



ANNUAL REPORT 2020





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EXECUTIVE SUMMARY

The performance of the energy markets in 2020 was significantly affected, on a global scale, by the health emergency linked to the Covid-19 pandemic. The restrictive measures adopted by individual countries to combat the spread of the virus caused a significant reduction in the demand for goods and services, which was consequently reflected in the prices of commodities, which in many cases reached their all-time historical low.

The peculiar economic situation inevitably resulted in a convergence of both European gas prices and the prices expressed by the continental electricity markets, which are highly integrated, the latter, through the advanced coordination mechanisms activated by market coupling.

In a similar context, pending a general and more complete economic recovery, GME has nevertheless continued in the process of adapting the market rules to achieve further integration of the markets in Europe, while continuing to provide support tools to participants in their investment policies.

In fact, European markets should ideally tend towards a common regulation that ensures an increasingly effective integration of renewable sources, in particular of non-programmable ones, in the so-called traditional markets. It is therefore becoming increasingly necessary to create market models that guarantee the continuing security of supplies and which promote the reduction of system unbalancings.

GME's action to promote the integration of the Italian electricity market in Europe, performed in collaboration with the other European exchanges, the TSOs [European network operators] and the reference institutions, was further strengthened in 2020, achieving, on the day-ahead horizon, expansion of the market coupling to the Italy-Greece border. For the intra-day area, GME also committed to the further advancement of the preparatory activities for the entry of the Italian intra-day market into the project of coupling, named Single Intra-Day Coupling. The purpose of this was to extend the benefits deriving from the coupling mechanisms to this segment and to guarantee an enhancement of the flexibility options in response to the needs that have emerged within electrical systems, such as the Italian one, in which the role of renewable generation, by nature extremely volatile and intermittent, has been consolidated.

In the Italian electricity market, the marked reduction in demand and the cost of gas have pushed the Pun (38.92 €/MWh, -25.6%) and its differential with foreign countries to an all-time low. However, the effectiveness of the mechanisms of coupling, achieved in recent years with European counterparts, has made it possible to partially support national production, which is also decreasing in its thermal component, favouring a decisive growth in exports to foreign countries. Signs of a progressive recovery in prices and volumes appeared in the final phase of 2020 and in the first part of 2021, within a general context of growth of all commodities.

Despite the profound uncertainty linked to the context of the health emergency, the electricity markets managed by GME guaranteed efficient planning of the plants by participants. Indications to this effect can be found both on the Day-Ahead Market, whose liquidity reached an all-time high thanks to the holding of stock exchange trading, and on the Intra-day Market, whose presence in subsequent sessions proved decisive - especially in the lockdown period - in guaranteeing the flexibility necessary for the adaptation of production plant programs to reflect real-time operations.

A strengthening of the strategic function of GME was also recorded in the gas sector, also characterised by a demand pushed down by the health emergency and by prices at historic lows (PSV: 10.55 €/MWh, -35.2%). On the markets managed by GME, in fact, a consolidation of the multi-year trend of growing participation was noted, which resulted in the growth of the volumes traded to an all-time high (113 TWh, +43%), with results equal to 15% of the demand for natural gas, the highest share since the start-up of the new balancing system.

The innovations introduced in 2020 contributed to the increase in trade: on the one hand the weekend product, negotiable under the MGP-GAS, on the other hand the launch of the AGS sector, functional to procurement by Snam Rete Gas S.p.A. of the resources necessary for functioning of the system. In addition to the effectiveness of the new instruments, there was also a further growth in the spot markets already active, and in particular in the MI-GAS, which in 2020 recorded the maximum level of trading between participants other than the Head of Balancing.

With reference to the environmental sector, in 2020 GME expanded the scope of activities in support of the incentive mechanisms promoted at national level, adding to the markets already operating in the field of energy efficiency and guarantees of origin, the market for Certificates of release for consumption of biofuels, a new and additional tool to support the decarbonisation policies of the Italian energy system.

Alongside the traditional areas of activity, GME also strengthened its functions in the LNG sector, through the management of auctions for the allocation of regasification capacity, and in the fuel sector, making available to participants the Platform for recording of the Storage and Transit Capacity of Mineral Oils as well as the Trading Platform for petroleum logistics services for mineral oils.

GME carries out its business at the service of the State and institutions.

The company is part of a community where the individual subjects, respecting their autonomy, contribute to the efficient functioning of the markets. GME therefore confirms its commitment to contributing to the evolution of the Italian and European energy system through the formulation of its own proposals, through dialogue with stakeholders and collaboration with national and international institutional subjects.

And the results presented here are the best evidence of this.

*The Chairman
and Chief Executive Officer*

Andrea Péruzy

A handwritten signature in white ink, consisting of a large, stylized 'A' followed by 'i' and 'z'.

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01

The
Company



1.1. THE PROFILE

Gestore dei Mercati Energetici S.p.A. (GME) is the joint stock company established in 2000 as part of the liberalisation process of the energy sector and wholly owned by Gestore dei Servizi Energetici S.p.A. (GSE), whose shares are in turn held by the Ministry of Economy and Finance (MEF). GME is a **multi-commodity company** which operates in compliance with the guidelines of the Ministry of Ecological Transition (MITE) and with the regulatory provisions defined by the Regulatory Authority for Energy, Networks and the Environment (ARERA).

1.2. THE MARKETS

GME organises and manages the electricity and gas markets - characterised by the obligation of **physical delivery of the commodity** - as well as the environmental and fuel markets. In particular, GME manages:

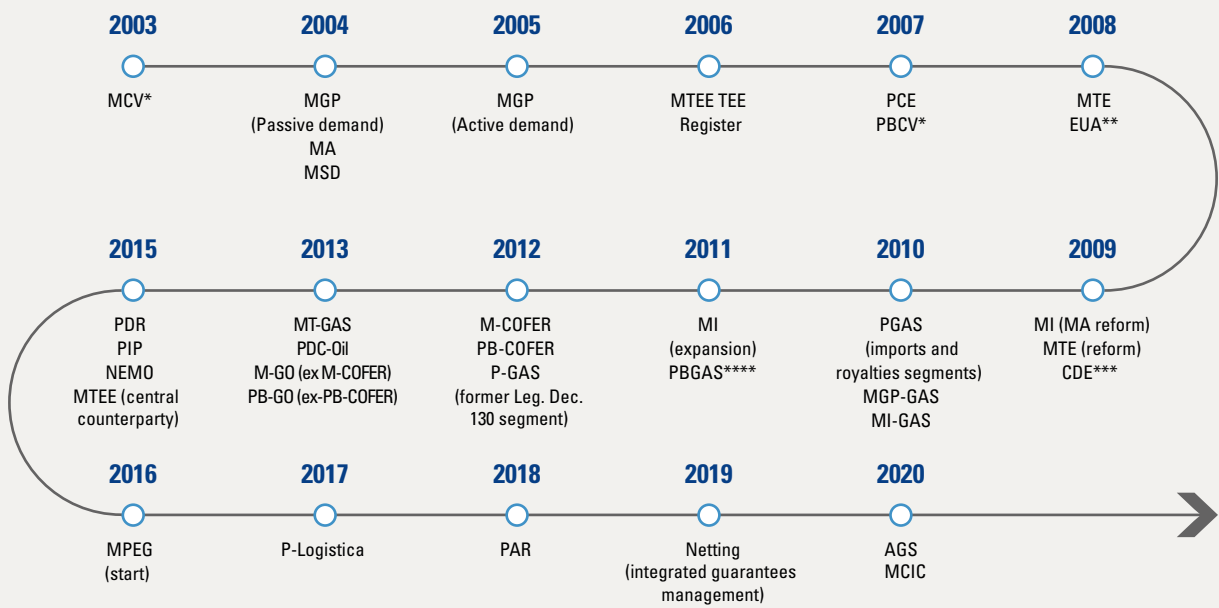
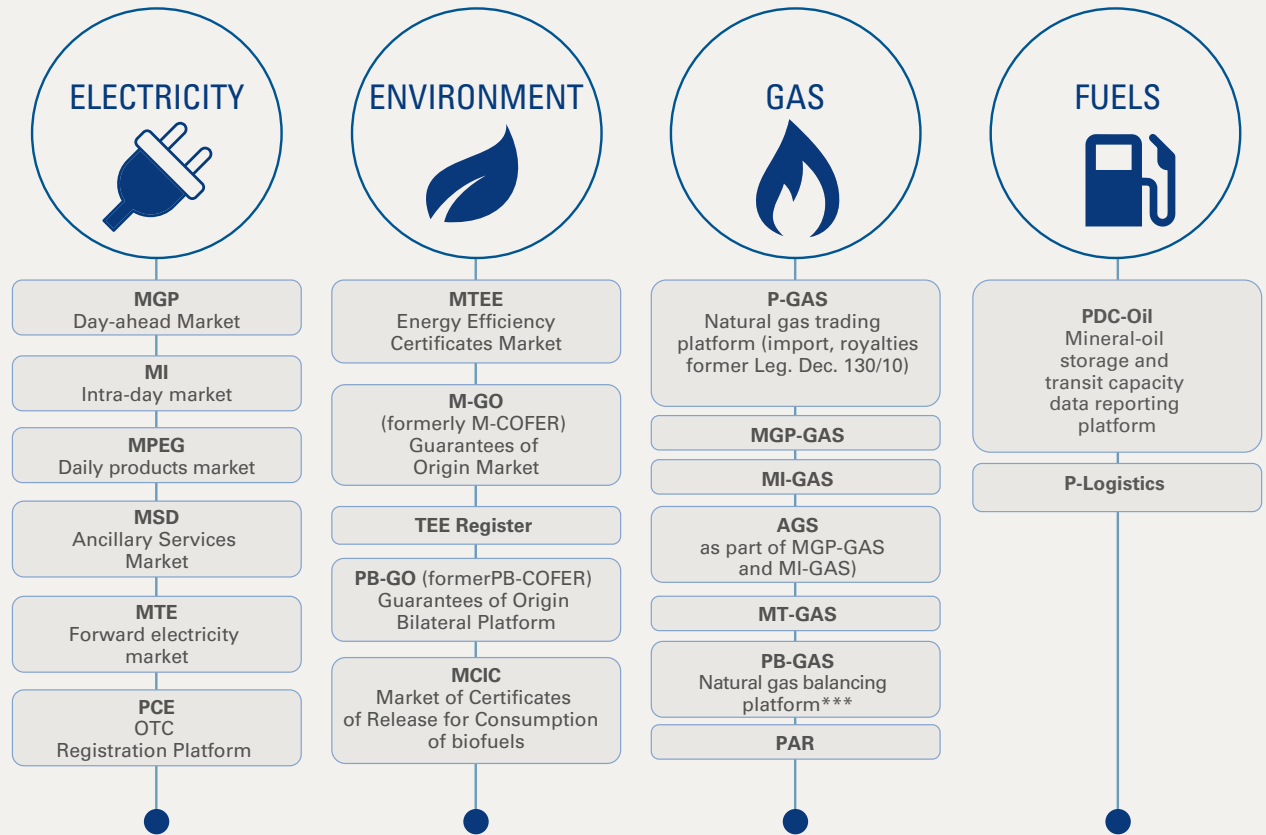
- ▶ in the **electricity sector**, i) the Spot Energy Market (MPE), in turn divided into the Day-Ahead Market (MGP), the Intra-day Market (MI) and the Daily Products Market (MPEG), ii) the Forward Energy Market (MTE) and iii) the Forward Energy Accounts Platform (PCE) for the recording of forward electricity purchase and sale contracts concluded outside the market system. Again within the MPE, GME also manages the operations of the Dispatching Services Market (MSD), concerning the procurement of resources for the dispatching service and whose economic management is the responsibility of Terna S.p.A. (henceforth: Terna);
- ▶ in the **gas sector**, i) the Gas Spot Market (MP-GAS), in turn divided into the Day-Ahead Market (MGP-GAS), the Intra-day Market (MI-GAS) - whose sessions are held according to methods of continuous and auction trading (AGS sector) - on the Locational Product Market (MPL) and on the Market for the trading of Gas in Storage (MGS) and ii) the Forward Gas Market (MT-GAS). GME also manages the operations of the Platform for the fulfilment of the transfer obligations relating to national production, import and virtual storage (P-GAS), as well as the Regasification Capacity Allocation Platform (PAR);
- ▶ in the **environmental sector**, i) the Market for Energy Efficiency Certificates (MTEE), ii) the Market for Guarantees of Origin certifying the production of electricity from renewable sources (MGO) and iii) the Market for Certificates of Release for the Consumption of biofuels (MCIC). GME also manages the TEE and GO bilateral trading registration platforms (TEE and PB-GO Register);
- ▶ in the **fuel sector**, i) the Platform for measuring the Storage and Transit Capacity of Mineral Oils (PDC-OIL), ii) the Platform for the trading of petroleum logistics services for mineral oils (P-LOGISTICS).

GME operates as a central counterparty on its markets and platforms, with the exception of the MSD, where the central counterparty is Terna, the P-GAS, the PAR and the platforms for registering bilateral contracts of the GOs and TEEs.

In 2020, the participants active on GME's markets/platforms increased compared to 2019, reaching 2,627 units (+94). Volumes traded in the gas sector increased, while decreases were recorded in the electricity and environmental sector¹ (Fig. 1.1, Fig. 1.2, Fig. 1.3).

¹ For further details on the market trends, reference should be made to Chapter 2.

Fig. 1.1 GME's markets and platforms



* Trading closed in 2016.
 ** Trading closed in 2014.
 *** Platform closed from 1/1/2020.
 **** Platform closed in 2017 and at the same time replaced by the MPL and MGS markets, which became part of the MGAS.

Fig. 1.2 Volumes and participants registered by market/platform in 2020

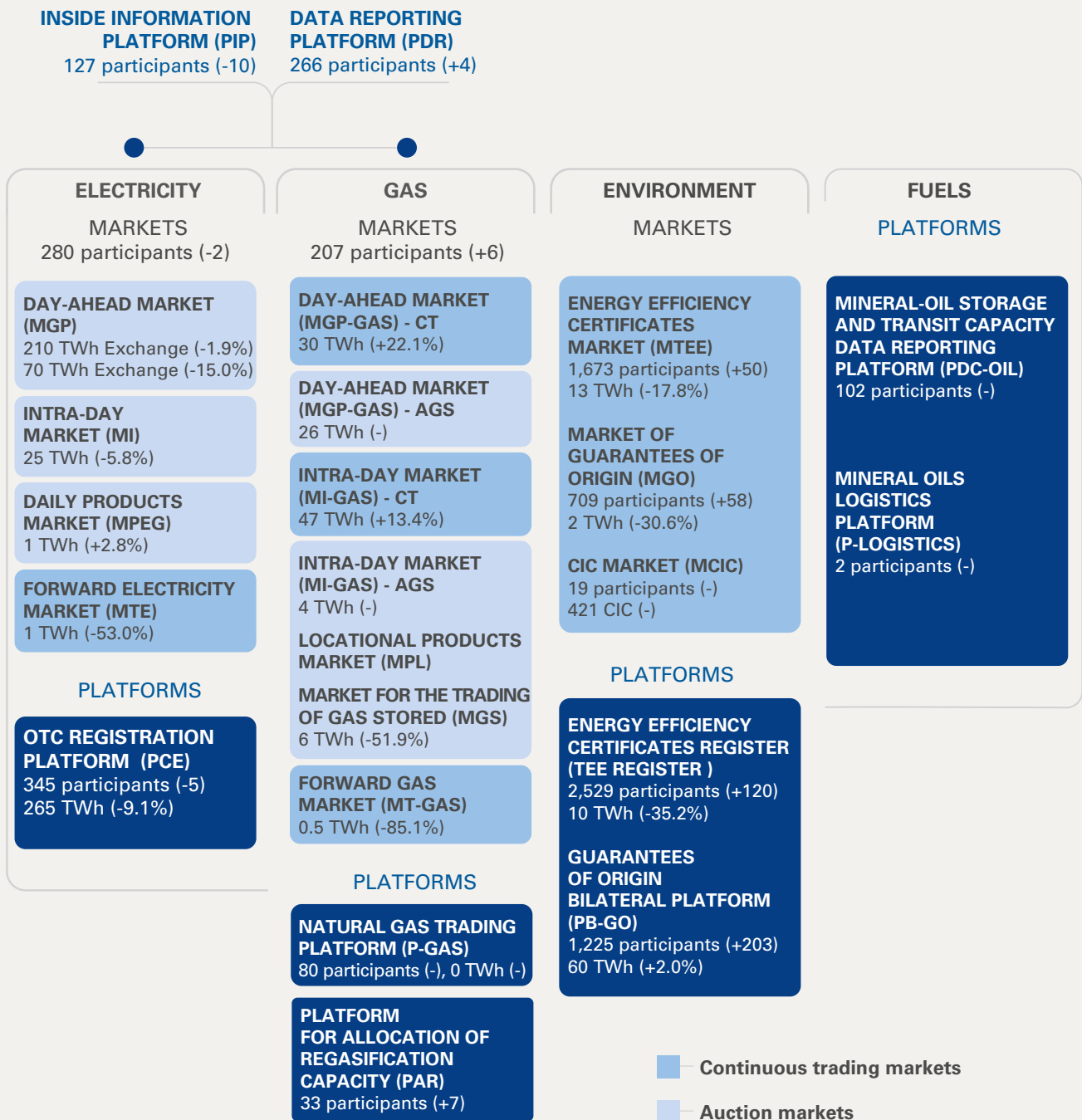
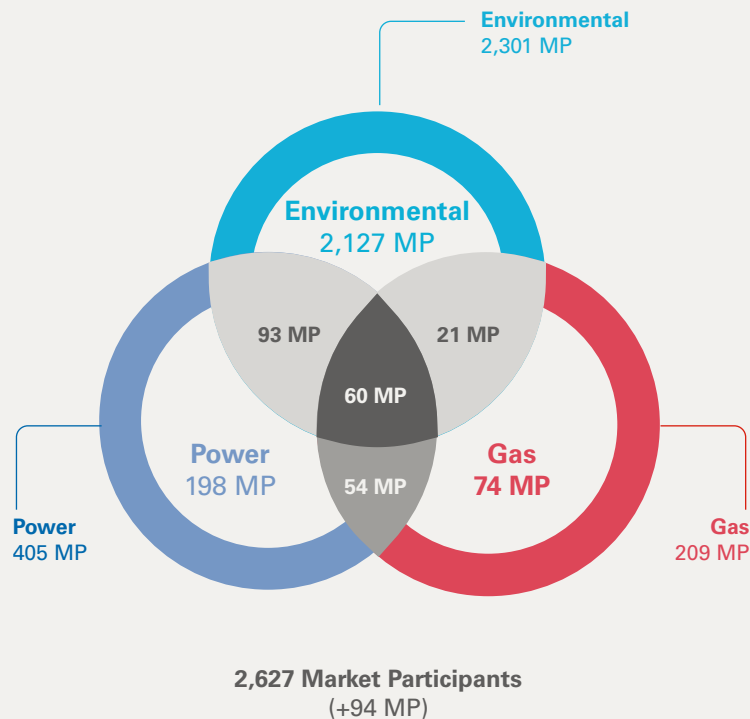


Fig. 1.3 Participants registered in GME's markets



1.3. INTERNATIONAL ACTIVITIES

GME is a member of Europex, the association of European energy exchanges, and cooperates with other designated European exchanges, as NEMO², and with the European network participants (so-called TSO³) in the coordination and integration projects of the day-ahead and intra-day electricity markets (NEMO Cooperation, SDAC, SIDC⁴) for efficient management of market coupling processes and ensuring full compliance with European Regulation no. 2015/1222 (CACM). GME also participates together with ARERA, Terna and MITE in the WB6 project (Western Balcan 6⁵), aimed at promoting the launch of a regional coupling in the Balkan area on the basis of the experience gained in the organisation and management of national markets and the integrated European electricity market.

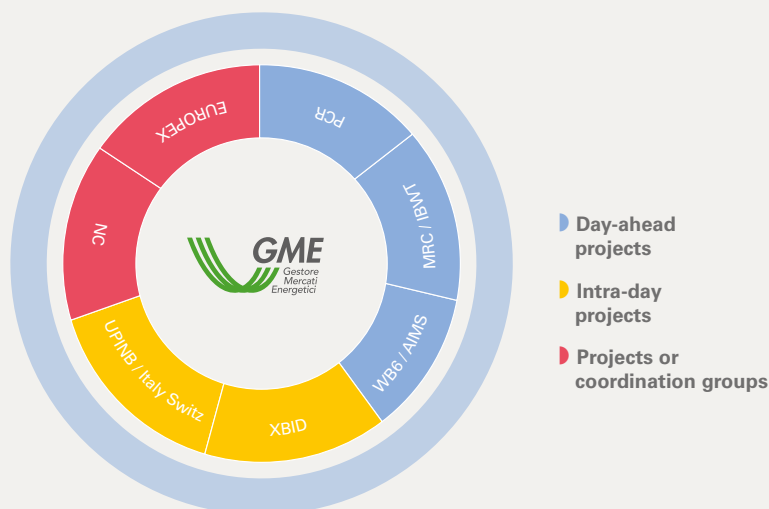
² NEMO shall mean "Nominated Electricity Market Participant", as defined in article 4 of European Regulation no. 2015/1222 (hereinafter: CACM), a role assigned to GME for Italy by the Ministry for Economic Development.

³ Transmission System Participant.

⁴ SDAC and SIDC are the operation coordination projects for the full implementation of the Single Day-ahead Coupling and the Single Intra Day Coupling in Europe.

⁵ WB6 is a cooperation project between national Regulators, Network Participants and Market Participants from Albania, Bosnia and Herzegovina, Macedonia, Montenegro and Serbia for the creation of a regional electricity market in the Balkan region, to be eventually integrated with the European Union energy market. The WB6 Program coordinates a series of sub-projects aimed at promoting the development and integration of electricity markets in WB6 countries (with the exception of Kosovo) both locally and regionally. This project is supported by the European Union and by the Energy Community.

Fig. 1.4 International projects



1.4. NEW INITIATIVES

During 2020, in coordination with the competent institutions and in agreement with the subjects directly involved, GME launched and/or completed projects in the various sectors of interest. In this context are the initiatives - indicated below - aimed, in particular, at achieving a growing European integration of the electricity markets, at increasing liquidity and supply possibilities on the gas markets, as well as at extending active markets in the environmental sector. In particular, the following are highlighted:

- in the electricity sector:
 - the launch, in December 2020, within SDAC of the **day-ahead market coupling mechanism on the Italy-Greece border**;
 - the preparation of changes to the current design of the Italian intra-day market, aimed at ensuring its **integration into the SIDC project**, planned during 2021, with reference to which GME, in coordination with the European TSOs, will also be engaged in activities related to the introduction of Day Auctions (IDAs), or the pan-European auctions dedicated to the enhancement of intra-day capacity which will replace, within 2023, the Complementary Regional Intra-day Auctions (CRIDA);
 - as part of the AIMS⁶ project, **finalisation of the Precondition Analysis document**, drawn up jointly with Terna and approved by ARERA with Resolution no. 515/2020/R/EEL, for identification of the activities necessary for the start of market coupling in the Balkan area;
 - in the process of European integration of the balancing markets, **the entry into operation of the RR (Replacement Reserve) Platform**, which took place on 13 January 2021, which GME implemented in coordination with Terna as part of the activities carried out by the TSO in relation to the TERRE project (Trans-European Replacement Reserves Exchange);
 - **modification of the zonal configuration of the Italian electricity market**, that envisages, pursuant to the ARERA Resolution no.103/2019/R/EEL, introduction of the new Calabria zone (CALA) and simultaneous elimination of the limited production

⁶ As part of the WB6 cooperation, the AIMS project is focusing on the development and introduction of the market coupling mechanism between Albania, Italy, Montenegro and Serbia, through the Italy-Montenegro electricity border.

point of Rossano (ROSN) (effective from 1 January 2021), as well as introduction of the virtual XGRE zone, functional to the market coupling mechanism on the border between Italy and Greece (effective from 16 December 2020).

- ▶ In the gas sector:
 - starting from 1 January 2020, **introduction of the weekend product** on the MGP-GAS to enrich the offer of products available for trading on the spot gas markets and to provide participants with an additional operational flexibility tool that will allow them to anticipate, in the previous working days, the trading referring to the gas days included in the week (i.e. Saturday and Sunday). Starting on 1 February 2020 the trading of this new product has also been extended to the activity of market making. During the same year the maximum number of Liquidity Providers (LP) admitted to perform the service was also reduced. This reduction was applied starting from the six-monthly update of the LP participants list of 1 February 2021.
 - The launch, starting from 1 January 2020 and on an experimental basis, of the **new sector for the supply of system gas (AGS sector)** as part of the MP-GAS, to allow Snam Rete Gas S.p.A. (henceforth: SNAM) to procure the resources necessary for operation of the gas system, pursuant to the provisions of ARERA with resolution no. 451/2019/R/GAS. In particular, ARERA has provided that procurement of the aforementioned resources should take place through specific auctions held, respectively, on gas days G-1 and G for products with delivery on each gas day G;
 - with reference to the PAR, *i)* the introduction, in the "OLT sector", of the **post-session planning activity** of the assigning dates for the slots referring to the annual and multi-annual capacity assignments, *ii)* **updating of the envisaged planning criteria** as a result of the capacity assignment procedures during the thermal year and the residual thermal year capacity, in implementation of the provisions of ARERA with resolution no. 85/2020/R/GAS, *iii)* the introduction of changes to the auction management procedure for the allocation of annual and multi-year regasification capacity on the "OLT" and "GNL Italia" sectors, requested by ARERA in order to introduce control mechanisms designed to ensure the consistency of the offers presented by participants between the different phases of the so-called "ascending open auction".
- ▶ In the environmental sector:
 - starting from May 2020, **the launch of the new organised market for the trading of biofuel release for consumption certificates (MCIC)**, in implementation of the provisions of Italian Ministerial Decree 2 March 2018 of the Ministry of Economic Development. On the MCIC it is possible to negotiate three types of certificates of release for the consumption of biofuels (CIC) valid for the purpose of fulfilling the annual obligations by the subjects that release petrol and diesel for consumption intended for use for transport, pursuant to Italian Ministerial Decree 10 October 2014, as amended.
 - in July 2020, **adaptation of the "Regulation for the registration of bilateral TEE transactions"** (RTEE Regulation), in order to implement the provisions of ARERA with Resolution no. 270/2020/R/EFR for the revision of certain parameters to determine the tariff-based contribution to be paid to obliged distributors under the TEE mechanism, for the introduction of the additional fee, as well as with reference to the postponement of the expiry of the obligation year 2019 to 30 November 2020.

1.5. MONITORING AND REMIT SERVICES

GME oversees the regular conduct of trading and transactions in the markets managed by it through a **monitoring activity** of the same to protect their integrity, in coordination with the main relevant reference institutions (in particular ACER⁷ and ARERA) in accordance with the current European and national regulations (REMIT Regulation⁸, TIMM⁹ and TIMMIG¹⁰).

Furthermore, GME supports Market Participants in fulfilling the obligations of data reporting to ACER and the publication of inside information, provided for by the REMIT Regulation, through "ad hoc" platforms, namely the PDR platform and the PIP platform¹¹, on which 266 and 127 participants are registered respectively, for an annual total of approximately 248,000 files and 85 million records transmitted to ACER by the PDR and 21,500 messages recorded on the PIP. The main events that involved the two platforms during 2020 were:

- ▶ as part of the PDR, **the adjustment of the activities of invoicing** of the fees requested from Market Participants for the services offered by GME as RRM¹², in order to manage the application of REMIT fees in accordance with the provisions of the European Commission in the Decision (EU) 2020/2152 of 17 December 2020;
- ▶ in the context of the PIP, **the successful conclusion of the evaluation process** conducted by ACER on the platform, in order to verify compliance with the minimum requirements, necessitated the ensuring of effective disclosure of information.

⁷ European Agency for the Cooperation of Energy Regulators.

⁸ European regulation no. 1227/2011.

⁹ Integrated text of the monitoring of the wholesale electricity market and of the market for the dispatching service (resolution ARG/elt 115/08, as subsequently integrated and amended).

¹⁰ Integrated text of the monitoring of the natural gas wholesale market (Annex A of the resolution 631/2018/R/gas).

¹¹ The Data Reporting Platform (PDR) and the Privileged Information Platform (PIP).

¹² The Registered Reporting Mechanism (RRM) is the person qualified at ACER for reporting on behalf of market participants subject to the REMIT obligations.

02

Market
trend



2.1. ENERGY MARKETS

THE CONTEXT AND EVOLUTION OF ENERGY MARKETS. The exceptional dynamics that characterised the energy markets in 2020 must be read and analysed in the context of the Covid-19 health emergency¹³ - which has affected countries and economies on a global scale - and of the containment measures and policies consequently adopted in order to limit its spread. In Europe, the collapse in demand for goods and services has inevitably produced impacts on the markets for commodities, characterised in a transversal manner by significant annual price reductions, often at their historical minimum, and by seasonality that is not infrequently dampened or accentuated by the effects of the contingent situation of the spread of the virus. However, even in the extreme uncertainty of a macroeconomic scenario undermined by an event of extraordinary magnitude, the process of progressive integration of energy markets continues, in fact strengthening, which increasingly leads to attributing the origin and the emergence of local phenomena to supranational dynamics. In the electricity sector, this trend also appears to be supported and fuelled by the continuous expansion of the European coupling mechanisms, which extends the benefits deriving from the harmonisation of cross-border trade to an increasing number of countries.

OIL, COAL AND CO2. In light of the above, the bearish dynamics which had already affected the prices of all the main commodities since 2019 are confirmed. In fact, the shock induced by the pandemic pushed European crude oil and coal prices to the lowest level of the last 15-16 years (respectively 41.75 \$/bbl, -35% and 50.21 \$/MT, -19%). The infra-annual trend showed even more pronounced drops during the spring, coinciding with the first wave of Covid-19 and the first lockdowns: emblematic, in this sense, was the collapse recorded on 20 April 2020 by the US WTI crude oil, quoted at negative prices on the futures product of May. The subsequent recovery, which began in the summer, instead showed an increase in oil, which however, while recovering part of the losses, recorded in the central part of the year, remained throughout its upward phase at values that are still lower than those of the beginning of 2020. Instead, the price of CO2 remained stable at the much higher levels of the previous decade (24.75 €/ton), also affected by the effects of the pandemic between March and June, but in full recovery at the end of year (December: 31 €/ton) (Fig. 2.1.1 and Fig. 2.1.2).

GAS PRICES. Strongly bearish dynamics also on the international gas markets, where the consolidation of the trends already started in 2019 compressed prices to an all-time low (or close to it). Substantially homogeneous trends were recorded in the US Henry Hub (6.06 €/MWh, -22%)¹⁴, on the Asian LNG reference (13.10 €/MWh, -22%)¹⁵ and in Europe, where prices dropped to 9-10 €/MWh at the northern hubs (TTF: 9.39 €/MWh, -31%; NBP: 9.52 €/MWh, -30%) and 10.55 €/MWh at the Italian PSV (-6 €/MWh on 2019, -5 €/MWh from the previous minimum recorded in 2016). Also in this case, the drops were heavily concentrated in the first half of the year (in June TTF at 5 €/MWh and PSV at 6 €/MWh), partially contained by the progressive and steep growth observed in the last part of 2020, when European gas prices returned to 2019 levels, corresponding to *i*) a recovery in demand; *ii*) reduced imports and rising prices of LNG¹⁶, an increasingly important source of supply for our continent.

¹³ On 11 March 2020, the World Health Organisation declared the Covid-19 pandemic.

¹⁴ GME processing on data from Refinitiv source.

¹⁵ GME calculations on the Northeast Asia LNG quotation from Refinitiv source.

¹⁶ In this sense, the remodelling of the supply at a world level also linked to the recovery of economic activities and energy demand in the East and the growth in the last part of the year of the Northeast Asia LNG listing, at its highest since autumn 2014, with a peak in January 2021 at 47.6 €/MWh.

Noteworthy is the fact that, in the last four months of 2020 and in the first few months of 2021, a new and particularly important dynamic appeared on the European gas markets: the reduction of the differential between prices at the main hubs. In fact, during this period it was observed that *i)* the spread between the PSV and the TTF, on average equal to 1.63 €/MWh between January and August, fell to 0.22 €/MWh in the four-month period September-December, reversing in October (-0.31 €/MWh), a situation that rarely happened in the past, *ii)* between September 2020 and January 2021, the reversal frequency of the PSV-TTF differential rose above 37%, with peaks in October (82%) and January 2021 (52%), also favouring export flows from Italy to Switzerland¹⁷, *iii)* the differential between the CEGH and the TTF, equal to 1.17 €/MWh in the first 8 months of 2020, even changed its trend in the last part of the year, reaching -0.52 €/MWh. In the general rise in prices at the end of the year, this phenomenon was fuelled by opposing, partly contingent, pressures which acted in the direction of an accentuation of growth in Northern Europe and, instead, of its containment in the South. In fact, between September and December, with *i)* punctual and sudden increases in demand, linked to seasonal climatic factors, *ii)* reductions in imports from Norway and Netherlands' national production, *iii)* a consequent greater use of storage, the TTF recorded an increase rate over January equal to 22%¹⁸, much higher than that observed in Austria at the CEGH (+9%) and in Italy at the PSV (+4%), the latter within a national scenario characterised by *i)* large stocks in storage sites, at levels among the highest in recent years, *ii)* a resumption of imports from North Africa¹⁹, *iii)* the launch in November of the TAP gas pipeline for the import of Azeri gas (Fig. 2.1.1, Fig. 2.1.2, Fig. 2.1.3 and Fig. 2.1.4).

PRICES IN EUROPEAN ELECTRICITY MARKETS. The trend towards the convergence of prices was even more evident on the European electricity markets, integrated through coupling mechanisms. The net and generalised declines induced by the pandemic were more pronounced in countries characterised by structurally higher prices - Italy among them - favouring a progressive alignment with the usually lower levels observed in Central Europe²⁰. In particular, in Italy, the faster spread of the contagion in the first wave, the consequent adoption of more lasting and immediate lockdown measures, as well as the progressive reduction of the PSV-TTF differential²¹ drove the price towards its all-time low of 38.92 €/MWh (-26%), pushing its spread from the rest of continental Europe to 5/7 €/MWh, the lowest value ever, positioned at 30/32 €/MWh (-18/-19%). The same was valid for the Franco-Spanish border, along which the differential fell over the year to 1.8 €/MWh, mainly due to the drastic decrease in the Iberian price close to 34 €/MWh (-29%). Instead, the Scandinavian area was detached from the rest of Europe, whose price fell to around 11 €/MWh, a value almost 4 times lower than in 2019. In light of these dynamics, in 2020 there was therefore a significant variation in the continental macro-zonal structures: Central Europe was more frequently aligned with Mediterranean Europe within an area composed of France, Germany and Italy which evidenced 29% of hours (+21 p.p. compared to 2019), a share that reached a peak of 56% in June, remaining very high also in the following quarter (42%-49%). The Scandinavian peninsula, instead, was more isolated, aligned with France and Germany only with 2% of hours (-9 p.p. compared to 2019)²² (Fig. 2.1.5, Fig. 2.1.6, Fig. 2.1.7 and Fig. 2.1.8).

¹⁷ At the Passo Gries exit point, exports rose to 0.3TWh, concentrated between October and December.

¹⁸ The data was calculated as the ratio between the average price recorded in the period September-December 2020 and the price of January 2020. The use of the January price as a reference for the change reflects the desire to exclude from the calculation the months directly impacted by the first lockdown.

¹⁹ The flows from Algeria, heavily reduced from February to July, returned to normal in the autumn.

²⁰ The Scandinavian area was an exception to this consideration, typically characterised by lower prices than the rest of Europe and by bearish dynamics that in 2020 were more intense than elsewhere.

²¹ For details, see chap. 2.3.

²² By alignment it is meant the situation characterised by a price differential between the countries making up the macrozone simultaneously lower than 1 €/MWh.

Fig. 2.1.1 Prices of the main European fuels. Annual average

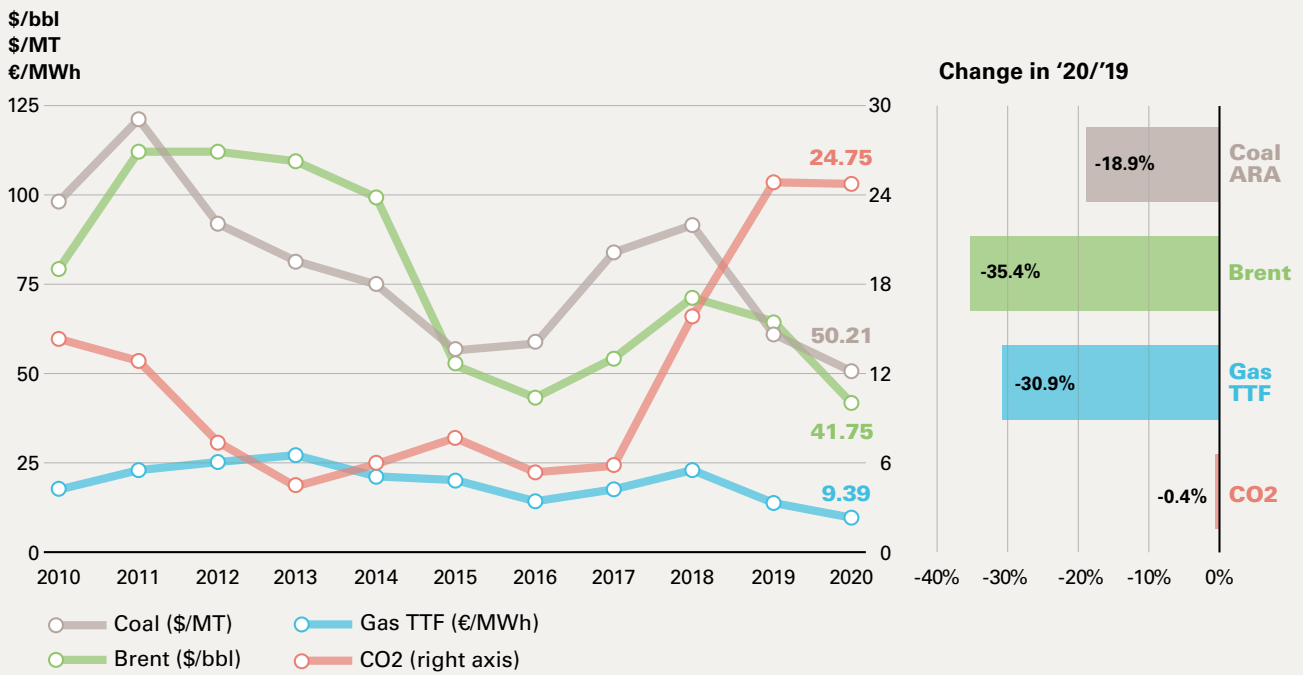


Fig. 2.1.2 Prices on the main European fuels. Monthly trend for the years 2019-2020

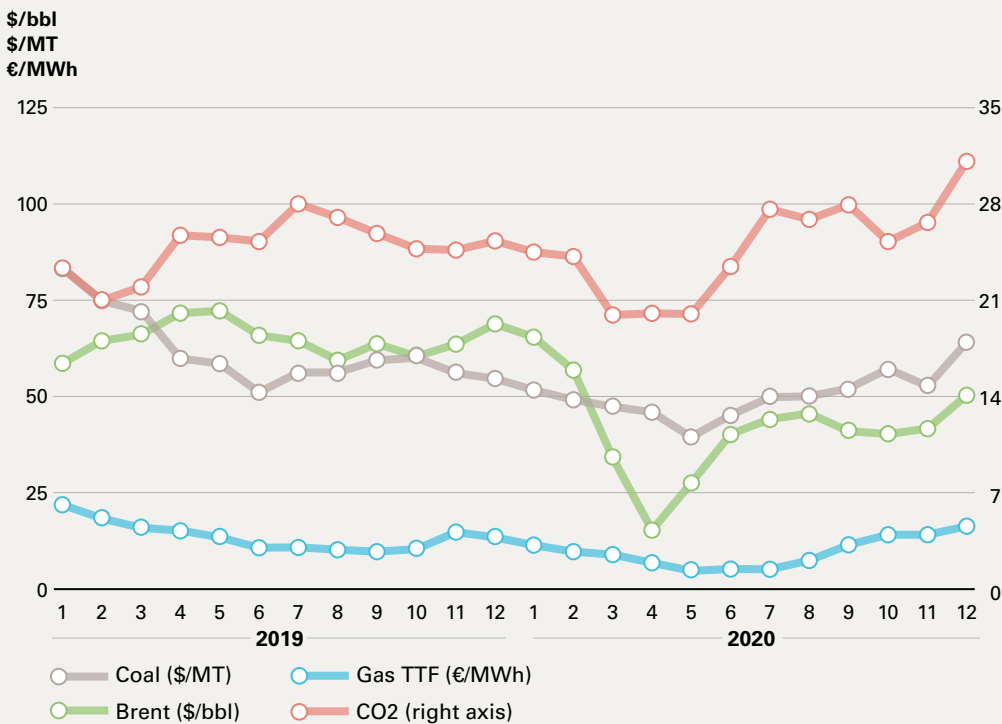


Fig. 2.1.3 Prices on the main European gas hubs. Annual average

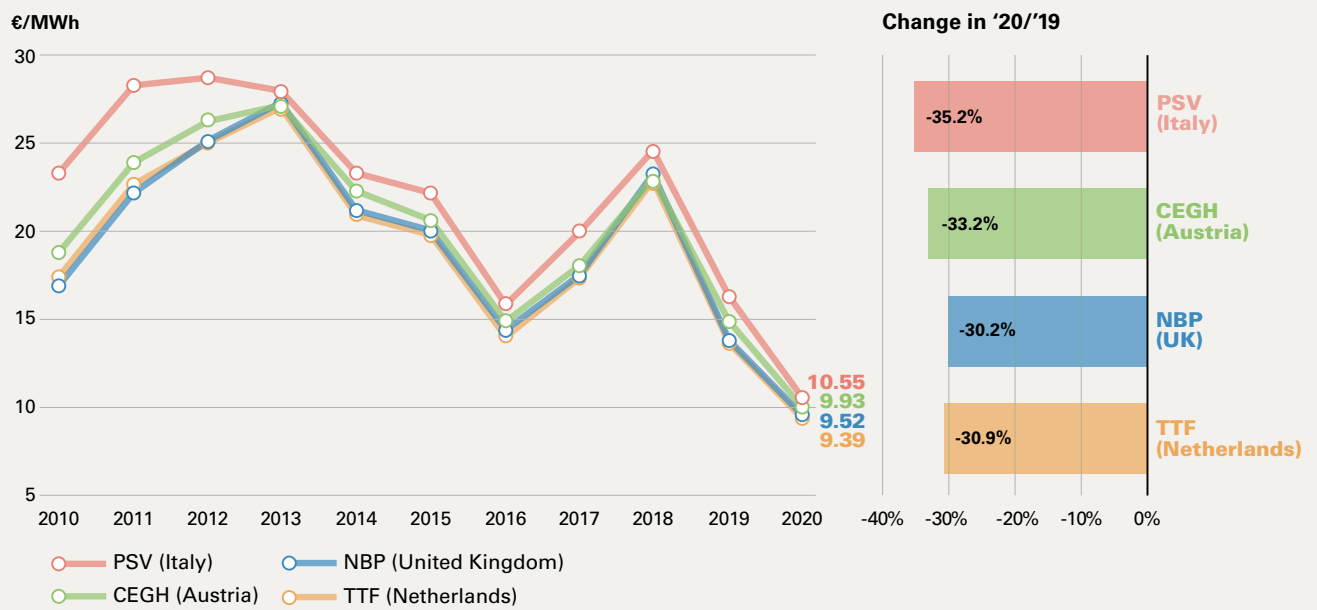


Fig. 2.1.4 PSV and TTF prices. Monthly trend for the years 2019-2020

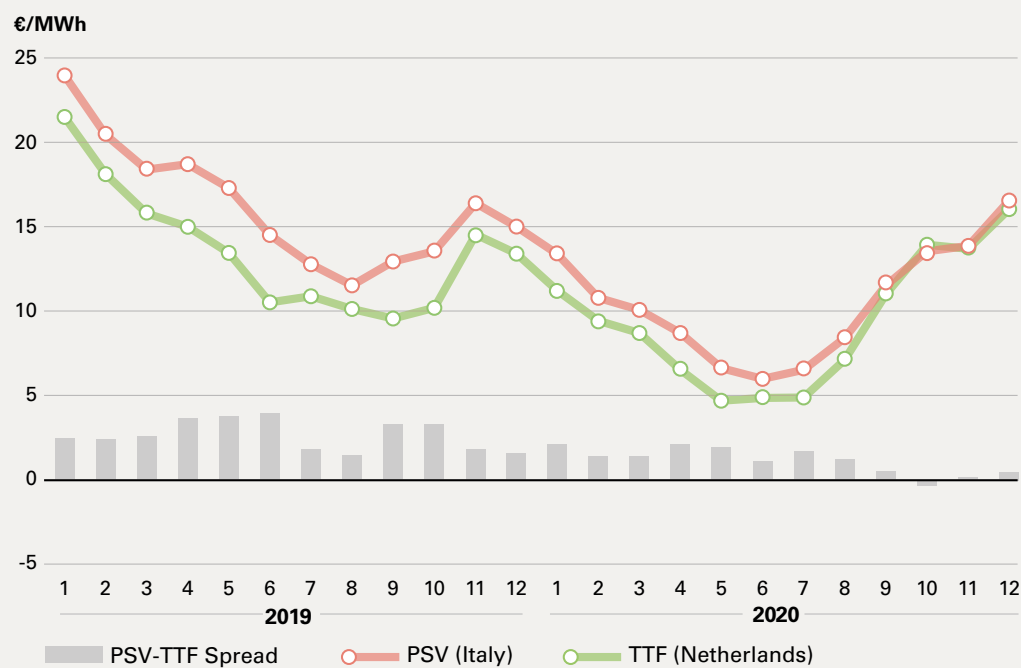


Fig. 2.1.5 Day-ahead prices on the main European power exchanges. Annual average

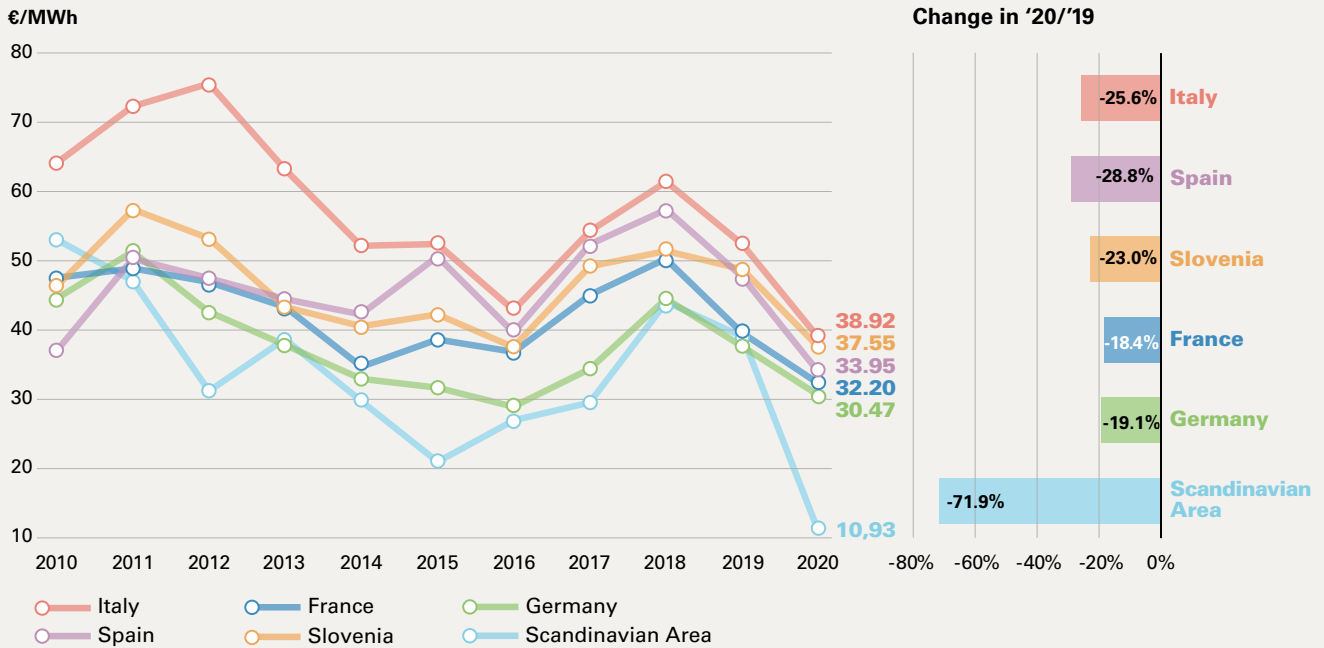


Fig. 2.1.6 Day-ahead prices on the main European power exchanges. Monthly trend for the years 2019-2020

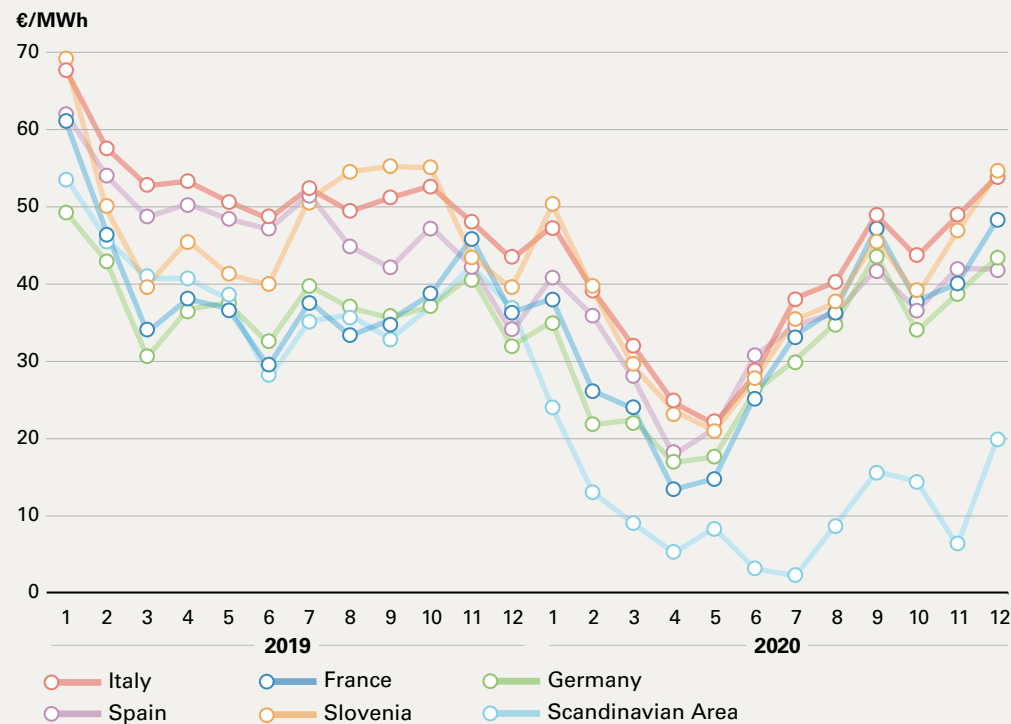


Fig. 2.1.7 Frequency of Italy-France and Italy-Germany alignment. Monthly trend for the years 2019-2020²³

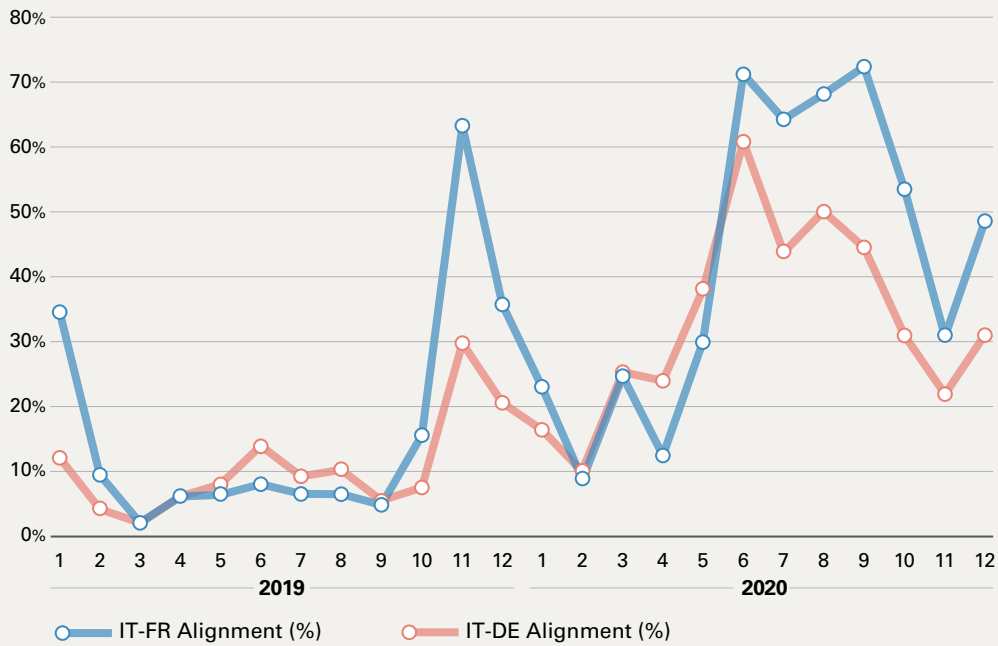
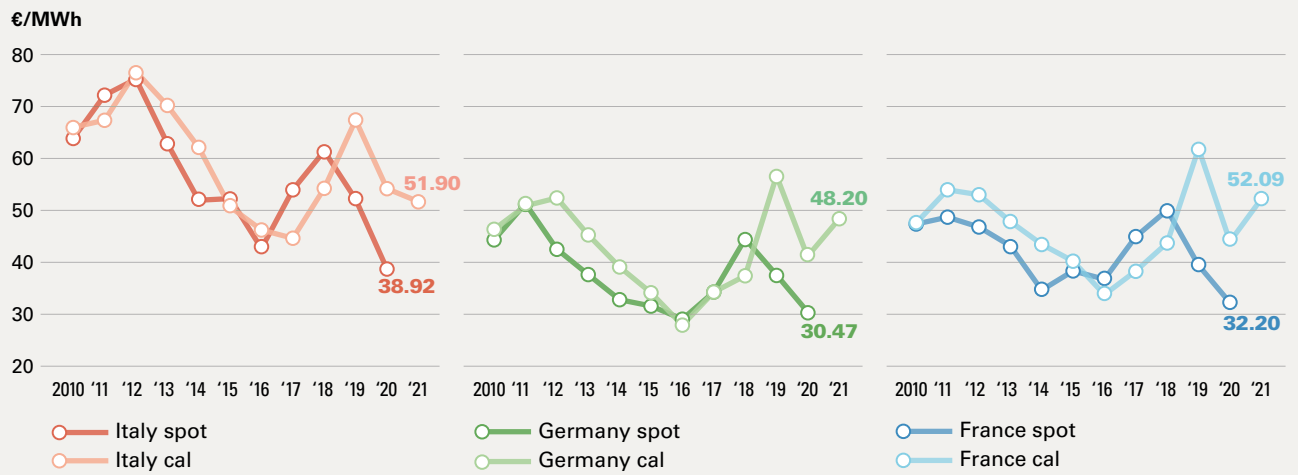


Fig. 2.1.8 Day-ahead prices and corresponding calendar baseload prices



²³ See note 22 for the definition of alignment.

2.2. ELECTRICITY MARKETS IN ITALY

2.2.1. Day-Ahead Market (MGP)

THE CONTEXT. The exceptional situation deriving from the pandemic also affected the Italian MGP, causing, among others, *i)* a drop in prices and volumes, which fell to their historical minimum, while liquidity was instead at the highest levels, *ii)* a reduction in zonal differentials, *iii)* a slight reshaping of market shares by source, to the advantage of renewable generation, *iv)* an unprecedented level of alignment of prices at the border, with a consequent reduction to an all-time low of the net trade balance with foreign countries. All these dynamics reached their maximum intensity in the central part of the year, affected by the first wave of Covid-19 and by highly restrictive measures adopted at national level for its containment. Instead, the first signs of recovery emerged on prices and volumes in the final part of the year, within an overall bullish context also due to the increases recorded in gas prices.

VOLUMES AND LIQUIDITY. The effects of Covid-19 on the electricity system emerged clearly in the data relating to the energy demand measured by Terna, which fell to 302.8 TWh (-5.3%). To contextualise the dimensions of this shock it is sufficient to observe that *i)* to find lower consumptions it is necessary to go back to the year 2000, *ii)* annual reductions of this magnitude were recorded exclusively in 2009, the year of the last severe economic crisis, and after World War II. Within this scenario, the overall trading on the MGP also reached an all-time low of 280.2 TWh (-5.5%), maintaining its consistency unchanged compared to the physical volumes of the TSO (92.5%) demonstrating how the market and the electricity system have homogeneously absorbed the impact of the pandemic. The decline is all due to internal dynamics (domestic purchases: 271.6 TWh, -6.3%), and minimally contained by the increase in exports (8.6 TWh, +26.2%). In the case of the market, the decreases mainly concern the period from March to July, in which approximately 85% of the overall annual decline was concentrated. Opposite dynamics for liquidity, which instead reached the highest value ever (74.9%, +2.8 p.p.), by virtue of a greater resilience of stock market trading (209.8 TWh, -1.9%) compared to nominations deriving from bilateral trading (70.3 TWh, -15.0%). On the demand side, there was a sharp decrease in purchase offers (287.2 TWh, -5.2%), but not in those with price indications which, in generalised growth in almost all months of the year, reached the maximum since 2017 (26.9 TWh, +18.2%), fuelled by foreign zones (Tab. 2.2.1, Fig. 2.2.1, Fig. 2.2.2 and Fig. 2.2.3).

NATIONAL SINGLE PRICE (PUN) AND FUNDAMENTALS. The Pun reached the lowest value ever recorded since the start of the power exchange, equal to 38.92 €/MWh (-13.41 €/MWh, -25.6%), following a trend that *i)* was common to all the major European electricity prices, *ii)* reflected the significant reductions in market volumes and the cost of gas raw material (10.55 €/MWh, -35.2%), as well as a high availability of renewable offers, *iii)* compressed the "clean spark spread" to values lower than 2019 (9.7 €/MWh, -22.1%) - but similar to 2018 - effectively eliminating it between April and May, *iv)* unravelled throughout the year, assuming considerable intensity between January and August. With regard to this latter point, it is interesting to highlight how, starting from March, with the start of the health emergency, the share of variation of the Pun not explained by generation costs increased, to which instead the trend price delta appeared almost entirely attributable in the previous months of January and February.

Historical minimum levels for the Pun also in the single groups of hours, for a peak/off-peak working ratio which stood at 1.2 on an annual basis (+0.03), confirming itself as being one of the lowest in Europe, and which recorded reversals in the months of April and May, therefore slightly below the unit as was only sporadically the case in the past. The peculiar dynamics observed during 2020, as well as their increased interdependence on a European basis, showed their impacts on the variability and on the minimum and maximum hourly values of the Pun, favouring *i*) a return of volatility close to the highest level of the last decade (12%), fuelled above all between March and June (18% -22%), *ii*) an hourly minimum at 0 €/MWh in 5 hours (in April), which has occurred only on two other occasions in the past, *iii*) an hourly peak of 162.57 €/MWh recorded at hour 20 of 15 September 2020 as a reflection of mainly extranational dynamics, located in France (increase in demand, low level of nuclear production) and Germany (low level of wind production), in the same hour characterised by prices at 190 €/MWh (Fig. 2.2.4, Fig. 2.2.5, Fig. 2.2.6, Fig. 2.2.7, Fig. 2.2.11, Fig. 2.2.12 and Tab. 2.2.2).

ZONE DYNAMICS. The annual and monthly trend observed overall by prices and volumes was repeated in a substantially similar manner in all market areas. The decline in MGP volumes appeared to be entirely absorbed by domestic purchases (271.6 TWh, -6.3%), down in all areas, but concentrated in the North (-7.2%, 65% of the overall), expression of the country's industrial fabric. The resulting sharp drop in prices fell to 38/40 €/MWh on the peninsula (-12/-14 €/MWh) and just above 46 €/MWh in Sicily (-17 €/MWh), and favoured the reversal of the North-South spread, negative for the first time since 2009 (-1.2 €/MWh), and a significant narrowing of the Sicily-South differential, close to the lowest values ever (6.5 €/MWh). The latter, in particular, directly reflected the effects of the first lockdown, in light of the high frequency of alignment recorded between the two prices in the March-May quarter (over 90% of the hours, a first ever) (Fig. 2.2.8, Fig. 2.2.9, Fig. 2.2.10, Fig. 2.2.11, Fig. 2.2.12 and Tab. 2.2.3).

PRICE DYNAMICS ON THE BORDERS. The reduction of the gap between the Italian price and the main European references, already relevant on an annual basis, took on clearer and more defined connotations in the period June-September (Italy-France delta on average equal to 1.4 €/MWh), sinking its roots in the hourly microstructure of quotations. The analysis conducted on the Italian borders in fact showed that *i*) the frequency with which the differential between Italy and France was lower than 1 €/MWh rose in 2020 to 42% of the hours (it was 17% in 2019), reaching peaks of between 64% and 72% between June and September, *ii*) the Italian price was lower than the French one in 40% of the hours (it was 15% in 2019), also in this case with the phenomenon concentrated between June and September (in particular in June the share stood at 76%), *iii*) with dynamics similar to the previous one, the frequency with which the Italian price was more competitive than the neighbouring one rose to 38% along the Austrian border (it was 13% in 2019) and to 78% along the Slovenian one (it was 56% in 2019). The dynamics observed in the last part of the year also moved in the direction of a containment of differentials at the borders, when in parallel with a recovery in prices, the Italy-foreign spread, although returning to growth, remained lower than both previous levels at the start of Covid-19 than at the values observed in the same period of 2019²⁴.

²⁴ In this regard, the data on the Italy-France spread, which rose on average to 5.6 €/MWh in the quarter October-December 2020, but confirmed as being the lowest in the January-February period (it was 10.1 €/MWh) and in October-December 2019 (it was 7.2 €/MWh).

TRADES WITH FOREIGN COUNTRIES. The attenuation of price differentials with foreign countries and the simultaneous presence of coupling mechanisms which, where active, now cover all (or almost all) of the electricity exchanges, favoured in 2020 the emergence of two important innovations for Italy: the reduction of its foreign balance to an all-time low²⁵ (33.3 TWh, -7%) and the net increase in export opportunities (9%, +8 p.p.). The first phenomenon, concentrated above all in the months of the first lockdown²⁶, consisted of both an annual decline in imports²⁷ (41.9 TWh, -7%), and an increase in exports to historic highs (8.6 TWh, +26%), the latter mainly driven by the new interconnection with Montenegro, managed through an explicit auction. Similarly, the growth of export opportunities, very strong especially on the northern borders in coupling²⁸ (France: 9%, +6 p.p.; Austria: 13%, +9 p.p.; Slovenia: 43%, +10 p.p.) reached very high values in June (32%), when the price spreads with neighbouring exchanges were minimal. It should also be noted, as anticipated in Chapter 1, the launch on 16 December 2020 of the day-ahead coupling between Italy and Greece, which extended the perimeter of the national borders managed with allocation of capacity in implicit auction. In line with the results observed on the northern borders, in the first 15 days of operation the mechanism assigned 92% of export volumes and 99% of import volumes on the Greek border (Tab. 2.2.3 and Fig. 2.2.13).

THE SOURCES AND CONCENTRATION. The reduction in purchases was entirely reflected in the sales of thermoelectric plants (140.5 TWh, -8.8%), also by virtue of the growth of renewables, whose volumes were only lower than the maximum of 2014 (95.9 TWh, +0.4%). For traditional sources, the most significant impacts in percentage terms concerned coal (7.1 TWh, -47.9%), also in parallel with emission costs which were practically in line with the 2019 maximum, and the other traditional thermals (13.3 TWh, -14.2%), while the gas-fired plants kept their volumes lower in the last nine years only than those of 2019 (120.1 TWh, -5.3%), partially offsetting the drop in the foreign balance. Among renewables, the growth of hydroelectric generation (+1.6%), concentrated in the North in the first five months of the year, and that of solar (+5.7%), stand out, counterbalancing the decrease in wind volumes (-8.1%), however only lower than last year's maximum. In terms of mix²⁹, the gas market share remained at around 43%, while that of renewable sources (+4 p.p.) rose to 34%, half of which was reserved for hydroelectric plants (17.2%, +1.2 p.p.), mainly fuelled by the results recorded between April and June (maximum peak at 48% in May). The contribution of imports to cover national needs was substantially stable at around 15%, but fell between April and June to very low values of between 7% and 10%. Against this stability, and in a context of general further improvement in market competitiveness, there was instead a significant increase in the weight of foreign countries in the setting of national prices (IOM and ITM), effective as early as the end of 2019 and a direct consequence of the greater alignment between the Italian price and neighbouring references (Tab. 2.2.4, Fig. 2.2.14, Fig. 2.2.15 and Tab. 2.2.5).

²⁵ The foreign balance is calculated as the difference between imports (sales of foreign virtual zones) and exports (purchases of foreign virtual zones). If the balance is positive, Italy is defined as a net importer, if negative, a net exporter.

²⁶ The decline in imports at this stage of the year also reflects the NTC shrinkage planned by the TSO to ensure the security of the national transmission grid.

²⁷ For the definitions of import and export reference should be made to what is reported in note 22.

²⁸ In support of this information, it is noted that the number of hours in which Italy is a net exporter dropped from 800 to 304, excluding the volumes relating to the northern areas in coupling.

²⁹ The shares were calculated on the total of Italy; the figure for renewable sources includes the volumes of hydroelectric plants.

Tab. 2.2.1 Volume trend in the MGP

TWh	2013	2014	2015	2016	2017	2018	2019	2020	Change '20/'19
Request of Terna	318.5	310.5	316.9	314.3	320.5	321.4	319.6	302.8	-5.3%
Demand	329.8	318.2	305.3	301.5	297.4	301.6	302.3	287.2	-5.2%
with indication of the price	46.5	44.8	36.8	33.0	20.1	18.6	22.7	26.9	18.2%
<i>rejected</i>	40.6	36.0	18.1	11.7	5.2	6.0	6.4	7.0	9.2%
Purchases	289.2	282.0	287.1	289.7	292.2	295.6	295.8	280.2	-5.5%
% upon request of Terna	90.8%	90.8%	90.6%	92.2%	91.2%	92.0%	92.6%	92.5%	-0.3%
Supply	532.1	511.7	500.2	502.4	489.9	507.5	503.6	496.7	-1.6%
Sales	289.2	282.0	287.1	289.7	292.2	295.6	295.8	280.2	-5.5%
at zero price	214.7	212.7	190.5	172.2	162.6	165.6	166.2	168.8	1.3%

Fig. 2.2.1 MGP liquidity

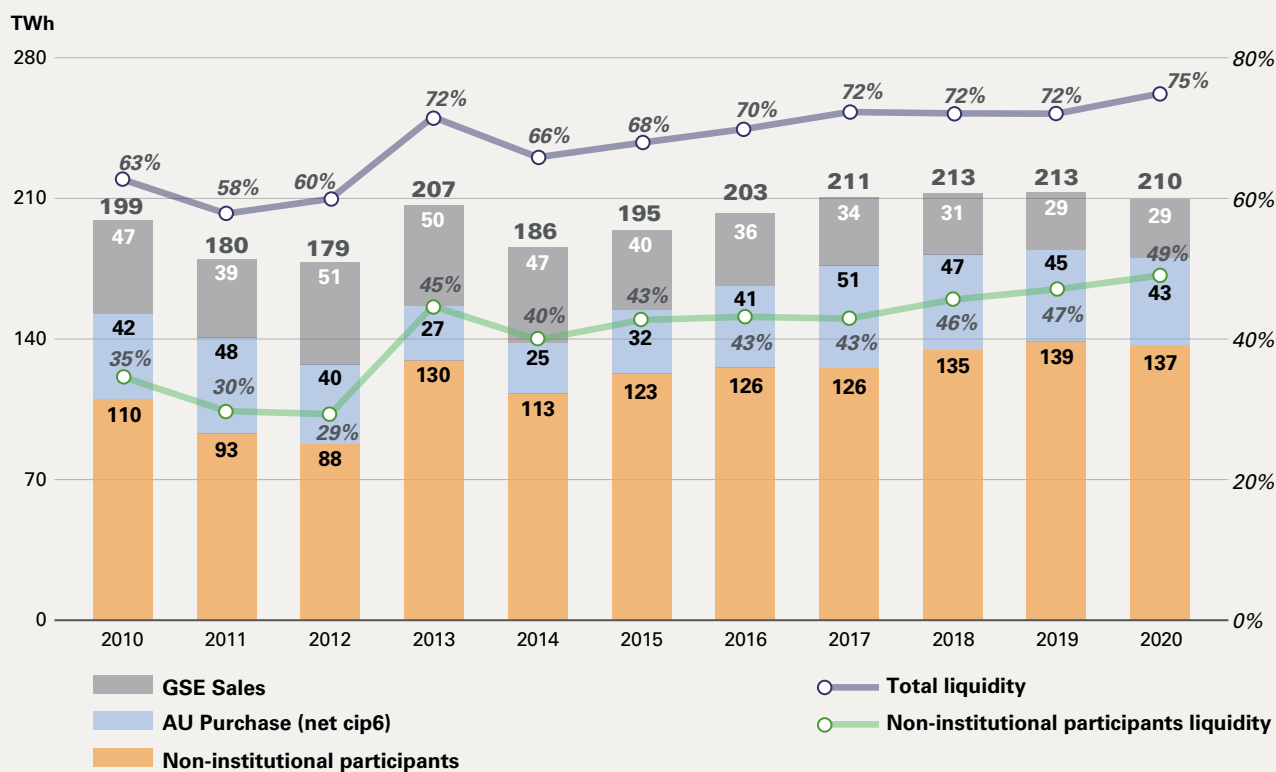


Fig. 2.2.2 Supply in the MGP

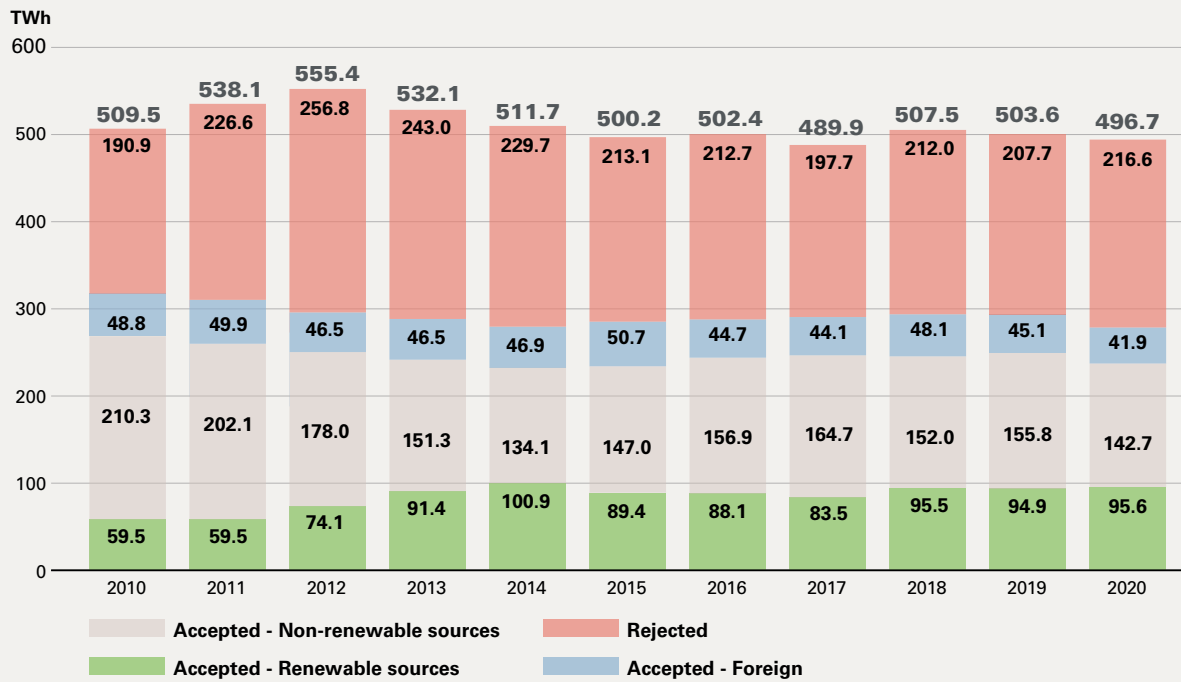


Fig. 2.2.3 MGP Volumes. Monthly trend for the years 2019-2020

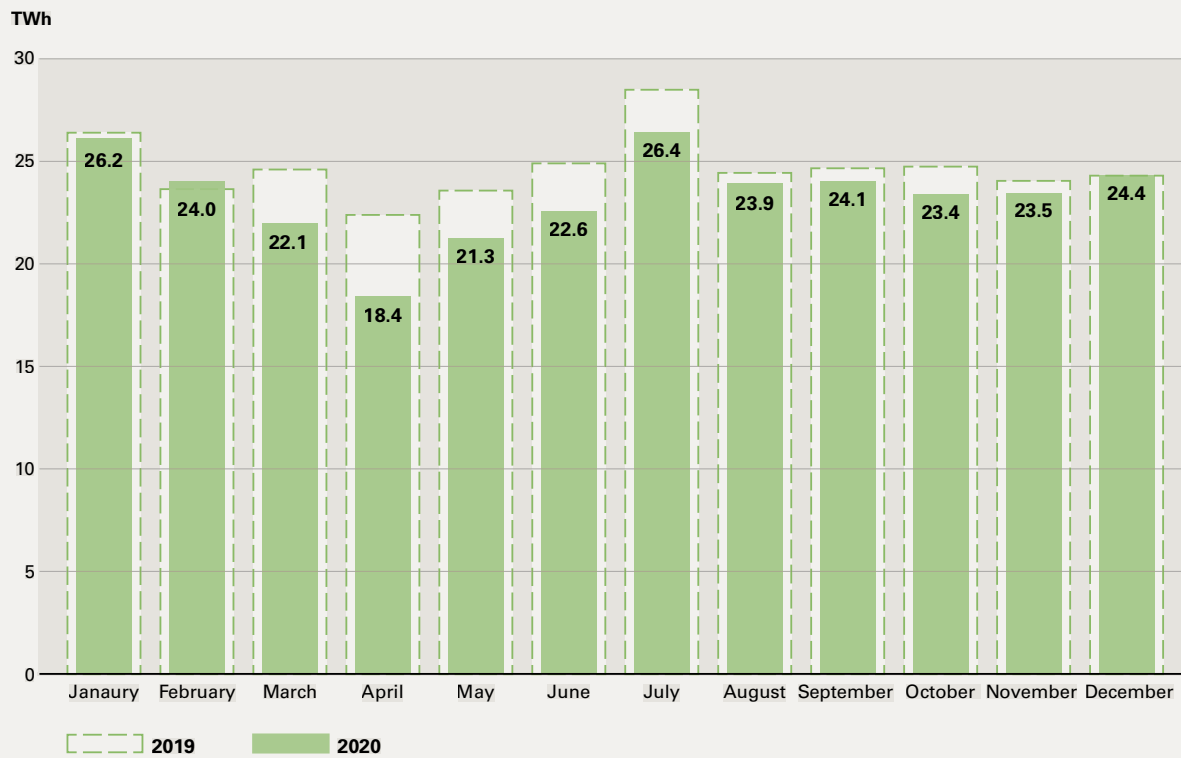


Fig. 2.2.4 PUN trend and its determinants

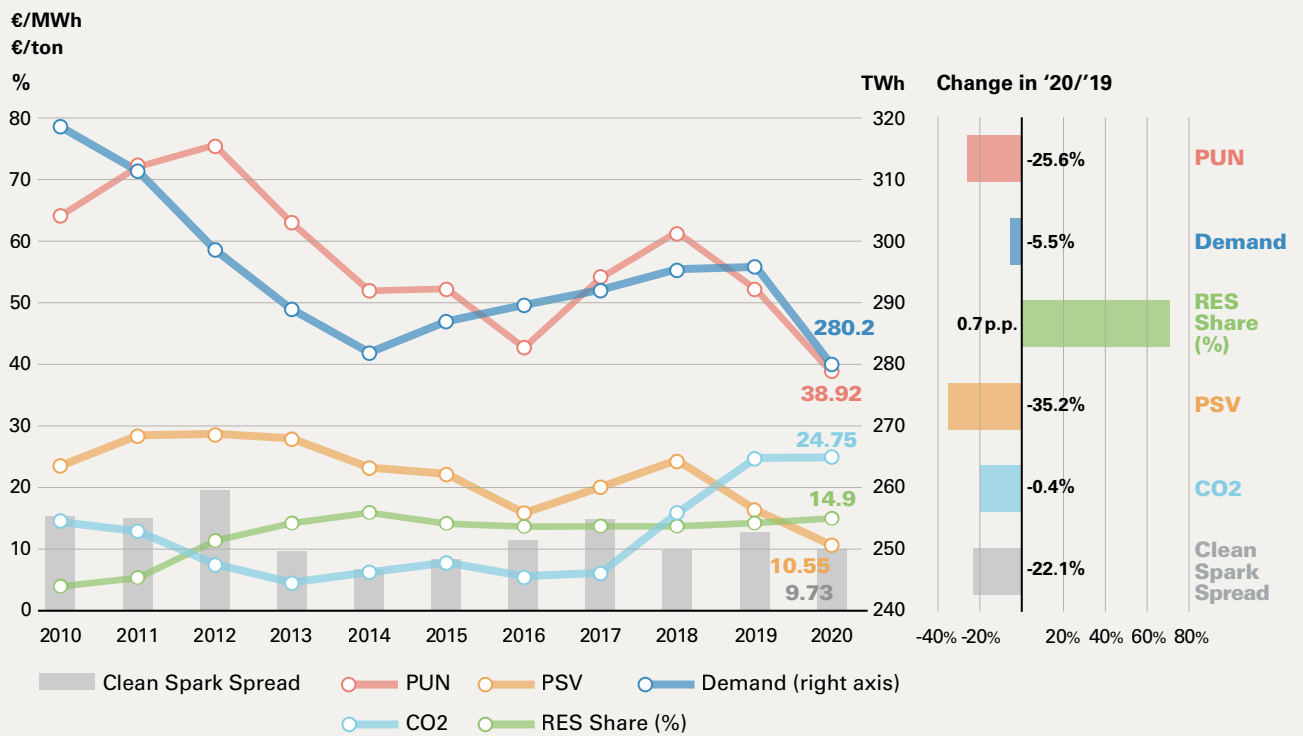


Fig. 2.2.5 PUN and clean spark spread. Monthly trend for the years 2019-2020

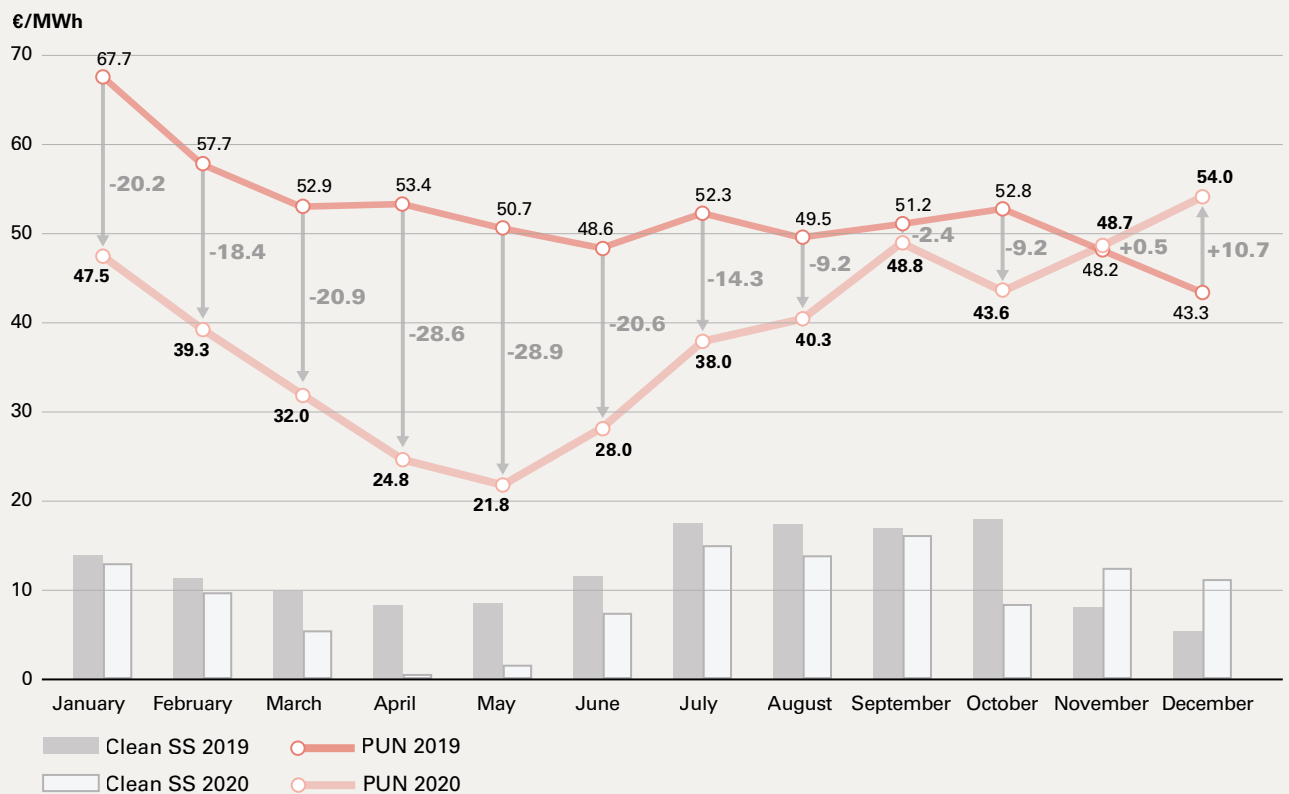


Fig. 2.2.6 Variation of the PUN. Monthly trend year 2020

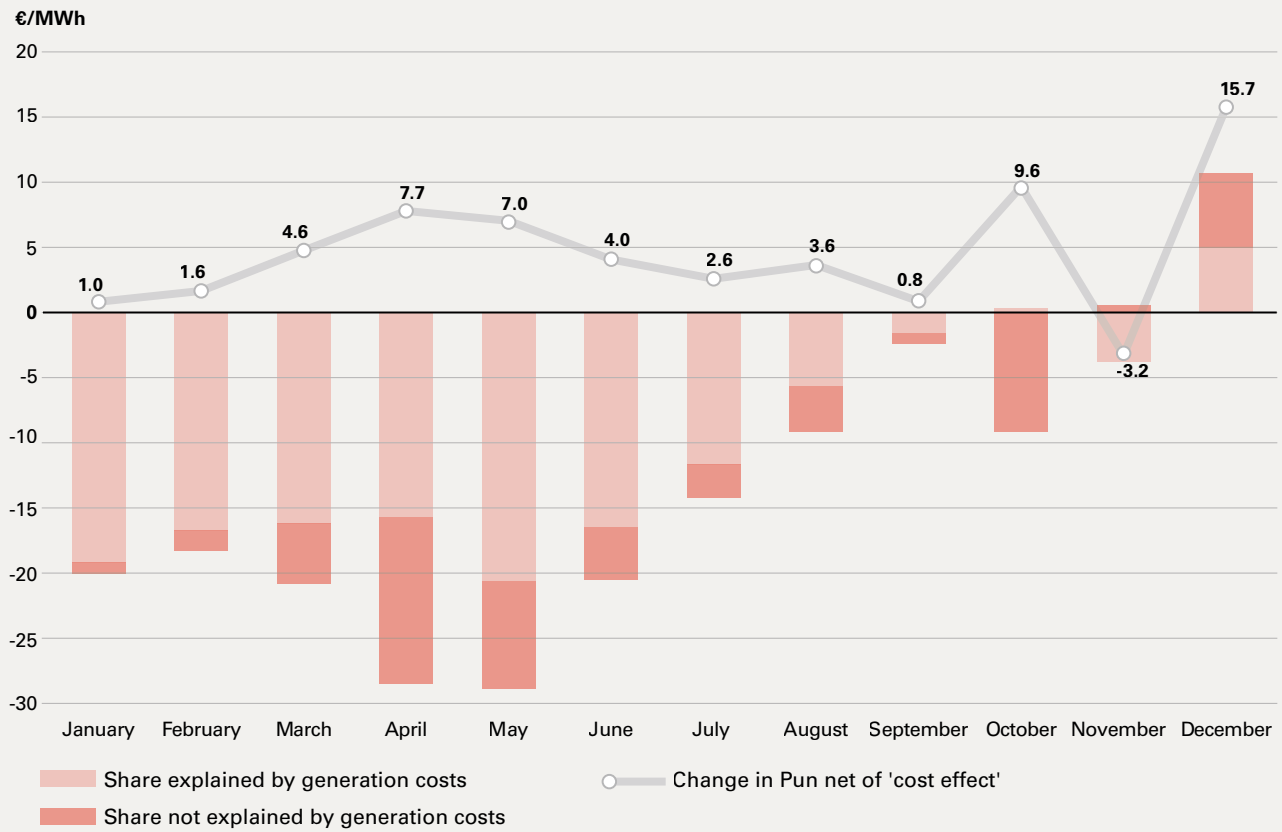


Fig. 2.2.7 PUN by groups of hours. Annual average

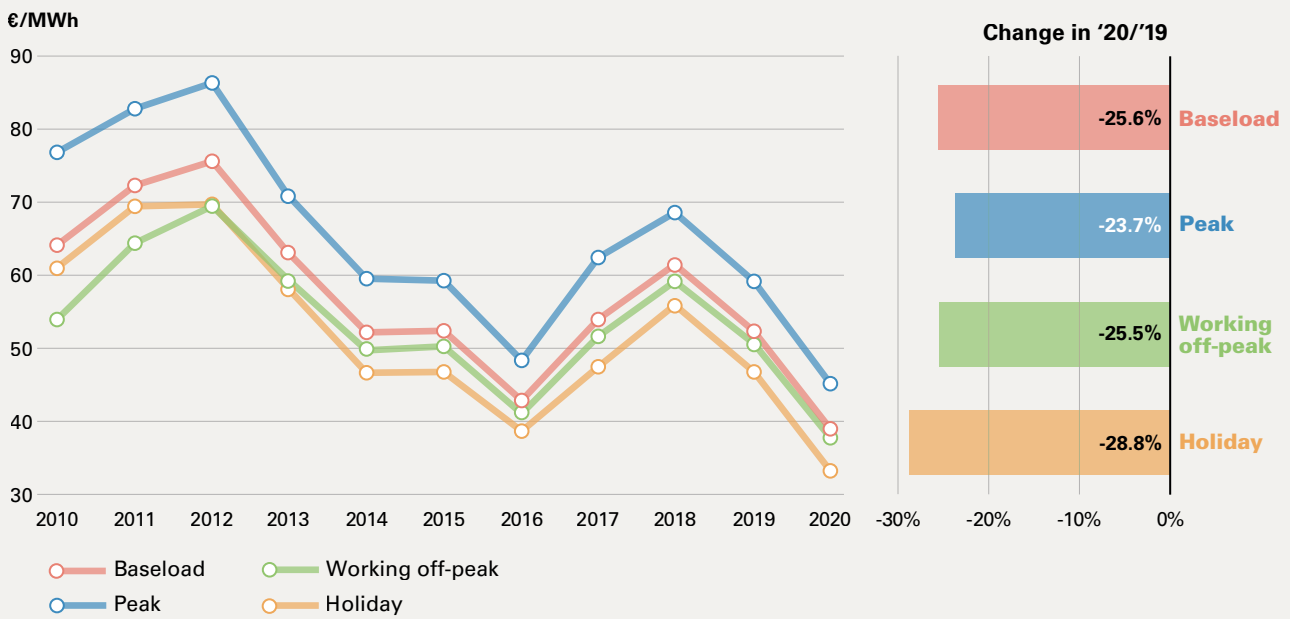


Fig. 2.2.8 Average annual zonal prices in the MGP

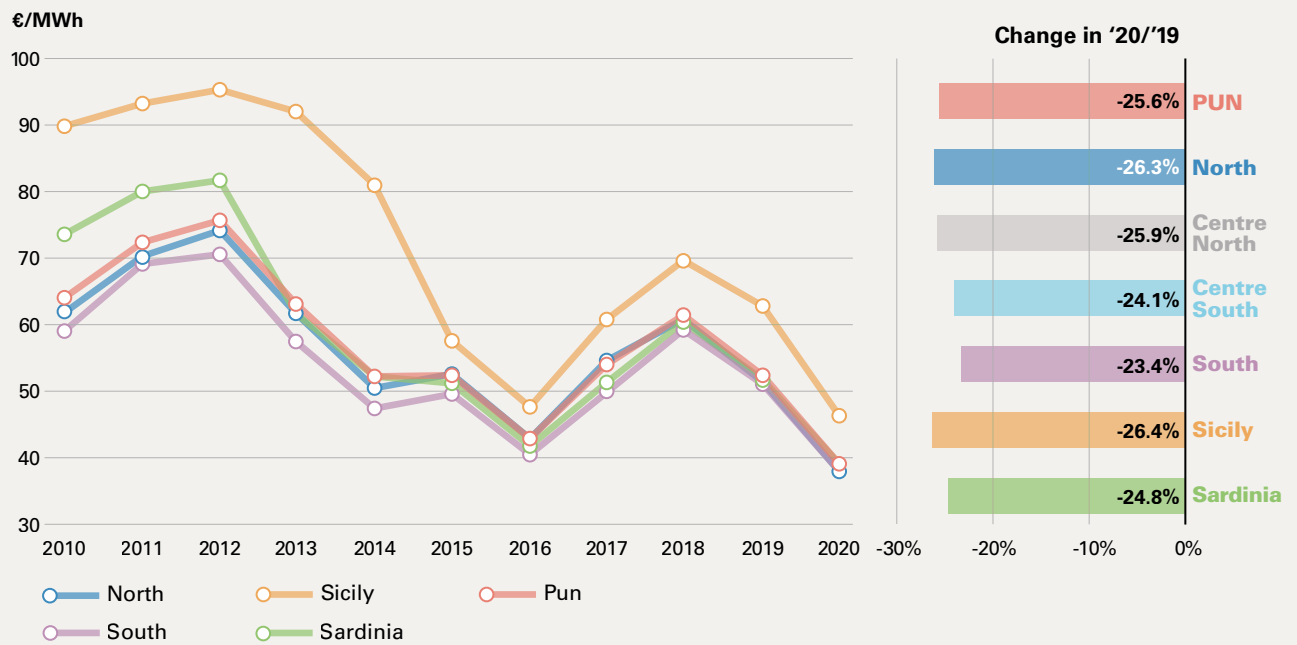


Fig. 2.2.9 Zonal prices. Monthly trend for the years 2019-2020

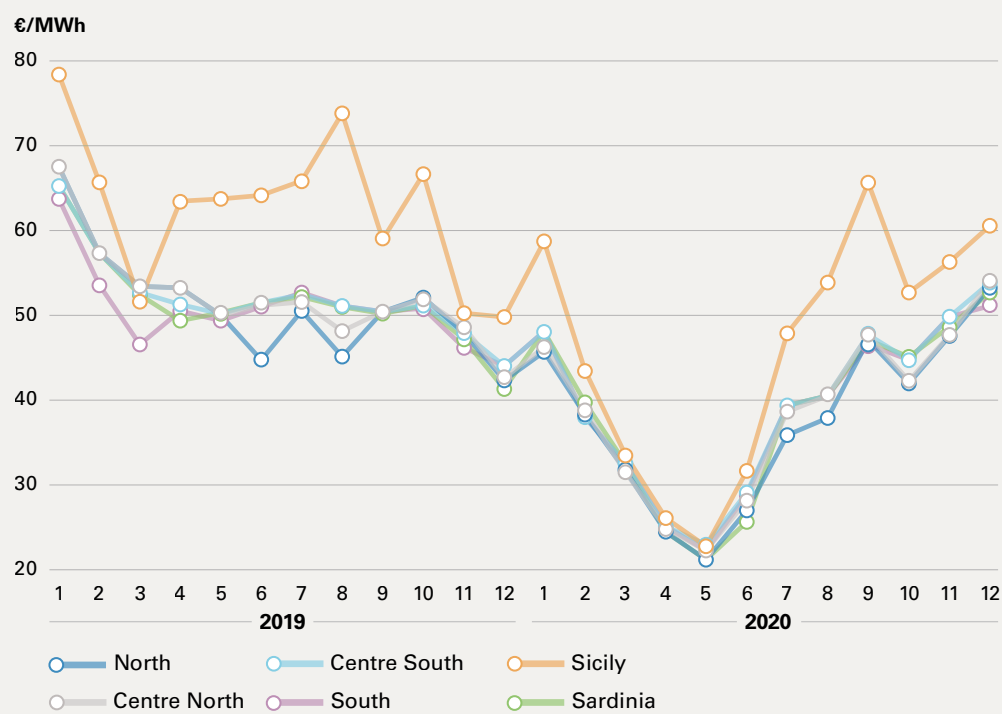


Fig. 2.2.10 Frequency of zonal alignment. Monthly trend for the years 2019-2020

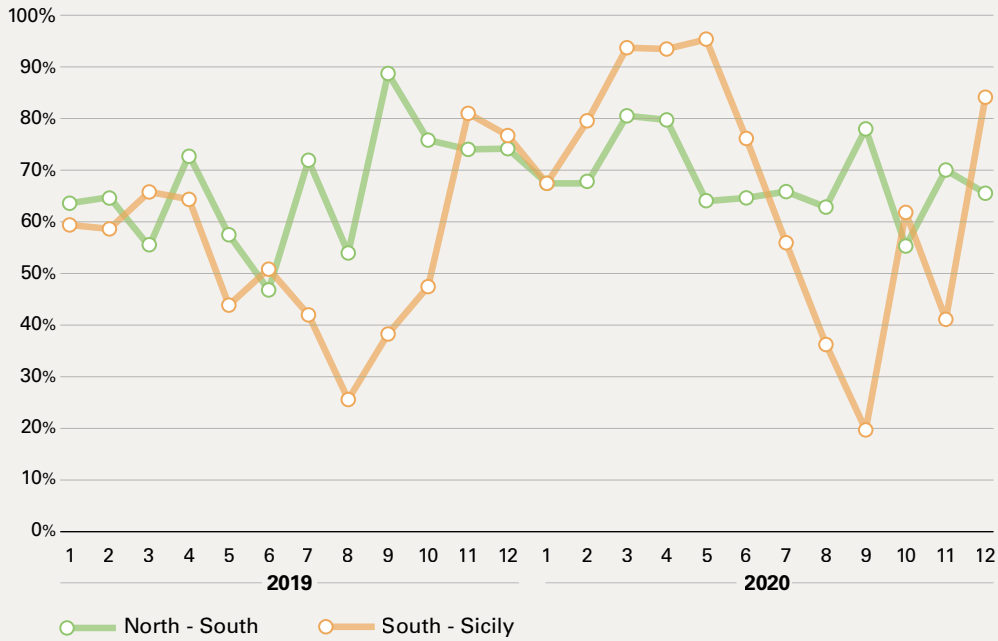


Fig. 2.2.11 Price volatility

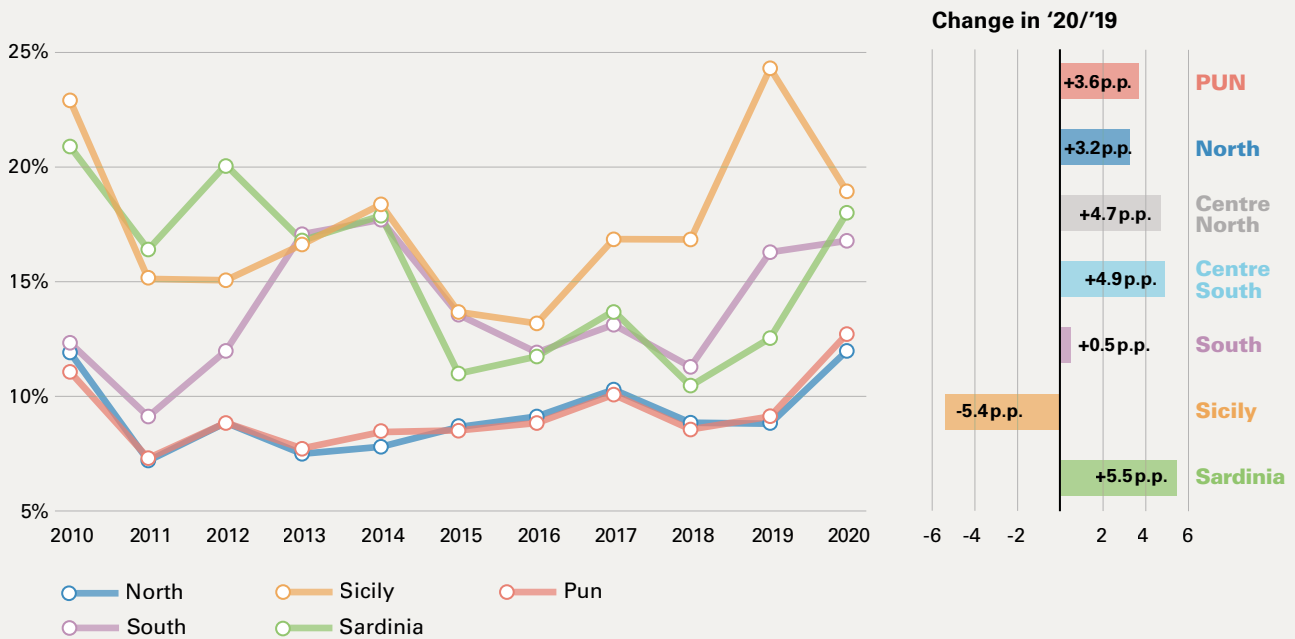
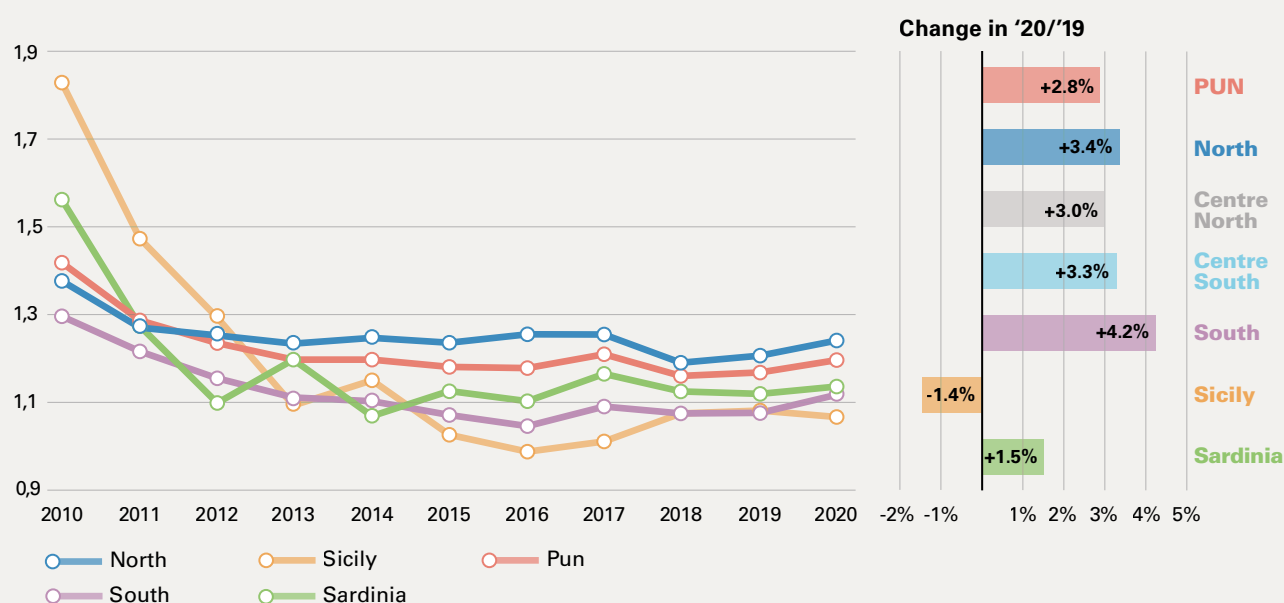


Fig. 2.2.12 Peak/off peak price ratio on working days



Tab. 2.2.2 Zero prices and day/night price reversals in the MGP. Year 2020

	PUN	North	Centre North	Centre South	South	Sardinia	Sicily
N° hours with price equal to zero	5 (0)	5 (0)	5 (0)	5 (1)	5 (21)	142 (42)	11 (59)
N° sessions with at least an hourly price equal to zero	3 (0)	3 (0)	3 (0)	3 (1)	3 (6)	26 (8)	5 (15)
N° sessions with day-time prices < night-time prices	101 (79)	83 (56)	98 (83)	127 (113)	143 (146)	141 (122)	175 (165)
% sessions with day-time prices < night-time prices	27.6% (21.6%)	22.7% (15.3%)	26.8% (22.7%)	34.7% (31.0%)	39.1% (40.0%)	38.5% (33.4%)	47.8% (45.2%)
Average difference in sessions with day-time prices < night-time prices. €/MWh	-4.53 (-4.76)	-3.86 (-3.92)	-5.04 (-5.22)	-5.58 (-6.40)	-5.71 (-7.71)	-6.58 (-7.01)	-7.41 (-9.07)

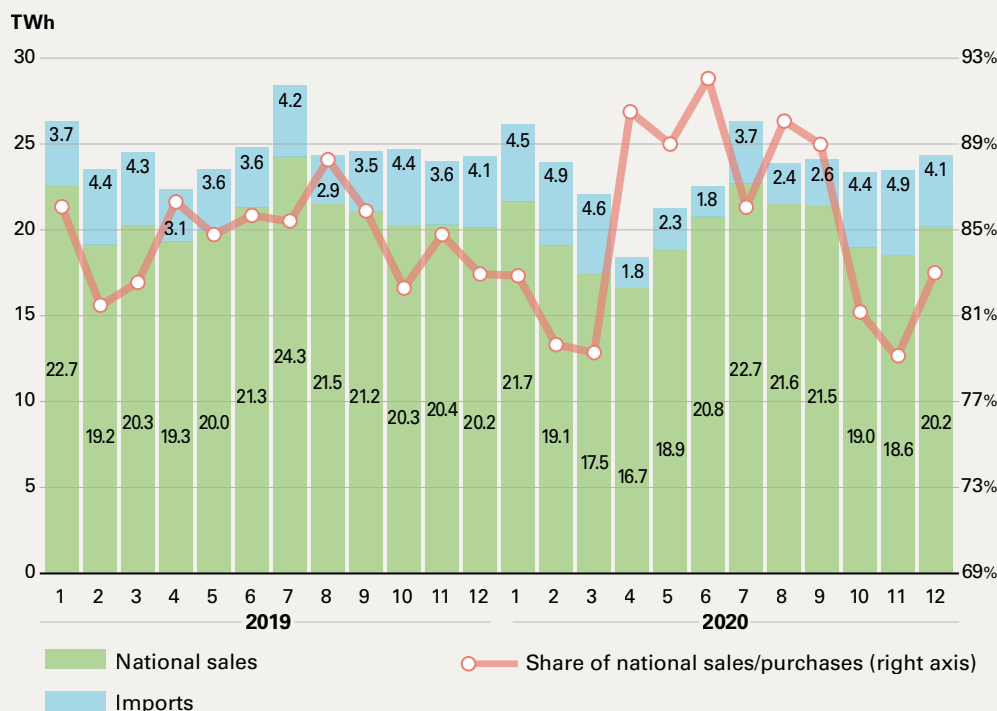
(i) The values of the previous year are shown in brackets

Tab. 2.2.3 Zonal volumes in the MGP (TWh). Year 2020

Zone	Purchases		Sales		Supply		Demand		Rejected offers	
North	150.76	(-7.2%)	128.59	(-2.3%)	244.36	(+3.0%)	152.53	(-6.7%)	115.77	(+9.6%)
Centre/ North	28.91	(-6.9%)	18.66	(-4.4%)	24.74	(-9.2%)	29.61	(-7.1%)	6.08	(-21.3%)
Centre/ South	43.84	(-4.4%)	22.80	(-17.4%)	50.91	(-12.0%)	44.14	(-4.0%)	28.11	(-7.1%)
South	23.02	(-4.4%)	47.10	(-5.2%)	86.09	(+0.7%)	23.23	(-4.1%)	38.99	(+8.9%)
Sicily	16.63	(-4.4%)	11.06	(-3.9%)	29.46	(-9.4%)	16.69	(-4.2%)	18.40	(-12.5%)
Sardinia	8.41	(-5.9%)	10.07	(-11.9%)	17.73	(-3.7%)	8.49	(-5.9%)	7.66	(+9.7%)
Foreign	8.62	(+26.2%)	41.90	(-7.4%)	43.45	(-5.9%)	12.55	(+13.8%)	1.55	(+70.9%)
Italy	280.18	(-5.5%)	280.18	(-5.5%)	496.75	(-1.6%)	287.24	(-5.2%)	216.57	(+4.0%)

(i) The values of the previous year are shown in brackets

Fig. 2.2.13 Distribution of sales. Monthly trend for the years 2019-2020



Tab. 2.2.4 Zonal sales by source and technology (average MWh). Year 2020

	North		Centre North		Centre South		South		Sicily		Sardinia		Italian System	
	MWh	Var	MWh	Var	MWh	Var	MWh	Var	MWh	Var	MWh	Var	MWh	Var
Traditional sources	8,625	-7.8%	884	-7.4%	1,511	-23.6%	3,431	-4.9%	745	+2.8%	795	-14.0%	15,992	-8.8%
Gas	7,687	-4.2%	806	-8.3%	1,006	-19.1%	2,976	-4.8%	694	+2.6%	499	+1.5%	13,669	-5.3%
Coal	106	-77.0%	-	-	273	-45.7%	185	-16.3%	-	-	243	-33.3%	808	-47.9%
Other	832	-4.6%	79	+2.4%	232	+0.9%	269	+4.0%	50	+5.1%	53	-22.6%	1,515	-2.5%
Renewable source	5,778	+6.3%	1,241	-2.1%	1,069	-5.4%	1,931	-5.7%	514	-12.1%	351	-6.4%	10,883	+0.4%
Hydraulic	4,116	+6.0%	317	-6.0%	408	-11.9%	461	-11.5%	124	-12.0%	69	+6.2%	5,495	+1.6%
Geothermal	-	-	646	-1.1%	-	-	0	-	-	-	-	-	646	-1.1%
Wind	9	-8.1%	24	-17.1%	363	-2.8%	1,091	-6.5%	280	-16.2%	190	-16.6%	1,958	-8.6%
Solar and others	1,652	+7.2%	254	+2.4%	299	+1.5%	379	+5.3%	109	+0.4%	91	+12.1%	2,784	+5.7%
Pumping	237	+17.8%	-	-	15	-56.3%	-	-	0	-	0	-97.9%	252	+6.6%
Total	14,640	-2.3%	2,125	-4.4%	2,596	-17.4%	5,362	-5.2%	1,259	-3.9%	1,146	-11.9%	27,127	-5.2%

Fig. 2.2.14 Competitiveness indicators

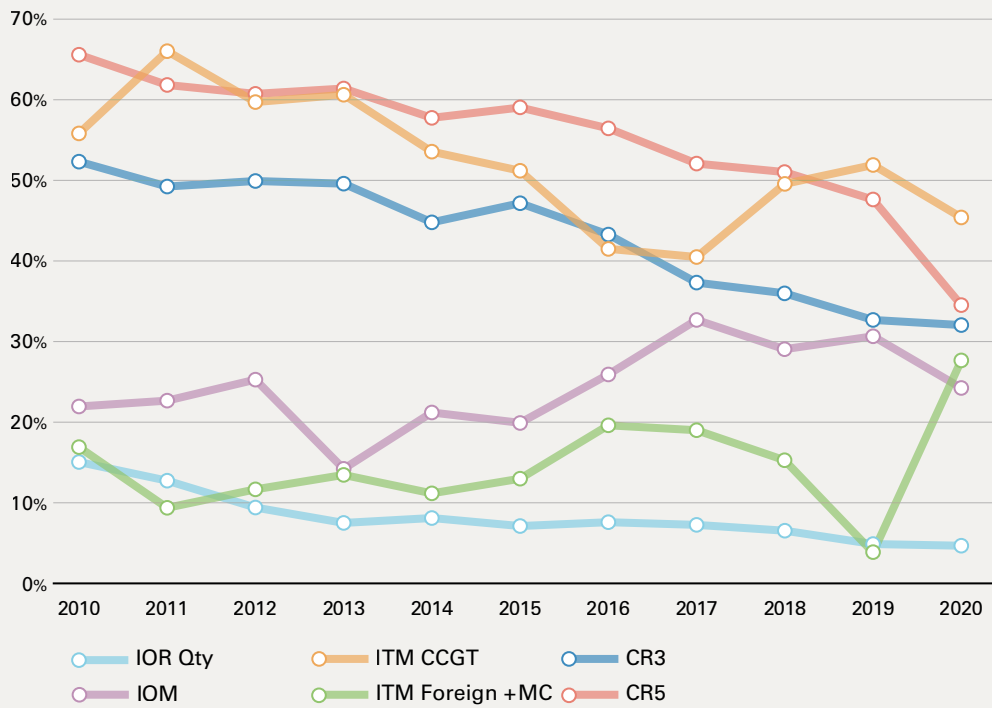
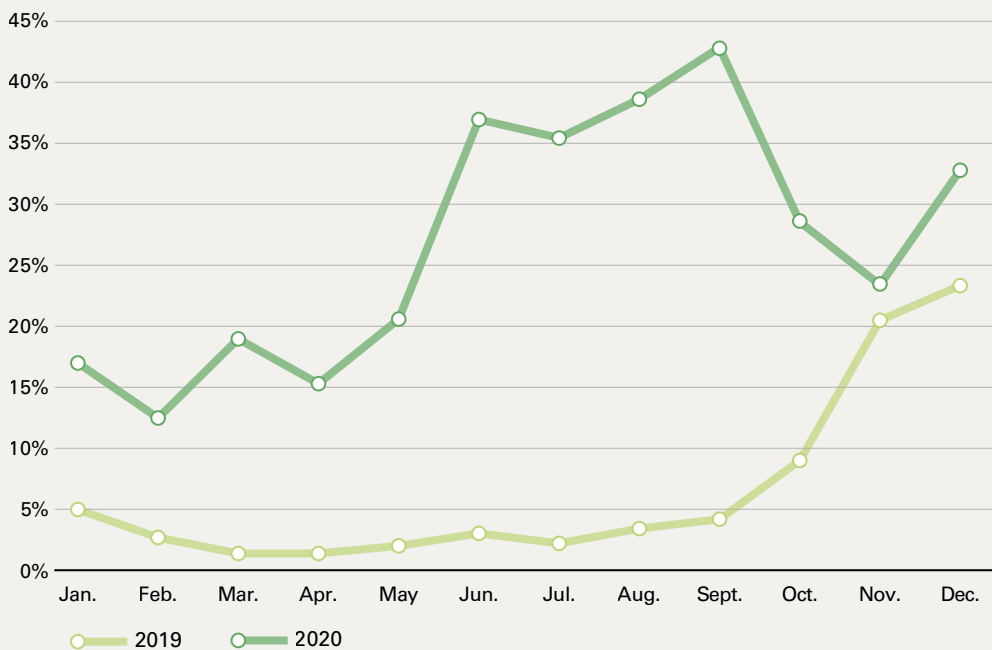


Fig. 2.2.15 Foreign price fixing quota. Monthly trend for the years 2019-2020



Tab. 2.2.5 Concentration indices in the MGP. Year 2020

Indicator	Total	North	Centre North	Centre South	South	Sicily	Sardinia
HHI Offers		1,518 (1,487) ▲	3,019 (3,252) ▼	3,240 (3,380) ▼	1,662 (1,807) ▼	3,778 (3,586) ▲	2,970 (3,062) ▼
HHI Sales		965 (950) ▲	2,963 (3,178) ▼	1,360 (1,573) ▼	1,209 (1,197) ▲	1,847 (1,724) ▲	3,441 (3,302) ▲
CR3	32.0% (32.6%) ▼	36.9% (37.3%) ▼	79.0% (80.5%) ▼	41.1% (46.1%) ▼	39.8% (41.3%) ▼	55.8% (55.8%) ▼	77.4% (81.5%) ▼
CR5	34.5% (47.6%) ▼	56.8% (57.5%) ▼	87.6% (89.0%) ▼	60.6% (64.6%) ▼	55.3% (55.6%) ▼	71.7% (73.4%) ▼	86.2% (90.9%) ▼
IOR Quantity	4.6% (4.7%) ▼	0.4% (0.4%) ▼	38.1% (33.7%) ▲	8.1% (10.2%) ▼	0.4% (0.9%) ▼	4.4% (2.0%) ▲	7.6% (11.7%) ▼
IOM 1° Part	24.2% (30.5%) ▼	28.3% (29.1%) ▼	23.5% (32.7%) ▼	21.0% (34.7%) ▼	18.6% (29.2%) ▼	10.6% (37.7%) ▼	20.4% (31.0%) ▼
ITM Ccgt	45.3% (51.7%) ▼	42.2% (51.1%) ▼	46.0% (52.2%) ▼	43.2% (47.6%) ▼	49.6% (52.2%) ▼	66.4% (68.4%) ▼	45.6% (50.3%) ▼

() The values of the previous year are shown in brackets

2.2.2. The Intra-day Market (MI)

ROLE AND USE OF THE MARKET. The dynamics observed in the MI confirm their close relationship with the day-ahead market, showing, in particular, a consolidation of the support function performed by this market for the definition of efficient systems planning. In this sense, there is a strengthening of the propensity to negotiate in sessions close to real time, with a simultaneous progressive increase in the price gap with the MGP. In the particular context that characterised 2020, these elements emerged with particular importance in the central part of the year, when the uncertainty induced by the first phase of the health emergency accentuated the need to "postpone" the adjustment of the programs as much as possible, favouring an increase in the annual maximum of the share of the post-MI2 markets³⁰ and an increase in the prices of these sessions (especially MI6 and MI7), physiologically characterised by a progressively more rarefied level of offer (Fig. 2.2.20 and Fig. 2.2.23).

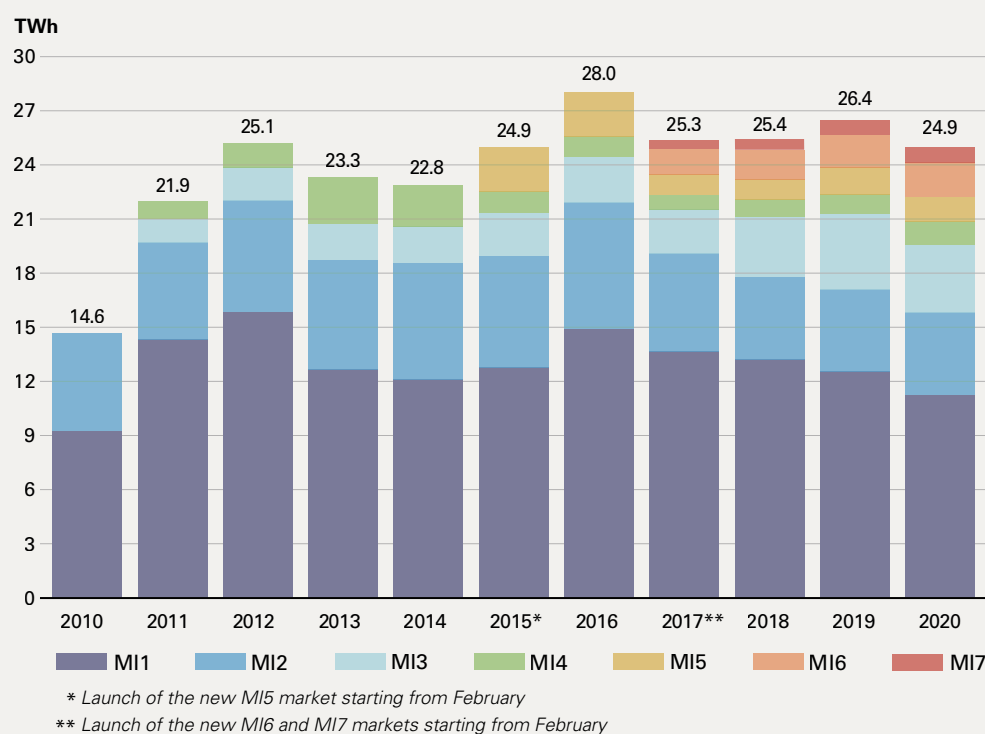
THE VOLUMES. Trading on the MI fell to 24.9 TWh (-1.5 TWh), due to an 82% drop concentrated on the first two intra-day markets (16 TWh, -1.2 TWh) and decidedly less intense on the following ones (8.3 TWh, -0.3 TWh). The progressive shift in operations close to delivery is evidenced by the growing weight shown by the post-MI2 markets, which in the last five years rose from 21% to 36%, and by the trading carried out in the "last useful session", which rose to 15% of the total traded (+2 p.p. on 2019)³¹. In terms of infra-annual trends, volume reductions were greater in the months which, with the exception of April, did not (or only partially) fall within the lockdown period (January and November above all). Overall, finally, also in 2020, operations on the intra-day market appear mainly aimed at an upward adjustment of the programs resulting from the MGP, quantified at 6.0 TWh, equal to +2.1% (it was +1.7% in 2019). This figure was driven, in withdrawal, by wholesalers (+5.0 TWh) and, in injection, by thermoelectrics (+3.0 TWh) and renewable systems, the latter at their maximum increase since 2012 (+1.2 TWh) (Fig. 2.2.16, Fig. 2.2.17, Fig. 2.2.24 and Fig. 2.2.25).

³⁰ In April and May, the market share of the post-MI2 sessions was 38-39%, reaching peaks of just under 50% for a few weeks of April.

³¹ This is the sum of the volumes traded for each hour in the last trading session compared to the total volumes traded on the MI.

PRICES AND ZONAL CONFIGURATIONS. Intra-day prices all fell to their historical minimum (38/44 €/MWh, -24/-26%), thus strengthening the trend already evident in 2019, and showing accentuated dynamics especially in the central part of the year. While continuing to follow the trends dictated by the MGP, approaching real time, prices were progressively more distant and more volatile than the value recorded in the day-ahead market. Instead, the frequency decreased with which the price difference between the first and last market useful for trading was higher than 3 €/MWh: the "last-first spread" indicator³², in fact, while continuing to report this case as prevalent (55% of the hours, -4.3 p.p.), it showed a progressive erosion to the advantage of situations characterised by tighter differentials (45% of the hours). No significant changes, however, in relation to the zonal configurations which, in the transition from MGP to MI, remained unchanged on average at 91% of the hours³³. The most frequent changes in structure were found between SICI and ROSN (15%, -3 p.p.), whose interconnection was the most congested as a result of the MGP (33% of the hours, -7 p.p.), and on the borders of the CNOR (NORD-CNOR: 11%, +2 p.p.; CNOR-CSUD: 13%, -2 p.p.) (Fig. 2.2.18, Fig. 2.2.19, Fig. 2.2.21, Fig. 2.2.22 and Tab. 2.2.6).

Fig. 2.2.16 Volumes traded in the MI



³² The differential recorded, in each hour, between the prices of the first and last MI session.

³³ The union/separation analysis was carried out on the pair of zones joined by a transit.

Fig. 2.2.17 Volumes traded in the MI. Monthly trend 2019-2020

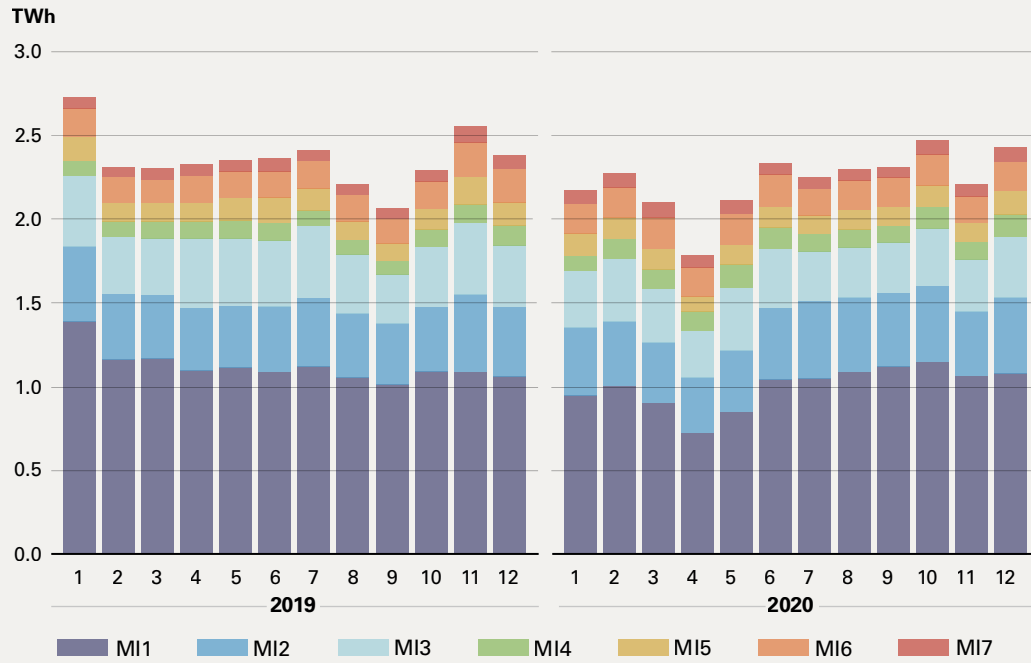
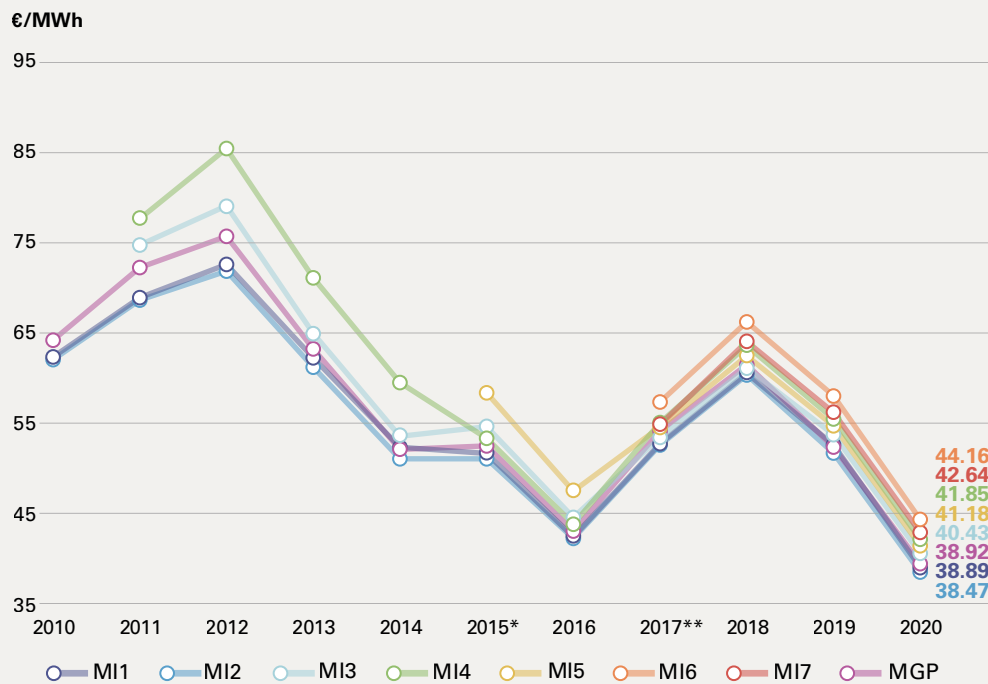


Fig. 2.2.18 MI prices. Annual trend



* Launch of the new MI5 market starting from February

** Launch of the new MI6 and MI7 markets starting from February

Fig. 2.2.19 MI prices. Monthly trend 2019-2020

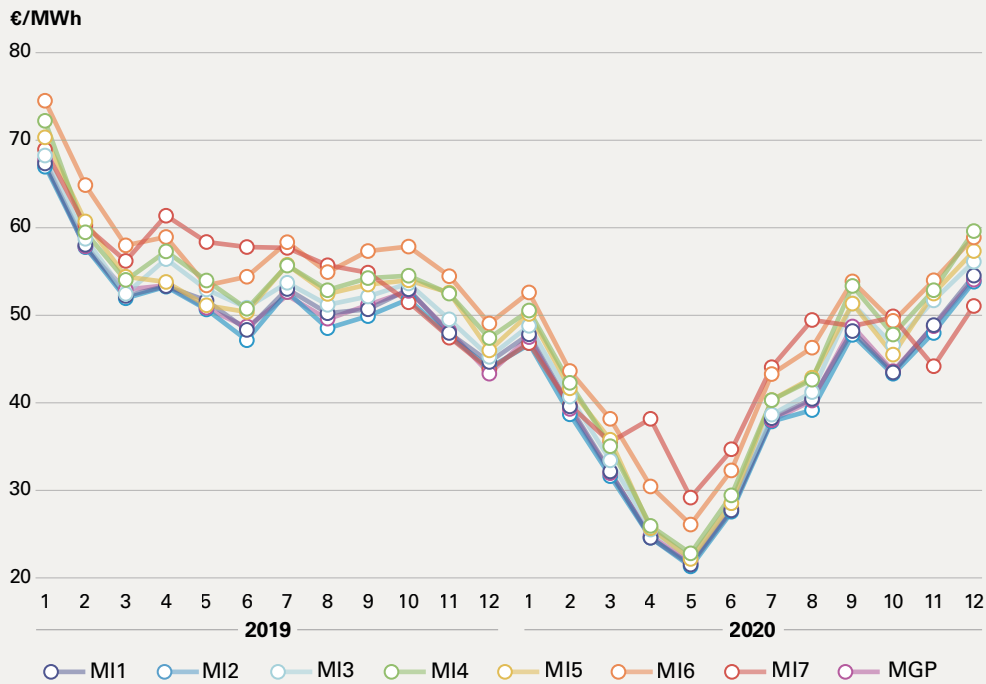


Fig. 2.2.20 Price differentials with MGP in the same hours

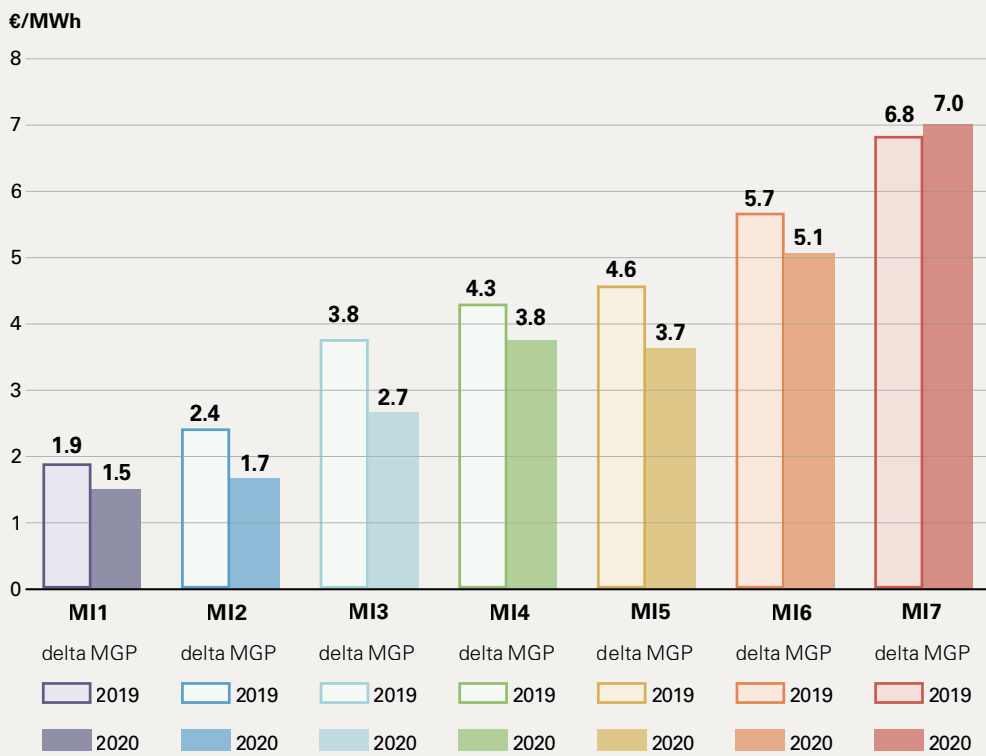


Fig. 2.2.21 MI price volatility. Annual trend

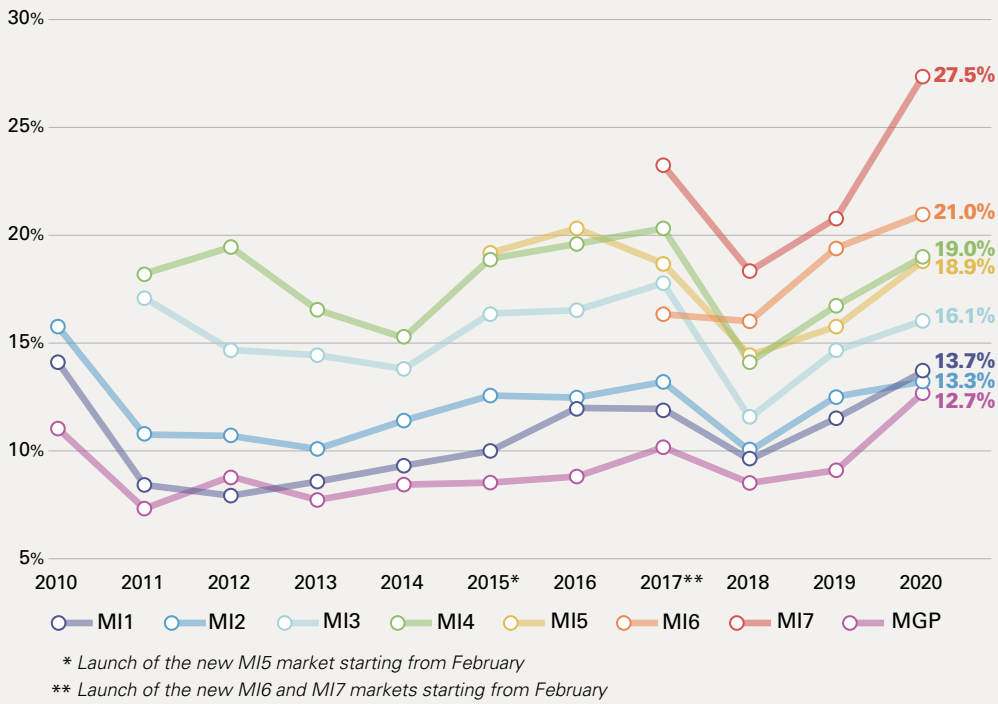
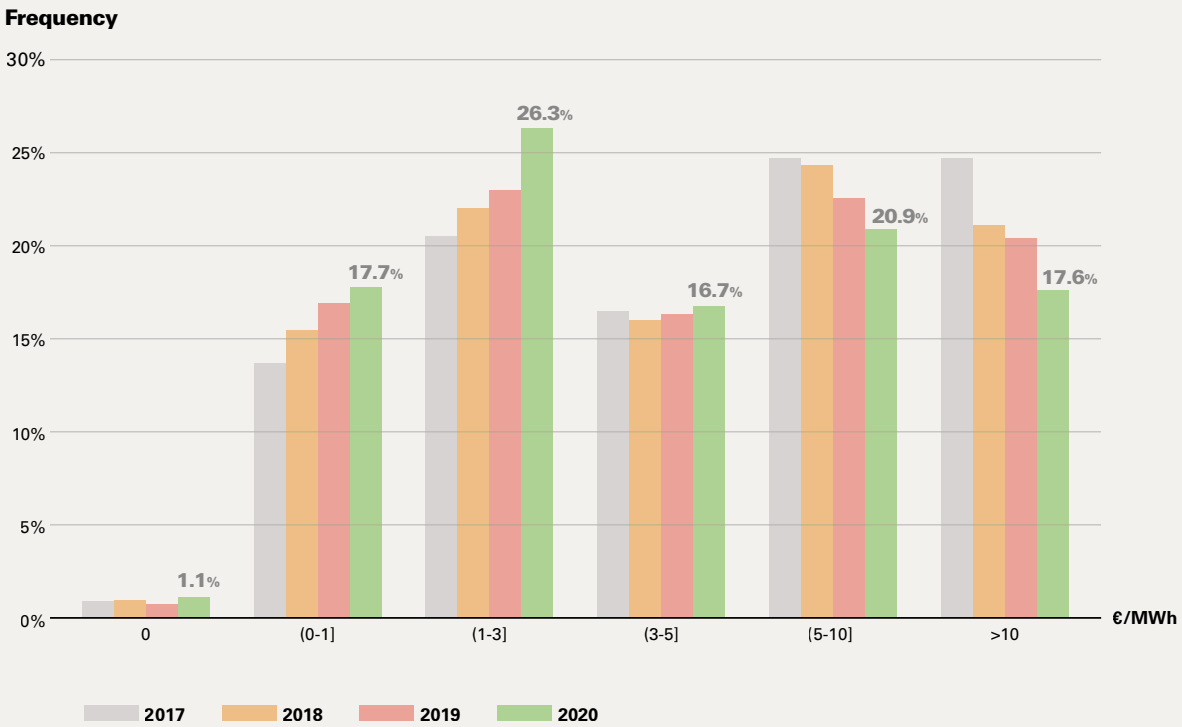


Fig. 2.2.22 Last-first spread distribution



Tab. 2.2.6 Zonal setting changes. Year 2020

TRANSIT	No. CHANGES IN SET-UP								Total
	UNSATURATED MGP				SATURATED MGP				
	0	1	>1	Total	0	1	>1	Total	
NORD-CNOR	86% (87%)	1% (1%)	1% (1%)	89% (89%)	4% (4%)	6% (4%)	2% (2%)	11% (11%)	100%
CNOR-CSUD	80% (78%)	2% (1%)	1% (1%)	83% (81%)	7% (7%)	7% (9%)	3% (3%)	17% (19%)	100%
CSUD-SARD	94% (97%)	1% (0%)	0% (0%)	95% (97%)	3% (1%)	1% (1%)	1% (0%)	5% (3%)	100%
CSUD-SUD	93% (91%)	0% (0%)	1% (1%)	94% (92%)	3% (5%)	2% (3%)	1% (1%)	6% (8%)	100%
SICH-ROSN	62% (55%)	2% (2%)	3% (3%)	67% (60%)	23% (27%)	7% (9%)	3% (4%)	33% (40%)	100%
Total	83% (82%)	1% (1%)	1% (1%)	86% (84%)	8% (9%)	5% (5%)	2% (2%)	14% (16%)	100%

() Values of the previous year

Fig. 2.2.23 Relevance of intra-day markets

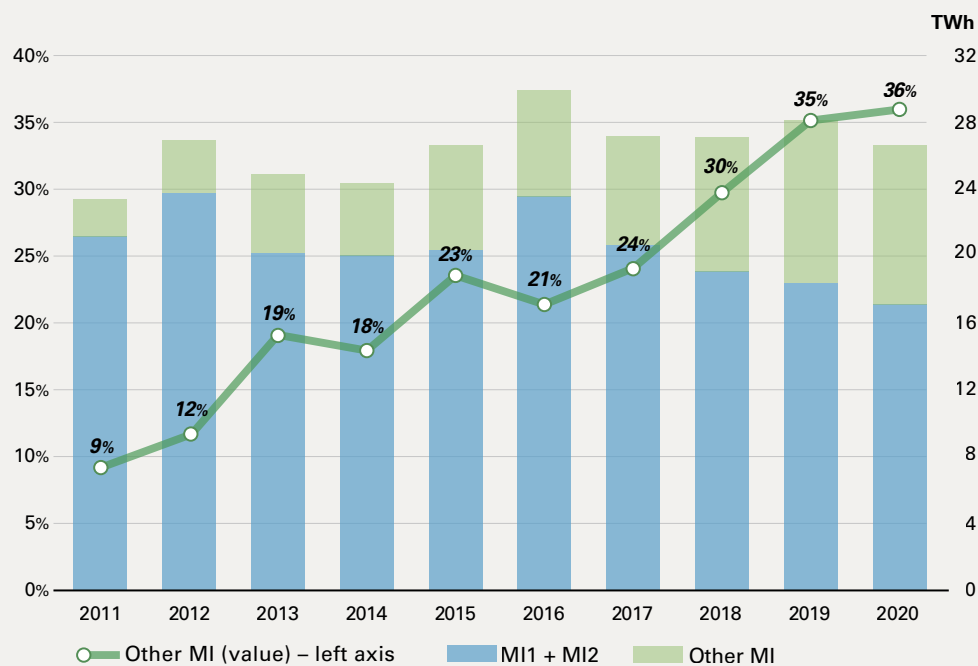


Fig. 2.2.24 Sales/purchases balance by type of plant

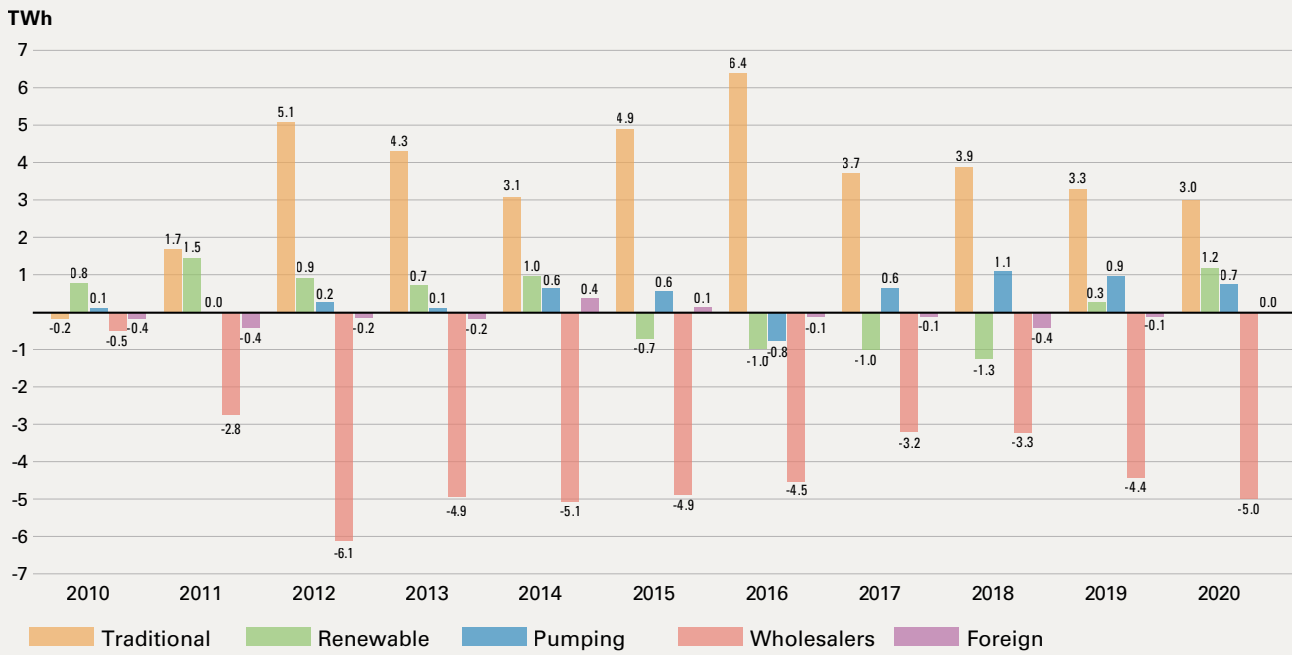
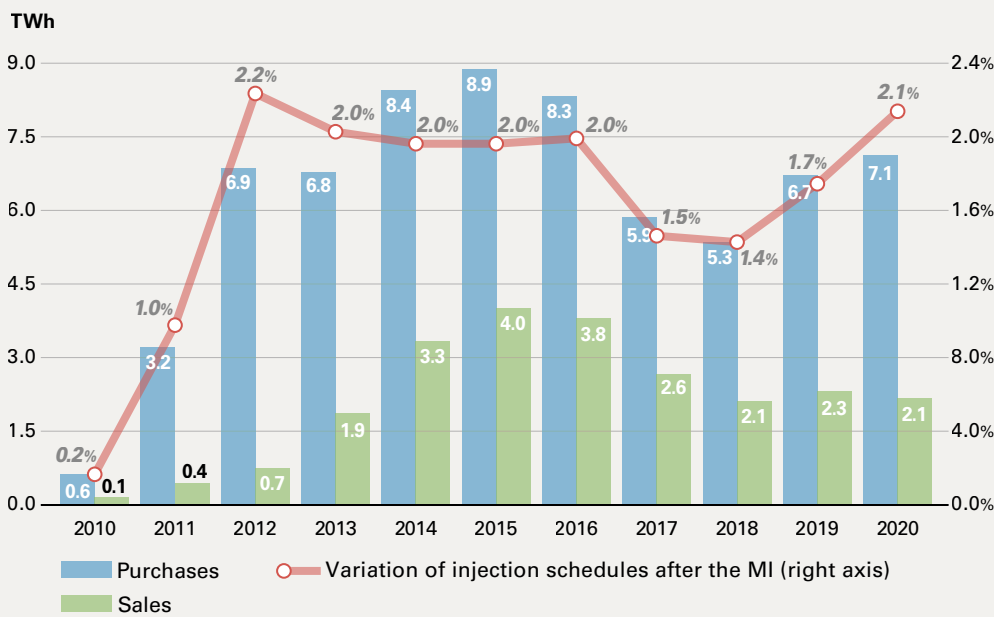


Fig. 2.2.25 Sales and purchases of wholesalers and variation of the injection schedules following the MI



2.2.3. Other electricity markets

MPEG. On the "unit price differential" product, there was a slight increase in both trading (1,132, +7.9% on 2019), for the first time relating exclusively to the baseload profile, and volumes (0.7 TWh, +2.8%), mainly concentrated in the last two months of the year. The average price of baseload daily products rose to 0.24 €/MWh (+0.14 €/MWh), with monthly levels that, with few exceptions, constantly exceeded those of 2019 and confirmed a low infra-annual volatility, if the month of November is excluded, when the baseload price reached an all-time high of 1.06 €/MWh (Fig. 2.2.26).

PCE. Transactions recorded on the OTC Registration Platform (PCE) with delivery/collection in 2020, on a fifth consecutive decline, were confirmed at their lowest since 2011, equal to 268.1 TWh (-9.0% compared to 2019) and driven down by their main component, represented by transactions deriving from bilateral contracts (266.1 TWh, -9.1%). On the lowest level since 2010 was the net position of the energy accounts determined by the total of transactions recorded, equal to 150.4 TWh (-9.4%). Virtually unchanged and at its lowest since 2012 was the turnover³⁴, equal to 1.78 (+0.01). Negative signs also for the programs recorded both in the injection accounts, equal to 70.3 TWh (historical low, -15.0% on 2019), and in the withdrawal accounts, equal to 114.7 TWh (-11.5%), as well as for the related scheduled unbalancings, respectively 80.1 TWh (-3.7%) and 35.7 TWh (-1.6%) (Fig. 2.2.27, Tab. 2.2.7 and Fig. 2.2.28).

MTE. On the forward market, minimum levels since 2010 for transactions (62, -114 compared to 2019), for the contracts traded (213, -383) and for the overall volumes traded (0.8 TWh against 1.6 TWh). Open positions at the end of the year also fell sharply, amounting to 569 GWh (-75.0%). The product on which the highest number of trades was concentrated was confirmed as the calendar baseload 2021, which closed the trading period at a price of 51.90 €/MWh (Tab. 2.2.8).

³⁴ This means the ratio between the recorded transactions and the net position.

Fig. 2.2.26 MPEG prices and volumes traded by type

Type	Tradings N°	Traded products N°	Price			Volumes	
			Average €/MWh	Minimum €/MWh	Maximum €/MWh	MWh	MWh/g
Baseload	1,132 (959)	361/366 (359/365)	0.24 (0.10)	0.06 (0.07)	2.50 (1.00)	720,825 (692,074)	1,997 (1,928)
Peakload	- (90)	0/262 (89/261)	- (0.52)	- (0.07)	- (5.00)	- (9,180)	- (103)
Total	1,132 (1,049)					720,825 (701,254)	

The values of the previous year are shown in brackets

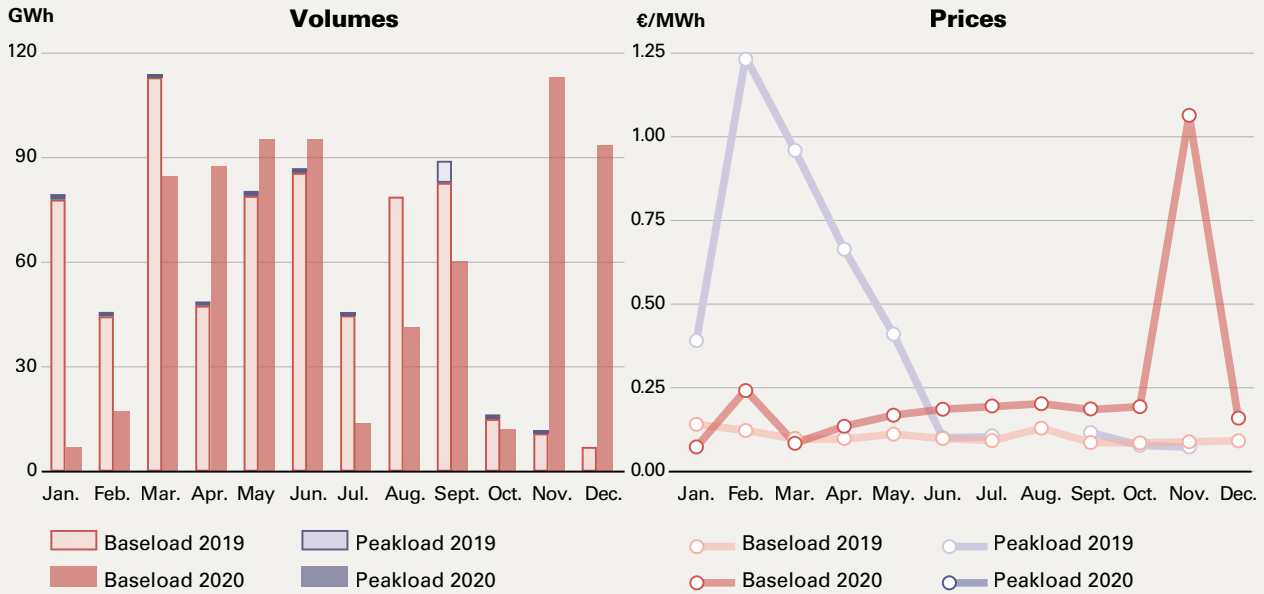
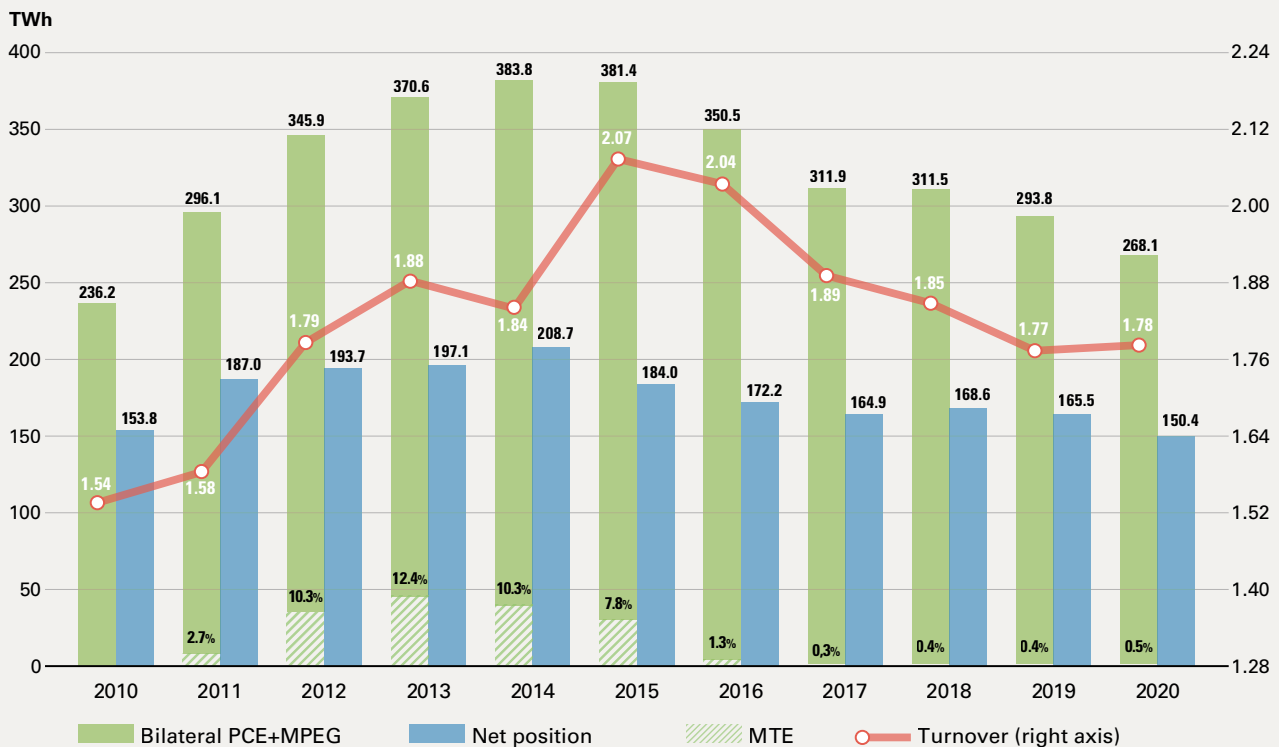


Fig. 2.2.27 Registered transactions, net position and turnover



Tab. 2.2.7 Profile of registered transactions and schedules

REGISTERED TRANSACTIONS				PROGRAMS										
Profile	MWh	Change	Structure	Injection			Withdrawal							
				MWh	Change	Structure	MWh	Change	Structure					
Baseload	75,918,340	-8.0%	28.3%											
Off Peak	2,980,094	205.0%	1.1%											
Peak	1,378,289	-22.3%	0.5%											
Week-end	240	-80.1%	0.0%											
Standard Total	80,276,963	-5.8%	29.9%											
Non standard Total	185,825,521	-10.4%	69.3%											
Bilateral PCE	266,102,484	-9.1%	99.3%											
MTE	1,253,896	7.7%	0.5%											
MPEG	720,249	2.4%	0.3%											
CDE	-	-	0.0%											
Total	268,076,629	-9.0%	100.0%											
Net Position	150,443,018	-9.4%												
				Requested			114,991,665			-11.4%			100.0%	
				<i>of which with indication of price</i>			47,895,644			-19.1%			46.9%	
				Registered			70,345,935			-15.0%			68.9%	
				<i>of which with indication of price</i>			16,110,116			-36.0%			15.8%	
				Rejected			31,809,692			-6.7%			31.1%	
				<i>of which with indication of price</i>			31,785,528			-6.7%			31.1%	
				Schedules unbalancing			80,097,083			-3.7%				
				Schedules balance			-			-				
										35,694,424			-1.6%	
										133,154			323.0%	
										1,622			433.2%	
										243,071			79.7%	
										131,532			321.9%	
										114,748,594			-11.5%	
										35,694,424			-1.6%	
										44,402,659			-5.4%	

Fig. 2.2.28 Registered physical programs and unbalance schedules



Tab. 2.2.8 MTE: volumes traded by trading year

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Δ% 2020/2019
Contracts (MW)											
Total	8,228	12,697	6,096	4,550	1,004	411	518	391	596	213	-64%
Baseload	6,018	11,633	4,604	4,410	899	323	449	357	561	174	-69%
Peakload	2,210	1,064	1,492	140	105	88	69	34	35	39	11%
Volumes (TWh)											
Total	33.4	953	41.1	32.3	5.1	1.1	1.4	1.2	1.6	0.8	-53%
Baseload	29.8	884	36.7	32.2	5.0	1.0	1.3	1.2	1.6	0.7	-54%
Peakload	3.7	69	4.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0	6%
Number of Matchings											
Total	665	953	342	500	252	85	139	130	176	62	-65%
Baseload	478	884	136	488	239	73	123	119	165	52	-68%
Peakload	187	69	206	12	13	12	16	11	11	10	-9%
OTC volumes share											
Total	5%	45%	81%	43%	0%	0%	0%	0%	0%	0%	+0 p.p.
Baseload	6%	45%	90%	43%	0%	0%	0%	0%	0%	0%	+0 p.p.
Peakload	1%	46%	0%	29%	0%	0%	0%	0%	0%	0%	+0 p.p.

2.3. GAS MARKET IN ITALY

2.3.1. Gas Spot Market (MP-GAS)

THE CONTEXT IN THE ITALIAN GAS SYSTEM. In the general economic scenario, national and international, strongly impacted by the Covid-19 health emergency, natural gas consumption in Italy reversed the annual trend again and fell to the minimum of the last four years (748 TWh, -4.4%), with dynamics concentrated in the first seven months (-23/-24% in April and May) and significantly attenuated by the recovery in consumption that characterised the second half of the year for a long time. The contraction was driven by the more intense decline recorded in consumption in the thermoelectric sector (-5.7%), the only one bucking the trend compared to last year, and in the industrial sector (-6.1%), both more penalised by the restrictive measures introduced to limit the spread of the pandemic in the first phase; less significant, instead, was the reduction in consumption in the civil sector (-2.4%), mainly linked to a warmer winter than the average for the period. The lower demand was absorbed by a drop in gas imports, which fell to the minimum levels of 2014 in the "pipeline" component (564 TWh, -6%) and in retreat compared to the all-time high of 2019 in the "LNG regasification plants" component (133 TWh, -10%), also due to the increase in prices on the world LNG market, which maintained its share of the total procured close to 18%. In the presence of a national production of natural gas still at historic lows, the system was balanced thanks to the greater use of resources in storage, which were confirmed as an important instrument of flexibility and modulation, also to offset contingent needs, with the balance between supplies and injections at 10 TWh (it was -15 TWh in 2019) (Fig. 2.3.1, Fig. 2.3.2).

VOLUMES. In 2020 the Spot Gas Market (MP-GAS) was affected by two innovations: *i)* the launch of the AGS sector, instrumental to the procurement by the Balancing Manager (RdB) of the resources necessary for operation of the gas system pursuant to the provisions of ARERA with resolution 451/2019/R/Gas and organised according to the marginal auction in the context of the MGP-GAS and MI-GAS, *ii)* the introduction of the “weekend product” (see above) among the products available in the sessions that take place in continuous trading on the MGP-GAS. In consideration of the introduction of these innovations, two important phenomena are observed: *i)* the overall increase in volumes on the title markets, *ii)* a redistribution of tradings between the various spot markets, to the detriment of the market of gas in storage. In fact, in 2020, trading in the MP-GAS consolidated the growth recorded in the previous three years and rose to an all-time high of 113 TWh (+43% on 2019), equal to 15% of the demand for natural gas on an annual basis, a share that has never been so high since the start of the new balancing system (+5 p.p. on 2019), and with a monthly peak of 22% in April (Fig. 2.3.3).

- **Day-ahead gas market (MGP-GAS).** Due to a growing maturity and intensification of trading also favoured by the presence of the market making service, the volumes on the continuous trading MGP-GAS rose to 30.1 TWh (+22%), representing approximately 27% of the total spot trading (-3 p.p. on an annual basis) mainly concentrated in the session prior to delivery. A good result, at its start, for the weekend product, whose share of the total traded was 21%. During the year, the growth in volumes showed a slowdown in the central months (from July to October, trading recorded, for the first time since the start of the balancing market, tendential decreases of between 16% and 22%) and an acceleration in the last two months, in which the highest values ever (4.7 TWh in December) were reached. With regard to the AGS sector, the day-ahead sector reached 25.7 TWh in the first year of operation, equal to 23% of the total spot traded and mainly attributable to the purchase operations of the TSO (69% of volumes).
- **Intra-day Gas Market (MI-GAS).** There was also an intense increase in trading on the continuous trading MI-GAS which, on the sixth consecutive increase, rose to 46.7 TWh (+13%), equal to 41% of the total spot traded (it was 50% in 2019). The increase was mainly sustained by trading between participants other than the RdB, which rose to an all-time high of 29.7 TWh (+23% on last year), equal to 64% of the total traded in the sector (+5 p.p. on 2019, +21 p.p. compared to 2017, the first year of full operation). On this market, however, the movements of the RdB were almost stable which, also in consideration of the peculiar dynamics observed in the system, were characterised by purchases at higher levels than ever (12.4 TWh, +6%) and lower sales (4.6 TWh, -14%). With regard to the AGS sector, the intra-day sector, instead, showed lower volumes than the equivalent day-ahead sector, settling at 4.4 TWh (57% of which related to TSO sales) and a 4% share.
- **Marketing for the trading of gas stored (MGS).** The quantities traded on the MGS were confirmed to be decreasing, and in contrast with the other MP-GAS markets, which, also in consideration of the new structure of the spot market, fell to an all-time low of 6.4 TWh (-52%), with a share of the total traded at 6% (it was 17% of 2019). The contraction affected both the drop in volumes handled by SRG for all purposes, on the purchase side (1.1 TWh) and on the sales side (1.0 TWh), and the trading between third parties.
- **The Locational Product Market (MPL).** Also in 2020 no session was activated by Snam.

PRICES. In the context already detailed in chap. 2.1, the prices on the spot gas markets managed by GME, on the second consecutive decline, updated the historical lows everywhere, on levels of between 10.41 €/MWh of the continuous trading sector of MGP-Gas and 11.60 €/MWh of the AGS sector of MI-Gas, confirming themselves as still closely relating to the listing on the PSV (10.55 €/MWh). The differential³⁵ between the System Average Price (SAP)³⁶ and the PSV showed a further decline compared to last year, falling to 0.16 €/MWh, with an increasing volatility for both references, but at contained levels (2.95% the first and 2.79% the second); the higher variability of the SAP compared to the PSV appeared to be driven by the prices recorded on the continuous trading MI-Gas which, already structurally higher than the variability of the same day-ahead segment due to the need for intervention by the RdB, widened the differential, with the latter reaching 3.75%. The general increase in the volatility index was concentrated in June on all markets, being higher in the final part of the year on MI-Gas. The trend of the MGS price was confirmed as divergent, tending to be lower in the winter months and higher in the summer months, albeit with average deviations lower than last year, reaffirming the different reactivity of this market to exogenous phenomena compared to continuous trading, typical of its nature. The latter dynamic also explains the lower level of volatility compared to other markets (1.50%), although it is also growing (Fig. 2.3.5).

SNAM OPERATIONS AS RDB. In 2020, in the MI-GAS under continuous trading, the quantities purchased and sold by Snam in the exercise of the RdB function stood at 17 TWh, stable on 2019. This volume represents a total of 36% of the total traded in the sector, down compared both to 2019 (-5 p.p.), and above all compared to 2017, the first year of full operation of the new balancing mechanism (-21 p.p.), due to the prevailing effect of the growth in participation and trading between third party participants. In line with the previous year's operations, the analysis of the movements carried out as RdB on the MI-GAS showed a greater intervention by Snam both in terms of volumes and frequency, in short system situations (349 against 165 couplings). In these cases, Snam's purchases totalled 11.7 TWh (69% of the total handled), mainly achieved with a system unbalancing included in the classes [31,400-60,000 MWh] for 3.9 TWh and [60,000-100,000 MWh] for 3.6 TWh. The RdB interventions in long system conditions were less intense and less frequent, when the Snam's sales totalled 4.5 TWh (27% of its total turnover), concentrated in the medium-high unbalancing classes. Finally, the volumes traded by the RdB inconsistently with the sign of the unbalancing were residual but increased slightly, a circumstance which occurred both in the short and long system conditions (respectively in 6 and 18 cases, for a total of 0.8 TWh) (Tab. 2.3.1).

MARKET CONCENTRATION. Within the new market structure, the growth in liquidity, driven in particular by greater tradings between participants other than Snam and also favoured by the inclusion of the new weekend product in the Market Making service, led to a general improvement in competition on MP-Gas. In 2020, excluding the new AGS segments, the market shares of the leading participants (CR5) were, with rare exceptions, declining everywhere and ranging between 26% of MGP-Gas on the purchase side and 54% of MGS on the sales side. Noteworthy was the appreciable reduction of the indicator sold on MI-Gas in continuous trading, which fell from 50% in 2019 to 39% in 2020, in parallel with a growing participation of non-Snam participants. The new AGS sectors were less competitive than other markets, with the CR5 index (calculated net of TSO trading) between 54% and 61% on the selling side and 67-68% on the buying side (Fig. 2.3.6).

³⁵ The spread is only calculated on the days in which PSV shares are available.

³⁶ The SAP is the average of the prices recorded on the MGP-GAS and on the MI-GAS in continuous trading weighted for the respective combinations.

2.3.2. Other gas markets

MT-GAS. In 2020, the trading recorded in the Forward Market for Natural Gas (MT-GAS) reversed the moderate upward trend of the previous two years and reached 0.5 TWh (compared to 3.2 TWh in 2019) traded in a total of 122 couplings (against the 726 of last year). Monthly products were confirmed as the most traded, for a share equal to 71% of the total contracts negotiated, on which an increase in the weight of BoM products was observed (21%, +6% p.p.) as a flexibility instrument (Tab. 2.3.2).

P-GAS. No exchange in both the Royalties and Import sectors in which the orders presented for the purpose of fulfilling the offer obligation were evident.

PAR. In the second year of full operation on the platform, a total of 173 slots were assigned, amounting to 22.0 million liquefied m³ (there were 11.9 million liquefied m³ in 2019), at an average price of around 6.5 €/m³ liquefied.

Fig. 2.3.1 Natural gas consumption trend

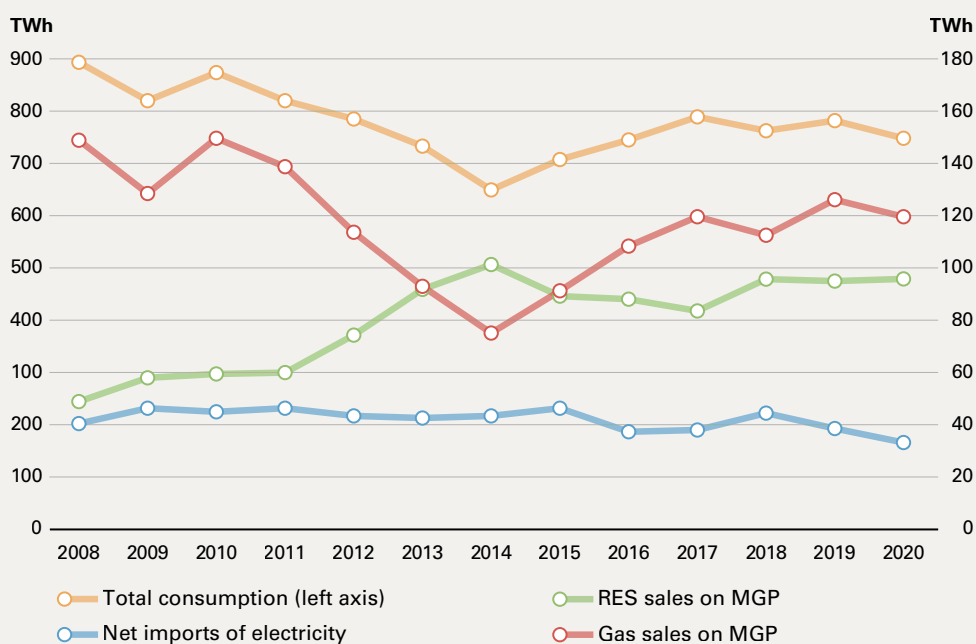


Fig. 2.3.2 Gas import trend

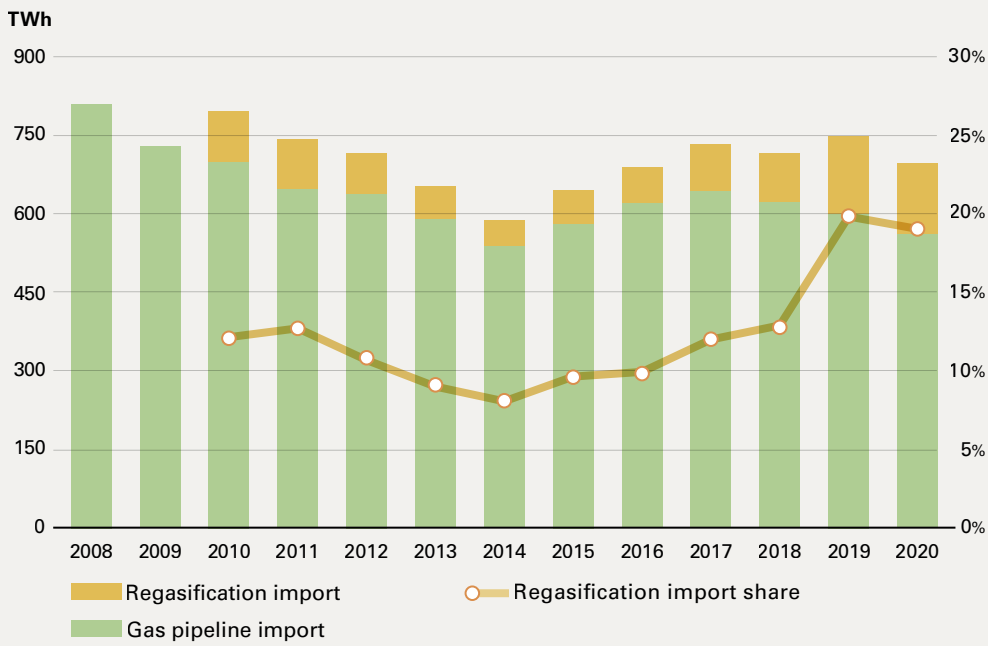


Fig. 2.3.3 Volumes trend

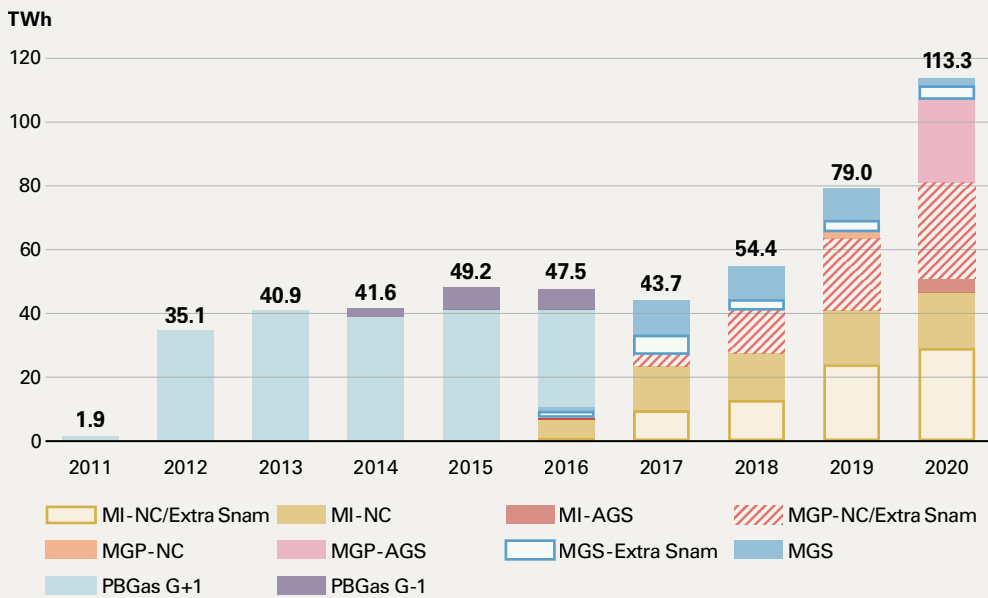


Fig. 2.3.4 MP-GAS Average Price and Volatility

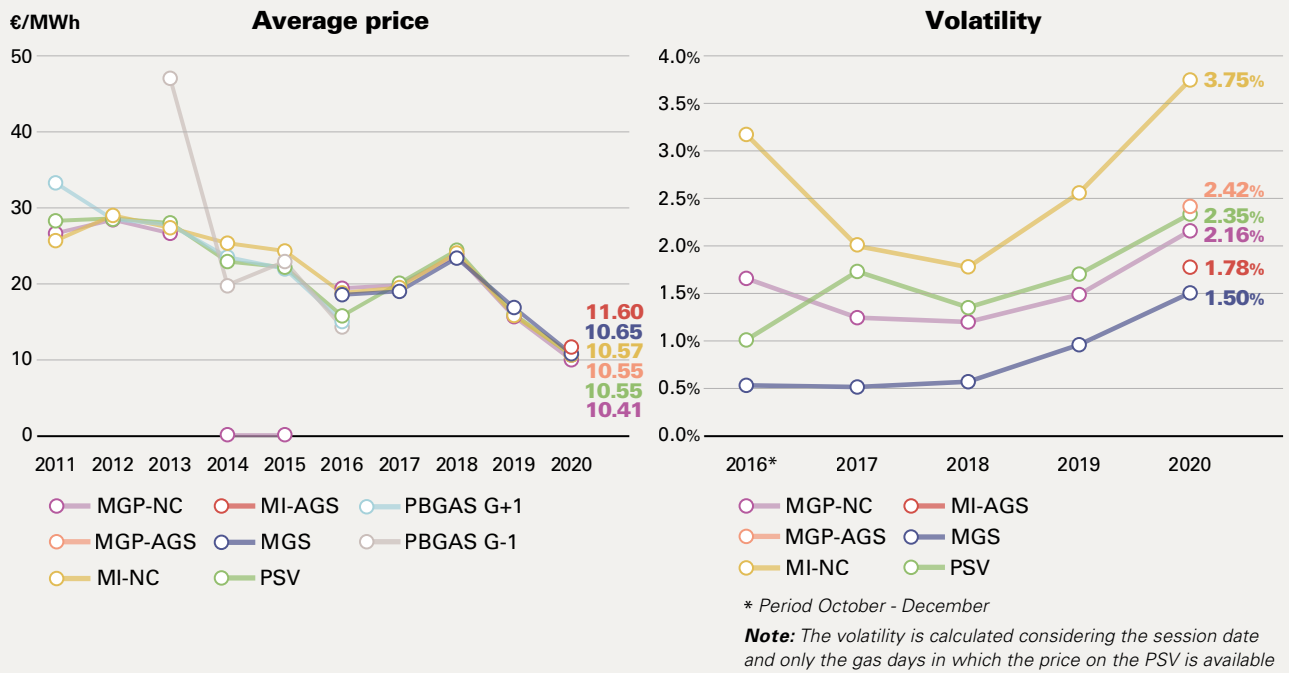


Fig. 2.3.5 Average price and volatility. SAP comparison with PSV and TTF

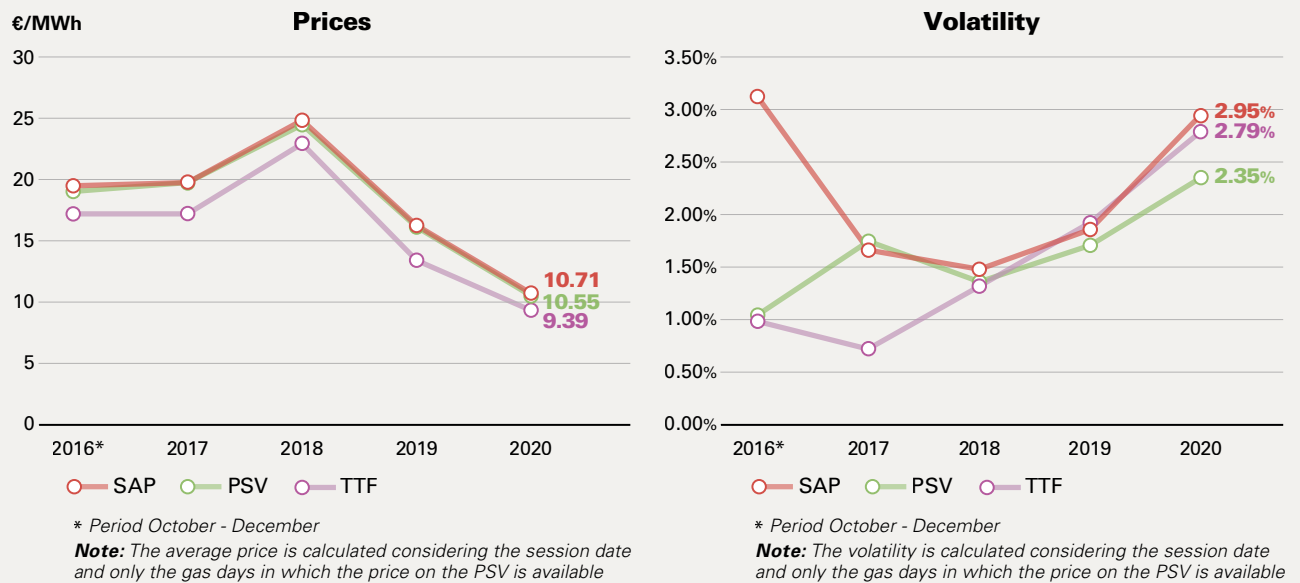
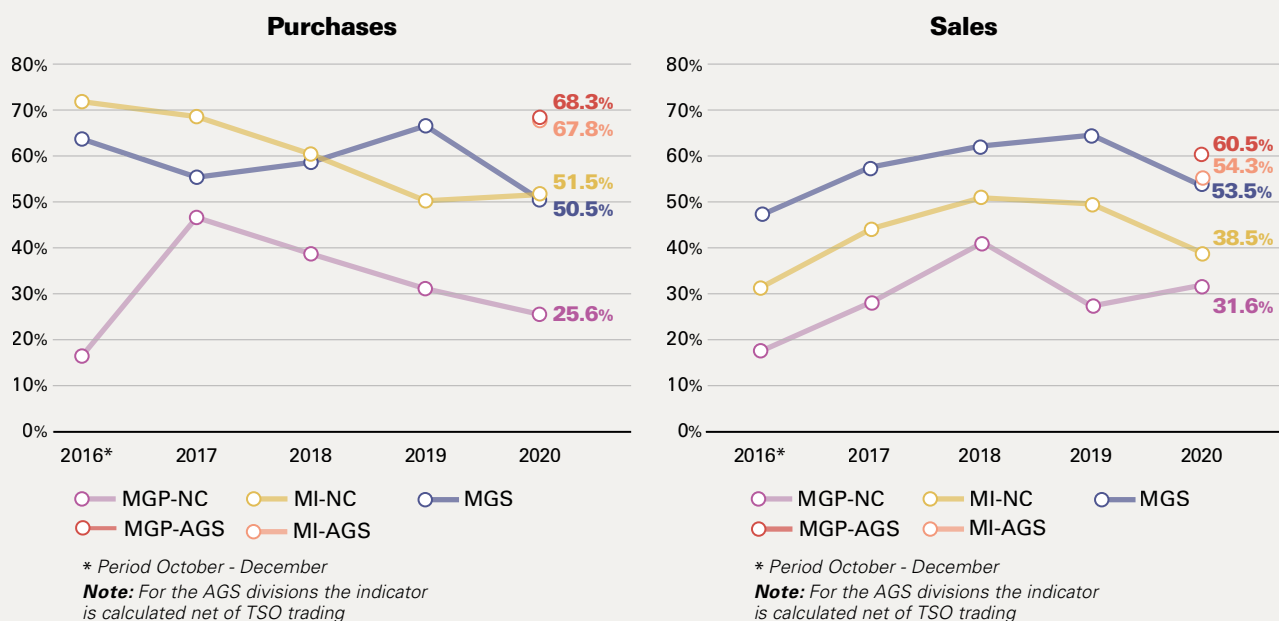


Fig. 2.3.6 Market shares



Tab. 2.3.1 Snam's operations in the MI-Gas. Year 2020

SHORT SYSTEM (Negative residual unbalancing)								
Unbalancing Classes MWh	Unbalancing MWh		Purchases MWh			Sales MWh		
	Average	N° cases	Average	% on unbalan.	N° matching	Average	% on unbalan.	N° matching
(0-15,000]	7,297	1,019	15,539	157%	15	10,320	127%	3
(15,000-31,400]	23,026	1,109	23,572	102%	66	17,448	70%	1
(31,400-60,000]	44,796	1,256	32,242	69%	122	11,952	21%	1
(60,000-100,000]	76,356	752	40,431	53%	89	19,176	22%	1
(100,000-200,000]	128,071	386	46,991	36%	48			
>200,000	242,255	24	27,464	11%	3			
Total	44,414	4,546	33,990	55%	343	13,256	41%	6

LONG SYSTEM (Positive residual unbalancing)								
Unbalancing Classes MWh	Unbalancing MWh		Purchases MWh			Sales MWh		
	Average	N° cases	Average	% on unbalan.	N° matching	Average	% on unbalan.	N° matching
(0-15,000]	7,113	1,032	40,768	537%	6	9,566	150%	5
(15,000-31,400]	22,846	721	43,680	191%	5	18,871	78%	7
(31,400-60,000]	44,778	814	28,536	54%	3	27,002	56%	36
(60,000-100,000]	78,248	580	38,652	53%	4	33,013	42%	56
(100,000-200,000]	136,379	428				37,198	28%	36
>200,000	248,412	87				27,545	12%	7
Total	50,690	3,662	39,068	115%	18	30,835	35%	147

Tab. 2.3.2 Trading structure on the MT-GAS. Year 2020

Products	Matching		Volumes					
	N.		MW		%	MWh		%
BoM	19	(70)	3,096	(13,632)	20.9%	49,944	(201,768)	10.4%
Monthly	85	(542)	10,464	(71,832)	70.8%	316,080	(2,191,200)	66.1%
Quarterly	18	(114)	1,224	(8,712)	8.3%	112,248	(799,080)	23.5%
Half-yearly								
Yearly								
Total	122	(726)	14,784	(94,176)	100.0%	478,272	(3,192,048)	100.0%

() The values of the previous year are shown in brackets

2.4. ENVIRONMENTAL MARKETS

2.4.1. Energy Efficiency Certificates Market (TEE)

THE CONTEXT. In 2020, the energy efficiency incentive mechanism was affected by the adoption of measures aimed at containing the possible effects of the Covid-19 health emergency on a system characterised in recent years by a progressive slowdown in the ability to generate new emissions of certificates. In this context, the measures envisaged in the Decree Law of 19 May 2020 - relating to the extension, from 31 May to 30 November 2020, of the deadlines for verifying the achievement of the obligations relating to the year 2019 (art. 41) - and in Resolution no. 270/2020/R/EFR with which ARERA, inter alia: *i)* aligned the deadline of the compulsory year 2019 with the provisions of the afore-mentioned decree, *ii)* defined a new method for calculating the tariff-based contribution, *iii)* introduced new flexibility tools to support the incentive mechanism, including the provision of an "additional fee", directly related to the scarcity of TEE available, aimed at contributing to the recognition of the economic losses incurred by distributors subject to the obligations. In the current regulatory framework and on the basis of the estimates published by the GSE³⁷, the gap between the demand for the certificates necessary to fulfil the obligation and the available supply seemed to widen further for the 2020 obligation year, not guaranteeing coverage of the minimum required obligation. Worsening of this gap situation is reflected in the dynamics of the MTEE in the first two months of 2021, favouring a progressive rise in prices beyond the cap foreseen for the tariff-based contribution (Tab. 2.4.1, Fig. 2.4.1).

VOLUMES AND LIQUIDITY. In the context of the afore-mentioned dynamics, overall tradings of energy efficiency certificates consolidated the downward trend that had been underway for three years, falling to the lowest level since 2012. The contraction was more intense for bilaterally registered trading which reached the lowest value since 2010, equal to 1.9 million toe (-35%), also lower than the tradings on the organised market (2.3 million toe, -18 %). As a result of these dynamics, after two years, the liquidity of the market returned to exceed 55% (+6 p.p. on an annual basis), signalling, in the prolonged condition of scarcity of certificates, a greater propensity of participants to obtain supplies on the market. The infra-annual analysis of the volumes showed a concentration of trading in June (14%), corresponding to a high quantity of certificates issued (687 thousand certificates, maximum of the compulsory year 2019), and in November (14%), near the annual maturity of the obligations, a particularly accentuated trend especially in the context of the trading carried out on the bilateral platform (Fig. 2.4.2).

³⁷ GSE, White Certificates Annual Report 2020, p. 48.

PRICES. In 2020, the average price on the organised market, slightly up on an annual basis (+1%), reached 262 €/toe, confirming itself lower than the values reached in the 2017-2018 period, characterised by high levels of prices and volatility. Until December 2020, the regulatory interventions of recent years, including the definition of a maximum recognition value of the unit tariff-based contribution to cover the expenses incurred by the obliged subjects (250 €/toe), the possibility for the GSE to issue virtual certified obliged subjects for the achievement of the minimum annual obligation, as well as, lastly, the integration of an additional fee, favoured general stability of the entire TEE mechanism, calming the potential bullish effect induced by the scarcity of supply. The infra-annual analysis of the prices showed a more intense growth on the MTEE in the first part of the year, when the monthly average value reached 267 €/toe in March, corresponding to the first developments of the pandemic, and in the two months October-November, near the end of the compulsory year. The market was almost stable also in terms of volatility, still at historic lows, while, pushing us into the infra-session detail, the spread between the minimum and maximum price rose on average to 1.7 €/toe (it was 0.65 €/toe in 2019), with a peak of around 7 €/toe in early November, the highest since October 2018. Instead, the average price recorded on the bilateral platform decreased slightly (240 €/toe, -1%), which widened the spread with the corresponding market level to 22 €/toe, a differential which reached its maximum level in March (49 €/toe), when the bilateral price fell close to 218 €/toe. The dynamics were reversed and the spread with the market tapered off if we consider only the bilateral transactions recorded at a price higher than 1 €/toe (+1% the variation on an annual basis, 6 €/toe the differential with MTEE), representing a share equal to 94% of the total recorded on the platform, among the highest ever. Finally, the volatility found on the bilateral platform was higher and growing, rising to 20% on registrations made at strictly positive prices (Fig. 2.4.3, Fig. 2.4.4, Fig. 2.4.5).

MARKET CONCENTRATION. The structure underlying the incentive mechanism, characterised by few obliged buyers compared to the audience of numerous sellers, including ESCo³⁸, was reflected in the analysis of the market competitiveness indicators, which were confirmed as lower in purchase and higher in sale. In 2020, together with the significant contraction in trade and the reduced use of the market by participants, in particular from March to October, there was substantial stability of the competitive rates on the purchase side and a slight improvement on the sales side, where the indicators reached the lowest levels of the last five years for the CR3 (14.5%) and historical ones for the CR10 (32.1%) (Fig. 2.4.6).

2.4.2. Guarantees of Origin Market (GO)

VOLUMES AND LIQUIDITY. In a year characterised by reduced levels of electricity demand (-5.3%) and by a greater renewable production (+1%)³⁹, with potential bearish effects on the demand for guarantees and bullish on the offer, the mechanism of the Guarantees of Origin (GO) recorded a new general trend decline, both in terms of prices and volumes, the latter totalling 85.5 TWh (-2% on an annual basis).

On the Guarantees of Origin Market (MGO), which in recent years had shown signs of growth in terms of volumes and participation, the quantities traded showed a reversal of the trend and dropped to 1.9 TWh (-31% on 2019), with the liquidity of the market compared to bilateral trading which remained low, in the context of trading on the Bilateral Platform of Guarantees of Origin (PBGO), still growing on an annual basis and at record levels (60.4 TWh, +2%).

³⁸ Energy Service Company (ESCo) means a company capable of providing technical, commercial and financial services necessary for the implementation of energy efficiency interventions.

³⁹ TERNA, Monthly Report on the Electricity System - December 2020.

In 2020 the structure of trade by year of production⁴⁰ confirmed on the MGO a majority share of volumes relating to the current production year (63%), concentrated in the second half of the year, while on the PBGO a higher concentration of registrations close to the expiry of the trading period (January-March) on products referring to the previous year of production (74%) was evident. On the second consecutive decline, allocations by auction fell to 20.4 TWh (-10%), with a share of the total contracted, net of intra-group tradings, down to 25% (-2 p.p. compared to 2019) for the benefit of PBGO (73%, +3 p.p.).

The composition of tradings by type of renewable source for certificates referring to the year of production 2020 showed on the MGO an increasing weight of volumes relating to the Other category (70%, +34 p.p. compared to the previous production period) and modest shares for the remaining types. On the PBGO, the certificates referring to hydroelectric production were confirmed as being the most liquid (51%), albeit down (-13 p.p.), against an appreciable increase in the Wind category (30%, +15 p.p.). Finally, in the GSE allocation auctions, the distribution by type was in line with that of last year, with the Solar category confirmed as the most significant (42%) (Fig. 2.4.7, Fig. 2.4.8, Fig. 2.4.11).

PRICES. In 2020, the average price recorded on the MGO accelerated the downward trend that had already affected it in 2019, reaching 0.12 €/MWh (-74% on 2019), the lowest value since 2016. Similar dynamics for the average prices of the assignments through GSE auction (0.50 €/MWh, -40%) which, after seven years, yielded the highest price record for trading on the bilateral platform, growing for the sixth consecutive year (0.74 €/MWh, +3%). With regard to prices on the MGO, the decline was more intense in the first three months of the year, when prices reached the lowest levels ever. Conversely, on the PBGO the increase was concentrated in March, the last month of trading of the guarantees of origin for the year of production 2019, corresponding to an average price (0.91 €/MWh) and volumes at the annual maximum. The analysis by year of production⁴¹ highlighted similar developments for the various sources for the organised market and for the GSE auctions, while on the bilateral platform the growth of the last two years was driven by the increases in prices of the Geothermal and Hydroelectric types (Fig. 2.4.9, Fig. 2.4.10).

2.4.3. The Market for Certificates of Release for Consumption (CIC)

PRICES AND VOLUMES. In May 2020, GME started trading on a new organised market, aimed at the exchange of Certificates of Release for Consumption (MCIC). There are three types of CICs that can be traded on the MCIC: the "Biofuels CIC" (CIC), the "Advanced Biomethane CICs" (CIC_{BMTAV}) and the "other advanced biofuels CIC" (CIC_{AV}). During the year on this market, characterised by monthly trading sessions, 421 CIC were traded at an average price of 680 €/CIC.

⁴⁰ Year of production means the one which runs from April to March of the following year. For the production year 2020 the data were calculated up to 31/12/2020.

⁴¹ Year of production means the one that runs from April to the following March. For the production year 2020 the data were calculated up to 31/12/2020.

Tab. 2.4.1 Certificates needed to comply with the obligation

Year of obligation	Actual Obligations Total Distributors (Mtep/a)	Actual Obligations Electricity Distributors (Mtep/a)	Actual Obligations Gas Distributors (Mtep/a)	Cumulative total for fulfilment (Mtep)	Certificates issued from the launch of the mechanism (Mtep)	Delta Certificates issued-Obbligation (Mtep)	Certificates issued January-May** (Mtep)	Available Certificates at the end of the year (GSE net account) (Mtep)
2005	0.16	0.10	0.06	0.16				
2006	0.31	0.19	0.12	0.47				
2007	0.64	0.39	0.25	1.11	1.79	0.68	0.52	1.31
2008	2.20	1.20	1.00	3.31	3.73	0.42	1.14	2.62
2009	3.20	1.80	1.40	6.51	6.63	0.12	1.42	3.45
2010	4.30	2.40	1.90	10.81	9.64	-1.17	1.64	4.05
2011	5.30	3.10	2.20	16.11	14.74	-1.37	3.32	5.62
2012	6.00	3.50	2.50	22.11	20.69	-1.42	3.46	6.00
2013	5.51	3.03	2.48	27.62	28.17	0.55	4.19	7.75
2014	6.75	3.71	3.04	34.37	34.65	0.28	2.38	7.66
2015	7.75	4.26	3.49	42.12	40.04	-2.08	2.32	7.14
2016	9.51	5.23	4.28	51.63	47.57	-4.06	3.61	8.27
2017	5.34	2.39	2.95	56.97	53.62	-3.35	2.62	5.47
2018	5.57	2.49	3.08	62.54	58.72	-3.82	2.23	4.45
2019	6.20	2.77	3.43	68.74	63.83	-4.91	1.38	4.49
2020	7.09	3.17	3.92	75.83	65.21*	-10.62	1.19*	2.03*

*The data is calculated on the basis of the estimate of the number of available certificates published by the GSE in the Rapporto Annuale Certificati Bianchi 2020.

**Number of certificates issued between January and May of each year of obligation.

Fig. 2.4.1 Available certificates and obligations

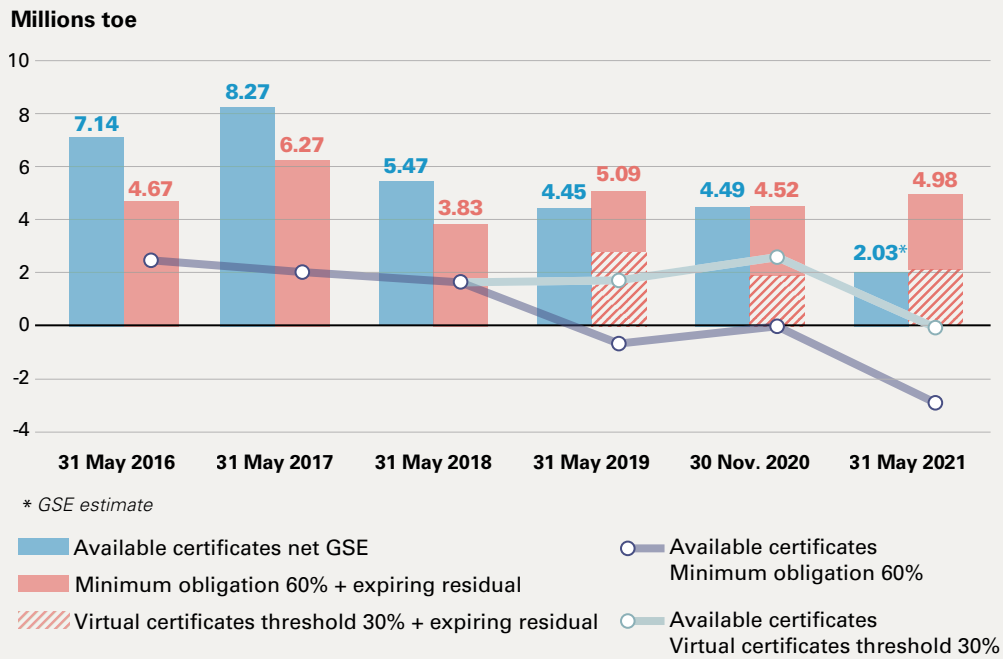


Fig. 2.4.2 Volumes traded - TEE

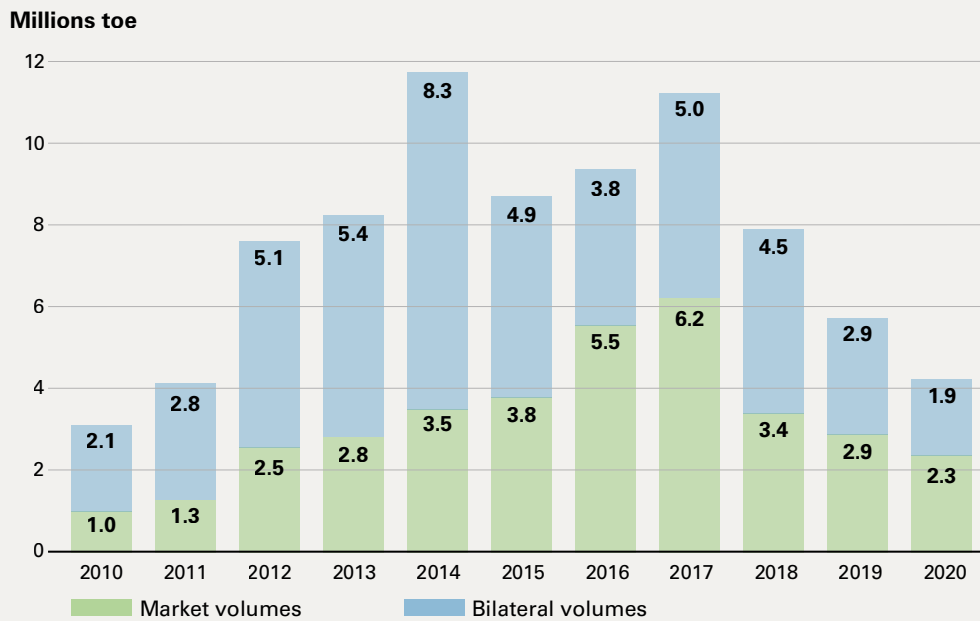


Fig. 2.4.3 TEE prices. Annual average

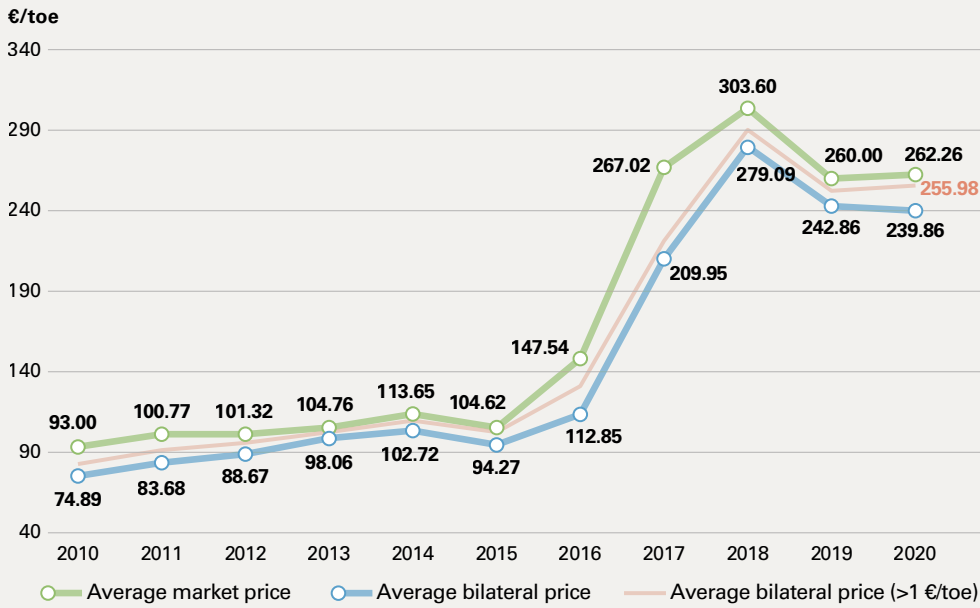


Fig. 2.4.4 MTEE price session trend. Year 2020

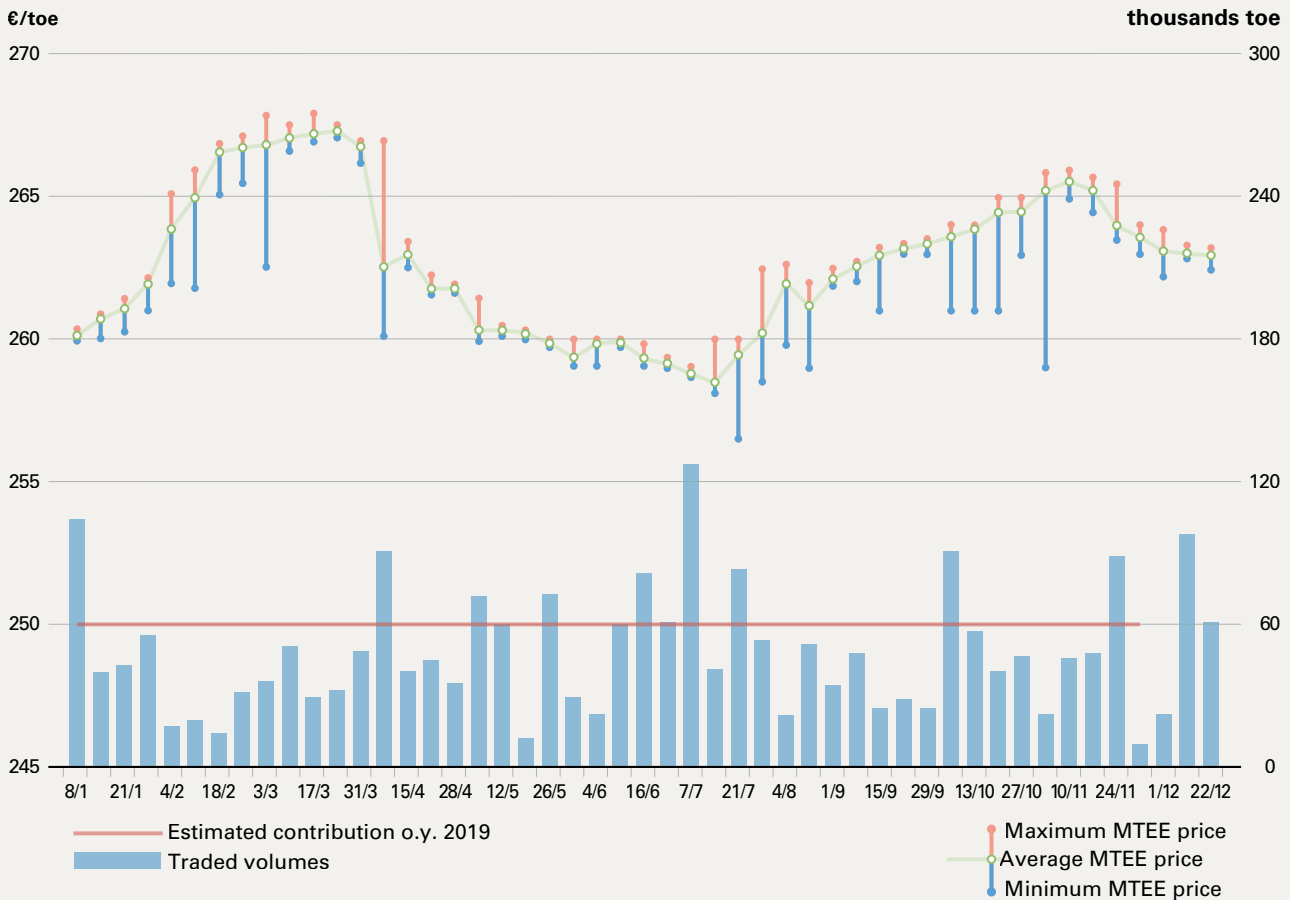


Fig. 2.4.5 Price volatility - TEE

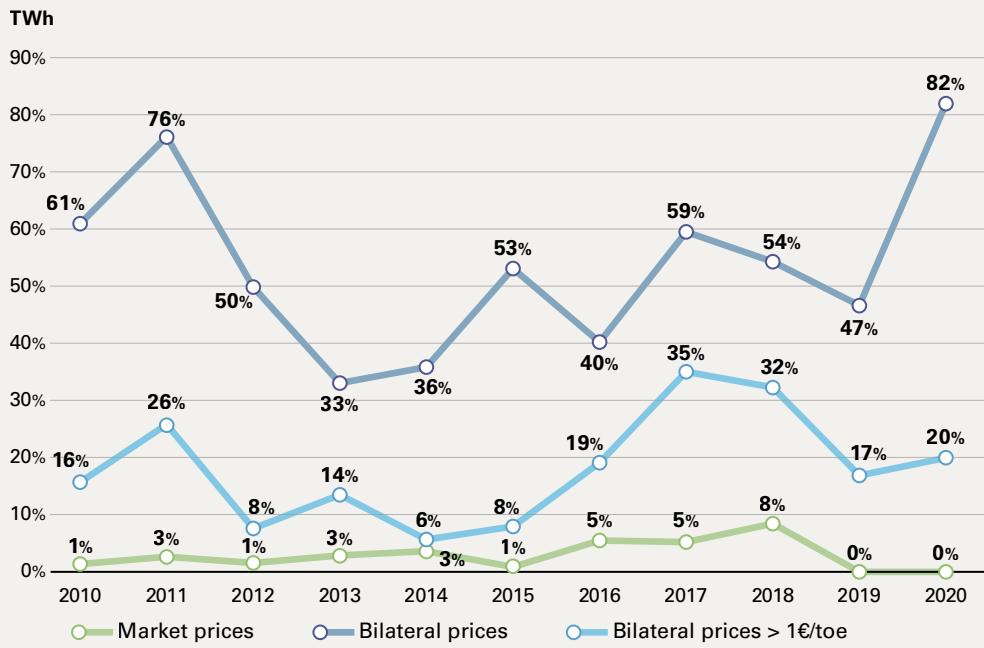


Fig. 2.4.6 Market concentration

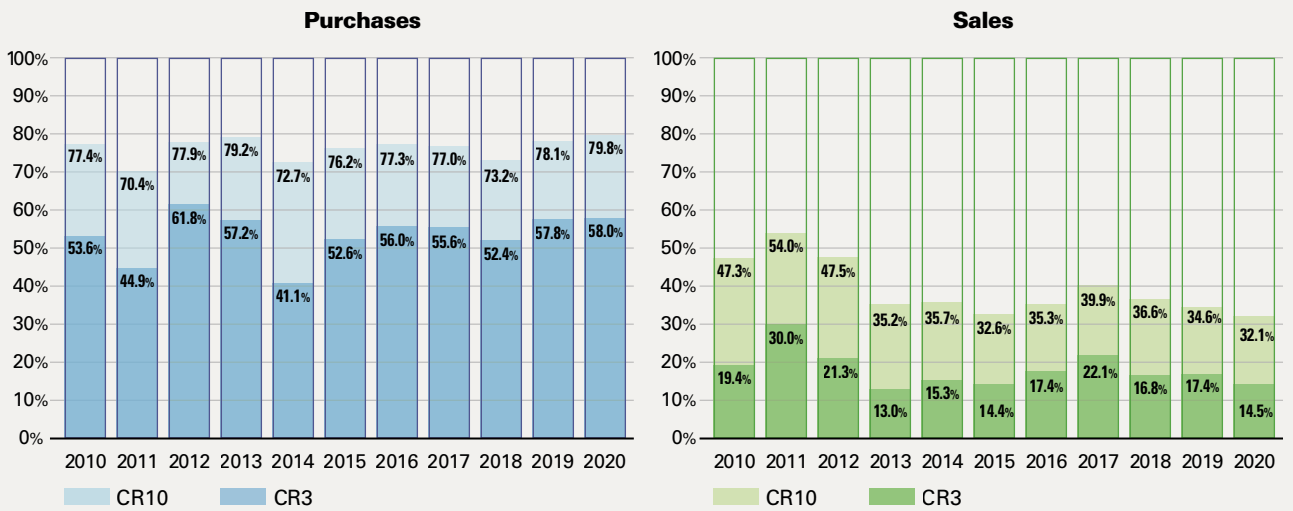


Fig. 2.4.7 GO - Volumes traded

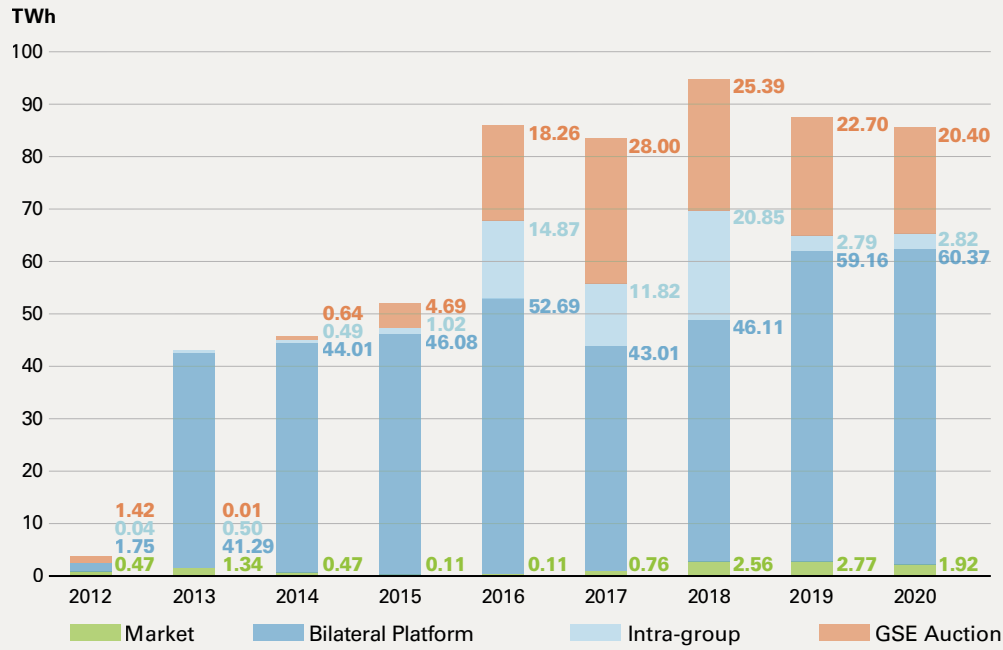


Fig. 2.4.8 Structure of volumes traded by year of production

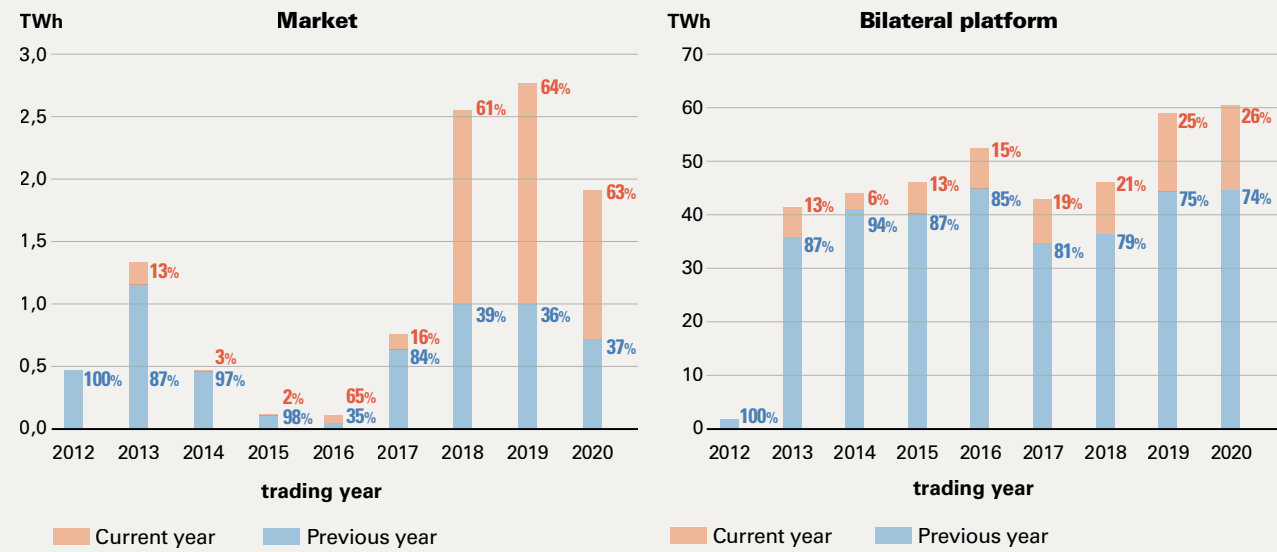


Fig. 2.4.9 GO prices. Annual average

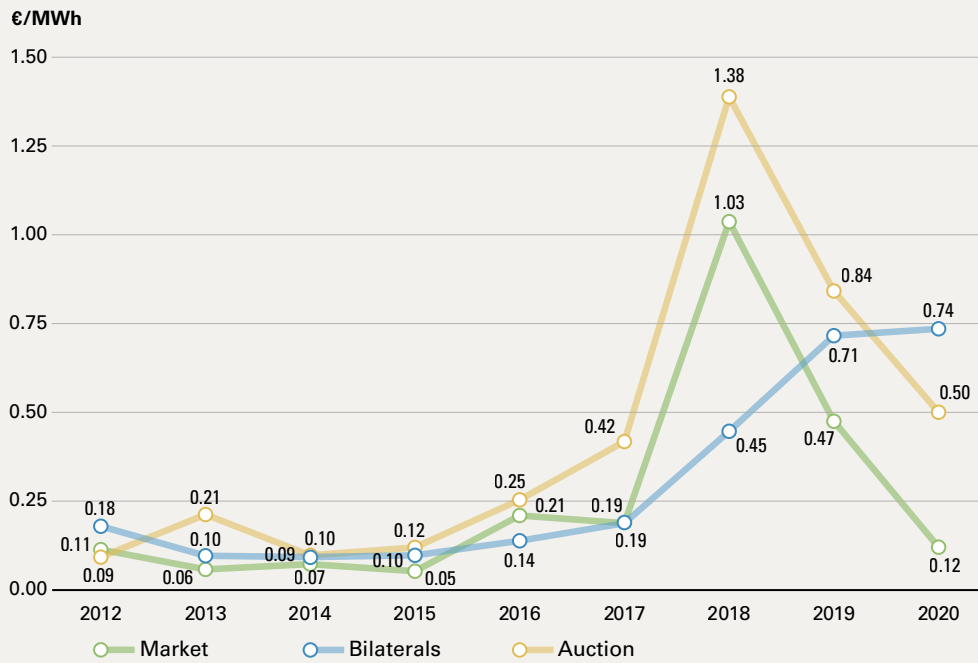
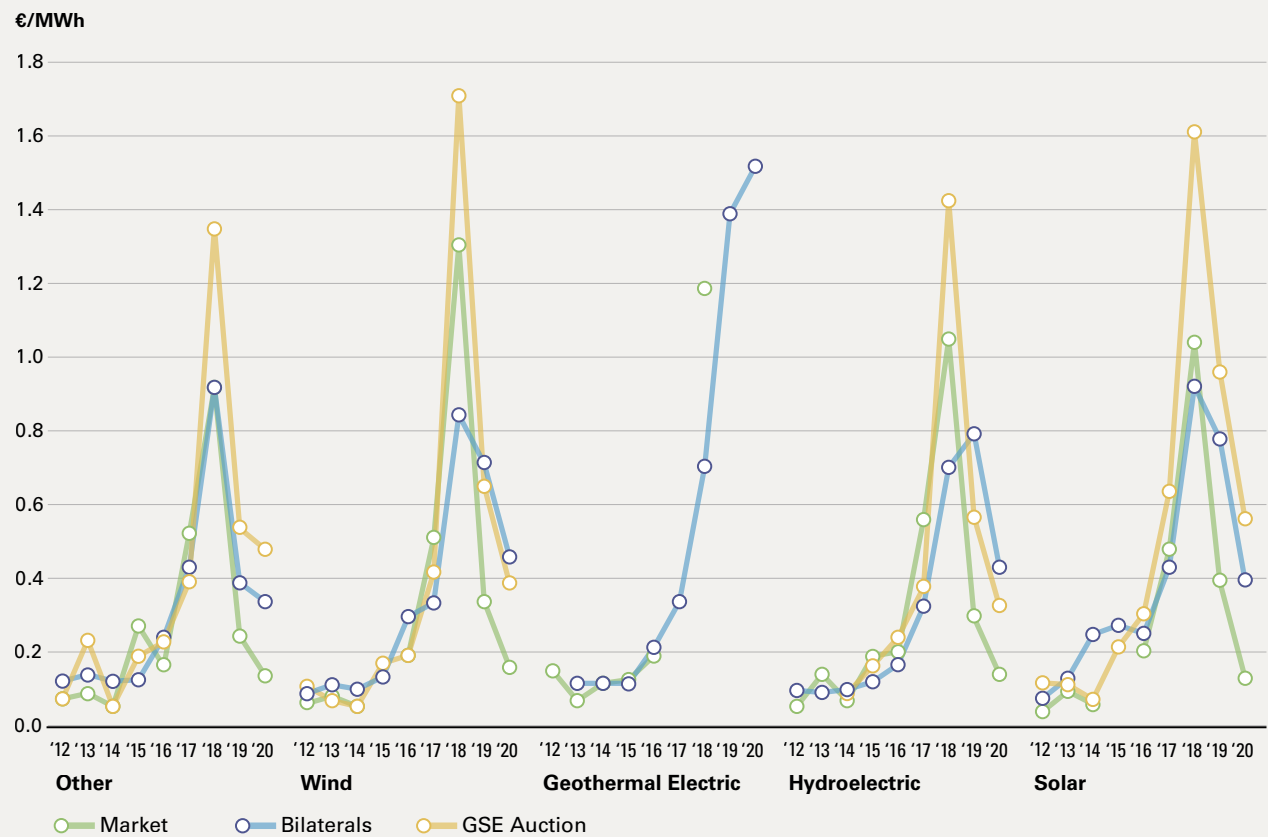
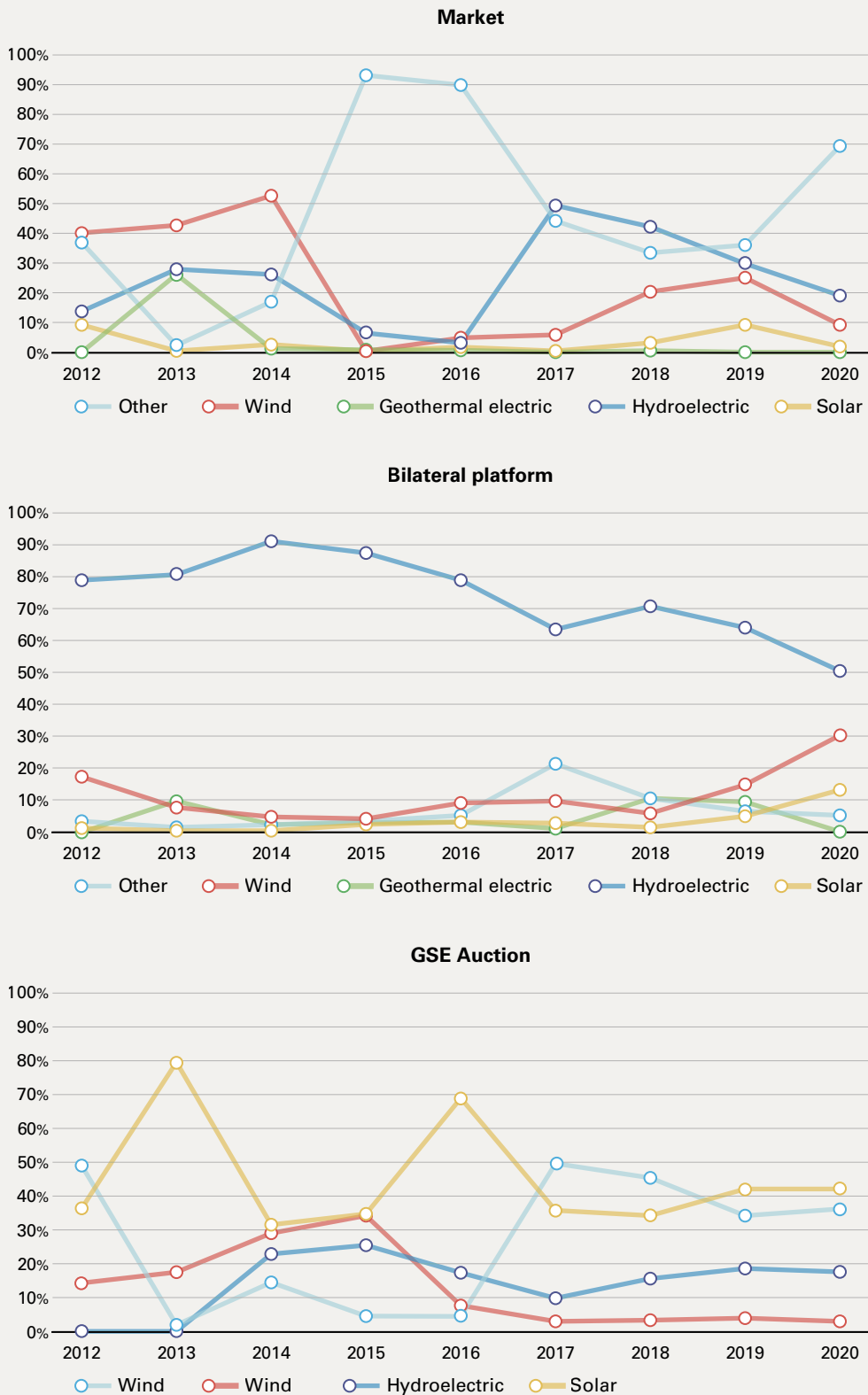


Fig. 2.4.10 GO prices by type and year of production⁴²



⁴² The data relating to the year of production 2020 are calculated as of 31/12/2020.

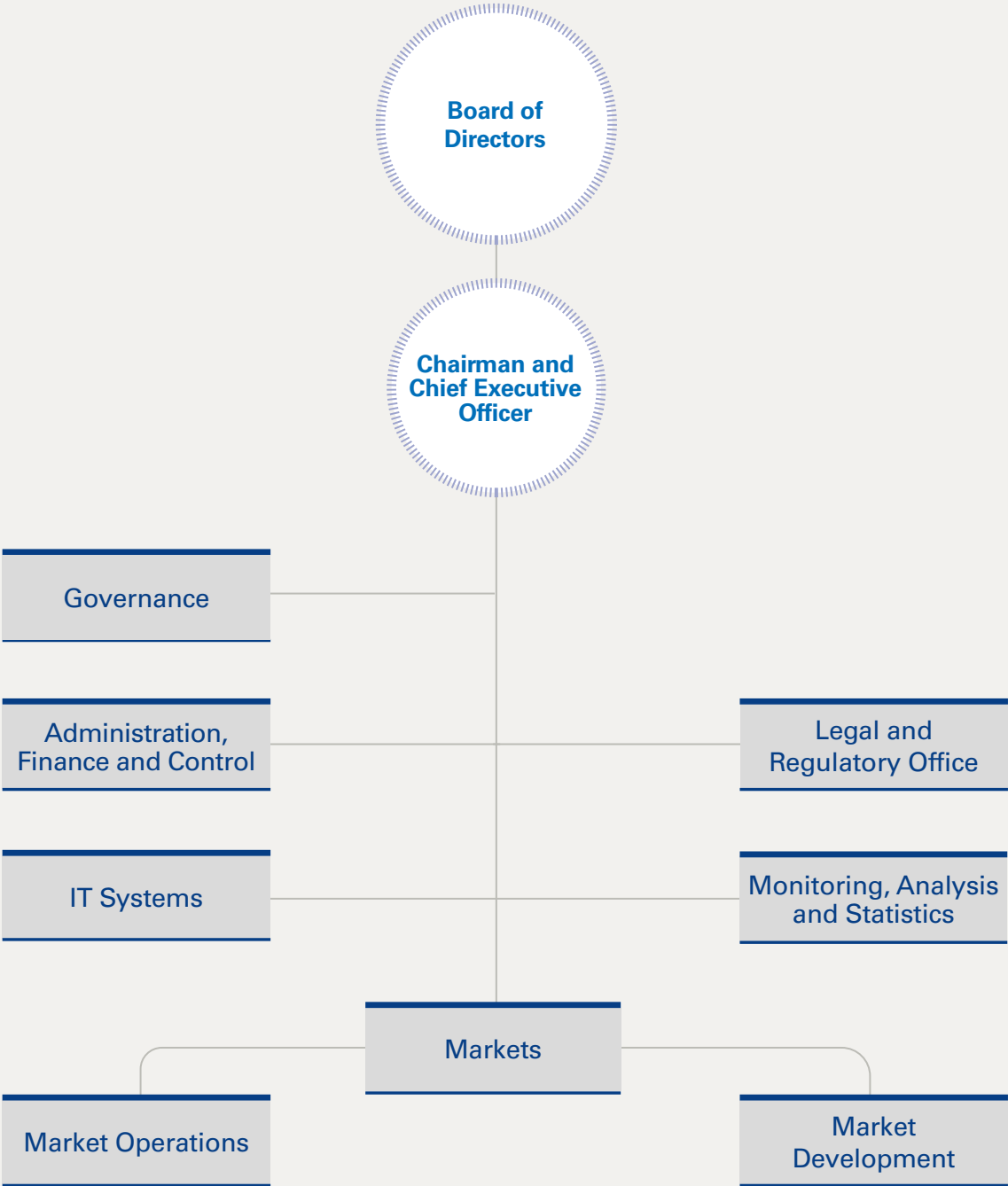
Fig. 2.4.11 Structure of volumes traded. Year of production⁴³



⁴³ The data are calculated as of 31/12/2020.

Appendix 1

GME
organisational
structure



Appendix 2

Market rules



Market rules

	ELECTRICITY MARKET			GAS MARKET			
	MPE	MTE	PCE	MGP-GAS MI-GAS	MGS	MPL	MT-GAS
Participation	Voluntary on the MGP, MI and MPEG Mandatory on MSD	Voluntary	Voluntary	Voluntary	Voluntary	Voluntary	Voluntary
Requirements for admission to markets and participation in trading (*)	Ownership of an energy account to deliver a net position required	Ownership of an energy account to operate	Only dispatching users and persons authorised by them	Need to be a PSV user to operate	Need to be a PSV and storage services user to operate	Need to be a PSV user and to be entitled to submit offers at point of offers of the transport network to operate	Need to be a PSV user to operate
Traded product	Hours MGP MI1: 1-24 MI2: 1-24 MI3: 4-24 MI4: 8-24 MI5: 12-24 MI6: 16-24 MI7: 20-24 MPEG Daily (with baseload and peakload profile)	Annual, Quarterly, Monthly (with baseload and peakload profile)	OTC Contracts	Daily	Daily	Daily	BoM, Monthly, Quarterly, Half-yearly, Annual (both thermal and calendar)
Trading methods	Auction on MGP, MI and MSD Continuous trading on MPEG	Continuous trading	Bilateral trading	Continuous trading/ Auction (AGS)	Auction	Auction	Continuous trading
Price rule	Marginal zonal price on MGP and MI Pay as bid on MPEG and MSD	Pay as bid	N/A	Pay as bid/ Marginal price (AGS)	Marginal price	Marginal price	Pay as bid
Guarantees	Bank guarantee and/or cash deposit		Bank guarantee. Cash deposit only in cases of necessity and urgency	Bank guarantee and/or cash deposit	Bank guarantee and/or cash deposit	Bank guarantee and/or cash deposit	Bank guarantee and/or cash deposit
Central counterparty	GME on MGP, MI and MPEG Terna on MSD	GME	GME (only for CCT)	GME	GME (from 1 st April 2017)	GME (from 1 st April 2017)	GME
Payments	W+1 (from 1 st December 2016) for MGP and MI M+2 for MPEG	M+2	W+1 (from 1 st December 2016)	W+1 for transactions (from 1 st September 2016) M+3 for the closure of non-delivered positions	W+1 for transactions M+ for the closure of non-delivered positions	W+1 for transactions M+ for the closure of non-delivered positions	W+1 for transactions (from 1 st September 2016) M+3 for the closure of non-delivered positions

(*) The requirements for participation in the markets are indicated in the rules and regulations of the each market.

PGAS			MTEE	MGO	MCIC	PAR
Import	Virtual storage	Royalties				
Mandatory (sales side)	Mandatory (sales side)	Mandatory (sales side)	Voluntary	Voluntary	Voluntary	Voluntary
PSV users subject to the obligation to bid for import shares	PSV users participating in the virtual storage service	PSV users subject to the obligation to bid by royalties	Need to register an account in the TEE Register for trading on the MTEE	Need to register an account in the GOs Register for trading on the MGO	Need to register an account in the CIC Register	Users enabled at the regasification terminal
Monthly, Annual Termici	Monthly, Half-yearly	Monthly	Single order book for unified type (1 TOE)	Certificate by type of source (1MWh)	Certificate by type of source (1 CIC)	Annual and multi-year capacity Capacity during the progress thermal year; Residual capacity thermal year; regasification capacity no longer transferable to auction
Continuous Trading	Continuous Trading	Auction	Continuous Trading	Continuous Trading	Continuous Trading	Auction/FCFS
Pay as bid	Pay as bid	Marginal price	Pay as bid	Pay as bid	Pay as bid	Pay as bid/ Marginal price
Defined by each selling participant	Defined by each selling participant	Defined by each selling participant	Cash deposit to cover total purchases	Cash deposit to cover total purchases	Cash deposit to cover total purchases	NA
N/A Invoicing and payments between participants	N/A Invoicing and payments between participants	N/A Invoicing and payments between participants	GME	GME	GME	Terminal of regasification
Deadline defined by each selling participant	Deadline defined by each selling participant	Deadline defined by each selling participant	D+3	D+3	D+3	Terminal of regasification

Appendix 3

Statistical data



Table 1 Traded volumes

TWh	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Change '20/'19
ELECTRICITY MARKETS												
MGP	318.56	311.49	298.67	289.15	281.98	287.13	289.70	292.20	295.56	295.83	280.18	-5.5%
Exchange	199.45	180.35	178.66	206.90	185.85	194.59	202.82	210.92	212.93	213.26	209.83	-1.9%
Bilaterals	119.11	131.15	120.00	82.25	96.13	92.54	86.88	81.28	82.63	82.56	70.35	-15.0%
MI	14.61	21.87	25.13	23.34	22.79	24.92	28.01	25.35	25.38	26.37	24.91	-5.8%
MI1	9.47	14.47	15.99	12.80	12.23	12.91	15.04	13.81	13.35	12.73	11.39	-10.8%
MI2	5.15	5.38	6.21	6.07	6.47	6.15	6.97	5.45	4.53	4.44	4.58	2.9%
MI3		1.22	1.72	2.00	2.01	2.39	2.50	2.38	3.34	4.19	3.65	-13.4%
MI4		0.80	1.21	2.47	2.09	1.22	1.20	0.78	0.93	1.20	1.34	11.9%
MI5						2.24	2.31	1.12	1.15	1.40	1.31	-6.5%
MI6								1.47	1.59	1.82	1.96	7.8%
MI7								0.34	0.48	0.61	0.68	11.0%
MTE	6.29	33.44	54.96	41.10	32.27	5.09	1.07	1.36	1.19	1.64	0.77	-53.0%
Exchange	6.29	31.67	30.36	8.00	18.40	5.09	1.07	1.36	1.19	1.64	0.77	-53.0%
OTC clearing		1.77	24.60	33.10	13.87							
MPEG							0.00	3.93	3.16	0.70	0.72	+2.8%
PCE*	236.48	290.82	307.61	325.50	345.72	354.47	342.14	302.83	311.57	291.74	265.14	-9.1%
GAS MARKETS												
MGAS	0.00	0.16	0.17	0.02	0.10	1.01	10.69	43.92	55.16	82.17	113.79	+38.1%
MGP-NC	0.00	0.15	0.14	0.01	0.00	0.00	0.33	3.28	13.01	24.56	30.08	+22.1%
MGP-AGS											25.72	
MI-NC		0.01	0.04	0.00	0.10	1.01	7.09	23.83	27.86	41.05	46.70	+13.4%
MI-AGS											4.36	
MGS							3.27	16.63	13.50	13.37	6.45	-51.9%
MPL												
MTGAS								0.19	0.79	3.19	0.48	-85.1%
PB-GAS		1.71	34.93	40.88	41.52	48.19	36.79					
Segment G+1		1.71	34.93	40.83	38.58	40.86	30.57					
Segment G-1				0.05	2.94	7.33	6.22					
P-GAS	2.14	2.91	2.87	0.62				1.95	2.43	0.44		-100.0%
Import	0.00											
Former Legislative Decree 130/10												
Royalties	2.14	2.91	2.87	0.62				1.95	2.43	0.44		-100.0%
ENVIRONMENTAL MARKETS												
CV	25.37	31.09	32.33	44.81	43.05	36.78	9.23					
Exchange	2.58	4.13	3.81	7.57	8.20	6.95	1.26					
Bilaterals	22.79	26.97	28.52	37.25	34.85	29.84	7.98					
TEE	16.51	21.91	40.73	44.04	62.88	46.67	50.15	60.04	42.30	30.60	22.48	-26.5%
Exchange	5.24	6.83	13.56	15.06	18.66	20.21	29.64	33.26	18.03	15.27	12.55	-17.8%
Bilaterals	11.27	15.08	27.17	28.98	44.22	26.45	20.52	26.78	24.27	15.33	9.93	-35.2%
GO			2.22	42.63	44.48	46.18	52.80	43.77	48.67	61.93	62.29	+0.6%
Exchange			0.47	1.34	0.47	0.11	0.11	0.76	2.56	2.77	1.92	-30.6%
Bilaterals			1.75	41.29	44.01	46.08	52.69	43.01	46.11	59.16	60.37	+2.0%
MCIC**											421	

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

**The data is expressed in number of CICs.

Table 2 Registered participants

Registered partic. no*	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Change '20/'19
ELECTRICITY MARKETS												
IPEX	207	192	200	223	254	264	245	258	269	282	280	-2
PCE	205	208	259	287	317	321	321	331	332	350	345	-5
GAS MARKETS												
MGAS	20	33	42	66	71	88	158	179	186	201	207	+6
PB-GAS		60	65	74	86	96	107					
P-GAS	53	61	72	77	78	80	86	85	85	80	80	
ENVIRONMENTAL MARKETS												
MCV**	620	675	745	852	901	908	911					
PBCV**	969	1,082	1,177	1,381	1,466	1,509	1,509					
MTEE	334	379	447	588	838	1,055	1,281	1,499	1,558	1,623	1,673	+50
TEE Reg.	421	513	635	866	1,196	1,469	1,775	2,155	2,307	2,409	2,529	+120
MGO			180	262	291	299	325	396	469	651	709	+58
PBGO			219	324	359	374	405	509	713	1,022	1,225	+203
MCIC											19	+19

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

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

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