brindisi), SICILY (including the zones of Calabria, Sicily and Priolo) and SARDINIA (including the zone of Sardinia). From 1 Jan. 2006 to 31 Dec. 2008, macro-zones were as follows: MzNord (including northern zones, Monfalcone, Turbigo), MzSicily (including the zones of Sicily and Priolo) and MzSardinia (including the zone of Sardinia), MzSud (including the remaining zones). From 1 Jan. 2009, macro-zones are as follows: MzNord (including northern zones and Monfalcone), MzSicily (including the zones of Sicily and Priolo), MzSardinia (including the zone of Sardinia) and MzSud (including the remaining zones).

Margin
In the operations related to securities or derivatives instruments, it is the percentage of the value of securities (purchased or sold) which must be kept as cash or liquid assets by the market participant, to guarantee the possible variations of the investment values.

Marginal Market Participant Index (or Price-Setting Operator Index – IOM)
Index referring to individual market participants that have set the selling price at least once. For each market participant, in each period of time and each macro-zone, the index is defined as the share of the volumes on which the market participant has set the price, i.e. as the ratio of the sum of the volumes sold (including bilateral contracts), in the geographical zones (included in the macro-zone) where the market participant has set the price to the sum of the overall volumes sold in the macro-zone.

Marginal Technology Index (or Price-Setting Technology Index – ITM)
Index entirely similar to the IOM (i.e. Marginal Market Participant Index). It takes into consideration the technology used for power generation rather than the market participant.

Mark to Market
Procedure of daily valuation of a portfolio of derivatives contracts based on the prices expressed by the market, as used on forward exchanges to manage the margins paid in by the participants to guarantee the undertaken positions.

Market Clearing Price (MCP)
Equilibrium price; by extension, it identifies the rule for remunerating bids/offers that are accepted in the Day-Ahead Market and in the Intra-Day Market on the basis of the price of the marginal bid/offer.

Market Coupling
Mechanism of co-ordination between regulated electricity markets in different national states, having the purpose of managing congestions on interconnected networks (cross-border trade). The goal of market coupling is to maximise the use of interconnection capacity under cost-effectiveness criteria (ensuring that electricity flows are directed from markets with lower prices towards those with relatively higher prices).

Market Splitting
Mechanism aimed at managing grid congestions and similar to market coupling. The difference lies in the fact that the market zones involved are managed by a single entity. This is the case of the Italian market managed by GME, which has a zonal configuration.

Merit-Order Dispatch (or economic dispatch)
Activity that GME carries out on behalf of Terna S.p.A. This activity consists in determining the hourly injection and withdrawal schedules of the units associated with offer points on the basis of the offer price and, if this price is equal, on the basis of priorities specifically assigned to the different types of unit by Terna S.p.A. In particular, supply offers are accepted – and thus injection schedules are determined – by increasing offer price order, whereas demand bids are accepted - and thus withdrawal schedules are determined - by decreasing offer price order. Furthermore, bids/offers are accepted consistently with the transmission limits between pairs of zones that are daily defined by Terna S.p.A. The following electricity volumes participate in merit-order dispatch: volumes directly offered in the market; volumes generated by plants with a capacity of less than 10 MVA, by CIP-6 plants and by plants selling electricity under bilateral contracts; and electricity import volumes.

National Single Price (PUN)
Average of zonal prices in the Day-Ahead Market, weighted for total purchases and net of purchases for pumped-storage units and of purchases by neighbouring countries' zones.

National Transmission Grid (RTN)
It is the set of lines which, in Italy, make part of the grid used to carry electricity from generation centres to distribution and consumption areas.

Nomination
Procedure whereby each participant notifies its electricity injection (withdrawal) schedule into the (from the) transmission grid.

Offset
Typical procedure of forward markets whereby a position may be closed before expiration, concluding a contract of opposite sign as against the original one. This mechanism is made possible by the standardisation of traded contracts.

Option
Contract vesting the purchaser with the option to buy (call option) or sell (put option) a financial or real asset at a pre-determined (strike) price at a given date (European option) or by such date (American option). The right is granted by the writer to the buyer against payment of a premium representing the option price.

OTC (Over-the-Counter) Markets
Unregulated markets, i.e. all those markets where financial assets are traded off the official stock exchanges. Usually, trades are not standardised and "atypical" contracts may be concluded. The contracts negotiated on these markets generally have a level of liquidity lower than the one of regulated markets.

Pay as bid
Valuing rule adopted in the MSD; under this rule, each bid/offer is valued at its own offer price.

Peak Capacity
It is the highest value of electrical capacity supplied or consumed at any point of the grid in a given time interval.

P-GAS
Platform, organised and managed by GME, for the trading of natural gas bids/offers; it consists of the Imports' Segment and of the Royalties' Segment.

Power Exchange
Virtual venue where wholesale electricity supply and demand meet. GME is vested with the management of transactions in the Power Exchange under art. 5 of Legislative Decree 79/99.

Price Coupling of Regions (PCR)
Co-operation agreement between the six main European power exchanges (APX/ENDEX, Belpex, EPEX, GME, Omel, NordPool) aimed at identifying a co-ordinated mechanism for the setting of the electricity price in such markets. The project is intended to lay the foundations for the creation of a real European energy market.

PSV
"Sistema per Scambi/Cessioni di Gas al Punto di Scambio Virtuale – modulo PSV" (gas trading system at the Virtual Trading Point - PSV), referred to in AEEG's Decision 22/04 and organised and managed by Snam Rete Gas.

Renewable Energy Sources (RES - renewables)
This category includes solar, wind, hydro, geothermal, tidal and wave energy and the conversion of vegetal products or organic and inorganic waste into electricity.

Residual Index Supply (IOR)
Index referring to individual market participants that submit offers into the market. The index measures the presence of residual market participants, i.e. those that are necessary to cover demand. The IOR is defined, for each market participant, as the ratio of the overall volumes offered by competitors to the overall volumes sold. The IOR is 1 when there is one residual Market participant; the closer is the index to 0, the higher will be the share of the market participant's offer that can be sold, regardless of its offer price. The IOR is calculated by aggregating the volumes offered by individual market participants (aggregated on the basis of their belonging group), including the volumes covered by bilateral contracts. Also the volumes of CIP-6 contracts are included in this calculation and are allocated to GSE. The use of the non-contestable volume in the denominator enables to discount the effect of the domestic demand at each transit zone with neighbouring zones. Of this index, two derivations, for each macro-zone, are published on a regular basis: the percentage of hours during which at least one participant has been necessary; the percentage of the energy sold under residual conditions in the overall sold energy, equal to the simple average of the residual hourly volumes of the macro zone (in turn defined as the sum, for all participants, of the volume offered by each participant minus the overall offered volume plus the overall sold volume); the number of participants and the percentage of hours in which they have been necessary.

Shale Gas
Special and very common type of non-conventional gas derived from shale. It is becoming increasingly important, above all in the United States, thanks to the development of new drilling techniques that make extraction cost-effective.

Spot Price
Current price expressing the present «market value» of a given good or asset.

Terna - Rete Elettrica Nazionale S.p.A.
Company in charge of electricity transmission and dispatching over the high-voltage (HV) and extra-high voltage (EHV) grid throughout Italy. Terna is a listed company. Its shares were first traded on the Stock Exchange on June 2004. Currently, its relative majority shareholder is "Cassa Depositi e Prestiti".

Toe (Tonnes of Oil-Equivalent)
Conventional unit widely used in energy balances to express all energy sources in a common unit of measurement, taking into account their calorific value.

Transmission Limits (or Transit Limits)
Maximum electricity transmission capacity between a pair of zones; it is expressed in MWh. The transmission limits are part of the preliminary information that Terna S.p.A. daily notifies to GME and that GME posts on its website. GME uses these limits in the procedure leading to the identification of clearing prices in the MGP and MI.

Transmission System Operator (TSO)
Entity in charge of managing and operating the power and gas transmission grid.

Unconstrained
In the MGP, virtual prices or volumes that would arise if there were no transmission constraints.

White Certificates
See Energy Efficiency Certificates

Zonal Price (Pz)
Clearing Price in each geographical and virtual zone.

Zone
Portion of the power grid where, for system security purposes, there are physical limits to transfers of electricity to/from other geographical zones. The zones are defined by Terna S.p.A. and approved by AEEG. At present, the zones are as follows:

- **Geographical Zone** - representing a portion of the national grid. Geographical zones are northern Italy (NORD), central-northern Italy (CNOR), central-southern Italy (CSUD), southern Italy (SUD), Sicily (SICI), Sardinia (SARD).
- **National Virtual Zone** - constrained zone ("Point or Pole of Limited Production"). It includes: Monfalcone (MFTV), Rossano (ROSN), Brindisi (BRNN), Priolo (PRGP) and Foggia (FOGN).
- **Foreign Virtual Zone** - point of interconnection with neighbouring countries. It includes: France (FRAN), Switzerland (SVIZ), Austria (AUST), Slovenia (SLOV), BSP (zone representing the Slovenian Electricity Market managed by BSP and connected to IPEX via the market coupling mechanism), Corsica (CORS), Corsica AC (COAC), and Greece (GREC).
- **Market Zone** - aggregation of geographical and/or virtual zones such that the flows between the same zones are lower than the transmission limits notified by Terna S.p.A.. This aggregation is defined on an hourly basis as a result of the resolution of the Day-Ahead Market and Intra-Day Market. In the same hour, different market zones may have non-different zonal prices.

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