GME
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Elettrico

Vademecum

OF GME'S ENVIRONMENTAL MARKETS

VADEMECUM

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Introduction

Concern about environmental protection grows proportionally with scientific and technological development, which creates well-being and wealth, as well as environmental hazards and risks.
Commitment to achieving major energy conservation and greenhouse gas emission reduction targets envisages scenarios that may be implemented by means of focused measures. These measures may not only yield well-known environmental benefits, but also increase working opportunities.
Market mechanisms have been introduced in Italy to support environmental protection measures. These measures permit to curb harmful emissions into the atmosphere by developing electricity generation from renewable energy sources, enhancing energy efficiency in industrial processes and applying new technologies.

The activity of Gestore del Mercato Elettrico S.p.A. (GME) fits within this framework. In addition to managing the Italian Power Exchange, GME is directly engaged in favouring the implementation of environmental protection policies, by organising and managing Environmental Markets, such as: the Green Certificates Market, the Energy Efficiency Certificates Market and the Emissions Trading Market.
These markets, which are fully in line with international and national legislation, enable companies to pursue not only economic goals, but also environmentally sustainable choices.

With the publication of the Vademecum of GME's Environmental Markets, GME intends to give a picture of the scenario where it carries out its activity and provide an easy tool to improve the understanding of its Markets and of their advantages.

1. GME'S ENVIRONMENTAL MARKETS

Italy has long been committed to implementing environmental policies aimed at supporting initiatives to mitigate greenhouse gas emissions. Italian law-makers have focused their attention on electricity generation from renewable energy sources since 1992, when the "Comitato Interministeriale Prezzi" (CIP - Interministerial committee on prices) issued its resolution no. 6 (known as "CIP-6") on incentive measures to encourage and support increased electricity generation from non-polluting renewable and other eligible sources (RES). Energy end uses is another area where environmental measures (schemes promoting energy-saving projects) have been taken. Finally, with the transposition of Directive 2003/87/EC into national law, Italy introduced a scheme (trading of CO_2 emission permits) with a view to holding down emissions from industrial installations operating in its most polluting sectors.

"Gestore del Mercato Elettrico S.p.A." (GME) is the company that organises and manages the Italian wholesale electricity market, known as "Ipex - Italian Power Exchange". GME is directly engaged in favouring the implementation of environmental policies by organising and managing *Environmental Markets*. These markets contribute to fully implementing the above mechanisms, by promoting reduction of harmful emissions into the atmosphere, energy efficiency and deployment of RES.

In particular, with regard to generation of electricity from renewables (RES-E), the Decree of the Minister of Industry, Trade and Handicraft of 11 November 1999[1] vested GME with the task of putting in place a market platform for the trading of Green Certificates ("CV"), i.e. certificates giving evidence of generation of RES-E. Trading in this market took off in 2003. The Green Certificates scheme is founded on the renewable obligation falling on producers and importers of electricity from fossil sources. The above Decree stipulated that these parties were held - with effect from 2002 - to yearly inject a given quota of RES-E into the grid. This quota was equal to 2% of the non-renewable electricity produced or imported in the previous year exceeding 100 GWh[2]. Art. 4, para. 1 of Legislative Decree 387/2003 provided that, with effect from 2004 to 2006, the minimum quota of renewable electricity to be injected into the grid in the following year should be increased by 0.35% per year. The Italian Budget Law 2008 (implemented by Law no. 244 of 24 December 2007 and entered into force on 1 January 2008) increased the renewable quota obligation from 0.35% to 0.75% for each of the years included in the 2007-2012 period. Therefore, by the end of the period, the renewable quota will reach 7.55%.

As to the promotion of end-use energy efficiency, the Decrees of the Minister of Productive Activities of July 2004[3] (subsequently amended and supplemented by the Decree of the Minister of Economic Development of 21 December 2007)[4] assigned to GME the task of organising a market for the trading of Energy Efficiency Certificates ("TEE" - also known as "white certificates"). Like Green Certificates, these certificates give evidence of the reduction of consumption obtained from specific energy-saving projects. The Energy Efficiency Certificates scheme is founded on the obligation falling on electricity and gas distributors to achieve a yearly energy-saving target[5]. Both schemes are particularly innovative. Unlike conventional forms of support (e.g. subsidies and grants), these schemes leave up to the market to define the extent of the incentive (given by the price at which the certificates are traded) and to the Regulator to determine the target to be attained.

With regard to the reduction of emissions from industrial installations, GME organised a venue for the trading of emission allowances that are issued to installations subject to the obligations of Directive 2003/87/EC. This market favours the exchange of allowances between their holders and parties needing to purchase them in order to comply with their allowed emission limits.

1 Decreto del Ministro dell'industria, del commercio e dell'artigianato, 11 novembre 1999, "Direttive per l'attuazione delle norme in materia di energia elettrica da fonti rinnovabili" di cui ai commi 1, 2 e 3 dell'articolo 11 del decreto legislativo 16 marzo 1999, n. 79" (G.U. n. 29 del 14 dicembre 1999, serie generale). This decree was superseded by D.M. 24 ottobre 2005 "Aggiornamento delle direttive per l'incentivazione dell'energia elettrica prodotta da fonti rinnovabili ai sensi dell'art. 11, comma 5, del decreto legislativo 16 marzo 1999, n. 79".

2 Art. 11, Decreto Ministero dell'industria, del commercio e dell'artigianato, 16 marzo 1999, n.79, "Attuazione della direttiva 96/92/CE recante norme comuni per il mercato interno dell'energia elettrica".

3 Decreto del Ministero delle attività produttive 20 luglio 2004, "Nuova individuazione degli obiettivi quantitativi nazionali di risparmio energetico e sviluppo delle fonti rinnovabili, di cui all'art. 16, comma 4, del d. lgs attività produttive 164/2000" (G.U. n. 205 del 1 settembre 2004); d.m. attività produttive 20 luglio 2004, "Nuova individuazione degli obiettivi quantitativi per l'incremento dell'efficienza energetica negli usi finali di energia, ai sensi dell'art. 9, comma 1, del d. lgs industria, commercio e artigianato 79/1999" (G.U. n. 205 del 1 settembre 2004); d.m. attività produttive 20 luglio 2004 "Modificazione del d.m. attività produttive 20 luglio 2004, recante nuova individuazione degli obiettivi quantitativi per l'incremento dell'efficienza energetica negli usi finali, ai sensi dell'art. 9, comma 1, del d.lgs. industria, commercio e artigianato 79/1999. (G.U. n. 2 del 3 gennaio 2007).

4 Decreto del Ministero dello sviluppo economico del 21 dicembre 2007 "Revisione e aggiornamento dei decreti 20 luglio 2004, concernenti l'incremento dell'efficienza energetica degli usi finali di energia, il risparmio energetico e lo sviluppo delle fonti rinnovabili", G.U. n. 300 del 28 dicembre 2007.

5 Ibidem.

2. GREEN CERTIFICATES MARKET

2.1 GENERATION OF ELECTRICITY FROM RENEWABLES AND SUPPORT SCHEME BASED ON GREEN CERTIFICATES

Increasing generation of electricity from renewables (RES-E) is one of the priorities of the EU's energy policy. Directive 2001/77/EC recognised the need to promote renewables as a priority measure to speed up the achievement of the Kyoto Protocol targets and to favour security of supplies and diversification of generation sources[6]. To increase RES-E generation within the EU by up to 12% by 2010 (as indicated in the European Commission's White Paper[7]), Directive 2001/77/EC required Member States to adopt "appropriate steps to encourage greater consumption of electricity produced from renewable energy sources in conformity with national indicative targets"[8]. This objective was reviewed and made even more ambitious in the package of renewable energy and climate change measures that the European Commission presented in January 2008. The package set a target of 20% renewables to be reached by 2020[9].

On 17 December 2008, the European Parliament approved the proposed Directive (PE-CONS 3736/08, now Directive 2008/9/28/EC) on the promotion of the use of energy from renewable sources. Under the Directive, each Member State is bound to achieve a minimum share of renewables in final energy consumption in line with the EU's target of 20% by 2020.
Italy has a 17% target of renewable energy in its gross energy consumption and, with respect to its 5.2% level in 2005, it will have to reach minimum interim targets of increase in the 2009-2020 period. Indeed, all Member States will be called to bridge the gap between their situation in 2005 and the final target by 2020 to the following extent: 20% of the target in the 2011-2012 period; 30% in the 2013-2014 period; 45% in the 2015-2016 period; and 65% in the 2017-2018 period.

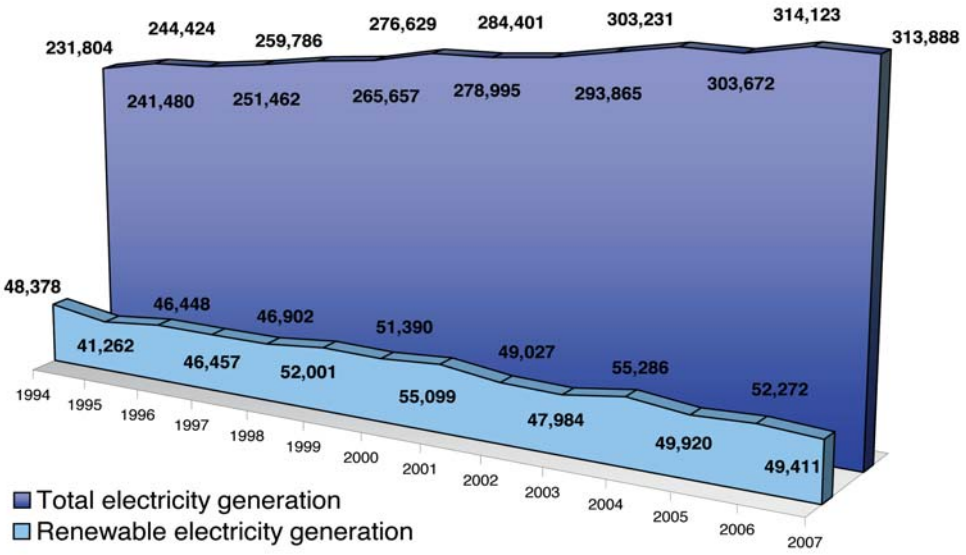
Gross generation by renewable power plants in Italy from 2003 to 2007

GWh	2003	2004	2005	2006	2007	'07 / '06
						%
Hydro	36,669.9	42,337.8	36,066.7	36,994.4	32,815.2	**-11.3**
0 _1 (MW)	1,455.3	1,731.3	1,525.7	1,520.9	1,415.7	**- 6.9**
1 _ 10 (MW)	5,731.8	7,127.8	6,090.5	6,354.1	5,684.4	**-10.5**
> 10 (MW)	29,482.8	33,478.7	28,450.5	29,119.4	25,715.1	**-11.7**
Wind	**1,458.4**	**1,846.5**	**2,343.4**	**2,970.7**	**4,034.4**	**35.8**
Solar*	**22.6**	**27.3**	**31.0**	**35.0**	**39.0**	**11.4**
Geothermal	**5,340.5**	**5,437.3**	**5,324.5**	**5,527.4**	**5,569.1**	**0.8**
Biomass and waste	**4,493.0**	**5,637.2**	**6,154.8**	**6,744.6**	**6,953.7**	**3.1**
- solid	*3,460.1*	*4,466.9*	*4,956.9*	*5,408.3*	*5,506.4*	**1.8**
– municipal solid waste	*1,811.9*	*2,276.6*	*2,619.7*	*2,916.6*	*3,024.9*	**3.7**
– crops and other agro-industrial waste	*1,648.2*	*2,190.4*	*2,337.2*	*2,491.7*	*2,481.5*	**6.6**
- biogases	*1,033.0*	*1,170.2*	*1,198.0*	*1,336.3*	*1,447.3*	**8.3**
– from landfills	*910.5*	*1,038.4*	*1,052.3*	*1,176.8*	*1,247.3*	**6.0**
– from slurries/sludges	*2.7*	*1.2*	*3.2*	*3.3*	*9.0*	**172.7**
– from manure	*13.2*	*18.5*	*25.7*	*44.7*	*53.3*	**19.2**
– from crops and other agro-industrial waste	*106.5*	*112.1*	*116.8*	*111.5*	*137.7*	**23.5**
Total	**47,984.4**	**55,286.1**	**49,920.4**	**52,272.1**	**49,411.3**	**-5.5**

*Excluding photovoltaic generation estimates (Ministry of Economic Development – ENEA), only available at national level – 18 GWh
Source: GSE, Statistiche sulle fonti rinnovabili in Italia

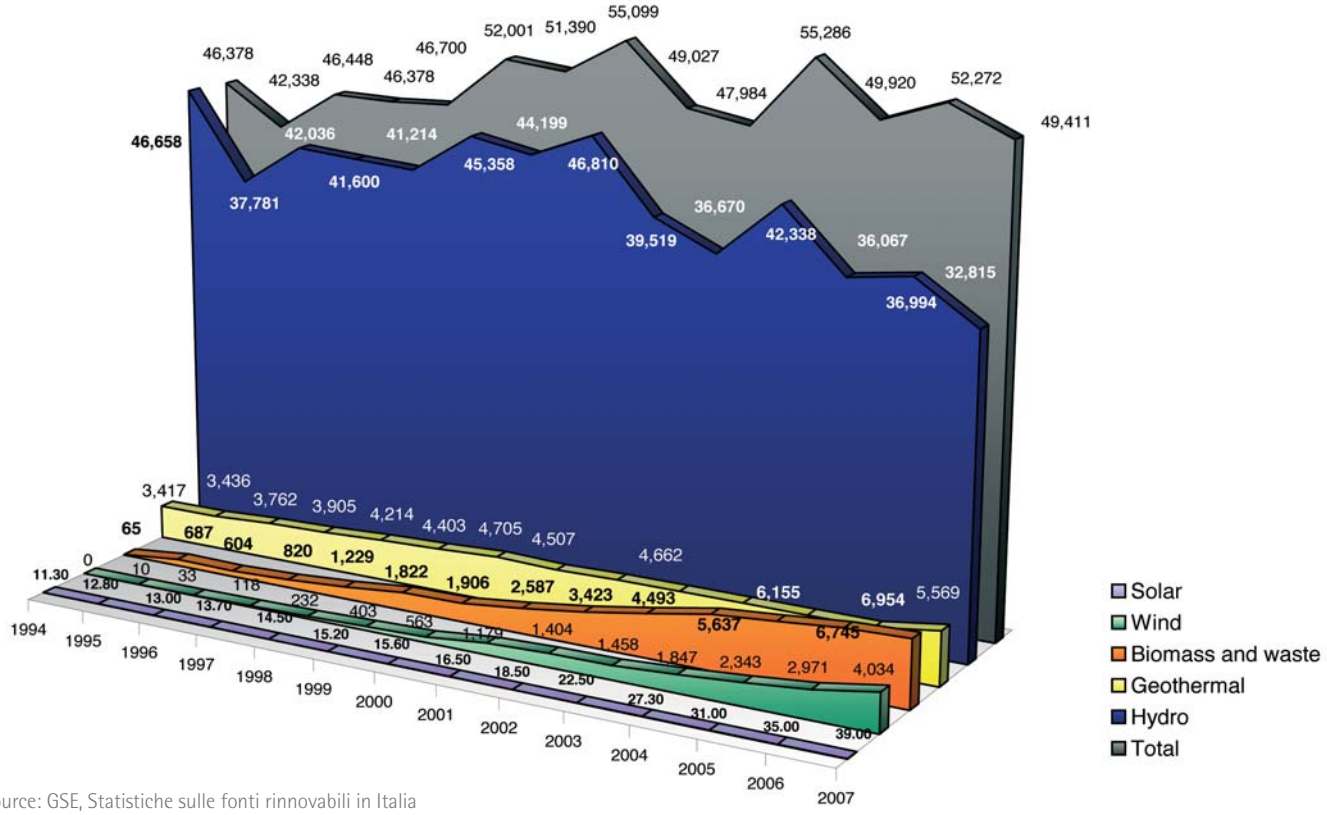
6 Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market.
7 Communication from the Commission ENERGY FOR THE FUTURE: RENEWABLE SOURCES OF ENERGY – White Paper for a Community Strategy and Action Plan, COM (97) 599, November 1997.
8 Art. 3, Directive 2001/77/EC.
9 In its meeting of 17 December 2008, the European Parliament adopted an energy-climate package under a co-decision procedure. The package contained six legislative proposals and a number of directives, including the Directive under review (Directive PE-CONS 3736/08).

Total electricity vs. renewable electricity generation (GWh) in Italy from 1994 to 2007



Source: GSE, Statistiche sulle fonti rinnovabili in Italia

Gross renewable electricity generation (GWh) in Italy from 1994 to 2007



Source: GSE, Statistiche sulle fonti rinnovabili in Italia

The Green Certificates scheme is one of the tools which have been put in place to meet the national targets of increased generation of RES-E. This scheme will gradually supersede the previous support scheme, called "CIP-6".

Supporting RES-E generation is of paramount importance to make up for the low economic competitiveness of renewables. Forms of support have thus been designed to enable producers to invest in construction of cost-effective power plants fuelled by renewables.

The "CIP-6" scheme makes part of conventional forms of support of renewables. Resolution 6/1992 adopted by the "Comitato Interministeriale Prezzi" (CIP – Interministerial committee on prices) provided that the electricity generated by plants fuelled by renewable and other eligible sources (RES-E plants) and commissioned after 30 January 1991 should be sold at incentivised prices for 8 consecutive years. This electricity is purchased by "Gestore dei Servizi Elettrici" (GSE) at a guaranteed price (given by the sum of different components[10]), which is revised by the "Cassa conguaglio del settore elettrico" (Compensation fund for the electricity sector) on a yearly basis[11].

Conversely, Legislative Decree 79/1999 of the Minister of Industry, Trade and Handicraft provided for the phasing-out of the above support scheme and its replacement with the Green Certificates scheme. The CIP-6 scheme will cease to have effect in the coming years, upon the expiration of all the agreements on sale of RES-E, which have been entered between producers and GSE.

In compliance with the provisions of the Decree of the Minister of Industry, Trade and Handicraft of 11 November 1999, plants that have been qualified as RES-E ("IAFR"[12]) plants receive a number of Green Certificates corresponding to the RES-E that they generate. The Green Certificates are bearer certificates (each is worth 1 MWh[13]), giving evidence of RES-E generation. Producers and importers of electricity from conventional sources may fulfil the obligation referred to in art. 11 of Legislative Decree 79/1999[14] of the Minister of Industry, Trade and Handicraft, by directly injecting the RES-E corresponding to their obligation into the grid or by purchasing an equivalent number of Green Certificates. The certificates are then surrendered to GSE for redemption (after compliance with the obligation). Therefore, the parties that are subject to the renewable obligation may decide to invest in construction of RES-E plants or to purchase the certificates that they need in the market. This decision is based on the marginal costs of the two options: building new plants is cost-effective if the related marginal costs are lower than those incurred for the purchase of Green Certificates in the market.

Thus, Green Certificates may be freely traded between interested parties under bilateral contracts or in a regulated market. If the parties subject to the obligation have a deficit of certificates, they may purchase them in the market; if they have a surplus, they may sell them in the same market.

10 Under Resolution CIP-6, the price at which RES-E is purchased is given by the sum of a component taking into account the avoided generation cost (equal to the sum of a. cost of installation, b. cost of operation, maintenance and related overhead expenses, c. cost of fuel - with reference to a combined-cycle gas plant -, and of an incentive component).

11 GSE plays an active role within the framework of the Green Certificates scheme. It issues Green Certificates to owners of plants that have been qualified as RES-E ("IAFR - Impianti Alimentati da Fonte Rinnovabile") plants. Green Certificates may be issued ex-post or ex-ante (i.e. on the basis of the expected generating capability of the plant). Additionally, GSE also manages the Green Certificates Registry. In this Registry, each producer is associated with one ownership account, where the Green Certificates are deposited. Ownership accounts are also created for producers and importers that are subject to the obligation referred to in Legislative Decree 79/99 and that are required to self-certify the non-renewable electricity generated or imported in the previous year.

12 To be eligible for Green Certificates, plants must be qualified as RES-E ("IAFR") plants. This qualification, which is granted by GSE, entitles the plant owner to receive Green Certificates for 8 years from the date of entry of the plant into commercial operation.

13 The Budget Law 2008 reduced the size of the Green Certificate from 50 MWh to 1 MWh.

14 Art. 11 of Legislative Decree 79/1999 of the Minister of Industry, Trade and Handicraft:

1. With a view to supporting renewables, energy savings, reduction of carbon dioxide emissions and use of national energy resources, the responsible parties of plants importing or generating electricity from non-renewable sources in each year shall - beginning in 2001 - inject into the national power system, in the following year, a quota of electricity generated by RES-E plants which have been commissioned or upgraded/repowered (limited to the additional generating capability) on a date following the date of entry into force of this Decree.

2. The obligation referred to in para. 1 above shall apply to imports and generation of electricity (net of co-generation, plant self-consumption and exports) exceeding 100 GWh; the quota mentioned in para. 1 above shall be initially equal to 2 per cent of the above electricity exceeding 100 GWh.

3. The same parties may fulfil the above obligation also by purchasing all or part of the equivalent quota or the related rights from other producers (provided that they inject the required RES-E into the national power system) or from the national transmission system operator (TSO). The rights pertaining to the plants specified in article 3, para. 7 of Law no. 481 of 14 November 1995 shall be assigned to the national TSO. To offset yearly generation fluctuations or deficits of supply, the national TSO may purchase and sell RES-E generation rights, regardless of actual availability; in this case, the TSO shall - on a 3-year basis - offset the possible issuing of rights failing availability.

4. The national TSO shall assign priority to the electricity generated by plants using RES in the following order: RES; co-generation systems under specific criteria defined by "Autorità' per l'energia elettrica e il gas" (AEEG, the Italian electricity & gas regulator); and national sources of primary combustible energy, the latter for a yearly maximum quota not exceeding 15 per cent of the overall primary energy needed to generate the electricity that is consumed.

5. A decree to be issued by the Minister of Industry, Trade and Handicraft in consultation with the Minister of the Environment shall provide guidance on the implementation of the provisions of paras. 1, 2 and 3 and determine the increases of the percentage referred to in para. 2 for the years following 2002, taking into account variations related to compliance with rules on reduction of polluting gas emissions and namely with international commitments under the Kyoto Protocol.

6. To promote the use of the different types of RES, a resolution shall be adopted by the "Comitato Interministeriale per la Programmazione Economica" (CIPE – Interministerial committee on economic planning), at the proposal of the Ministry of Industry, Trade and Handicraft, after seeking the opinion of the "Conferenza unificata" (Conference of State, Regions, Provinces, Municipalities and Autonomous Communities). The resolution shall determine multi-year targets for each source and the sharing of the resources to be allocated for support between the Regions and the Autonomous Provinces. The Regions and the Autonomous Provinces shall, even with their own resources, encourage the involvement of local communities in the initiatives and support RES through bidding procedures.

Green Certificates may be traded separately from the electricity for which they have been issued. Therefore, producers may get a double flow of revenues: the first from the sale of electricity in the Electricity Market, the second from the sale of Green Certificates.
In accordance with the Decree of the Minister of Industry, Trade and Handicraft of 11 November 1999, GME set up an electronic platform for the trading of Green Certificates. This is a voluntary market, designed to facilitate the trading of the certificates. Like any other regulated market, it is based on certain and predefined rules, which guarantee transparency and security of transactions.
Additionally, it provides constant information visibility to Market Participants, thus limiting information asymmetries, facilitating investment choices and the identification of the trading counterparties and reducing transaction costs. Moreover, high participation in the market ensures an efficient process of formation of the price of Green Certificates.
Furthermore, in February 2007, GME launched its Green Certificates Bilaterals Registration Platform (PBCV). The use of the PBCV has become compulsory since 1 January 2009, under the Decree of the Minister of Economic Development of 18 December 2008. The Decree introduced, among others, the obligation of registering bilateral transactions on Green Certificates and of reporting the price at which they have been traded on GME's platform. Therefore, Participants may register their bilaterals on the PBCV and opt for registration "with technical adequacy verification" by GME. In this case, before validating the transaction, GME will ensure that the Green Certificates are actually owned by the seller and that the buyer has paid the amount corresponding to the value of the transaction to be validated, by transferring it to the appropriate bank account of GME. If the verification is successful, GME will transfer the value of the transaction to the seller and notify GSE of the positive outcome of the transaction. GSE will then transfer the ownership of the Green Certificates.
Conversely, if Participants opt for registration "without technical adequacy verification" by GME, GME will only ensure that the Green Certificates are actually owned by the seller. If the verification is successful, GME will notify GSE thereof and GSE will transfer the certificates from the seller's ownership account to the buyer's one.

GME is not the counterparty of bilateral transactions registered onto the PBCV. Consequently, tax obligations will be agreed between the counterparties.

2.2 ORGANISATION OF THE GREEN CERTIFICATES MARKET

To enable operators to trade Green Certificates, GME developed an electronic platform, which may be accessed through the Internet by entering a User Id (assigned by GME) and a password (selected by the user). The operation of the Green Certificates Market is governed by Title VI of the Electricity Market Rules[15] (hereafter "Electricity Market Rules"). In particular, the procedure of access to the information system and of submission of trading orders is defined by art. 101 of the Electricity Market Rules and by the Technical Rules ("DTF"[16]).
The following parties (buyers or sellers) may apply for participation in the Green Certificates Market: national or foreign producers, wholesale customers, parties importing electricity, consumers' and users' associations, environmental associations and employers' and workers' unions (art. 100, Electricity Market Rules). To acquire the status of "Market Participant", the applicant must meet the following requirements:
- being proficient in the use of information and communication (ICT) systems and related security systems;
- not having been convicted (with final judgement or with a judgement applying the penalty at the request of the parties) of agiotage, of one of the violations of the privacy of ICT communications or of computer fraud;
- not having been previously excluded from the Green Certificates Market.

To be admitted to the market, the applicant must:

15 Integrated Text of the Electricity Market Rules, approved by the Decree of the Minister of Productive Activities of 19 December 2003.
16 The Technical Rules are posted on GME's website www.mercatoelettrico.org

- submit a market participation application[17] in the format enclosed to the Electricity Market Rules, accompanied by documents certifying that he/she meets the above-mentioned requirements;
- sign a market participation agreement[18] where the applicant declares that he/she is aware of and accepts, without any condition or reservation, the Electricity Market Rules and undertakes to pay a fee for each Green Certificate traded.

Upon admission to the market, the applicant acquires the status of "Market Participant". Market Participants are entered into an appropriate Register[19], held and managed by GME in compliance with personal data privacy legislation.

The fees for the services provided by GME are yearly determined by GME itself in such a way as to ensure the economic and financial equilibrium of its operations, and posted on its website. GME issues invoices for the fees, charging 50% of the fees to the seller and 50% to the buyer.

In the course of 2008, with the approval of amendments to the Electricity Market Rules, GME has become central counterparty of the trades made in the Green Certificates Market[20].

The introduction of a market structure based on the counterparty indifference principle and, consequently, of a system of guarantee, invoicing and settlement of payments based on GME as a central counterparty, completely eliminates the counterparty risk falling on operators and arising from the possible default of obligations undertaken in the market. The central counterparty makes the market totally anonymous, thus favouring transparency and the setting of an economically efficient price for Green Certificates. Moreover, it streamlines administrative-accounting procedures connected with participation in a regulated market. Indeed, Market Participants have a single interface: GME. Sellers issue a single invoice to GME as purchaser, while buyers make a single payment to GME, as a deposit guaranteeing all of their purchases. Then, upon the conclusion of market transactions, buyers receive a single invoice from GME.

Under the Electricity Market Rules, GME organises an order book for each year of validity of the Green Certificates admitted to trading. The order book shows the best purchase and sale orders. Since July 2007, the trading of Green Certificates has been extended to Green Certificates accrued in respect of electricity generated in compliance with art.1, para. 71 of Law no. 239 of 23 August 2004 (hydrogen and co-generation combined with district heating).

Trading in the Green Certificates Market takes place on a continuous basis. This means that, during the trading sessions (at least once a week in the period from January to March of each year and at least once a month in the remaining months[21]), Market Participants may continuously enter their purchase or sale orders[22]. Upon entry, the purchase orders are ranked by decreasing price, whereas sale orders are ranked by increasing price; in case of equal price, priority is given to the first entered purchase/sale order. The minimum tradable quantity is equal to 1 Green Certificate.

Participants may submit sale orders into the market only in respect of certificates that they own - and thus recorded in the ownership account of the Green Certificates Registry held by GSE - or certificates, if any, already purchased during the same trading session. To submit purchase orders into the Green Certificates Market, the purchasing Market Participant must - within 12:00 of the working day preceding the opening of the trading session - post an interest-bearing deposit by transferring the related amount (with value date on the same day) to an appropriate bank account of GME and notify GME of the amount thereof under the modalities indicated in the Technical Rules.

The system accepts purchase orders only, if the available deposit is sufficient to cover the value of the transaction. The available deposit is equal to the guarantee deposit made at the start of the session, plus the value of sales (if any) of Green Certificates, minus the value of purchases (if any) of Green Certificates and/or of purchase orders already entered into the order book.

No orders with negative or zero price limit may be entered into the market. Purchase or sale orders without price limit are only accepted if sale or purchase orders with price limit are already present in the order book. Market Participants may withdraw their orders by directly

17 The market participation application may be downloaded from GME's website www.mercatoelettrico.org

18 The market participation agreement may be downloaded from GME's website www.mercatoelettrico.org.

19 Register of Market Participants, posted at www.mercatoelettrico.org (Environmental Markets/Green Certificates/Register of Market Participants section).

20 Decreto del Ministero sviluppo economico del 17 settembre 2008, suppl. ord. n. 233, G.U. n. 243 del 16 ottobre 2008.

21 The sessions of the Green Certificates Market are intensified in the period immediately preceding the date within which operators must fulfil the obligation referred to in Legislative Decree 79/1999, i.e. within 31 March of each year (art. 6, Decree of the Minister of Industry, Trade and Handicraft of 11 November 1999). The sessions are held according to a predefined calendar, which is specified in the Technical Rules and posted at www.mercatoelettrico.org.

22 Market Participants must specify the year of validity of the certificates, the quantity of certificates to be traded and their price with reference to 1 MWh.

deleting them from the order book, if the orders have not been automatically matched.

A purchase order is rejected if the number of certificates quoted in the order exceeds the maximum number of certificates that the Market Participant may purchase; this number will be decreased by the number of certificates already purchased by the Market Participant in the same session or for which the same Participant has already entered purchase orders that have not yet been matched.

A purchase or sale order is rejected if a matching sale or purchase order, submitted by the same Market Participant, is already present in the order book.

During trading, transactions are executed through the matching of orders under the following criteria (as established in the Electricity Market Rules):

a. purchase orders with price limit are matched (until exhausting the order) with sale orders at a price lower than or equal to the purchasing price limit, according to the previously defined priority order;

b. sale orders with price limit are matched (until exhausting the order) with purchase orders at prices higher than or equal to the selling price limit, according to the defined priority;

c. purchase orders without price limit are matched (until exhausting the order) with one or more sale orders at a price equal to the best selling price available at the time of their entry, according to the previously defined priority order;

d. sale orders without price limit are matched (until exhausting the order) with one or more purchase orders at a price equal to the best purchasing price available at the time of their entry, according to the priority order.

For each transaction executed by automatic matching, the price is equal to the one of the order with higher time priority. Within 24 hours from the end of each session, GME will confirm the executed orders to each Market Participant by notifying the following data: a) type of transaction; b) quantity; c) price); d) day and time; e) type of Green Certificates purchased or sold; f) value of the transaction.

REFERENCE LEGISLATION

- **Decreto del Ministero dell'industria, del commercio e dell'artigianato, 11 novembre 1999**, "Direttive per l'attuazione delle norme in materia di energia elettrica da fonti rinnovabili di cui ai commi 1, 2 e 3 dell'art. 11 del decreto legislativo del Ministero dell'industria, del commercio e dell'artigianato 16 marzo 1999, n. 79"
- **Decreto del Ministero delle attività produttive, 18 marzo 2002**, "Modifiche e integrazioni al decreto del Ministro dell'industria, del commercio e dell'artigianato, di concerto con il Ministro dell'ambiente, 11 novembre 1999, concernente "direttive per l'attuazione delle norme in materia di energia elettrica da fonti rinnovabili di cui ai commi 1, 2 e 3 dell'art. 11 del decreto legislativo del Ministero dell'industria, del commercio e dell'artigianato 16 marzo 1999, n. 79"
- **Decreto 14 marzo 2003, Ministero delle attività produttive**, "Attivazione del mercato elettrico, limitatamente alla contrattazione dei certificati verdi"
- **Decreto Legislativo 29 dicembre 2003, n. 387** "Attuazione della direttiva 2001/77/CE relativa alla promozione dell'energia elettrica prodotta da fonti energetiche rinnovabili nel mercato interno dell'elettricità"
- **Legge 23 agosto 2004, n. 239**, "Riordino del settore energetico, nonché delega al Governo per il riassetto delle disposizioni vigenti in materia di energia"
- **Decreto 24 ottobre 2005**, Ministero delle attività produttive, "Aggiornamento delle direttive per l'incentivazione dell'energia elettrica prodotta da fonti rinnovabili ai sensi dell'articolo 11, comma 5, del decreto legislativo 16 marzo 1999, n. 79"
- **Legge 24 dicembre 2007, n. 244**, G.U. n. 300 del 28 dicembre 2007 (Finanziaria 2008)
- **Decreto del Ministero sviluppo economico del 17 settembre 2008**, suppl. ord. n. 233, G.U. n. 243 del 16 ottobre 2008,
- **Decreto del Ministero sviluppo economico 18 dicembre 2008** "Incentivazione della produzione di energia elettrica da fonti rinnovabili – art. 2, comma 150, legge 24 dicembre 2007, n. 244" (Finanziaria 2008)

3. ENERGY EFFICIENCY CERTIFICATES MARKET

3.1 INNOVATIVE SCHEME FOR PROMOTING ENERGY SAVINGS BASED ON ENERGY EFFICIENCY CERTIFICATES

As part of initiatives to protect the environment and provide energy supply security, the European Commission adopted an active policy of energy efficiency. The Commission estimated that, within the EU, the use of more efficient technologies in industrial and residential uses might cut present energy consumption by 20% (i.e. a saving of about € 60 million/yr in the EU and of € 200-1,000 per average household)[23]. Energy efficiency helps counter climate change, favours the achievement of the Kyoto Protocol targets, reduces energy demand, minimises dependence on energy imports and, consequently, increases security of energy supplies. The Green Paper on energy efficiency[24] describes some possible measures to be taken within the Community to meet the above-mentioned energy-saving targets. It also identifies the market-based mechanism adopted in Italy and in the United Kingdom as a possible measure to be applied in all Member States. Also Directive 2006/32/EC on end-use energy efficiency and energy services requires Member States to introduce market-oriented mechanisms, such as white certificates, to meet energy-saving targets. Legislative Decree no. 115 of 30 May 2008 (which implemented Directive 2006/32/EC on end-use energy efficiency and energy services, repealing Directive 93/76/EEC) introduced new rules aimed at strengthening energy efficiency improvement actions in Italy. In particular, the Decree designated ENEA as the national energy efficiency agency in charge of providing support both to the Ministry of Economic Development and to local governments. Additionally, the Decree defined procedures to strengthen the role of the market mechanism based on Energy Efficiency Certificates ("TEE").

In Italy, an innovative scheme based on the trading of Energy Efficiency Certificates was introduced by the Decrees adopted by the Minister of Productive Activities in consultation with the Minister of the Environment and Land Protection on 20 July 2004 (Ministerial Decree of 20 July 2004 on electricity, Ministerial Decree of 20 July 2004 on gas), as subsequently amended and supplemented by the Ministerial Decree of 21 December 2007 on energy saving. Energy Efficiency Certificates give evidence of energy savings obtained from end-use energy efficiency improvement projects. Under the scheme, national electricity and gas distributors implement these projects at the premises of their final customers, with a view to complying with their yearly energy-saving obligation.

In particular, the Decrees set the national quantitative targets of energy efficiency improvement to be attained by electricity and natural gas distributors with over 50,000 final customers[25] through end-use energy projects. These projects, which give the right to receive Energy Efficiency Certificates, may be implemented directly by distributors, their subsidiaries, *Energy Service Companies* (ESCOs, third companies operating in the sector of energy services), as well as by the parties mentioned in art. 19, para. 1 of Law no. 10 of 9 January 1991 that have actually appointed a person in charge of conservation and rational use of energy. Electricity and gas distributors fulfil their yearly obligation by redeeming a number of Energy Efficiency Certificates corresponding to their energy-saving targets[26].

The energy efficiency promotion scheme outlined by the Ministerial Decrees of 2004 (as subsequently amended and supplemented) has the purpose of minimising the overall cost connected with compliance with the energy-saving obligations falling on electricity and gas distributors. Indeed, these parties may adopt a "*make*" or "*buy*" strategy: they may directly invest in energy-saving projects or, if their "*make*" choice involves high marginal costs, they may purchase the certificates from parties that have obtained energy savings through projects implying lower marginal costs. GME plays a key role in the scheme, as the above Decrees vested GME with the task of organising and managing a market platform (Energy Efficiency Certificates Market) to favour the meeting of demand and supply of these certificates. Demand is expressed by distributors who are subject to the obligation and who have to purchase the certificates to meet their obligation, because the energy savings obtained from their projects are below their target. Supply is expressed by: a) distributors who are subject to the obligation and who may offer their surplus certificates in the market, because their energy savings are above their

23 "Green Paper on Energy Efficiency or Doing More with Less", COM(2005) 265, June 2005

24 Ibidem.

25 The Decree of the Minister of Economic Development of 21 December 2007 extended - with effect from 2008 - the number of distributors subject to the obligation, by establishing a minimum threshold of 50,000 final customers served (with respect to the previous 100,000).

26 To fulfil the obligation, distributors are required to surrender the certificates to AEEG for redemption within 31 May of each year (beginning in 2006).

target; b) distributors who are not subject to the obligation; and c) ESCOs, which are not subject to any obligation and which may sell the certificates that they have accrued.

GME also organises and manages the Register of Energy Efficiency Certificates, i.e. a data base system where each Market Participant is associated with one ownership account. The certificates issued by GME and all the transactions made in the market are stored in this data base. Also bilateral transactions may be entered directly into the Register. Indeed, Energy Efficiency Certificates may be traded both bilaterally and in GME's regulated market; however, each transaction must be recorded on the Register. The Market guarantees transparency and security of trades, facilitates the search for a counterparty and ensures an efficient setting of the price of the certificates.

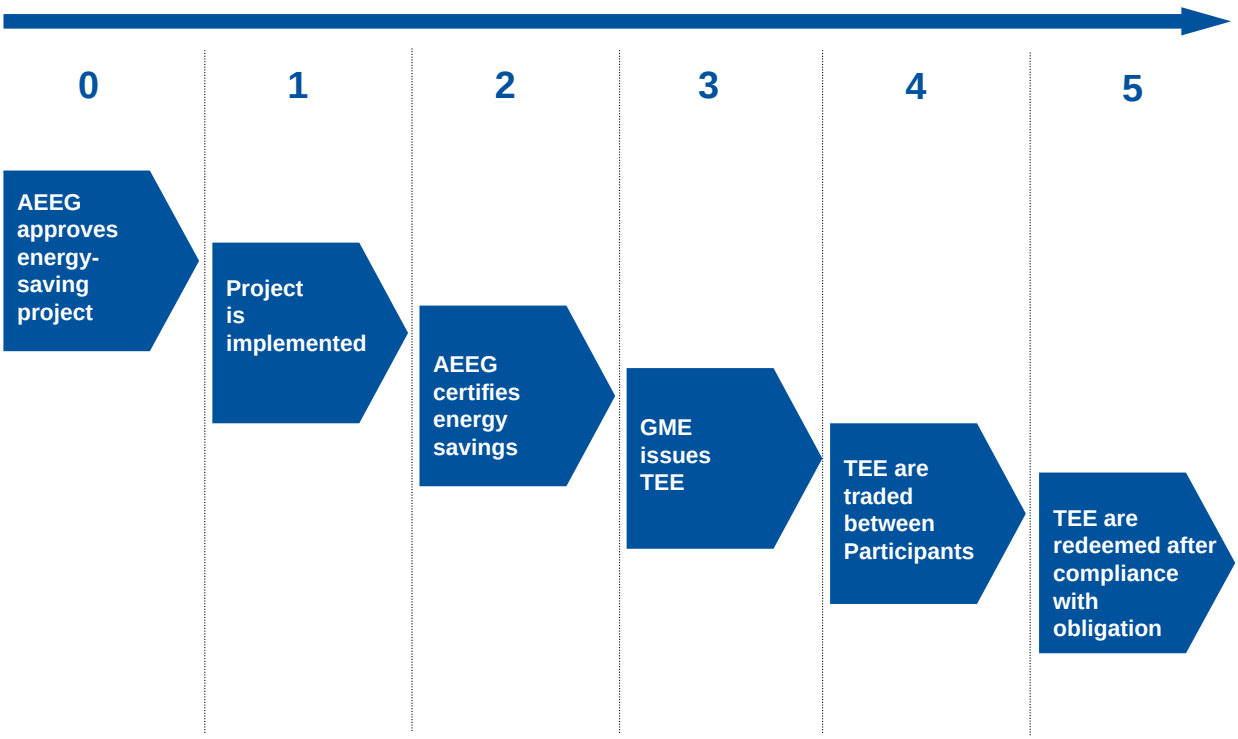
The Ministerial Decrees of 2004 also entrusted GME with the task of issuing the certificates based on the energy savings certified by "Autorità per l'energia elettrica e il gas" (AEEG – the Italian electricity & gas regulator). AEEG verifies the projects and certifies the achieved savings. After receiving the relevant notification from AEEG, GME issues the corresponding Energy Efficiency Certificates (1 certificate per toe of energy saving achieved) to the party that has implemented the project.

Energy Efficiency Certificates are of three types:

- Type I: certifying primary energy savings obtained from projects which reduce final electricity consumption;
- Type II: certifying primary energy savings obtained from projects which reduce natural gas consumption;
- Type III: certifying primary energy savings obtained from projects other than the previous ones.

Through the electronic Register, GME opens one ownership account for each operator and issues Energy Efficiency Certificates to parties whose energy savings have been certified by AEEG. All the transactions made bilaterally and in the regulated Energy Efficiency Certificates Market are recorded on the ownership accounts. Under the Decrees, the rules of operation of the Energy Efficiency Certificates Market have been prepared by GME in consultation with AEEG.

The cycle of Energy Efficiency Certificates (TEE)



Source: GME

The Decrees of 2004 (as subsequently amended and supplemented) vested AEEG with major responsibilities of regulation and management of the energy efficiency promotion scheme. Through its regulating activity, AEEG has defined criteria and methods for preparing and implementing the energy efficiency projects, as well as procedures for assessing the energy savings obtained from the same projects. Every year, AEEG also determines the specific energy-saving targets falling on electricity and gas distributors, monitoring compliance and imposing penalties in case of non-compliance therewith. Moreover, as previously pointed out, AEEG certifies the achieved energy savings and asks GME to issue the related certificates to the project owners.

ESCOs play a significant role in the energy efficiency promotion scenario designed by the Decrees of 2004, as subsequently amended and supplemented. ESCOs are the companies which, in addition to distributors, may implement energy efficiency improvement projects and accrue Energy Efficiency Certificates. In particular, under the guidelines issued by AEEG[27], ESCOs are defined as the companies (including small businesses and consortia) whose object, at the start of the project, is or includes the supply of integrated energy services, with a view to implementing and possibly managing projects to reduce end-use energy consumption, i.e. companies spanning the entire lifecycle of the project.

Therefore, ESCOs may implement energy-saving projects on behalf of distributors, thus enabling them to earn the certificates needed to fulfil their obligation. They may also implement projects on their own, accruing certificates for energy efficiency gains, selling them to distributors in the market and thus getting a direct economic advantage.

The Decrees of 2004, as subsequently amended and supplemented, also involve the Regions and the Autonomous Provinces. Through regional planning measures, these governments are called to define the targets of energy efficiency improvement and development of RES to be met by distributors, as well as the related compliance procedures. They may also identify their own targets of energy saving and development of RES, in addition to national ones, and determine the procedures for achieving them. The Regions and the Autonomous Provinces may also enter into agreements with distributors, identifying the most significant measures and projects in the regional and local contexts.

The Energy Efficiency Certificates Market may also actively involve other local governments. For instance, the Municipalities may: i) establish forms of co-operation with local distributors or ESCOs to improve energy systems in their buildings, with an economic advantage in terms of reduced consumption; or ii) create subsidiaries which operate as ESCOs, thus taking an active part in the market and turning the accrued certificates into a business opportunity. Municipalities and local governments in general also play a strategic role, as they may raise the local communities' awareness of the need for rationalising consumption and saving energy and thus favour energy-saving projects.

3.2 ORGANISATION OF THE ENERGY EFFICIENCY CERTIFICATES MARKET

In GME's Energy Efficiency Certificates Market, transactions take place on a continuous basis. The market sessions are held at least once a week in the February-May period and at least once a month in the other months[28].

To permit the trading of the certificates, GME organises an order book for each type of Energy Efficiency Certificates; the order book shows the best purchase and sale orders.

During the trading session, Market Participants enter their trading orders into the order book, specifying the type and quantity of certificates to be traded and their price with reference to 1 toe (tonne of oil-equivalent). The minimum tradable quantity is equal to 1

27 Delibera AEEG n. 103/03, www.autorita.energia.it.

28 As in the case of Green Certificates, the trading sessions are intensified near the deadline for surrendering Energy Efficiency Certificates to AEEG (31 May).

certificate. The trading orders, divided into purchase and sale orders, give rise to lists for each type of certificates admitted to trading. The lists are ranked by price and, in case of identical price, by time of entry. Orders with zero or negative price limit are rejected.
Purchase orders are ranked by decreasing price and sale orders are ranked by increasing price. Purchase or sale orders without price limit are accepted only if sale or purchase orders with price limit are already present in the order book, respectively. Market Participants may withdraw their orders by cancelling them directly from the order book, if they have not already been automatically matched. If the orders have been partially matched, the change will only apply to the still unmatched part. Non-matched proposals are automatically cancelled at the close of the trading session.
GME has also the task of validating the purchase and sale orders that are entered into the Energy Efficiency Certificates Market. A purchase order is rejected if the number of certificates specified therein exceeds the maximum number of certificates that the Market Participant may purchase; this number will be decreased by the number of certificates that the same Participant has already purchased in the same session or for which the same Participant has already submitted purchase orders that have not yet been matched.
A sale order is rejected if the number of certificates specified therein exceeds the maximum number of saleable certificates[29]; this number will be increased by the number of certificates, if any, that the Market Participant has already purchased in the same trading session, at a price not exceeding the conventional price specified by the same Participant.
The maximum number of saleable certificates of each type is equal to the certificates recorded in the Market Participant's ownership account in the Register of Energy Efficiency Certificates that is held by GME. This number will be decreased by the number of certificates of the same type that the Market Participant has already sold in the same session or for which the same Participant has already entered sale orders that have not yet been matched. A purchase or sale order entered by a Market Participant is rejected if it matches a sale or purchase order that is already present in the order book and that has been submitted by the same Participant.
During trading, transactions are executed through the matching of orders under the following specific criteria:

- a purchase order with price limit is matched - until exhausting the order - with sale orders at a price lower than or equal to the limit specified in the purchase order and according to the established priority order;
- a sale order with price limit is matched - until exhausting the order - with purchase orders at prices equal to or higher than the limit specified in the sale order and according to the established priority order;
- a purchase order without price limit is matched - until exhausting the order - with one or more sale orders with a price equal to the best selling price applicable at the time of entry of the purchase order, according to the established priority order.
- a sale order without price limit is matched - until exhausting the order - with one or more purchase orders with a price equal to the best purchasing price applicable at the time of entry of the sale order, according to the established priority order.

For each transaction executed through automatic matching, the price is equal to the price of the order with the highest time priority. If an order with price limit is partially executed, the unexecuted part will be resubmitted automatically with the same price and time priority as the original order. If an order without price limit is partially executed, then the unexecuted part will be automatically resubmitted with the same time priority as the original order and a price equal to the latest price of execution of the executed part.
Within 24 hours from the end of each session, GME sends to each Market Participant a confirmation of the executed transactions, specifying the following data:

a. transaction identification code;
b. price;
c. quantity;
d. type of certificate;

29 Art. 25, para. 3, Rules of Operation of the Energy Efficiency Certificates Market.

e. day and time of execution;
f. identity of purchasing and selling Market Participants.

Within 24 hours from the end of each session and for each Market Participant, GME will compare the amount to be paid (in respect of all the executed transactions) with the amount of the deposit made by the same Participant. If the amount to be paid is lower than or equal to the amount of the deposit, GME will make the payment on behalf of the purchasing Market Participant to each selling Market Participant and will return the difference, if any, to the purchasing Participant.
If, instead, the amount to be paid by the purchasing Participant is higher than the deposit, the same Participant will be allowed 2 working days after the market session to make the payment to the selling Market Participant for the uncovered part.
Subsequently, after ensuring that the payment has been made, GME will transfer the part of the value of the missing transaction to the selling Market Participant. If the purchasing Market Participant fails to pay the uncovered part, then the transaction is cancelled; the seller will retain the ownership of the certificates to be traded and the related cash deposit (made by the purchasing Market Participant before the market session) is transferred to the selling Market Participant as a penalty for failure to settle the transaction.
For the services provided by GME, Market Participants are held to pay a fee. The extent of the fee is determined by GME, within 31 December of each year for the following year, in such a way as to contribute to the economic and financial equilibrium of its operations. The fee is posted on GME's website, together with the parameters used for determining it.
GME will issue invoices to each Market Participant for the amount of the fee in accordance with the modalities established in the Technical Rules.

REFERENCE LEGISLATION

- **Decreto del Ministero delle attività produttive** "Nuova individuazione degli obiettivi quantitativi per l'incremento dell'efficienza energetica negli usi finali di energia, ai sensi dell'Art. 9, comma 1, del decreto legislativo 16 marzo 1999, n. 79" (G.U. n. 205 del 1 settembre 2004)
- **Decreto del Ministero delle attività produttive** "Nuova individuazione degli obiettivi quantitativi nazionali di risparmio energetico e sviluppo delle fonti rinnovabili, di cui all'Art. 16, comma 4, del decreto legislativo 23 maggio 2000, n. 164" (G.U. n. 205 del 1 settembre 2004)
- **Decreto del Ministero sviluppo economico – Ministero dell'ambiente** (G.U. n. 2 del 3 gennaio 2007) "Modificazione del decreto ministeriale 20 luglio 2004, recante nuova individuazione degli obiettivi quantitativi per l'incremento dell'efficienza energetica negli usi finali, ai sensi dell'art. 9, comma 1, del decreto legislativo 16 marzo 1999, n. 79"
- **Decreto del Ministero delle attività produttive** "Revisione e aggiornamento dei decreti 20 luglio 2004, concernenti l'incremento dell'efficienza energetica degli usi finali di energia, il risparmio energetico e lo sviluppo delle fonti rinnovabili" (G.U. n. 300 del 28 dicembre 2007)
- Attuazione della **direttiva 2006/32/CE** relativa all'efficienza degli usi finali dell'energia e i servizi energetici e abrogazione della direttiva 93/76/CEE decreto legislativo n. 115 (G.U. n. 154 del 3 luglio 2008)
- **Delibera AEEG n. 344/2007** "Disposizioni per la determinazione degli obiettivi di risparmio di energia primaria in capo ai distributori di energia elettrica e di gas naturale soggetti agli obblighi di cui ai decreti ministeriali 20 luglio 2004 come modificati e integrati dal decreto del Ministero dello sviluppo economico del 21 dicembre 2007"
- **Delibera AEEG n. 200/2004** "Adeguamento della deliberazione 18 settembre 2003, n. 103/2003 al disposto dei decreti ministeriali 20 luglio 2004 e della legge 23 agosto 2004, n. 239"
- **Delibera AEEG n. 345/2007** "Disposizioni in materia di contributo tariffario per il conseguimento degli obiettivi di risparmio energetico per l'anno 2008 di cui ai decreti ministeriali 20 luglio 2004 come modificati e integrati dal decreto ministeriale 21 dicembre 2007 e di obblighi di registrazione dei contratti e delle transazioni bilaterali di cui ai medesimi decreti"
- **Rules of Operation of the Energy Efficiency Certificates Market**

4. GME'S EMISSIONS TRADING MARKET

4.1 GREENHOUSE EFFECT AND UN FRAMEWORK CONVENTION ON CLIMATE CHANGE

The greenhouse effect is one of the phenomena whereby some gases naturally present in the atmosphere (e.g. water vapour, carbon dioxide, ozone and methane) warm our planet. Greenhouse gases (GHGs) act as a transparent glass wall, which enables sunlight to filter through the atmosphere and prevents the heat emitted in turn by the Earth's surface from escaping into space. This process makes the Earth and the lower layers of the atmosphere warmer.

Over time, the use of fossil fuels, the growth of the world's population and the process of industrialisation have caused anthropogenic emissions of GHGs to grow progressively, increasing their concentration in the atmosphere. The International Panel on Climate Change (IPCC) and the majority of scientists now agree that the higher concentration of GHGs, producing an abnormal increase in the Earth's temperature, is the causal factor of global climate change. To respond to this emergency, the first worldwide United Nations (UN) Conference on Environment and Development - dedicated to the Earth and its future - was held in Rio de Janeiro in 1992. During the Conference, delegates from 150 countries approved the UN Framework Convention on Climate Change (UNFCCC). The Convention, adopted in New York on 9 May 1992, was opened for signature during the Earth Summit held in Rio in June of the same year.

The UNFCC, signed in Rio by 154 countries and by the European Union, entered into force on 21 March 1994. It was the first international co-operation initiative aimed at mitigating the effects of GHGs. The Convention sets a target for stabilisation of GHG concentrations to protect the climate system and promotes national and international efforts for achieving this target. The industrialised countries made commitments - albeit non-binding - to stabilise GHG emissions at 1990 levels by 2000. In addition to laying down general principles, the Convention opened a factual dialogue between the signatory countries ("Parties") about the most appropriate measures to combat climate change through periodical meetings, called Conferences of the Parties (COPs).

To give more impetus to climate change policies and spur the governments of industrialised countries to take more operational actions, the Third Conference of the Parties (COP3), held in Kyoto in December 1997, approved the Kyoto Protocol.

4.2 KYOTO PROTOCOL

The Kyoto Protocol is an international treaty, which binds the countries listed in Annex I (industrialised countries and economies in transition) of the UNFCCC to cut their overall GHG emissions by 5.2% from their 1990 levels in the 2008-2012 period.

The Protocol came into force on 16 February 2005, after it was ratified by a number of signatory countries of the UNFCCC accounting for at least 55% of global emissions in 1990. This condition was fulfilled by the ratification of Russia.

The overall reduction target was shared in a different manner among the signatory countries of the UNFCCC. Under the Kyoto Protocol, the EU committed to curbing its emissions by 8%. The meeting of the Council of EU Environment Ministers, held on 17 June 1998, translated this target into individual Member States' emission reduction targets under the burden sharing agreement. Italy was required to slash emissions by 6.5% from 1990 levels in the 2008-2012 period.

Considering that any emission reduction is effective regardless of the place where it occurs and with a view to facilitating compliance with its targets, the Kyoto Protocol introduced some instruments, known as flexibility mechanisms.

These mechanisms, which are supplemental to domestic action, are as follows:

- Clean Development Mechanism - CDM (art. 12 of the Protocol): under this co-operation mechanism, the countries or companies

that implement clean technology projects in developing countries receive emission credits; these credits (equal to the reduction achieved with respect to the levels which would have been obtained without the project) are defined as Certified Emissions Reductions (CERs);

- Joint Implementation – JI (art. 6 of the Protocol): mechanism of co-operation between industrialised countries and countries with economies in transition in view of achieving their respective emission reduction targets. Similarly to CDM, JI makes it possible to earn emission credits from investments in clean technologies in countries with economies in transition. These credits are defined as Emissions Reduction Units (ERUs);
- Emissions Trading – ET (art. 17 of the Protocol): this mechanism enables the signatory countries to comply with their emission reduction obligations by buying or selling pollution permits from/to other countries. In other words, interested parties may sell and/or purchase permits when their emissions lie below or above their assigned shares. The emission permits are defined as Assigned Amount Units (AAUs).

It is worth stressing that emission abatement - obtained by improving technologies in energy production and industrial processes, by applying efficiency criteria in the use of energy and by resorting to renewables (wind, solar energy, etc.) - plays a vital role in the fight against climate change.

4.3 LEGISLATION ON EMISSIONS TRADING: DIRECTIVE 2003/87/EC

On 13 October 2003, the European Parliament and the Council approved Directive 2003/87/EC. The Directive established a scheme for GHG emission allowance trading within the Community, beginning on 1 January 2005. The scheme, called EU Emissions Trading Scheme (EU ETS), was introduced to promote reductions of GHG emissions "in a cost-effective and economically efficient manner" (art. 1).

The system makes it possible to comply with emission reduction obligations through the purchase or sale of emission rights.

The EU ETS is a *"Cap-&-Trade system"*, which sets a maximum limit (*cap*) on the emissions released by industrial installations that produce GHGs. The cap is set by allocating a given number of emission allowances to each installation falling under the categories listed in the Directive. Each allowance or unit (European Unit Allowance – EUA) represents the right to release 1 tonne of carbon dioxide-equivalent into the atmosphere, during the reference year of the same allowance. The allowances are allocated to the installations covered by the EU ETS Directive through National Allocation Plans (NAPs).

As regards the management of allowances, the EU ETS involves a first phase of implementation (2005-2007) and a second phase coinciding with the first Kyoto Protocol compliance period (2008-2012). In each phase, each Member State must draw up a NAP (art. 9), indicating the total number of allowances that it intends to allocate to the main sectors of the economy and the related modalities of allocation. In the first phase, Member States must allocate at least 95% of emission allowances free of charge whereas, in the subsequent five-year period (2008-2012), they must allocate at least 90% of the overall allowances free of charge.

From 1 January 2005, the installations falling under the categories of activities identified in the Directive (Annex I – energy activities, iron and steel production and processing, the mineral industry and the wood pulp, paper and card industry) may carry out their activities only if they are in possession of an appropriate permit issued by the competent authority.

Every year, the competent authority grants a permit – under articles 5, 6 and 7 - to emit GHGs from all or part of a given installation, if it is satisfied that the operator is capable of monitoring and reporting emissions; a single permit may cover one or more installations on the same site operated by the same operator.

Within 30 April of each year beginning in 2006, operators of installations subject to the obligation are held to surrender a number of

allowances equal to the total emissions from their installations in the previous year. Any surplus of allowances, i.e. the positive difference between allocated allowances and actual emissions, may be "banked" or sold in the market by the end of the reference period, whereas any deficit of allowances may be covered by buying the permits.

Failure to surrender the allowances will result into a financial penalty (art. 16) equal to € 40/allowance for the 2005-2007 period and increasing to € 100/allowance in the following five-year period; payment of the penalty will not relieve the installation operator of the obligation to surrender the required number of allowances.

Finally, the Directive stipulates that Member States shall ensure the free movement of emission allowances within the EU, thereby favouring the development of an actual European market of emission rights.

Activities regulated by Directive 2003/87/EC

Activities	GHGs
Energy activities	
Combustion installations with a rated thermal input exceeding 20 MW (except hazardous or municipal waste installations)	Carbon dioxide
Mineral oil refineries	Carbon dioxide
Coke ovens	Carbon dioxide
Production and processing of ferrous metals	
Metal ore (including sulphide ore) roasting or sintering installations	Carbon dioxide
Installations for the production of pig iron or steel (primary or secondary fusion) including continuous casting, with a capacity exceeding 2.5 tonnes per hour	Carbon dioxide
Mineral industry	
Installations for the production of cement clinker in rotary kilns with a production capacity exceeding 500 tonnes per day or lime in rotary kilns with a production capacity exceeding 50 tonnes per day or in other furnaces with a production capacity exceeding 50 tonnes per day	Carbon dioxide
Installations for the manufacture of glass including glass fibre with a melting capacity exceeding 20 tonnes per day	Carbon dioxide
Installations for the manufacture of ceramic products by firing, in particular roofing tiles, bricks, refractory bricks, tiles, stoneware or porcelain, with a production capacity exceeding 75 tonnes per day, and/or with a kiln capacity exceeding 4 m^3 and with a setting density per kiln exceeding 300 kg/m^3	Carbon dioxide
Other activities	
Industrial plants for the production of	
(a) pulp from timber or other fibrous materials	Carbon dioxide
(b) paper and board with a production capacity exceeding 20 tonnes per day	Carbon dioxide

Source: Directive 2003/87/EC (Annex I)

4.3.1 National Allocation Plan

In Annex III of the Directive, the Commission set out criteria for the preparation of the National Allocation Plan (NAP).

The decision-making process is entrusted to the competent authority. In drawing up the NAP, the competent authority will ensure that the quantity of allocated allowances is consistent with the Kyoto Protocol commitments.

The first step in the preparation of the NAP is the determination of the total number of emission allowances to be allocated at national level. This amount will then be shared among the various industrial sectors covered by the Directive.

Finally, after determining the amount of emission allowances to be allocated to the individual sectors, the quantity to be allocated to each installation is determined by adopting different criteria for the different sectors.

The total number of allowances to be allocated to existing installations for the 2008-2012 period is calculated by applying the methodology indicated by the European Commission to the latest available data. The quantity of allowances allocated by the Italian NAP (sent to Brussels in February 2008 and approved in November 2008), expressed in $MtCO_2$, is shown in the following table. The methodology relies on the assumption that the weight of emissions from the EU ETS sectors in total national emissions and the weight of emissions from non-EU ETS sectors in total national emissions remain constant in the 2005-2012 period. The methodology also supposes that the two macro sectors have the same emission reduction potential, taking into account: i) the yearly average allocation of emission allowances approved by the European Commission for the first period; ii) the weights of the EU ETS sectors in terms of emissions; iii) the distance from the Kyoto targets; and iv) the reduction efforts that the covered sectors are required to undertake.

Italian 2008-2012 NAP

	2008	2009	2010	2011	2012
			in Mt CO_2		
Allocation to existing installations ($MtCO_2$)	206.72	198.47	191.41	179.72	177.38
Yearly average reserve for new entrants	18.26	18.26	18.26	18.26	18.26
Total allowances allocated	**224.98**	**216.73**	**209.67**	**197.98**	**195.64**

Source: PNA nazionale 2008-2102, http://ec.europa.eu/environment/climat/pdf/nap_italy_final.pdf

The main difference with respect to the 2005-2007 NAP concerns the sectors of thermal generation and refineries. In particular, the proposed new allocation passed from an average of 131.06 $MtCO_2$/yr to 100.66 $MtCO_2$/yr for thermal generation and from an average of 23.76 $MtCO_2$/yr to 20.06 $MtCO_2$/yr for refineries. The following table shows the differences between the two plans in terms of allocations to the various sectors.

Yearly average allocations by activity

Energy Activities	2005-2007 Allocation	2008-2012 Allocation
	in Mt CO_2	
Thermoelectric (CHP and non-CHP)	131.6	100.66
Other combustion activities	14.90	14.52
District heating	0.23	0.23
Refineries	23.76	20.06
Gas pipeline compressors	0.88	0.88
Other	13.78	13.41

Source: PNA nazionale 2008-2102, http://ec.europa.eu/environment/climat/pdf/nap_italy_final.pdf

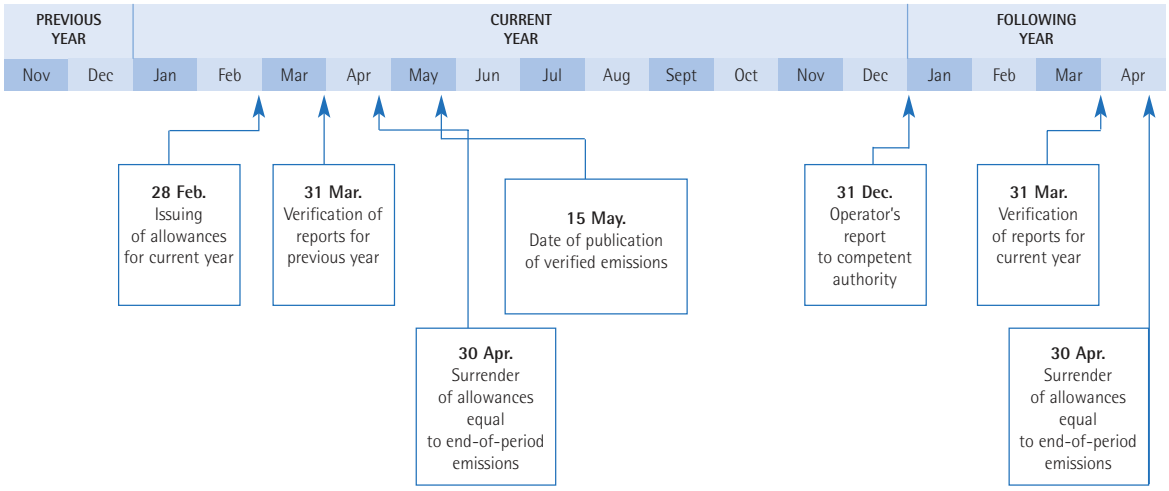
At the end of each year, the operator must report to the competent authority the GHG emissions released by the installation in the current year. These reports must conform to the emission monitoring & reporting guidelines that the Commission adopted under the criteria stated in Annex IV of the Directive.
Then, the operator's report will be verified on the basis of the principles laid down in Annex V of the Directive. The verification has the purpose of checking whether the monitoring system and the reported data and information are reliable, credible and accurate. If the verification indicates that the report does not meet the criteria referred to in the Annex, then the operator involved may transfer the emissions allowances only after submitting a report conforming to the above-mentioned criteria.

4.3.2 National Registry of Allowances

The allowances allocated to each installation are entered into a National Registry. The Registry is a standardised and secured data base, into which issuance, transfer, surrender and redemption of allowances are saved. The national competent authority, established within the Ministry of the Environment, is in charge of these activities.
At European level, the National Registries of the 27 Member States of the European Community are interlinked via a central registry, called Community Independent Transaction Log (CITL). This connection prevents irregularities and ensures the consistency of the entered transactions with the obligations arising from the Kyoto Protocol. The CITL checks each transfer of allowances automatically, ensuring compliance with the EU ETS Directive.
Under the system, the national competent authority will open an account in the National Registry for each operator of the installations covered by the EU ETS. The allowances that are allocated to the installation under the NAP are deposited on this account. The Registry enables the account holder to transfer his/her allowances to other accounts, both nationally and internationally.
In addition to installations subject to reduction obligations, any individual or organisation wishing to buy or sell allowances in the market may open an account in the Registry.
The Registry is managed by a registry administrator appointed by the competent authority. The administrator carries out all the necessary administrative tasks and is in charge of the operational management of the Registry. The Italian Ministry of the Environment appointed the "Istituto Superiore per la Protezione e la Ricerca Ambientale" (ISPRA – Higher institute for environmental protection and research)[30] as the administrator of the Italian National Registry of emission allowances.
The Italian Registry runs on the software system called Greenhouse Gas Registry for Emissions Trading Arrangements (GRETA). GRETA is an information system for the management of the registry of emissions that Italy adopted under arrangements made between the DEFRA (Department for Environment, Food and Rural Affairs, British Ministry of the Environment) and the Italian Ministry of the Environment.

30 As per Law 133/2008, amending and converting Law-Decree no. 112 of 25 June 2008 - "Disposizioni urgenti per lo sviluppo economico, la semplificazione, la competitività, la stabilizzazione della finanza pubblica e la perequazione tributaria" - ISPRA replaced the former "Agenzia per la protezione dell'ambiente e per i servizi tecnici – APAT", referred to in article 38 of Legislative Decree no. 300 of July 1999, as subsequently amended.

Yearly EU ETS cycle



Source: Commissione Europea.

4.4 LINKING DIRECTIVE

The EU stressed the need for promoting the Kyoto Protocol flexibility mechanisms - Joint Implementation (JI) and Clean Development Mechanism (CDM) - within the EU ETS. Recalling that such mechanisms are "desirable and important to achieve the goals of both reducing global greenhouse gas emissions and increasing the cost-effective functioning of the Community scheme" and that they are supplemental to domestic action, the EU established that "the emission credits from the project-based mechanisms will be recognised for their use in this scheme subject to provisions adopted by the European Parliament and the Council on a proposal from the Commission, which should apply in parallel with the Community scheme in 2005" (art. 30, Directive 2003/87/EC).

To create a link between the flexibility mechanisms and the EU ETS and provide companies with a wide range of compliance choices, the European Parliament and the Council approved Directive 2004/101/EC (the so-called Linking Directive) on 27 October 2004.

The Linking Directive recognised the flexibility mechanisms of the Kyoto Protocol - CDM and JI - within the framework of the EU ETS, stipulating that the emission credits accrued from the implementation of such projects might be used for complying with emission reduction obligations.

Therefore, the NAP will specify the percentage of the emission reduction obligation that operators are allowed to fulfil by using CERs and ERUs.

4.5 ORGANISATION OF GME'S EMISSIONS TRADING MARKET

To enable GHG emission units (EUAs) to be traded, GME set up an appropriate market, consisting of an electronic platform that may be accessed via a secure Internet connection.

In this market, emission units may be traded continuously and with spot delivery. The market is organised into weekly sessions, held from 9:00 to 16:00.

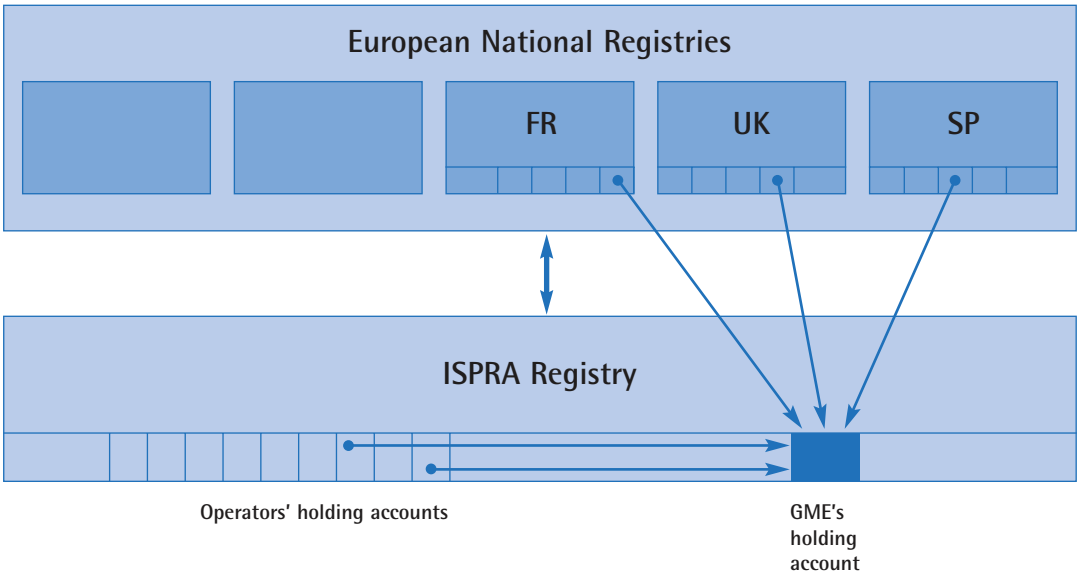
Any operator having one emission unit holding account with one of the European registries may participate in the market.

To be admitted to the market, applicants must submit a participation application and sign a participation agreement. In the agreement, applicants must declare that they have understood and unconditionally accept to be bound by the Emissions Trading Market Rules. All the relevant documentation, including the Rules, is posted on GME's website.

To ensure the functioning of the market mechanism and the security of transactions, GME opened one emission unit holding account in the ISPRA Registry. Operators admitted to GME's market and wishing to sell emission units are required to transfer them to GME's ownership account in the Registry.

The following chart displays the process of transfer of units to GME's holding account.

Transfer of units to be sold in GME's market



Source: GME

Operators wishing to buy emission units in the market are held to post an initial interest-bearing cash deposit covering all of their transactions. The amount of the deposit must be transferred to an appropriate bank account of GME. During the market sessions, the available deposit of each operator is calculated in real time, by subtracting from the initial deposit the value of the buy orders that have been concluded or entered, and/or by adding to the available deposit the value of the sell orders that have been concluded and/or entered into the order book. Buy orders not covered by the available deposit are instead rejected for the entire proposed quantity. If the number of units available on the holding account of an operator is not sufficient to cover a sell order entered by the same operator, the order is rejected for the entire proposed quantity.

Buy and sell orders are listed in an order book. Each order book shows the best buy and sell orders, ranked by price priority and, in case of identical price, by time of receipt by GME's information system.

GME organises an order book for the emission units allocated under the National Allocation Plans for the 2008-2012 period (2008-2012 EUAs).

Operators enter their buy or sell orders by specifying:

- type of units (2008-2012 EUAs, CERs);

- type of transaction (buy or sell);
- quantity;
- price (in case of order with price limit).

The operator may also submit buy or sell orders at "market price", by matching the order (until exhausting its amount) with the best buy or sell orders that are present in the order book at the time of entry. Trading orders that have not been automatically matched for their entire quantity may be changed or cancelled. If trading orders have been partially accepted, only the remaining part of the order may be changed or cancelled. However, the changed orders lose the time priority that they have acquired.

At the close of the session, GME may, at the request of the operator, manage all transactions concerning payments to the seller, transfer of emission units to the buyer's account and return of units that have remained unsold.

At the end of the sessions, operators receive transaction confirmations.

GME makes payments to each selling operator by increasing the available deposit of the same operator and by decreasing the available deposit of the buying operator. The operator may at any time ask for refund of the available deposit, equal to the net amount between the initial deposit, the revenues from sales and the costs for purchases in the market; the available deposit is transferred to the bank account specified by the operator upon registration. GME will pay the amount corresponding to the available deposit within 2 working days from the operator's request.

GME manages the transfer of emission units: at the request of the operator, GME will transfer the units from GME's holding account to each operator's holding account in one of the interlinked registries.

To participate in the Emissions Trading Market, operators must pay a trading fee to GME. The value of the fee is posted on GME's website.

With the approval of the new Emissions Trading Market Rules and the start of the new market platform in view of Phase II of the EU ETS Directive, GME has introduced a number of new features and changes in order to make its Emissions Trading Market more efficient and in tune with the other European spot markets for emissions trading.

The main changes concern:

- GME's acquisition of the role of central counterparty of the trades. This change makes the market totally anonymous, as GME performs all the tasks connected with payments and issuing of invoices for the amounts of the transactions;
- introduction of a bilaterals registration platform, where GME guarantees the successful outcome of the trades between the parties involved. On this platform, even single emission units may be traded. The buyer will transfer to GME's bank account the entire value of the transaction to be completed. The seller will enter his/her sell order by specifying the number of emission units to be transferred. After checking the deposit and the units, GME will immediately validate the transaction by transferring the units to the buyer and the value to the seller. The counterparties may ask for refund of the emission units or of the deposit at any time, under an appropriate procedure that is described in the Technical Rules (posted on GME's website);
- option of increasing the number of saleable units and the available deposit for purchases in real time, thus making the market faster and more dynamic. This feature enables operators to enter the market without taking positions in advance, monitor the evolution of and possibly take part in the trading, by transferring the cash deposit and the emission units in real time and submitting buy or sell orders in the ongoing session;
- reduction of the minimum tradable lot from 500 to 100 units (and multiples of 100) to facilitate participation in the market by small and medium enterprises subject to the obligation and covered by the NAP.

Moreover, GME's regulated market is designed for the spot trading of CERs, i.e. credits accrued from CDM projects, and of ERUs, i.e. credits accrued from JI projects. These projects make part of the flexible mechanisms that the Kyoto Protocol introduced to permit the achievement of CO_2 emission reduction targets by its signatory countries. Each CER and ERU, just as the EUA, is equivalent to 1 tonne of CO_2. In particular, CERs are currently traded under forward contracts (bilaterally and in regulated markets) that operators use to hedge the risk of volatility of EUA prices. A given percentage of CERs, different in the different Member States, may be used by the companies covered by the EU ETS to comply with their obligations.

In October 2008, the European Registries (Community Independent Transaction Log – CTIL) were interconnected with the International Registry (International Transaction Log – ITL), managed by the UNFCC[31]. Thanks to this interconnection, also CERs may be traded, with spot delivery, bilaterally or on GME's platform. The trading rules and procedures are the same as those applied to EUAs: the seller temporarily transfers the units to be sold during the market sessions to GME's account in the ISPRA Registry of CERs. As in the case of EUAs, the minimum tradable lot of CERs will be equal to 100 units.

4.7 MAIN EUROPEAN EMISSION ALLOWANCE TRADING PLATFORMS

Various emission allowance trading platforms exist in Europe. The main ones are: European Climate Exchange (ECX), based in the UK; European Energy Exchange (EEX), based in Germany; NordPool, based in Norway; Bluenext (former Powernext Carbon), based in France; Energy Exchange Austria (EXAA) and Climex Alliance, resulting from the association of local operators, including: New Values, Sende CO2, Amsterdam Power Exchange (APX), the APX Power UK, euets.com and STX Energy Services.

The products traded on the main European exchanges are shown in the following table:

Main European exchanges and products traded

Exchange	Start date	Products
Nord Pool	11 Feb. 2005	*Spot*, *Futures*, expiry Dec. 2009
EEX	9 Mar. 2005	*Spot*, *Futures*, expiry Dec. 2009
ECX	22 Apr. 2005	*Futures*, expiry Dec. 2009
Climex Alliance	22 Jun. 2005	*Spot*
Bluenext (ex Powernext Carbon)	24 Jun. 2005	*Spot*, *Futures*, expiry Dec. 2009
EXAA	28 Jun. 2005	*Spot*

Source: GME's processing of exchange data

31 United Framework Convention on Climate Change.

REFERENCE LEGISLATION

- **Directive 2003/87/EC** of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC
- **Directive 2004/101/EC** of the European Parliament and of the Council of 27 October 2004 amending Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms
- Decisione di assegnazione delle quote di CO_2 per il periodo 2008-2012 approvata ai sensi di quanto stabilito dall'art. 11, comma 1 del d.lgs. 4 aprile 2006, n. 216 (20 febbraio 2008)
- **Deliberazione 020/2008** del Comitato Nazionale di gestione e attuazione della direttiva 2003/87/CE del 12 novembre 2008, "Esecuzione della Decisione di assegnazione delle quote di CO_2 per il periodo 2008-2012 elaborata ai sensi dell'art. 8, comma 2, lettera C) del d.lgs. 4 aprile 2006, n. 216 e successive modifiche e integrazioni
- Aggiornamento della **Delibera CIPE n. 123/2002** recante "Revisione delle linee guida per le politiche e misure nazionali di riduzione delle emissioni di gas-serra"
- **GME's Emissions Trading Market Rules**

GLOSSARY

Certified Emission Reduction (CER)

Emission credit accrued from a CDM project and corresponding to 1 tonne of CO_2-equivalent of reduction.

Clean Development Mechanism (CDM)

It is one of the flexible mechanisms introduced by the Kyoto Protocol to help developing countries to shift from their current development model to a less carbon-intensive one. Through the CDM, a developed country invests in a project involving the reduction of emissions or the capture of greenhouse gases in a developing country. In this way, the developing country may get access to a less polluting technology, while the industrialised country and/or its companies may comply with their emission obligations at lower costs.

Green Certificates

Under art. 5 of the Decree of the Minister of Industry of 11 November 1999 (superseded by the Ministerial Decree of 24 October 2005), Green Certificates certify electricity generation from renewable energy sources. Producers and importers of non-renewable electricity may use Green Certificate to fulfil their renewable quota obligation. Green Certificates are issued by GSE. Each of them is worth 1 MWh (before February 2008, each certificate was worth 50 MWh). Parties with a surplus or deficit of generation of electricity from renewable energy sources may sell or purchase them bilaterally and/or in the Green Certificates Market.

Emission Reduction Unit (ERU)

Emission credit corresponding to 1 tonne of CO_2-equivalent of reduction obtained from a JI project.

Emission Allowance (or Unit)

Tradable certificate representing 1 tonne of CO_2 emissions. The certificate may be used to demonstrate compliance with the obligation to reduce greenhouse gas emissions, as defined in the EU Emissions Trading Scheme (EU ETS).

Energy Efficiency Certificates

Energy Efficiency Certificates ("TEE"), also known as White Certificates, were introduced by the Decrees issued by the Minister of Productive Activities in consultation with the Minister of the Environment, Land and Sea Protection on 20 July 2004 (Ministerial Decrees of 20 Jul. 04), as subsequently amended and supplemented by the Ministerial Decree of 21 Dec. 2007. These certificates give evidence of the energy savings obtained by parties subject to the energy-saving obligation, i.e. electricity and gas distributors having more than 50,000 final customers. They are valid for 5 years from their reference year and are issued by GME.
The certificates are issued to the owner of the energy-saving project for 5 consecutive years (in some cases for 8 years). GME issues them on the basis of notifications given by "Autorità per l'energia elettrica e il gas" (AEEG, the Italian electricity & gas regulator).

EU Emissions Trading Scheme (EU ETS)

Scheme for greenhouse allowance trading within the European Community. It makes part of the mechanisms introduced by the Kyoto Protocol.

European Unit Allowance (EUA)

See Emission Allowance.

Joint Implementation (JI)

Under the Joint Implementation mechanism (art. 6 of the Kyoto Protocol), joint projects may be implemented between industrialised countries and economies in transition (typically in Eastern Europe) to cut emissions by using more efficient technologies. Both parties accrue credits from the reductions so achieved. By relying on this mechanism, countries with emission reduction obligations may implement projects of greenhouse gas emission reduction in other countries. The emissions displaced thanks to these projects generate Emission Reduction Units (ERUs), which may be added to the amount of emission permits initially allocated.

NAP (National Allocation Plan)

National plan of allocation of CO_2 allowances pursuant to Directive 2003/877EC.