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THE INTERNATIONAL AGENCY FOR THE COOPERATION OF
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AND THE EUROPEAN COMMISSION
ON THE REGULATORY ACTIVITIES AND FULFILMENT
OF DUTIES OF THE ITALIAN REGULATORY AUTHORITY FOR
ENERGY, NETWORKS AND ENVIRONMENT

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1 FOREWORD

This document, drawn up by the Italian Regulatory Authority for Energy Networks and Environment, provides the European Union Agency for the Cooperation of Energy Regulators (ACER) and the European Commission with an annual report on the activity carried out and on the execution of regulatory tasks pursuant to Articles 59.1.i) and 41.1.e) of directives 2019/944/EC and 2009/73/EC respectively.

The consolidated structure of the report was shared with ACER and with the European Commission's Directorate General for Energy, so that the Italian situation presented in this document can be easily compared with similar reports from other Member States.

In 2021, for reasons with which we are all familiar, the issue of security of supply took centre stage once again, calling for the strengthening of three fundamental instruments, such as demand reduction, diversification of supply routes, and a decisive boost to the development of renewables.

In this period of unprecedented market conditions, there has been and continues to be a frequent call for European and national regulation to identify instruments that can mitigate the significant impacts of energy costs on companies and consumers.

The role of regulators in times of emergency is also to provide a technical viewpoint on critical issues. Strengthening the level of integration of European energy markets and facilities, a careful analysis of the functioning of the markets and the effectiveness of price risk hedging instruments are all pathways to be taken in a coordinated way at European level. Without forgetting to look at successfully tested solutions outside the European Union.

The upgrading of interconnections, the further integration of balancing markets, and the reinforcement of solidarity mechanisms appear to be the medium-term countermeasures on which an increased extraction of efficiency from our energy systems to external stresses can be based.

Milan, 2 August 2022

THE CHAIRMAN

Stefano Besseghini

2 MAIN DEVELOPMENTS IN THE ELECTRICITY AND NATURAL GAS MARKETS

2.1.1 Evaluation of market development and regulation

Main changes in Italian legislation

The year 2021 was also characterised by intense legislative activity, caused by the continuation of the Covid-19 epidemiological emergency and the need to cope with its negative effects, as well as the sudden increase in energy prices. The main measures of the year relating to the energy sectors are summarised below.

From a legislative point of view, the year began with Law No. 21 of 26 February 2021 converting (with amendments) Decree-Law No. 183 of 31 December 2020, which, first of all, **further postponed to 1 January 2023 the termination of price protection regimes** for household customers and micro-companies in the natural gas and electricity sectors. The measure also regulated the timing and procedures for the consultation of the territories involved in the National Map of Areas Potentially Suitable for the Location of the National Repository for Radioactive Waste and Technology Park¹, and set 30 September 2021 as the deadline for the adoption of the Plan for the Sustainable Energy Transition of Suitable Areas (PiTESAI), which aims to identify the areas for the conduct of hydrocarbon prospection, exploration and production activities on national territory, enhancing their environmental, social and economic sustainability.

Decree-Law No. 22 of 1 March 2021 on 'Urgent provisions on the reorganisation of the functions of the Ministries', converted, with amendments, into Law No. 55 of 22 April 2021, **established the Ministry for Ecological Transition**, to which energy-environmental competences were transferred, which were previously divided between the Ministry of Economic Development and the Ministry of Environment and the Protection of Land and Sea. Among others, the following functions are assigned to this Ministry: definition of the objectives and lines of national energy and mining policy (authorisation of energy production plants under state jurisdiction, including those from renewable sources, relations with international organisations and relations with the European Union in the energy sector, including the transposition and implementation of programmes and directives on the single European energy market); implementation of the processes of liberalisation of the energy markets and promotion of competition in the energy markets and protection of the cost-effectiveness and safety of the system; identification and development of national electricity and natural gas transportation networks and definition of guidelines for their management; management of energy stocks as well as preparation and implementation of energy emergency plans; nuclear safety and regulation of storage systems for irradiated fuel and radioactive waste; agro-energy; collection, processing, analysis and dissemination of statistical data on energy and mining; plans and measures relating to alternative fuels and related distribution networks and facilities for recharging electric vehicles; environmental conservation, including through technologies for reducing greenhouse gas emissions.

Decree-Law No. 41 of 22 March 2021, on 'Urgent measures in support of businesses and economic

¹ According to Italian law, a Technology Park will be built along with the National Repository. It will include a centre for applied research and training, open to international collaboration, where studies in the field of decommissioning nuclear installations, radioactive waste management, radiation protection and environmental protection will be carried out.

operators, labour, health and territorial services, connected to the Covid-19 emergency' (so-called DL Sostegni), converted, with amendments, into Law No. 69 of 21 May 2021, represents the **first legislative intervention** taken to contain the consequences of the upward trend in commodity prices on energy bills.

Article 6 of the measure under review provided for a reduction in the expenditure incurred by electricity users connected to low-voltage grids other than those for household use, for the months of April, May and June 2021, up to a maximum limit of Euro 600 million. In detail, the regulation provided for the reduction of the bill items 'transport and meter management' and 'general system charges' so that:

- a saving was foreseen, benchmarked to the value in force in the first quarter of the year, of the fixed tariff components applied per withdrawal point;
- for only those customers with an available power output of more than 3.3 kW, the actual expenditure relating to the two items does not exceed that which, under the tariffs applied in the first quarter of the year, would have been obtained by assuming a volume of energy withdrawn equal to that actually recorded and a committed power level conventionally set at 3 kW.

As part of the conversion into law of Decree-Law No. 52 of 22 April 2021, setting forth 'Urgent measures for the gradual resumption of economic and social activities in compliance with the needs to contain the spread of the Covid-19 epidemic' (converted, with amendments, by Law No. 87 of 17 June 2021), **the temporary regime on the exercise of special powers was extended to 31 December 2021** (so-called golden power²), in order to safeguard the ownership structures of companies operating in sectors deemed strategic and of national interest, including energy. In particular, the scope of the obligation to notify the purchase of investments and the related powers exercisable by the government (imposition of commitments and conditions and opposition to the purchase) has been extended.

Decree-Law No. 73 of 25 May 2021, entitled 'Urgent measures related to the Covid-19 emergency, for companies, work, young people, health and territorial services', converted, with amendments, by Law No. 106 of 23 July 2021, constitutes the **second legislative intervention** taken to contain the consequences of the upward trend in commodity prices on energy bills. The decree, in fact, **extended** (article 5) **until July 2021 the reduction, within the spending limit of Euro 200 million, of the expenditure incurred by electricity users connected to low voltage lines**, other than households, with reference to the bill items 'transport and meter management' and 'general system charges', provided for by article 6 of the so-called DL Sostegni.

Article 5-bis, paragraph 1, also contains a limitation of the adjustments to the electricity sector tariffs set by the Authority for the third quarter of 2021:

- **earmarked Euro 609 million** (share of the proceeds from the auctioning of CO₂ emission quotas under the responsibility of the Ministry for Ecological Transition and the Ministry of Economic

² The term 'golden power' refers to a set of special powers exercisable by the government in order to safeguard the ownership structures of companies operating in areas deemed strategic and of public and national interest. In the event of a 'potential threat of serious prejudice' to public interests, the Government, taking into account the principles of proportionality and reasonableness, may therefore intervene, through: opposition to the acquisition of investments; vetoing the adoption of company resolutions; imposing specific requirements and conditions. The aim is to counter any speculative operations in particularly difficult times for Italian public and private companies, always in compliance with European regulations to protect competition.

Development) **to support measures to encourage renewable energy and energy efficiency**, which are covered by energy tariffs;

- transferred Euro 591 million to the Energy and Environmental Services Fund (CSEA).

On 13 October 2021, **the Parliamentary Commission of Inquiry on Consumer and User Protection was established.**

With Decree-Law No. 130 of 27 September 2021 on 'Urgent measures to mitigate the effects of price increases in the electricity and natural gas sector', converted, with amendments, by Law No. 171 of 25 November 2021, the Government and Parliament adopted **measures, totalling Euro 3.5 billion (including a reduction in VAT on gas), to mitigate the effects of price increases for electricity and natural gas for 29 million households, as well as for 6 million 'non-household' electricity users**, mostly micro and small companies, but also **to completely neutralise price increases for social bonus holders**. In the electricity sector, the allocation, also for the fourth quarter of 2021, of additional resources, amounting to Euro 2 billion, allowed the Authority to completely cancel the rates of general system charges for all households and for non-households, for other uses, with available power up to 16.5 kW, as well as to confirm the level of the tariff components relating to general system charges, already practically halved in the third quarter of 2021, for all other electricity users (article 1, paragraphs 1 and 2). In the natural gas sector, the extraordinary allocation of Euro 480 million allowed the Authority to cancel, for the fourth quarter of 2021, for all users, the rates of the components relating to general system charges in the gas sector, to cover the promotion of energy efficiency (RE/RE_T components), equalisation recoveries for operators of services of last resort (UG₃ component) and the social gas bonus (GS/GS_T components) (article 2, paragraph 2). Added to this is the intervention on VAT rates for natural gas (article 2, paragraph 1), both of which were lowered to 5% for all types of users. Lastly, by virtue of the provisions of article 3 of the measure under analysis, the Authority has extraordinarily redetermined, for the fourth quarter of 2021, the facilitations on electricity and gas tariffs granted to households in a situation of economic hardship and to those in serious health conditions, in addition to those already defined for the year 2021, thanks to the allocation of an additional Euro 450 million. As already noted, with this allocation it was possible to completely neutralise, for social bonus customers, the fourth quarter increases for both electricity and natural gas.

As part of the conversion into law of Decree-Law No. 152 of 6 November 2021, setting forth 'Urgent provisions for the implementation of the National Recovery and Resilience Plan (PNRR) and for the prevention of Mafia infiltration' (converted into Law No. 233 of 29 December 2021), art. 16-ter, par. 1 was adopted, which established that, **starting from the date of termination of the enhanced protection service for households (1 January 2023), on a transitional basis and pending the performance of the competitive procedures for the assignment of the gradual standard offer sales service, households continue to be supplied with electricity by the enhanced protection service**, in accordance with the guidelines defined by decree of the Minister for Ecological Transition. Paragraph 2 of the same article **entrusted the Authority with the task of adopting provisions** to ensure the assignment of the gradual standard offer service for households, through **competitive procedures to be concluded by 10 January 2024**, guaranteeing the continuity of electricity supply. Paragraph 3 provided that, in the **event that on 1 January 2023 the measures have not been adopted** as provided for in Legislative Decree No. 210/2021 on the internal electricity market with respect **to vulnerable customers and customers in energy poverty, the enhanced protection service would continue to apply** to the aforementioned customers in accordance with the guidelines defined in the decree of the Minister for Ecological Transition. Paragraph 4 removed the

subordination of the obligation on the part of suppliers to offer the supply of electricity at a price reflecting the cost of energy in the wholesale market, the efficient costs of the marketing service and the contractual conditions and quality of service, as defined by the Authority, to the request of the eligible vulnerable customer. Paragraph 5, for the purpose of identifying vulnerable customers, also entrusted the Authority with the task of defining with its own measures, in agreement with the Italian Data Protection Authority, the procedures for acquiring consent for the processing of sensitive data and for the transmission of information by INPS³ to the Integrated Information System managed by the Single Buyer. Again, article 19-bis provided for urgent measures to support the production of energy from renewable sources.

Law No. 234 of 30 December 2021, 'Forecast State Budget for the financial year 2022 and Multi-annual Budget for the three-year period 2022-2024', introduced numerous provisions concerning the sectors in which the Authority carries out its regulatory and supervisory activities. Paragraphs 503 to 512 provided for **measures to contain the increase in energy bills in the first quarter of 2022**. The allocation of approximately Euro 3.8 billion was distributed as follows: Euro 1.8 billion for measures on general system charges for electricity use of households and non-households (with available power up to 16.5 kW); VAT at 5% on methane gas supplies for household and industrial use, resulting in an estimated revenue loss of Euro 608 million; a reduction of Euro 480 million, again for the first quarter, in general gas charges; an increase in the social bonus amounting to Euro 912 million. **The possibility is provided for household customers to pay in instalments the amounts invoiced in bills issued between 1 January and 30 April 2022**, over a period of 10 months, without interest. The Authority, within the limit of Euro 1 billion, also defines a mechanism for the advance payment of the instalment amounts (disbursed by CSEA) in favour of sellers, if the amount of the instalment bills represents more than 3% of the amount of those issued to those entitled to the instalment plan. The Authority must also define the terms for the settlement or repayment by sales operators of the advance received, so as to allow the recovery by CSEA of 70% of the advance by December 2022 and the remainder by 2023.

Paragraph 514 amended the regulation of the **National Energy Efficiency Fund**, providing for a reserve of resources for the disbursement of non-repayable grants, up to a total limit of Euro 8 million per year, starting from the year 2022. Paragraph 392 **established the Fund for Sustainable Mobility Strategy** with an endowment of Euro 2 billion for actions needed to combat climate change and reduce emissions for the implementation of the European 'Fit for 55' strategy.

Also approved was Decree-Law No. 228 of 30 December 2021, containing 'Urgent provisions on legislative deadlines', converted into Law No. 15 of 25 February 2022, which, in art. 11, par. 4, **extends to 31 December 2026 the benefits recognised to energy-intensive companies for the commitment to finance the construction of certain interconnection lines with foreign countries**, and delegates to the Authority the updating of the resolutions containing the list of foreign countries in whose markets the assignees may purchase electricity subject to the virtual import service.

Lastly, it is necessary to highlight the approval by the Council of Ministers, on 4 November 2021, of the bill on the "Annual Law for the Market and Competition 2021", which contains a number of provisions of relevant interest for the Authority's activity, such as: art. 4, on natural gas distribution concessions; art. 5, on the subject of concessions for large-scale hydroelectric derivation; art. 6, which delegates the Government to adopt a legislative decree to reorganise the subject of local public services, also through the adoption of a special single text, defining the principles and guiding

³ In Italy, the National Social Security Institute (INPS) manages the database of the Equivalent Economic Situation Economic Indicator (ISEE), which is the indicator that allows the granting of bonuses for electricity and gas.

criteria.

Developments in the electricity market

Main changes in regulation

In May 2021, the Authority ended the trial of self-auditing procedures on functional unbundling for 10 companies that had been introduced in June 2015⁴. Closing the trial phase, the Authority provided that possible updates to the self-auditing procedures and permissible control forms may be ordered by the Authority from 2022 onwards on the basis of future regulatory developments in this area and the Authority's enforcement needs.

In Italy, **electricity transmission** is carried out by approximately 5,250 km of power lines and circuits and 910 switching and conversion stations. The operator of the National Transmission Grid (TSO) is the company Terna, 29.85% owned by the Italian state (through CDP Reti). The remaining 70.15% of the capital belongs to the market. In 2021, the number of companies owning National Transmission Grid (RTN) assets became 8, compared to 11 the previous year, due to the incorporation of the assets of some companies into those of the Terna Group. Considering the assets of all the companies belonging to the corporate group, in 2021, the Terna Group will own 99.9% of the national power lines.

In August 2021, the Authority launched the **consultation on the outline of the 2021 Development Plan** of the National Transmission Grid, which expired on 19 October 2021. Among the documents submitted for public consultation, a Terna report with a cost-benefit analysis and other insights on the Sicily-Campania HVDC link (East Link) was made available. Eleven parties (business associations and major national operators) submitted comments on the draft Plan, which have been made publicly available, together with Terna replies and counter-observations.

The Authority monitored the implementation of the previous Development Plans and carried out consistency checks between the National Development Plan and the Ten Year Network Development Plan 2020 of ENTSO-E, also sending its own contributions to ACER opinions no. 4-2021 of 3 May 2021 on the projects contained in the ENTSO-E 2020 Ten Year Network Development Plan and No. 5-2021 of 19 July 2021 on the National Development Plans. Furthermore, in line with the provisions of the European Trans-European Networks for Energy regulation, the Authority provided its assessments of candidate projects of common interest. Following the selection process, the European Commission published the fifth list of projects of common interest on 19 November 2021, which includes three interconnection projects in Italy between Italy and neighbouring countries (Corsica, Switzerland and Tunisia).

As at 31 December 2020, 125 **electricity distribution** companies were registered in the Authority Operators Registry, of which only 10 serve a number of customers exceeding 100,000. There are four companies with more than 500,000 withdrawal points: e-distribuzione (Enel group), Unareti (A2A

⁴ Resolution No. 296/2015/R/com of 22 June 2015 had provided, as a supplement to the regulation on functional unbundling, for the possibility for companies required to comply with said regulation to adopt, on a voluntary basis, self-auditing models, consisting of protocols of verifications and controls in addition to those required by the regulation, aimed at certifying the adherence of the vertically integrated company's management result to the purposes pursued by the functional unbundling obligations; the adoption of these models entails the possibility for the company to obtain from the Authority exemptions from one or more of the specific obligations provided for by the unbundling regulation.

group), Areti (Acea group) and Ireti (Iren group). Overall, electricity distribution in Italy takes place through 1,280,000 km of grids, most of which (69%) are low voltage. The company e-distribuzione (Enel Group) is the leading operator, with the dominant share of 85.5% of the distributed energy. In terms of **distribution quality**, there was a slight improvement in 2021 compared to 2020 for the average duration of outages per user and a slight deterioration for the average number of outages per user. However, the marked improvement in the duration and number of outages is confirmed compared to the three-year period 2017-2019, years in which the impact of exceptional weather events contributed substantially to the increase in the duration and number of outages. The duration of unannounced outages stands at 41 minutes nationwide, and the number of long and short unannounced outages (lasting between one second and three minutes) stands at 3.23 outages per low-voltage customer nationwide.

In implementation of the Integrated Text on output-based regulation of electricity distribution and metering services, in November 2021, the proceedings for the determination of premiums and penalties for the year 2020 for output-based regulation of the electricity distribution service were closed. With regard to the **regulation of the duration and number of unannounced outages, Euro 38.4 million in net premiums were paid out** (determined as the balance of premium and penalty amounts).

Based on the 2019 and 2020 electricity service continuity data, the Authority published in February and November 2021, respectively, the eighth and ninth national rankings of electricity distribution companies regarding the number and duration of outages; both rankings are available on the Authority's website. The published data confirms that the households and small electricity consumers benefiting from the improved service continuity are mainly located in northern Italy, in urban areas, and are served by distribution companies with mostly underground networks. Even for medium voltage industrial customers, the data show that the lowest number of outages occurs in the provinces of Northern Italy. The Authority's commitment to promoting, through a variety of initiatives, including incentives, the reduction of the gap between electricity service quality levels in Northern Italy and those in Southern Italy remains unchanged.

With regard to **requests for connection to high or extra-high voltage**, in the year 2021, Terna received a total of 1,945 connection requests for electricity production plants, corresponding to a total capacity of 150 GW. In relation to the requests received, it made available 952 quotations (corresponding to a total capacity of 56.6 GW), of which 495 were accepted; for two of these, corresponding to a capacity of 46.8 MW, a request was made to make available the Minimum Technical Solution of Detail (STMD). However, as at 31 December 2021, neither had been accepted. Therefore, the corresponding connections were neither realised nor activated during the year. As far as active connection requests to medium- and low-voltage grids are concerned, in 2021, the distribution companies received just under 143,000 connection requests for power generation plants, corresponding to a total capacity of about 13.5 GW, in relation to which they made available just over 124,200 quotations during the year, for a total capacity of about 7.8 GW. In relation to the requests received in 2021, almost 63,900 connections were made in the year, corresponding to about 0.6 GW, with average connection times, net of permitted interruptions, of: 23 working days, in the case of simple works, and 65 working days, in the case of complex works, while the average time for connection activation, net of permitted outages, was 9 working days. As far as the connections of passive users are concerned, the data collected show that 226,825 connections were made to the distribution networks in 2021, almost all of them in low voltage. For 70% of them, the supply was activated during the year. The average time to connect customers was 7.8 working days.

In November 2020, amendments were finalised to the **regulation of leakages on electricity**

distribution networks. In December 2021, the Authority placed for consultation the main proposals for further amendments to the framework for the years 2022 and 2023. The responses to the consultation showed in particular that in the period 2015-2020, the average percentage value of actual leakages in relation to the electricity withdrawn by all distribution companies was in constant decline, falling from 7.23% in 2015 to 7.01% in 2020; in 2020, for 78% of the main distribution companies (which distributed 99% of the total electricity withdrawn in that year), actual leakages were lower than those conventionally recognised. On the basis of this evidence, the Authority prefigured the reduction, as of 2022, of the conventional coefficients applied for equalisation purposes for commercial losses on low-voltage networks and the revision, as of 1 January 2023, of the conventional percentage leakage factor for low-voltage withdrawal points (currently 10.2%), setting it at 10%. In March 2022, the Authority, taking into account the comments of stakeholders in the consultation, made some changes to what was originally proposed. In particular, a more cautious path of containment of commercial losses was adopted, providing for a reduction from the values in force in 2021 for both 2022 and 2023. Additional measures were also introduced to mitigate the effects of the upward dynamic in energy prices.

The charges placed on the A₃ account for the year 2021, in connection with the **incentivisation of assimilated and renewable sources**, were significantly lower than in the previous year, falling from Euro 11,962 million to Euro 10,685 million. The reduction is largely attributable to the drastic increase in the Single National Price (PUN) recorded in the second half of the year, as a result of the strongly bullish trend in energy commodity prices. In fact, the increase in the PUN has a positive effect on the charges in the A₃ account pertaining to the same year, both because the revenues from the sale of subsidised energy increase and because certain types of subsidies decrease as the PUN increases. This increase has a positive impact, in perspective, also for the following year, especially in connection with the incentive update mechanism that replaced green certificates.

According to Regulation (EU) 943/2019, the implementation of capacity remuneration mechanisms presupposes, among other things, that there is an adequacy standard with regard to the value of the energy not supplied and the cost of the new entrant. Following ACER decision no. 23-2020 of 2 October, whereby the methodologies proposed by ENTSO-E in relation to the adequacy standard, the value of non-supplied energy and the cost of new entrants were approved with modifications, in December 2020, the Authority initiated proceedings to prepare a proposal to the Minister for Economic Development regarding the adequacy standard, requesting Terna to prepare a study on the values of the standard and the relative determining variables. With the decree of 28 October 2021, pursuant to Regulation (EU) 943/2019, the Minister for Ecological Transition **established the adequacy standard of the Italian electricity system** in line with the Authority's proposal, setting the target value for the electricity system adequacy indicator, expressed in terms of expected hours of load shedding, at **three hours/year**.

The final version of the National Integrated Energy and Climate Plan (PNIEC) confirmed the **relevance of the Capacity Market**, considering it a useful tool to preserve the adequacy conditions of the electricity system and to promote efficient, flexible and less polluting investments, with a view to decarbonising the sector and accelerating the penetration of renewables. In June 2021, the Minister for Ecological Transition expressed, among other things, the need to conduct Capacity Market auctions for the years 2024 and 2025 within predefined deadlines. In order to enable the capacity auctions for the delivery periods 2024 and 2025 to take place, the Authority adopted several measures.

During 2021, the **implementation of market codes** saw the adoption of different methodologies within the Forward Capacity Allocation (FCA), Capacity allocation and congestion management

(CACM) and Electricity balancing (EB) regulations, as well as the monitoring and improvement of methodologies adopted in previous years. At the end of 2021, the implementation of the FCA, DC (Demand Connection) and HVDC (High voltage direct current network code) regulations is now complete, while some CACM, EB and SO (System operation) methodologies remain to be completed, just as the methodology with cost-benefit analysis criteria for retrofitting existing generation plants under the RfG (Requirements for generators network code) remains to be defined at national level.

Regulation 943/2019, part of the more general Clean Energy Package, significantly revised the core principles of the electricity market, providing, in particular: a minimum capacity level of 70% between market zones to be offered on the markets; new criteria for the review of market zones; specific rules for system adequacy; the strengthening of cooperation between TSO with the creation of Regional Coordination Centres (RCC) instead of Regional Security Coordinators (RSC) introduced with the SO Regulation; new criteria for the use by TSO of congestion rents collected on the boundaries between market zones. The Authority is directly involved in the implementation of the aspects listed above, both through participation in working groups within ACER and through the adoption of specific measures at national level.

Wholesale and retail markets

According to provisional data released by Terna, **electricity demand** in 2021 (300.6 TWh) increased by 5.9%; the increase was recorded in all consumption sectors. The national demand for electricity was met 86.5% by net domestic production (minus energy for pumping), which increased by 2.2%, and the remaining 13.5% by the balance from abroad.

Gross **domestic production** reached 286.9 TWh, an increase of 2.3%. The growth was seen, in particular, in thermoelectric production, which rose from around 161.7 TWh to 170 TWh (+5.2%), due mainly to higher production from natural gas (142 TWh), while that from renewable sources (114.7 TWh) decreased slightly overall (-1.9%), due to lower production from bioenergy (-6.9%), hydroelectric (-5.9%) and geothermal (-2.1%), while production from wind power increased considerably (10.8%) and photovoltaic production rose by 0.5%. The contribution of the two sources to the total sees a weight of 59.3% for thermoelectric production and 40% for renewable production (41% including pumped storage hydro). The share of gross generation of the top three corporate groups (Enel, Eni and A2A) increased to 33.1% from 31.8% in 2020. In 2021, total net power stands at 116.6 GW (provisional figure), which is split between 49.6% renewables and 50.4% thermoelectric. The peak demand occurred on 8 July, when power demand at peak reached 55 GW (down -0.7% from the previous year's peak). Even the summer peak of 2021 remained far from the absolute peak for the Italian electricity system, recorded in the summer of 2015 (equal to 60.5 GW). There are four groups with a net installed capacity share of more than 5%: Enel (22%), A2A (8%), Eni (5.4%) and Edison (5.2%); in 2020, there were three (Enel, A2A and Edison).

The **quantity of incentivised electricity** in 2021 amounted to slightly more than 62 TWh (preliminary figure), i.e. about 0.4 TWh more than the quantity incentivised in 2020.

Consistent with the higher overall demand for electricity in 2021, the **foreign balance** also increased sharply: net imports rose to 42.8 TWh from 32.2 TWh in the previous year (+33%). As a result, the share of domestic demand covered by the external balance rose to 13.5% from last year's low of 10.6%. The increase in the external balance was achieved by both an increase in imports (17%) and a simultaneous reduction in exports (-50%). The increased reliance on imports is due to the need to cover rising demand, in a year of lower penetration of renewable energy resources caused by insufficient hydroelectric production in a context of low hydraulicity.

In 2021, in an economic context characterised by a growing aggregate demand and a supply that is trying to stabilise after the easing of the pandemic containment measures, there was an increase in the amount of **electricity traded on the Italian system's PGM**, amounting to 290.4 TWh (+3.6% compared to 2020). This increase was due to higher domestic purchases (286.1 TWh; +5.4%), only partly offset by lower exports (4.3 TWh; -50%). On the other hand, the volumes offered in the Italian System decreased (472.4 TWh; -5%).

The share of volumes traded directly on the exchange was up (221.3 TWh; +5.5%) and reached 76.2% of total trade on the MGP; the significant growth in liquidity was favoured by an increase in imports (48 TWh; +14.6%), partially contained by the halving of exports (4.3 TWh; -50%); the Acquirente Unico's (Single Buyer) volumes, equal to 14% of total purchases and fully supplied on the exchange, fell by almost 2%. The programmes derived from the ECP registrations of bilateral over-the-counter trade also continued to lose share (69.1 TWh, -1.7%).

After the all-time low in 2020 (38.92 €/MWh), the **average annual energy purchase price (PUN)** in 2021 reached a record high of 125.46 €/MWh, a sharp increase over 2020 (+222%) and in line with the prices on the main European power exchanges. The increase was supported not only by the recovery in electricity demand, but also by the rise in thermoelectric generation costs, fuelled by record high prices of natural gas, coal and CO₂.

On the **futures market**, with regard to standardised products with physical delivery, in 2021, there were only 7 pairings for a total of 22 GWh, which is a sharp decrease compared to last year (-97%). The total volumes traded in 2021 on the **Intraday Market** (26 TWh) showed an increase over the previous year (+1.1 TWh; +4%), signalling the need for operators to adjust their schedules more.

Against a global backdrop of sharply rising fuel prices, **electricity prices in other European countries** also recorded unprecedented increases, reaching three times those of 2020. Prices in the day-ahead markets averaged 110 €/MWh in France and Spain and 97 €/MWh in Germany. On a yearly average, prices rose by 239% in France, 230% in Spain, 218% in Germany and 475% in Scandinavia. Although market coupling mechanisms have enabled efficient management of cross-border flows, a reduction in price convergence between countries has been observed, driven by differences in the cost and availability of the capacity of their generation parks. For Italy, France and Germany, prices were perfectly aligned with each other in 18% of the hours, while the Italian price was higher than the French price in 66% of the hours, the Austrian price in 75% of the hours and the Slovenian price in 52% of the hours. This growth in the differential between Italian and foreign prices led to an increase in imports (48 TWh, +15%) and a decrease in exports (4.3 TWh, -51%). In addition, exports to Greece (0.5 TWh; -81% compared to 2020) were affected by the unavailability of transit for a significant number of hours (around 30%).

The results of the Annual Survey (provisional) show that in 2021, the economic recovery, made possible by the massive vaccination campaign that eased the restrictive measures imposed in 2020 to counter the Covid-19 epidemic, brought electricity consumption back up: according to the data collected, 253 TWh were **sold in the retail market** last year to around 37 million customers, of which 29.9 million households and 7.1 million non-households. Compared to 2020, total electricity consumption increased by almost 5%, while consumers decreased by 0.1%. The increase in non-household consumption was significant due to the recovery of the industrial sector and even more so of the construction sector, while the recovery of the tertiary sector remained limited by the nonetheless high trend of contagions during the year. However, consumption in the household sector, thanks also to the spread of remote work in homes and a hotter summer than in 2020 that pushed up the use of air conditioners, also grew quite a bit. Withdrawal points in the household sector remained essentially unchanged (+0.2%), while those in the non-household sector decreased

(-2%), as in the previous year. More precisely, households purchased a total of 60.7 TWh compared to 59.8 TWh in 2020, thus registering an increase of 1.5%, while energy purchased by the non-household sector rose from 181.2 to 191.9 TWh, marking an increase of 5.9%, insufficient to fully recover pre-Covid levels (198 TWh in 2019).

In 2021, the number of **household customers** was 29.9 million, of which 12.4 million served under greater protection and 17.5 million on the free market: the surpassing by the free market of the enhanced protection service, which had begun in 2020, therefore continued. The percentage of household points served on the free market rose to 58.5%, as compared with 54.3% in 2020. If we then look at the volumes, the free market is even wider: in 2021, in fact, energy purchased by the household sector in this market rose to 60.7% from 57.1% the previous year. The average unit consumption of households in the reference price market is slightly lower than that of households purchasing energy in the free market: 1.925 kWh/year versus 2,111 kWh/year, but the values still show that the electricity consumption of Italian households is rather low.

For the supply of electricity of small companies⁵ and micro-companies with a committed capacity of more than 15 kW⁶, price protection ended on 1 January 2021; therefore, the total volumes sold under price protection in 2021 still include those to industry low-voltage customers for whom price protection is still allowed, i.e. those of micro-companies with a committed capacity of less than 15 kW. If the consumption of the household sector is added to the consumption of these micro-companies, the share of electricity sold in the enhanced **protection service** is now however very small, amounting to only 11.2% of the volumes of the entire Italian electricity market (corresponding to 38.4% of the total withdrawal points).

As of January 2021, small and micro-companies obliged to leave the enhanced protection service, which have not opted for a supply in the free market, will be supplied under the **gradual standard offer service** by a supplier selected by public tender. In 2021, the service served 226,000 withdrawal points, or 0.6% of all customers in the electricity market, to which it supplied 4.6 TWh, or 1.8% of the energy sold in the total market.

With 216.5 TWh sold, the share of electricity intermediated by the **free market** rose to 85.7% (60.7% of withdrawal points) in 2021, partly because the portion of electricity purchased in the **standard offer service** remained unchanged at 1.3% (0.2% of withdrawal points).

In 2021, the **switching** of households grew again, whether measured in terms of withdrawal points or in terms of volumes. 15.7% of households - about 4.7 million withdrawal points - changed supplier at least once during the year. The volumes corresponding to this portion of customers amounted to about 17.9% of the total energy purchased by the household sector, while the volumes corresponding to the 13.1% of households who changed supplier in 2020 corresponded to 14.2% of the energy withdrawn. The exclusion from the enhanced protection service, as of 1 January 2021, for small companies and micro-companies (with a committed power of more than 15 kW) certainly had an impact on the switching activity of industry low-voltage customers, which showed a rather high pace in 2021: 18.7% in terms of customers and almost 30% in terms of volume. However, 2021 was a year of economic recovery, and the increased demand for energy provides an incentive to seek new and more favourable supply conditions. The increases in international commodity prices, which

⁵ Companies with between 10 and 50 employees and/or annual turnover of between Euro 2 and 10 million, owners of 'low voltage' withdrawal points.

⁶ Companies with fewer than 10 employees and an annual turnover not exceeding Euro 2 million owning at least one withdrawal point with a contractually committed power exceeding 15 kW.

have driven up electricity and gas prices in Italy as well, are to be seen as a further stimulus for switching activity. During 2021, other non-household customers also showed a significant rate of switching: 19.4% of customers connected to medium voltage (for a total of 20.5%) and 26.1% of customers connected to high or very high voltage, for a volume of approximately 14%, changed supplier. In total, just under 1.3 million industry withdrawal points changed supplier in 2021. In terms of underlying volumes, about 43.2 TWh, corresponding to 21.3% of the volumes purchased by non-households.

On the supply side, the **number of suppliers on the retail market** once again grew strongly in 2021, confirming a trend of expansion that has continued uninterrupted since liberalisation in 2007. Regardless of the trend in electricity consumption, in fact, each year sees an increase in the number of companies with sales of less than 1 TWh, whose overall market share, however, has been stagnating at around 15% for years.

The **average number of commercial offers** that each sales company is able to propose to its potential household customers was 16.9 for households and 25.5 for non-households. Of the 16.9 offers made available on average to the household customer, 5.8 are **only available online** (4.5 in 2020), i.e. only through the Internet. The success of online offers among households remains limited, but it is growing: in 2021, 9.7% of household customers (corresponding to 10.5% of electricity purchased in the free market) signed a contract offered through this modality. Looking at non-household customers, on the other hand, of the 25.5 offers on average offered to customers, only 4.3 are subscribed through the network and only 4.9% of customers have subscribed to an offer online. With regard to the preferred **type of price**, it was found that 81.4% of households signed a fixed-price contract in the free market (i.e. with the price not changing for at least one year from the time of signing), while 18.6% chose a variable-price contract, i.e. with the price changing at a time and in a manner determined by the contract itself. The preference for variable price is low, but tends to grow over time, albeit at a moderate rate; last year, the variable price contract was chosen by 16% of households. Variable price contracts are more popular among non-household customers: 54.9% of them chose the variable price, while the fixed price contract was chosen by 45.1% of the non-household points. The data collected in the Survey also showed that in fixed-price contracts valid in 2021, the price paid for the procurement component was at least 30% cheaper than in variable-price contracts.

In variable price contracts, **indexation** to the trend of the average PUN is the most frequent in both contracts to households (67.2%) and those to non-households (51.6%). The second most popular price indexation method chosen by households is that of a discount on one of the components set by the Authority for the enhanced protection offer, which concerns 27.7% of customers. Household customers who signed a dynamically priced contract accounted for 3.9% of the variable-price household customers, while contracts with limited indexation gathered only 0.5% of households. Dynamic price contracts, on the other hand, represent the second most important method of indexation among non-households, who chose them in 6.4% of the cases; a small share (2.7%) of non-households chose a contract indexed to some external, controllable variable (which sometimes also refers to gas prices at TTF).

About 20% of households have signed a contract that provides a rebate or discount of one or more free periods or a fixed sum in cash or volume.

Regarding the presence of **additional services** in electricity purchase contracts in force in 2021, a clear propensity emerged, as in the past, for fixed-price households to purchase energy with a contract that includes an additional service; among the additional services, the greatest preference is for contracts with a guarantee to purchase electricity produced from renewable sources (41.5%)

and for participation in a points collection programme (30.2%). As regards households who have signed a variable price contract, on the other hand, in 2021, the share of those who have chosen one without additional services decreased slightly to 50.9% (it was 53.2% in 2020). Even among customers purchasing variable price contracts that also include additional services, the greatest interest is in the guarantee of purchasing electricity produced from renewable energy resources (27.8% of cases). The second preference goes to the possibility of obtaining, together with electricity, ancillary energy services (11.7%). The results for non-households⁷ show a significant lack of interest in additional services among those who have chosen a fixed-price contract: almost three quarters of these customers have signed a contract without them; the remaining part of these customers show appreciation for the guarantee of energy from renewable energy resources (22.9%).

The provision of ancillary energy services (3.3%) also attracts some interest, as does the guarantee to purchase electricity produced in Italy (2.3%). Of the fixed-price contracts purchased, 20% did not include any additional services; among customers who signed a variable-price contract, however, the share of those who chose one without additional services rose to 53.2%. Among these customers, there is also a high interest in the guarantee of purchasing electricity from renewable energy resources (25.7% of cases). The second preference goes to the possibility of obtaining, together with electricity, ancillary energy services (12.2%). A substantial indifference towards additional services also emerges for non-households who have signed a variable price contract, where 67.8% are without them. A third of these customers, on the other hand, chose a contract with at least one additional service, and here again the guarantee of energy from renewable sources (27.3% of withdrawal points) and the presence of ancillary energy services (3%) received the highest approval.

Using the concentration measures calculated on the energy sold, it can be seen that in 2021, the level of **concentration in the retail market** decreased slightly. C3, i.e. the share of the top three operators (corporate groups), fell to 46.1% of total sales, whilst it had been 46.9% in 2020. The HHI dropped to 1,379 from 1,446 in 2020. The number of corporate groups with a share of more than 5% remained unchanged at 4: these are the Enel group (this year with a share of 34.5%, in 2020 35.6%), A2A (with a share of 6.3%), Edison (5.3%) and Axpo (5%). However, the concentration in the Italian electricity market has two opposing sides: in the household segment it is high, albeit steadily decreasing, while in the non-household segment it is very low and stable. Using the indicators calculated on the withdrawal points, the concentration values are higher than those indicated by the volumes of energy sold, except for those relating to non-households served at high and extra-high voltage.

In 2021, the average value of the procurement cost component of the **electricity price** was 14.27 c€/kWh in the enhanced protection offer and 14.03 c€/kWh in the free market. Therefore, with regard to the component covering procurement costs and marketing services, the free market was on average 1.7% less expensive. The convenience of the free market is mostly explained by the presence of fixed-price contracts, which have stemmed the strong increases that occurred in the wholesale markets during 2021, particularly in the final part. Proof of this is the fact that the cost of supply in the enhanced protection service increased on average by 75% compared to the previous year, while in the free market the increase was only 9%; this marked difference is the basis for the reversal of the convenience assessment compared to the previous year.

⁷ The incidence of answers concerning 'a combination of additional services' for non-households is lower than for households. More specifically, the presence of contracts that include a combination of additional services was indicated for 3.9% of customers with a fixed-price contract and 2.8% of customers with a variable-price contract. As for households, these customers were reallocated *pro rata* to the additional services indicated by the sellers.

Overall, in 2021, there were 25,335 cases of non-compliance with **the commercial quality** standards of the sales service that resulted in the right to compensation in the electricity sector, 95.8% of which related to failure to meet response times to written complaints. Of this, 68.8% was accrued by households and non-households in the free market, 23.8% by customers in the reference price market and the remaining 7.4% by other customers. A similar situation to that concerning accrued indemnities can be seen for the indemnities actually paid out, which are more concentrated in the free market: in 2021, in fact, 70.4% of the total indemnities paid out, exceeding Euro 1.1 million, were to free market customers.

As part of the **measures on final sale prices**, the Authority, in implementation of Law No. 234 of 30 December 2021 (Budget Law 2022), has defined the terms for the payment in instalments of the amounts relating to invoices issued in the period between 1 January 2022 and 30 April 2022 that all suppliers (both of protection services and of the free market) are required to offer to household electricity and natural gas customers who are in default of payment of the invoices issued in that period. As part of the **investigation and inspection** activities on the sales market in 2021, the Authority's control activities were carried out by means of documentary checks (in particular relating to the control of the costs to be recognised in the tariff, compliance with the regulation by electricity and gas retail sales companies, the correct disbursement of incentives to energy-intensive companies as well as the correct contribution, by regulated companies, of the Authority's operating costs) and on-site inspections, concerning priority issues such as service safety, consumer protection, the correct functioning of the markets and the control of the incentives provided and the cost items recognised or to be recognised in the tariff.

Among the **measures for the effective promotion of competition**, also in 2021, there were several communication initiatives for overcoming greater protection. In particular, the Authority defined and communicated to suppliers, on a six-monthly basis, the content of the notices to be shown on their invoices to inform end customers that changing contract or supplier is simple and free of charge and that continuity of service is guaranteed; the notices also provided the elements that should encourage customers to take advantage of the Authority's tools aimed at making an informed and aware choice, such as the Electricity and Gas Offers Portal and the PLACET offers. Moreover, in consideration of the entry into force of the gradual standard offer service, in the first half of 2021, the operators of protection regime, with reference only to the end customers supplied in the gradual standard offer service for the period of provisional assignment, sent a specific notice in their bills that informed the customers concerned of the end of the protection regime offer, directing them, for further information, to a dedicated page of the Authority's website or to the toll-free number of the Energy and Environment Consumer Help Desk.

Developments in the gas market

Main changes in regulation

In August 2021, the Authority initiated a review of the **criteria for determining the x-factor for the natural gas storage service** for the tariff updates for the years 2023-2025; the Authority's guidelines, which were placed for consultation, are for the determination of a level of x-factor that guarantees the transfer to the service users of any higher (or lower) productivity recoveries realised in the early years of the regulatory period within the regulatory period itself.

In November 2021, the Authority approved the **regulation of the metering service on the natural gas transportation network** (RMTG), which defines the reorganisation of the service and the related

responsibilities, defining in particular the responsibilities and scope of metering and meter reading activities; the minimum and optimal requirements of a plant, performance and maintenance nature; the predefined levels of service quality and the incentive to comply with these levels of service quality; the system for monitoring requirements and quality levels.

Regarding **gas infrastructure**, in Italy there are nine companies operating the National (10,316 km) and Regional (24,937 km) Gas Transmission Network: three for the National Network and eight for the Regional Network. The largest gas transport company is Snam Rete Gas. The Snam group owns 92.9% of the networks. Liquefied natural gas is fed into the Italian national transport network through the interconnection with the three terminals in operation in Panigaglia (in Liguria), Cavarzere (in Veneto) and Livorno (in Tuscany). The Panigaglia plant is owned by the company GNL Italia belonging to the Snam group, has a maximum regasification capacity of 13 M(m³)/day and the maximum annual quantity of gas it can feed into the transport network is 3.5 G(m³). The Cavarzere terminal is an off-shore facility located in the Adriatic Sea off the coast of Rovigo with an annual regasification capacity of 8 G(m³) and approximately 26.4 M(m³)/day. Of the maximum regasification capacity, 80%, i.e. 21 M(m³)/day, is reserved for the terminal operator, the company Terminale GNL Adriatico, which has been exempted from third-party access for 25 years, i.e. until the thermal year 2032-2033; the remaining 20%, together with any unused capacity, is offered on the market through capacity subscription procedures. The Livorno terminal, owned by the company OLT Offshore LNG Toscana, results from the conversion of an LNG carrier into a floating regasification terminal anchored about 22 km off the coast between Livorno and Pisa. Its maximum daily regasification capacity is 15 M(m³)/day, its annual capacity is 3.75 G(m³).

Natural gas storage is carried out on the basis of 15 concessions held by five companies: Stogit, Edison Stoccaggio, Ital Gas Storage, Geogastock, Blugas Infrastrutture. All active storage sites are built at depleted gas fields. Stogit, which belongs to the Snam group, is the main storage company owning 10 of the 15 concessions. The Italian gas storage system is of significant size: in the 2021-2022 thermal year, which ended on 31 March 2022, the system offered an overall availability for storage in terms of total space for active reserve (so-called working gas) amounting to 17.7 G(m³), of which 4.6 G(m³) is for strategic storage. The space offered at auction was 90%. The nominal peak delivery achieved during the year was 259.5 million standard cubic metres/day.

Natural gas distribution in Italy takes place through 268,138 km of network. There were 188 companies active in gas distribution in 2020 (five fewer than in 2020), of which 6 were very large (with more than 500,000 customers), 42 with between 50,000 and 500,000 customers and 140 with less than 50,000 customers. The number of companies with more than 100,000 redelivery points has fallen in recent years (28 units, down from 33 in 2013). However, their share in terms of gas distributed has remained stable at around 82% and, indeed, has risen to 85% in the last three years. In total, the 188 operators active in 2021 distributed 32.3 G(m³), 2.2 G(m³) more than the previous year, to 24 million consumers. The service was operated through 6,495 concessions in 7,298 municipalities.

The regulation of the **quality of gas distribution and metering services** has the aim of minimising the risk of explosions, outbreaks and fires caused by distributed gas and, therefore, has as its ultimate goal the safeguarding of persons and property from damage resulting from accidents caused by distributed gas. For 2021, there is a slight increase in the inspected network compared to 2020 and still a stable share of the inspected network at 75%. The inspection of the network generally aims at intercepting the phenomenon of leakage and thus enhancing the safety of citizens. With regard to emergency response obligations, the time series of the arrival time at the place of (telephone) call, updated to 2021, shows a national average value of approximately 36 minutes, slightly decreased

compared to 2020. With regard to the number of dispersions localised in the networks as a result of third-party reports per thousand customers (for distribution plants subject to the premium-penalty regulation), there is a slight increase both for dispersions localised on underground networks, which are usually the most dangerous, and for those on overhead networks.

Data on connections are distinguished according to whether they are connections to transport pipelines or to distribution networks. In 2021, 92 **connections to transport networks** were made, of which 72 were high-pressure pipelines and 20 medium-pressure pipelines. On average, a wait of 83.6 working days was recorded for high-pressure pipelines and 32.4 days for medium-pressure pipelines. Compared to the previous year, there was a slight deterioration for high-pressure connections and, conversely, an improvement for medium-pressure connections. Of the total connections made, 41% activated supply during the year. In the case of **local distribution networks**, a **slight decrease in the number of realised connections** was observed: 104,960 in 2021 compared to 106,996 in 2020 (-2%). As always, most of the connections involved low-pressure pipelines (92.7%) and the remainder medium-pressure pipelines. There was a lengthening of waiting times for connections to low-pressure networks (from 18.5 to 26.1 working days), while for connections to medium-pressure networks the lead time remained the same as in 2020 and amounted to 8 working days.

In the course of 2021, a number of changes were adopted to the **settlement discipline** approved in 2018 and which came into force on 1 January 2020; these included: changes to optimise the timing of the activities required for the definition of the final gas balances; and changes to the way in which the deviation fees discipline is applied. In August 2021, the Authority also proposed the introduction of a **mechanism to make distribution companies responsible** for the volumes to cover the difference between the quantities injected at the exit points of the transmission network interconnected with distribution networks (city gates) and those withdrawn from end customers supplied through the same points. In addition, the Authority proposed an integration of the regulatory framework on the subject of fraudulent withdrawals and localised leakages (gas leaked in cases of service emergencies or in cases of damage to plants or pipelines of the distribution network).

Regarding **access and development of the transmission system**, it is worth mentioning that in May 2021, the Authority, jointly with the regulators of Greece (RAE) and Albania (ERE), approved the proposal for the **capacity increase for the TAP pipeline** concerning the Market Test carried out in 2019. Furthermore, in June 2021, the Authority, again in agreement with the regulators ERE and RAE, approved the document Guidelines for the 2021 Market Test of Trans Adriatic Pipeline with which a new Market Test for 2021 was initiated. Finally, during the course of the year, the Authority made a number of changes to the rules governing access to transmission networks, and stipulated that deviations at entry and exit points interconnected with foreign countries should be evaluated in kWh, i.e. in the same unit of measurement used for user nominations, and that at points interconnected with foreign countries other than Switzerland and European Union countries, i.e. the Mazara del Vallo (connection with Algeria) and Gela (connection with Libya) points, there should be the possibility (under certain conditions) to submit a request for annual capacity allocation even when the thermal year has started, on a first come first served basis.

As part of the proceedings for the **evaluation of the ten-year plans for the development of the 2019 and 2020 natural gas transmission networks**, in December 2021, the Authority presented guidelines on incentives to keep the networks in operation, on efficiency criteria in the case of the development of the transmission network in newly methanised areas, and on criteria for the return of revenues from the operation of dual-fuel power plants to the system. In June 2021, it **launched the public consultation on the Plans for development of the natural gas transmission network**

for the year 2021, within the scope of which an online public session was organised by the largest transmission company on behalf of the Authority for the purpose of presenting and exploring specific aspects of the Plans. The assessment procedure of the Plans for development of the natural gas transmission network 2021 is still ongoing and will be conducted jointly with the assessment procedure of the 2022 Plans.

The regulation of access and provision of natural gas transportation, storage and regasification services requires that the companies providing the aforementioned services define their own service codes in accordance with the criteria established by the Authority, which approves them once it has verified their consistency with these criteria. In the course of 2021, **several codes for transport, storage and regasification services were approved and/or updated**, in order to incorporate new regulatory provisions, provisions of the Authority or management methods aimed at improving service provision.

Wholesale and retail markets

According to provisional data released by the Ministry of Economic Development, gross natural gas consumption in 2021 increased by 5.2 G(m³) to 76.4 G(m³) from 71.2 G(m³) in 2020.

With consumption back on the rise and **domestic production** at an all-time low (3.3 G(m³), down 16.7% compared to 2020), **imported gas volumes** consistently showed an increase of 9.9%, approaching 73 G(m³), almost 2 G(m³) higher than in 2019. In 2021, imports also included gas from Azerbaijan that arrived in Italy via TAP, the pipeline that landed in Apulia and started operation at the end of 2020. In 2021, however, **exports** also grew significantly. Volumes of gas exported have multiplied five times as compared with 2020, rising from 316 M(m³) to 1.5 G(m³). The increase in exports, which was seen in particular in the last quarter of the year, was fostered by the abundance of gas that made Italian gas better value for money than that available for purchase at the TTF. The volumes in storage at the end of the year were 1.6 G(m³) less than at the beginning of the year. Therefore, part of the consumption was covered with gas in storage. Thus, as mentioned, gross domestic consumption in 2021 was 76.4 G(m³), 7.3% higher than in 2020, however also 2.6% higher than pre-pandemic levels in 2019. The level of **foreign dependence**, measured as the ratio of net imports to the gross value of domestic consumption, has risen again; 93.5% of the gas available in Italy comes from abroad (in 2020, this share was 92.8%). Taking system consumption and network losses into account, net consumption in 2021 was 74.1 G(m³), 8.3% higher than in 2020.

The main change in gas imports in 2021 is the amount of Azerbaijan gas that arrived in Italy via the TAP pipeline. The pipeline came into operation at the end of 2020 and in its first full year of operation, it delivered 7.2 G(m³) of gas to Italy, bringing Azerbaijan to third place in the ranking of countries from which we import natural gas. A notable increase was recorded in imports from Algeria, which, at 7.3 G(m³) more than in 2020, almost doubled. Also from Russia, 0.7 G(m³) more arrived in Italy than in 2020, a growth of 2.4%. On the contrary, in 2021, there was a decline, albeit of different magnitude, from all other countries from which gas is historically purchased. In 2021, therefore, the weight of Russia amongst the countries exporting to Italy reduced by 40% (42.9% in 2020), while Algeria's share rose from 22.8% to 30.8%. In third place in terms of importance, as just mentioned, comes Azerbaijan, with a 9.9% share. The ranking then continues with: Qatar, from which 9.4% of all gas imported into Italy comes (10.5% in 2020), followed by Libya, whose share is at 4.4% and Norway, which is at 2.7% (10.4% in 2020). The share of US LNG fell from 2.6% to 1.5%, while the share of Dutch gas practically fell to zero, which has been decreasing over time and now stands at 0.4%; the share of imports from Northern Europe (i.e. from Norway and the Netherlands together) thus fell sharply

from 11.8% to 3.1%.

The corporate groups that each own more than 5% of the total gas supplied (i.e. produced or imported) became five: Eni, Edison, Enel and Royal Dutch Shell, as in 2020, joined by Azerbaijan Gas Supply Company, the company that imports Azeri gas into Italy. Considering also the quantities produced within national borders, the five groups account for 87.3% of all gas supplied. The five groups are also the only ones that each have a share of more than 5% of the available gas (which in addition to imports and production also includes gas in storage), with an overall share for the four (85%) slightly lower than the share of gas supplied. The analysis of import contracts (annual and multi-year) active in 2021 in terms of **residual life** shows that 23.1% of the contracts will expire within the next five years (the same share was 28% in 2020) and 52.2% will expire within the next ten years. Of the contracts in force today, 40% have a residual life of more than 15 years. This share, which had been on the rise since 2014, also declined sharply in 2019, however then rose steadily; in 2021 it reached 40% and concerned a total quantity of 33 G(m³).

In 2020, **total demand in the gas sector**, understood as the sum of gas volumes sold in the wholesale market (including resales) and in the retail market plus self-consumption, decreased for the first time by 6.7% to 360.6 from 386.4 G(m³) in 2020. Overall, marketed gas in the total sales market (wholesale and end market) fell to 342.1 G(m³), a reduction of 7.5% compared to the same figure for 2020, which should be assessed taking into account the impact of the pandemic emergency on 2020, which had caused wholesale sales to rise significantly. The **wholesale market** handled 285.1 G(m³), a decrease of 9.3% compared to 2020, the retail market handled 57 G(m³), an increase of 3.1% compared to 2020, and self-consumption amounted to 18.4 G(m³), also a sharp increase (11.3%). The industrial groups serving a share of total demand of more than 5% in 2021 are 5 as in 2020. More precisely, the industrial groups and their respective shares, in brackets, are: Eni (18.2%), Engie (13.3%), Alpiq (7.7%), Enel (7.3%) and Edison (7.1%). The first three groups together cover 39.2% of the total demand, a share that is down from last year (42%). In 2021, the number of companies operating in the wholesale market decreased, as did the volume of gas sold. In fact, 190 sellers (10 less than 2020) sold a total of 29 G(m³) less than 2020; thus, the average unit volume dropped by almost 5%, from 1,572 to 1,501 M(m³). This is the first decrease since 2012. In 2021, the level of concentration in this market decreased further: the share of the top three companies (Eni, Engie Global Markets and Alpiq) was 28%, below the already low 29.7% calculated in 2020.

The main trading platform in the wholesale market in Italy is the **Virtual Trading Point (PSV)**, operated by the transmission network operator, Snam Rete Gas. Disposals that can be registered are both those that take place through bilateral contracts and those that take place within the regulated markets managed by the GME. In 2021, the number of PSV subscribers increased by two to 233. The number of traders, among subscribers, who transacted increased significantly from 137 in 2020 to 199 in 2021 (+45%), while the number of pure traders (i.e. subscribers who are not users of the transmission system) decreased slightly from 53 to 49. Over-the-counter volumes traded at the PSV increased by 2.1%, from 105 to 107 G(m³). By contrast, volumes with forced delivery to the PSV fell sharply (-68%; from 3.6 to 1.2 G(m³)). Therefore, total deliveries to the PSV remained essentially unchanged at around 108 G(m³). By contrast, volumes traded in the markets increased significantly, as always, by 19%, albeit less than in the previous two years (77% and 58% respectively). The volumes traded on the exchange reached 26 G(m³) from 22 the previous year, thanks to a high increase in volumes handled in the centralised markets (+16%), which was accompanied by a marked growth in energy traded as clearing house (+55%). The churn rate dropped to 3.2 (it was 3.6 in 2020).

In the **markets organised and managed by the Energy Markets Operator (GME)**, total volumes of 131 TWh were traded in 2021, up by 15% compared to 2020. This growth reflects the significant

increase in domestic consumption, which reached its highest level in the last decade (around 807 TWh). In contrast to 2020, in 2021 the greatest liquidity is observed on the **Day-Ahead Market** (45.4 TWh; +51%) and, in particular, in the trading session on the day before delivery. Monthly trends show higher trading levels in the last quarter of the year, with October more than doubling volumes compared to 2020 (+128%). In its second year of operation, the **AGS segment**, in which the Balancing Manager (RdB) procures the resources needed to operate the system, recorded exchanges totalling 33.8 TWh (+32% compared to 2020), almost entirely attributable to sales by Snam Rete Gas (90% of volumes). On the other hand, there was a decline in volumes traded on the **Intraday market** (44.1 TWh; -5.6%), mainly due to the lower handling of the RdB (13.1 TWh; -23%), while volumes traded by other operators increased (31 TWh; +4%), accounting for 70% of the total traded in the sector. Negotiations on the **Market for Gas in Storage** (MGS) show exchanges of 5.1 TWh, for Stogit alone, attributable both to third-party operators (2.8 TWh; -36% over 2020) and to Snam Rete Gas handling for all purposes (2.3 TWh; +37% over 2020). During the year, no sessions activated by Snam Rete Gas on the **Market of locational products** (MPL) were observed.

With regard to forward products traded on the **Futures market**, a decrease in trade continues to be observed, with 10 pairings relating exclusively to monthly products, totalling 33 GWh delivered in 2021. On the other hand, a recovery of trading is observed in the **P-GAS** royalties segment with 1.3 TWh of volumes delivered in 2021 and previously traded.

The **prices recorded on the various platforms** can be traced back to an annual average of around 46 €/MWh, in line with the annual average spot price at PSV (47.20 €/MWh; +347%). In particular, the average prices of the two M-GAS segments, respectively 46.30 €/MWh for MGP-GAS and 46.70 €/MWh for MI-GAS, showed an interim trend that mirrors that of the PSV price. MGS prices were also dynamically in line with those of other markets, with the exception of December, for which a lower level was recorded.

The provisional results of the Annual Survey showed that **just over 57 G(m³) were sold in the retail market** in 2021, to which must be added 240 M(m³) supplied through last resort and default services. Overall, therefore, the value of final sales was 57.3 G(m³), an increase of 1.8 G(m³) over 2020. However, in order to have a figure comparable with that of the final gas consumption published by the Ministry of Ecological Transition, and commented on in the previous pages, it is necessary to take into account the volumes relating to self-consumption, 18.4 G(m³), which brings the value of total consumption resulting from the Annual Survey to 75.7 G(m³), i.e. a value comparable to the 74.1 G(m³) from the ministerial source. As usual, there are differences between the two sources, which classify the volumes of gas handled during the year differently. The upturn in final consumption that emerges in both the Annual Survey data (5.1%) and the ministerial data, albeit to a sharper extent (8.3%), is mainly due to a significant recovery in the production sectors.

In 2020, the number of active suppliers in the retail market rose again and substantially (+13 active units). As the gas sold increased, overall, by 3.1%, and the number of sellers increased to a lesser extent (2.8%), the average unit sales volume increased slightly, by an average of 0.3%, from 117.2 to 117.6 M(m³). However, the increase in the number of sellers has been eroding this value for many years (suffice it to say that in 2010, the average sale was twice as high as it is today, at 237 M(m³)). Of the companies active in the end market, 6.2%, i.e. 30 out of 485, sold more than 300 M(m³) in 2021; together, these companies cover 83.7% of all gas sold in the retail market. Analysing the sales performance of corporate groups, instead of individual companies, however, allows a more accurate assessment of market shares and the **level of concentration in the retail market**. No changes emerged in the top four positions of the end market, in which Eni, Edison, Enel and Hera remain firm. As in 2020, the Eni group's share decreased by about one percentage point, from 18.4% to 17.1%,

because the group's sales fell by almost half a billion cubic meters (-4%). By contrast, the shares of the Edison and Enel groups have grown slightly: from 13.5% to 13.9% for Edison and from 11.8% to 12.4% for Enel. This was due to a clearly positive sales result of both groups: compared to 2020, the quantities placed on the retail market by the Edison group grew by 5.9%, while those sold by the Enel group increased by 8.5%. Thus, both the distance between Eni and Edison and that between Edison and Enel have shortened compared to 2020. In particular, that between the Eni and Edison groups decreased to 3.2% (in 2020 it was 4.9%), and that between the Edison and Enel groups decreased to 1.5% from 1.8% in 2020. Sales of the Hera group also increased significantly, by 9.2%. However, the gap between this and the Enel group remains wide (just under seven percentage points). Concentration in the final sales market in 2021, on average across all sectors, decreased slightly. However, trends differed between sectors. Using measures calculated on the volumes sold, it can be seen that the number of groups with a share of the total market of more than 5% remained unchanged at 4. Moreover, in 2021, the top three groups control 43.4%, while in 2020 the share was 43.7%. The Herfindahl-Hirshman Index (HHI) calculated on the sales market was 782, only slightly lower than the 2020 index, which was 788. When measured in terms of customers served, concentration tends to rise in almost all sectors: the only exceptions are industry and utilities, as well as the non-household sector as a whole.

As mentioned, net of last resort and default supplies, 75.5 G(m³) - of which 18.4 were for self-consumption and 57 for sale - were sold to 21.6 million redelivery points in 2021. Overall, gas sales increased by 5% compared to 2020. However, this increase was also due to a strong contribution from self-consumption. Overall, the latter, which mostly belong to the industrial and electricity generation sectors, recorded an increase of 11.3%; the quantities of gas sold in the free market, at 51.2 G(m³), showed an increase of 4%, while sales in the reference price market, at 5.9 G(m³), fell by 15.2%. Thanks also to favourable weather conditions, consumption in the household sector rose by 3.4%, and in central heating by 1.5%. The consumption of the production sectors (industry and thermoelectric generation) increased from 47.2 to 50 G(m³), thus recording an increase of 5.9%. Tertiary sector consumption (trade and services, together with public service activities) grew by 3.6%, from 7.5 to 7.8 G(m³).

Considering sales in the strict sense and thus excluding self-consumption, 89% of gas is purchased on the free market and the remaining 10.3% in the protection regime. In terms of customers, however, 34.6% buy on the reference price market, while 65.4% buy on the free market. Considering only the **household sector**, it can be seen that the share of volumes purchased on the free market in 2021 reached 63.9% for households and 85.2% for central heating (both shares are calculated on total sales in the strict sense, i.e. net of self-consumption). In 2020, the values were 61% and 84%, respectively. In terms of withdrawal points, in 2020, the portion of families that acquired gas in the protection service dropped to 36.8%; in 2020, it was 39.6%. The breakdown of sales to the end market (net of self-consumption) by consumption sector and customer size shows that 97.7% of the volumes sold to the household sector is purchased by households with an annual consumption of no more than 5,000 m³. On the basis of data provided by transmission operators and data from the IIS, the **switching** percentage, i.e. the number of redelivery points that changed supplier in the calendar year 2021, was 11.6% overall, or 13.4% when assessed on the basis of the consumption of customers who switched. Compared to 2020, the percentages are increasing for all customers, with the exception of other uses. Also in 2021, the increase in household sector rates may have been affected by the imminent end of the protection regime (although the date of the removal of price protection has been postponed several times). Last year, about 2.5 million households, equivalent to a share of 11.5% (and corresponding to a volume share of 13.2%), had made at least one change of supplier; compared to 2020, the change of supplier of household consumers increased by one percentage

point. Non-household users (excluding public service activities) who changed their supplier in 2021 accounted for 11.6% of the total in terms of redelivery points, and 13.9% in terms of volumes, showing less liveliness than in previous years.

Also in the gas sector, as already mentioned for electricity, the Annual Survey asked suppliers a number of questions aimed at assessing the quantity and types of offers that companies make available to customers who have chosen to supply in the free market. The **average of the commercial offers** that each gas supplier is able to propose to its potential customers is 11.8 for households, 5.8 for central heating and 13.8 for non-households. Of the 11.8 offers made available to the household customer on average, 6.1 **can only be purchased online**; the interest of households in such offers in 2021 declined slightly, as it turned out that only 7.2% of customers signed a contract offered via this mode (in 2020, this share was 7.9%). Considering condominiums, instead, of the 5.8 offers on average proposed to these customers, 3.6 are subscribed through the network. However, only 4.6% of the redelivery points of condominiums actually subscribed online. Finally, in the case of non-households (other uses), of the 13.8 offers made available to them on average, only 4.7 are subscribed to online; among these customers, however, the success of online offers is significant, since 39% of customers are reported to have subscribed to an offer via the Internet.

With regard to the preferred **type of price**, it was found that 72.7% of households signed a fixed-price contract in the free market (i.e. with the price not changing for at least one year from the time of signing), while 27.3% chose a variable-price contract, i.e. with the price changing at a time and in a manner determined by the contract itself. The percentages are reversed in the case of condominiums, among which variable-price contracts are by far the most popular, while less than a third of customers chose fixed-price contracts. Non-households, on the other hand, are roughly divided in half between those who prefer variable-price contracts, which are slightly more numerous (56.3%), and those who, on the other hand, have signed a fixed-price contract (43.7%). Looking at the supply cost component of the price of these contracts, it can be seen that variable-price contracts are less convenient for all types of customers. However, the differential with a fixed-price contract is larger for condominiums, while it is relatively small for households.

For all types of customers, the most frequent price **indexation modality** in variable-price contracts is that linked to one of the components established by the Authority for the economic conditions of supply of the protection service, chosen by 56.4% of households, by almost three quarters (73.3%) of the redelivery points of central heating and by 56.3% of the redelivery points for other uses; the other most common indexation method is linked to the gas price trend at the TTF (Title Transfer Facility), chosen by 34.2% of households, 13.7% of condominiums and 26.2% of non-households. In all cases, moreover, in 2021, the former was more convenient than the average of all variable-price contracts, while the latter led to a higher average value of the supply component than the average of all indexed contracts.

Of households served in the deregulated market, 4% have signed a contract with a **minimum contractual duration clause**, meaning that the customer is not required to change supplier for a minimum amount of time specified in the contract in order for the price to be applied; much lower percentages are recorded among other types of customers. Of households, 35.1% have signed a contract with a **rebate or discount**; lower percentages are found for other customers (14% of condominiums and 14.4% of non-households).

In the questionnaires of the Annual Survey 2021, the **presence of additional services** in natural gas sales contracts was also investigated. In contrast to the electricity sector, the frequency of contracts involving a combination of additional services is not very high; in fact, it concerns about 8% of

households, 0.5% of condominiums and just under 1% of non-households. The results obtained for households show that in the contracts signed by households, the presence of additional services is more common among fixed-price than among variable-price contracts: 60% of customers who chose a fixed-price offer sign a contract that also includes an additional service, while this percentage drops to 21.5% in variable-price contracts. In fixed-price contracts that provide an additional service, there is a clear preference (38.4%) for those that allow participation in a points programme and a good preference (8.1%) for those that offer additional energy services. With regard to the cost of additional services (measured by the component of the price that covers procurement and sales costs), it can be observed that the contract for households with a fixed price and no additional services is cheaper than the contract including participation in a points collection programme, which, as mentioned above, is almost as successful among customers; however, all other possible additional services show a lower price than the contract without additional services. For households with a variable price, on the other hand, the most popular options are the 100% green offer guarantee (8.8%) and the ancillary energy services (5%); even for these customers, the contract without additional services shows one of the highest prices, surpassed only by the ancillary energy services and the provision of other products or services offered together with gas. Considering the data of central heating, we note, and understandably so, a high lack of interest in additional services, especially in variable-price contracts: the portion of redelivery points of condominiums with a fixed-price contract and no additional services is about 71%, while it rises to 90% among those who have opted for the variable price. The contract without additional services is quite convenient for variable-price customers. Finally, as far as non-households are concerned, the choice of contracts without additional services is by far the most widespread, on average, about 90% of such customers, whether fixed-price or variable-price, choose a contract without other options. The price of such a contract tends to be affordable, however not in comparison with all the additional services available.

An analysis of the data collected in the Annual Survey shows that last year, the **average gas price** (weighted by quantities sold), net of taxes, charged by sales companies to end customers was 52.3 c€/m³, a level unprecedented in the last decade. This price was 33.9 c€/m³ in 2020; therefore, there was an increase of 12.3 c€/m³ in the last year, equivalent to 54.4%. The increase occurred in the year of the strongest increases in the cost of raw materials in the wholesale markets. It involves all consumer classes and to a greater extent the larger ones, which are more sensitive to price fluctuations in international markets.

Households, characterised by the prevalence of lower unit consumption (and thus a higher incidence of fixed charges), have a higher total average price (65.49 c€/m³), while for the opposite reason, industry has a lower total price (39.9 c€/m³). Central heating, utilities, commercial activities and power generation are in an intermediate condition.

Price trends since 2011 for households (households and condominiums), broken down according to the main contractual conditions under which supply can take place, i.e. the protection regime and the free market, confirm that the free market will be less expensive, on average, in 2021. With regard to smaller customers (up to 5,000 m³/year, mostly single households), in all years, the free market has higher values than the protection regime offer. The difference, which had remained around 13% over time, narrowed to 8.6%, probably due to the strong dissemination in the free market of locked-price contractual formulas, which delayed the transfer to end customers of the significant growth in international gas raw material prices that occurred in 2021. The class of customers with consumption between 5,000 and 50,000 m³/year (mainly condominiums) also has higher prices in the free market, with no narrowing of the differential in the last year. A similar trend is recorded for larger customers (consumption between 50,000 and 200,000 m³/year, almost exclusively condominiums). However, the latter size class is marginal for household consumption. The development over the past year is

due to the fact that while in the protection service, all size classes show a fairly similar percentage increase of around 20%, in the free market, the development is clearly differentiated and ranges from an 8% increase for smaller customers to a 36% increase for larger customers.

From the analysis based on the data communicated by the 367 sellers for the gas sector, the **actual average times for replies to complaints and bill adjustments** were 17.70 and 29.23 calendar days respectively, below the minimum standards set by the Authority (30 and 60 days respectively). The **actual average response time to enquiries** was also well below the general standard, i.e. a total of 6.48 calendar days. With regard to **double-billing corrections**, on the other hand, against the standard set at 20 calendar days, the actual average correction time was 18.04 calendar days. In 2021, sales companies serving the reference price and free market of natural gas received a total of 156,407 written complaints, 133,063 enquiries, 11,400 bill adjustments and 607 double-bill adjustments. There were 17,885 (+5.2% compared to 2020) cases of non-compliance with the standards set for services relating to the commercial quality of sales in the gas sector, which resulted in customers being entitled to compensation; 91.7% of these cases were due to failure to meet response times to customer complaints. During the year, compensation for gas customers totalling more than Euro 785,000 was paid out.

In 2021, **customers with dual fuel** contracts sent 27,714 written complaints, down 14.2% year-on-year, and 27,511 written enquiries, also down 6.9%. Bill and double-bill adjustments amounted to 1,667 (-32.6%) and 69 (-46.1%) respectively. Overall, there were 2,204 cases of non-compliance with standards that resulted in the right to automatic compensation in the bill for services related to the commercial quality of sales. Overall, compensation amounting to Euro 96,975 was paid to the dual fuel customer segment.

Consumer protection and dispute resolution

The consumer protection system in the sectors regulated by the Authority consists of two macro-areas: the first concerns information and assistance to customers (basic level); the second concerns the resolution of problems and disputes that may arise between customer and service provider (second level). Activities related to the basic level are carried out nationwide by Acquirente Unico (Single Buyer), on behalf of the Authority, through the **Energy and Environment Consumer Help Desk** (Help Desk), which provides answers to calls to the call centre, written requests for information, requests to activate special information procedures and second-level complaints.

In 2021, 630,083 calls were received at the Help Desk call centre during working hours, a sharp increase (+31%) compared to 2020; of these, 563,816 were handled and 66,267 were abandoned by customers without waiting for the operator to answer. Compared to 2020, both the average waiting time (229 seconds vs. 174) and the average conversation time (241 seconds vs. 227) increased, due to the pressure on the call centre from the sharp increase in calls and the multiplicity of questions posed in each call. Almost all calls handled by the call centre concerned the electricity and gas sectors (605,608, or 96% of the total).

In terms of **written enquiries**, the Help Desk received 18,834 requests in 2021, 40% more than the previous year. Almost three quarters of the enquiries can be traced back to just three topics: 'social bonus' (25%), 'billing' (19%) and 'market' (18%). **Special information procedures** make it possible to provide information without the need for assistance of the Help Desk staff. They have been operational since 1 January 2017 only for some specific topics in the energy sectors; in 2021, requests for the activation of special information procedures increased by 36%, totalling 43,756 cases (70%

for the electricity sector, 20% for the gas sector and 10% for both sectors). Finally, the Help Desk also received 2,041 **second-level complaints** (i.e. those for which the dispute was not resolved by the first complaint), for which the Help Desk informs the customer of the conciliation procedures that can be used to resolve the dispute, which can be activated by resorting to the Authority's Conciliation Service or other conciliation bodies.

Activities relating to the second level of the protection system concern the **resolution of problems and disputes** arising in the relationship between the customer and the regulated service provider. They can be settled through the special settlement procedures of the Help Desk or through conciliation procedures. The latter may be brought before the Authority's Conciliation Service or ADR entities registered on the Authority's special list.

Similarly to what happens for special information procedures, also for **special resolution procedures**, the Help Desk accesses information encoded in centralised databases. In contrast to information procedures, special resolution procedures allow the outcome of the dispute to be determined and imply assistance of the Help Desk staff, in case further information is needed to consult databases, or to verify the correct fulfilment of the regulation following the resolution of the dispute. In 2020, 11,298 requests for the activation of termination procedures were received at the Help Desk, a sharp increase over 2020 (+22%).

The **Authority's Conciliation Service** is a dispute resolution procedure that can be activated by end customers of electricity and natural gas for issues arising with energy operators (sellers and distributors), in case of missed or unsatisfactory response to a complaint. The procedure takes place entirely online and in the presence of a third-party, impartial mediator experienced in mediation. Any final agreement has settlement effect between the parties pursuant to article 1965 of the Civil Code. Moreover, with the approval of art. 141, par. 6, letter c of the Consumer Code, the attempt at conciliation has become a condition for proceeding before the courts for disputes arising in the sectors regulated by the Authority (with the exception of tax or fiscal profiles), unless urgent and precautionary judicial measures are taken. In 2021, customers and end users in the energy sectors submitted 16,795 requests to the Conciliation Service, 595 more than the previous year. The sectoral breakdown of the requests received by the Service in 2021, similar to the previous year, confirms the prevalence of electricity, with a 58% share of the requests submitted (9,784 requests); followed by gas customers with 31% (5,210 requests), dual fuel customers with 10% (1,688 requests) and prosumers with 1% (113 requests). Concerning the outcome of the requests received by the Service, 80% of the cases resulted in admission to the procedure, while the procedures concluded with an agreement between the parties accounted for 70%; these percentages are in line with the previous year. It took the parties an average of 58 days to reach agreement, 5 less than in 2020, probably due to a reduced impact of pandemic waves.

As an alternative to the Authority's Service, the end customer may make a compulsory attempt at conciliation for judicial purposes also with recourse to other parties. The Authority, in implementation of the rules, established in December 2015 the **List of Organisations entrusted to handle ADR (Alternative Dispute Resolution procedures)**. At 31 December 2021, 28 ADR entities were registered in the Authority's List. The information provided by ADR entities shows a slight decrease in the number of conciliation requests related to the energy sectors, which fell from 1,084 in 2020 to 1,048 in 2021; this figure is also affected by the fact that 2 entities did not receive any requests for pandemic-related issues. Almost half of the requests (44%) were submitted by the customer through a consumer association.

Since 2009, a protection mechanism has been in place for households in situations of economic hardship or serious health conditions who receive a **bonus, i.e. a discount on the supply of**

electricity and/or natural gas. In order to bridge the gap between the potential beneficiaries and the actual bonus recipients, which has always remained at considerable levels, Decree-Law No. 124 of 26 October 2019 innovated the regulatory framework by providing, inter alia, that from 1 January 2021, bonuses will be recognised automatically to those entitled to them (which are the persons whose valid ISEE⁸ is within the limits provided for by the legislation) and, therefore, without the need for them to submit a special request to the Municipalities and/or tax assistance centres. Therefore, in January 2020, the Authority initiated proceedings to render this provision operational. In February 2021, the Authority therefore approved the methods for requesting the **regime for the automatic recognition of electricity, gas and water social bonuses for economic hardship**, entirely replacing the regulation of the previous 'on request' system. However, the social electricity bonus for physical hardship does not fall within the scope of the measure, which remains 'on request' and continues to be managed through a separate system. The new regulation takes effect, in terms of the recognition of benefits to those entitled, as of 1 January 2021, consistent with the provisions of Decree-Law 124/19. Taking into account the time required for the development of the related IT systems, the mechanism became operational as of 1 June 2021. Therefore, the terms were defined for the recognition of any portion of the 2021 bonus accrued before said date.

In the context of the sharp increases in energy commodity prices in 2021, Decree-Law No. 130 of 27 September 2021 provided, inter alia, for the reinforcement of social bonuses for electricity and gas in order to minimise, for disadvantaged households, the increases in supply costs expected for the fourth quarter of 2021, allocating a total of Euro 450 million. The Authority implemented the decree immediately. In addition to these measures, in December 2021, it implemented art. 1, par. 508 of Law No. 234 of 30 December 2021 (so-called Budget Law 2022), which provided for a further reinforcement of the electricity and gas bonuses in the first quarter of 2022, in order to minimise the expected increases in expenditure for the supply of electricity and gas to economically disadvantaged households, up to the amount of Euro 912 million.

In 2021, which was the first year with the new automatic bonus recognition mechanism, the number of citizens who obtained the **social bonus for electricity supplies** tripled compared to the previous year, from 854,900 to 2,529,566, of which 2,487,599 (+209%) for economic hardship and 41,967 (+2.2%) for physical hardship. The total amount of bonuses disbursed for the electricity sector (for economic hardship and physical hardship) was approximately Euro 488 million, an increase of 260%. The beneficiaries of the social electricity bonus are located 31% in the North, 16% in the Centre and 53% in the South and Islands. Of the beneficiaries, 46% are households with up to 2 members, 40% with 3 or 4 members, 14% with more than 4 members.

The number of households benefiting from the **social bonus for gas supplies** due to economic hardship also tripled, from 543,963 to 1,537,884 (+183%). The amount of bonuses disbursed for the gas sector in 2021 was about Euro 209 million (+174%); this amount does not include the entitlements of households served by condominium supplies, the automatic identification process of which is ongoing. With regard to the beneficiary households (holders of direct supplies), their distribution by number of members appears similar to the electricity sector, while the territorial distribution is different, with the North (43%) prevailing, followed by the South and Islands (37%) and the Centre (20%).

Also in 2021, the actions of the Authority continued, aimed at accompanying end consumers on the **path to overcoming price protections**. As established by the Authority, therefore, the

⁸ Equivalent Economic Situation Indicator: this is the tool used to measure the economic condition of households in Italy. It is an indicator that takes into account income, assets and the characteristics of a household (in terms of size and type).

communications included in the bills issued in the first and second half of 2021 informed the end customer that changing contract or supplier is simple and free of charge and that continuity of service is guaranteed; they also provided the elements that should prompt the customer to make use of the tools aimed at making an informed and aware choice, such as the "Portale Consumi", the "Portale Offerte luce e gas" and the PLACET offers.

At 31 December 2021, there were a total of 3,886 offers in the "Portale Offerte" database, of which 1,934 were free market and 1,952 PLACET offers. For the electricity sector, a total of 2,036 offers were available, for natural gas, 1,814; there were 36 dual fuel offers.

2.1.2 Implementation of the Clean Energy Package

Law No. 53 of 22 April 2021 is the measure that defined the principles and guiding criteria for the delegation of powers to the Government for the implementation of the Clean Energy Package standards in the Italian legal system, with particular reference:

- to Directive 2018/2001/EU on the promotion of the use of energy from renewable energy resources (art. 5);
- to Directive 2019/944/EU concerning common rules for the internal market in electricity and amending Directive 2012/27/EU (recast) (art. 12);
- to the adaptation of national legislation to the provisions of Regulation (EU) 943/2019, on the internal market in electricity (recast), and Regulation (EU) 941/2019, on risk preparedness in the electricity sector and repealing Directive 2005/89/EC (art. 19).

In implementation of this law, the following were then enacted: Legislative Decree No. 199 of 8 November 2021, on the 'Implementation of Directive (EU) 2018/2001 on the promotion of the use of energy from renewable sources' (so-called Decree Red II); Legislative Decree No. 210 of 8 November 2021 on 'Implementation of EU Directive 2019/944 concerning common rules for the internal market in electricity and amending Directive 2012/27/EU, as well as laying down provisions for the adaptation of national legislation to the provisions of EU Regulation 943/2019 on the internal market in electricity and EU Regulation 941/2019 on risk preparedness in the electricity sector and repealing Directive 2005/89/EC' and other decrees transposing European directives.

At the beginning of 2020, the **National Integrated Energy and Climate Plan (PNIEC)** was published, which was sent to the European Commission by the Ministry of Economic Development in agreement with the Ministry of Environment and the Protection of Land and Sea and the Ministry of Infrastructure and Transport, pursuant to the so-called governance regulation (Regulation (EU) 1999/2018). The Plan, which is extensively described in the Annual Report 2020 (to which we refer) contains objectives, policies and measures that Italy intends to adopt in the coming years to achieve the European energy and climate targets for 2030. The Italian government is now working on its implementation.

Decree-law 31 May 2021, No. 77 (containing "Governance of the National Recovery and Resilience Plan and first measures to strengthen administrative structures and accelerate and streamline procedures", converted, with amendments, by Law No. 108 of 29 July 2021) **defined a governance**

suitable for timely implementation of the National Recovery and Resilience Plan (PNRR) within a national regulatory framework aimed at simplifying and facilitating the achievement of the goals and objectives established by the PNRR itself, by the PNC (National Plan for complementary investments) and the PNIEC (Integrated National Energy and Climate Plan); it also provided, among other **provisions**, those **aimed at accelerating the procedures for achieving the national energy efficiency targets** contained in the PNIEC and in the PNRR, with particular regard to the increase in the use of sources of electricity production from renewable energy resources (article 30); other provisions aimed at **simplifying the rules for storage and photovoltaic plants** and **identifying infrastructures for the transport of LNG in Sardinia** (art. 31); finally, simplification provisions regarding the production of electricity from renewable sources and **simplification of repowering procedures** (art. 32).

3 THE ELECTRICITY MARKET

3.1 Infrastructure regulation

3.1.1 Unbundling

In May 2021, the Authority closed⁹ the trial of self-auditing procedures on functional unbundling, for the companies Lereti (formerly ACSM AGAM), Servizi a Rete (gas and electricity divisions), AIM Vicenza, Centria, Cogeser, Deval, Edma Reti Gas, Novareti, Set Distribuzione, Serenissima Gas, and Erogasmet.

This trial had been introduced¹⁰ in June 2015 by establishing, as a supplement to the regulation on functional unbundling, the possibility, for the companies subject to it, to adopt, on a voluntary basis, self-auditing models consisting of protocols of verifications and controls in addition to those provided for by the regulation, aimed at certifying the adherence of the vertically integrated company's management result to the goals pursued by the functional unbundling obligations, in the face of exemptions from some of the obligations provided for by the Integrated Functional Unbundling Text (TIUF) that were not provided for by primary regulations.

Closing the trial phase, the Authority established that:

- possible updates to the self-auditing procedures and permitted control forms may be set by the Authority from 2022 onwards on the basis of future regulatory developments in this area and of the Authority's enforcement needs;
- the results of controls carried out through self-auditing procedures shall be transmitted annually to the Authority;
- there shall be cooperation in control and inspection activities by the Authority as a condition for the admission and maintenance of the self-auditing procedures and related derogation;
- the outcomes of the closing proceedings of the trial phase of the self-auditing procedures are acquired, in order to supplement the TIUF with provisions on the modalities of admission to the self-auditing procedures for all companies.

In November 2021, the Authority ordered¹¹ a number of companies operating in the electricity and gas sectors to send the mandatory notifications required by the TIUF, in order to verify the correct fulfilment of their obligations regarding functional unbundling.

3.1.2 Network expansion and optimisation

In Italy, **power transmission** is carried out by approximately 75,250 km of power lines and circuits and 910 switching and conversion stations. The Transmission System Operator (TSO) is the company Terna. Terna's controlling shareholding of 29.85% is held by CDP Reti, a subsidiary of Loans and

⁹ Resolutions of 25 May 2021, 213/2021/R/com and 214/2021/R/com.

¹⁰ Resolution of 22 June 2015, 296/2015/R/com.

¹¹ Resolution of 16 November 2021, 496/2021/E/com.

Deposits Bank¹². The remaining 70.15% of the capital belongs to the market.

In 2021, the number of companies owning Transmission system (RTN) assets became 8, compared to 11 of the previous year, due to the incorporation of the assets of some companies into those of the Terna group. In addition to Terna - Rete elettrica nazionale and Rete, the Terna group company into which the facilities acquired from the Italian State Railways have been merged, are present in power transmission: Terna Crna Gora and Monita Interconnector (the companies are wholly owned subsidiaries of Terna and were established for the construction of the Italy-Montenegro power line, which entered into operation in December 2019), Edyna Transmission (which is part of the Edyna group operating in South Tyrol), Seasm of the A2A group, Nord Energia and Eneco Valcanale, the company that built a high-voltage line connecting with the Austrian national network, APG (Austrian Power Grid). The assets of Arvedi Trasmissione, which operated in the Cremona area, were transferred to the Terna group in May 2021, as were those of Megareti, of the Agsm Verona group, acquired by the Terna group in December 2021. In June, El.It.E. was merged with Rete.

Considering the assets of all the companies belonging to the corporate group, in 2021 the Terna group owns 75,165 km of cables, i.e. 99.9% of the national power lines, as well as 99.7% of the 910 power stations that are part of the RTN.

As at 31 December 2020, 125 **power distribution** companies (one less compared to 2020) were registered in the Authority Registry of Operators, of which only 10 serve a number of customers exceeding 100,000 and together serve 98.1% of all users. There are four companies with more than 500,000 withdrawal points: e-distribuzione (Enel group), Unareti (A2A group), Areti (Acea group) and Ireti (Iren group): they all changed their names in 2016 to comply with the provisions on functional unbundling, which forced distribution companies belonging to a vertically integrated corporate group, also engaged in marketing activities, to distinguish themselves from the other companies in the group in terms of identity, branding and communication policies.

Overall, power distribution in Italy takes place through 1,280,000 km of networks, most of which (69%) are low voltage. In 2021, the power distribution networks grew by almost 3,500 km, of which about 1,300 km were low voltage and about 2,200 km were medium voltage, while the high and extra-high voltage networks remained essentially unchanged. The company e-distribuzione (Enel group) is the leading operator, with the dominant share of 85.5% of the distributed energy. They are, in the same order as 2020: Unareti (A2A group) with 4.1%, Areti (Acea group) with 3.4% and Ireti (Iren group) with 1.3%. All other distributors have a share of distributed volumes of less than 1%.

3.1.3 Investment in new transmission infrastructures

Consultation on the on the draft National Transmission Grid Development Plan

In August 2021, the Authority launched¹³ the consultation on the draft National Transmission Grid Development Plan 2021 pursuant to the law¹⁴ and to the provisions of the Authority¹⁵, setting a

¹² The capital of CDP Reti is owned by Loans and Deposits Bank for 59.1%, 35.0% by State Grid Europe Limited, a subsidiary of State Grid Corporation of China, and 5.9% by other Italian institutional investors.

¹³ Press release of 9 August 2021.

¹⁴ Art. 36 of Legislative Decree no. 93 of 1 June 2011.

¹⁵ Resolution of 4 November 2016, 627/2016/R/eel.

consultation deadline at 19 October 2021. Among the documents submitted for public consultation, a Terna report with a cost-benefit analysis and other insights on the Sicily-Campania HVDC link (East Link) was made available. The Authority asked Terna to organise a public webinar on the Plan, which was held on 6 October 2021. Prior to the webinar, stakeholders had the opportunity to submit specific questions on the ten-year Plan outline to Terna by 21 September 2021.

Eleven parties (business associations and major national operators on the electricity market) took part in the consultation, submitting comments on the Plan outline, which have been made publicly available, together with Terna replies and counter-observations.

Monitoring the implementation of development plans

The Authority monitored the implementation of the previous Development Plans and controlled the consistency between the National Development Plan and the 2020 Ten Year Network Development Plan of ENTSO-E, also sending its own contributions to ACER opinions no. 4-2021 of 3 May 2021 on the projects contained in the ENTSO-E 2020 Ten Year Network Development Plan and no. 5-2021 of 19 July 2021 on the National Development Plans.

The Authority's contributions to the selection process of projects of common interest

In line with the provisions of Regulation (EU) 347/2013, the Trans-European Networks for Energy regulation, the Authority provided its assessments on candidate projects of common interest. These are the most important energy infrastructures projects with a cross-border impact, which aim to build a more integrated and resilient EU internal energy market and pursue energy and climate goals, which must be a priority for national development plans.

Following the selection process, the European Commission published the fifth list of projects of common interest on 19 November 2021, which includes the following interconnection projects between Italy and neighbouring countries:

- PCI 2.4 Codrongianos (IT) - Lucciana (FR) - Suvereto (IT), SA.CO.I 3;
- PCI 2.14 Thusis/Sils (CH) - Verderio Inferiore (IT), Greenconnector;
- PCI 2.33 Sicily (IT) - Tunisia node (TN), ELMED, formerly numbered as PCI 3.27.

3.1.4 Tariffs for connection and network access

Tariffs for transmission, distribution and metering services

In December 2019, the Authority approved¹⁶ the regulation of tariffs and quality of power transmission, distribution and metering services, for the years 2020-2023 (NPR2). As before, the NPR2 continues to provide for the decoupling of the single tariff applied to final customers (the "mandatory tariff") and the reference tariffs defined to set revenue constraints for each distribution company. In December 2021, the tariffs for transmission, distribution and metering services applied to final customers ("mandatory tariffs") for 2022 were determined¹⁷.

¹⁶ Resolution of 27 December 2019, 568/2019/R/eel.

¹⁷ Resolutions of 28 December 2021, 621/2021/R/eel and 623/2021/R/eel.

Regulation of commercial network leakage

In November 2020, amendments were finalised¹⁸ to the regulation of leakage on power distribution networks. The decision established the conventional percentage factors for commercial leakage to be applied to electricity for equalisation purposes for the years 2019-2021, providing for their reduction due to the improvement rates of the years 2016-2018. Consequently, the standard leakage factors¹⁹ to be applied to the electricity withdrawn at withdrawal points on low-voltage networks were also revised, effective 1 January 2021, bringing the conventional leakage factor recognised for withdrawals to a level equivalent to 10.2% (from the previous 10.4%).

In December 2021, the Authority explained²⁰ the main recommendations for further amendments to the regulation for the years 2022 and 2023. The recommendations take into account the costs acknowledged to the distribution companies, communicated to the Authority by the Energy and Environmental Services Fund (CSEA), as well as some additional information requested from the same CSEA on the trend of actual leakage during the period 2015-2020. The answers showed in particular that:

- over the period 2015-2020, the average percentage value of actual leakage in relation to the electricity withdrawn by all distribution companies has been steadily decreasing from 7.23% in 2015 to 7.01% in 2020;
- in 2020, for 78% of the main distribution companies (which distributed 99% of the total electricity withdrawn in that year), the actual leakage was lower than that conventionally recognised;
- for all the years under analysis, there has been an overall situation of substantial credit from the distribution companies to the system, in relation to equalisation balances.

On the basis of this evidence, the Authority prefigured:

- the reduction, as of the year 2022, of the conventional coefficients applied for equalisation purposes for commercial leakage on low-voltage networks, by setting them:
 - in 2022, 0.9% in the North area, 1.72% in the Central area and 4.87% in the South area;
 - in 2023, 0.89% in the North area, 1.67% in the Central area and 4.63% in the South area;
- the revision, as of 1 January 2023, of the conventional percentage leakage factor for low-voltage withdrawal points to 10%.

In March 2022, the Authority, taking into account the comments of the stakeholders in the consultation, made²¹ some changes to what was originally recommended. In particular, a more cautious commercial leakage containment path was adopted, providing for an average annual reduction of 4% for both 2022 and 2023 compared to the values in force in 2021, and setting the conventional coefficients for commercial leakage to be applied to electricity for equalisation purposes:

- for 2022, 0.92% in the North area, 1.77% in the Central area and 5.13% in the South area;

¹⁸ Resolution of 10 November 2020, 449/2020/R/eel.

¹⁹ Table 4 of the Settlement Integrated Text (TIS).

²⁰ Consultation document of 21 December 2021, 602/2021/R/eel.

²¹ Resolution of 22 March 2022, 117/2022/R/eel.

- for 2023, 0.90% in the North area, 1.71% in the Central area and 4.87% in the South area.

Additional measures were also introduced to mitigate the effects of the upward dynamic in energy prices, which envisage:

- for the two-year period 2022-2023, a limitation on the average annual electricity alienation price used for the assessment of the equalisation balance, commensurate with the values for the period 2016-2018;
- for the two-year period 2022-2023, the introduction of a guarantee clause for the system to the effect that the overall economic result of the leakage management of a given distribution company shall be zero, if, as a result of the application of the price limitation in the preceding section, this result leads to a credit position of the company vis-à-vis the system;
- for 2022, the introduction of a guarantee clause to be activated for the benefit of the distribution company in the event that the application of the new leakage factors leads to an unfavourable overall economic result in the management of leakage.

Reimbursement of charges for non-payment of network tariffs

In November 2020, the Authority introduced²² the first provisions for the reimbursement to electricity distributors of charges resulting from the non-receipt of network tariffs. This is a mechanism for covering possible charges related to exceptional situations of non-payment of bills, which provides for an assessment of bad debts from distribution companies accrued since 1 January 2016, the date of the first application of the model network code²³ on the subject of guarantees and service billing.

This mechanism, which can be activated upon application by the distributor, concerns credits relating to the application of tariff fees for power metering, distribution and transmission services, fees for reactive energy withdrawals, tariff components to cover equalisation mechanisms and to promote service quality, as well as contributions for specific services.

During 2021, the Energy and Environmental Services Fund (CSEA) managed the implementation of these provisions. A total of 11 distribution companies applied for access to the mechanism, requesting the reinstatement of almost Euro 165 million, related to bad debts accrued between 1 January 2016 and early 2020. For subsequent periods, a new procedure will be defined that is coordinated with the provisions²⁴ launched in 2018 for bad debts related to general system charges. The relevant guidelines were set out in the consultation launched in September 2021²⁵.

Status of incentives for renewable and assimilated energy resources

The incentive charges for renewable and assimilated energy resources placed on the A₃ account in 2021 were significantly lower than in the previous year, as shown in Table 3.1.

²² Resolution of 17 November 2020, 461/2020/R/eel.

²³ Resolution of 4 June 2015, 268/2015/R/eel.

²⁴ Resolution of 1 February 2018, 50/2018/R/eel.

²⁵ Consultation document of 14 September 2021, 380/2021/R/eel.

Table 3.1 Details of charges to account A₃

ACCRUAL CHARGES (Millions of euros)	2020		2021	
	VALUE	SHARE	VALUE	SHARE
CIP6 renewable electricity trading	0	0.0%	0	0.0%
Collection of green certificates	6	0.1%	4	0.0%
CV conversion to incentives	2,613	21.8%	3,073	28.8%
Photovoltaic	6,145	51.4%	5,865	54.9%
Dedicated withdrawal	72	0.6%	11	0.1%
All-inclusive feed in tariff	2,065	17.3%	1,225	11.5%
On-the-spot trading	164	1.4%	90	0.8%
RES administered incentives	677	5.7%	306	2.9%
Self-consumption and energy communities	0	0.0%	0	0.0%
Other	1	0.0%	1	0.0%
TOTAL RENEWABLES	11,743	98.2%	10,575	99.0%
CIP6 assimilated electricity trading	144	1.2%	36	0.3%
CO ₂ assimilated charges	75	0.6%	74	0.7%
Coverage of assimilated green certificates	0	0.0%	0	0.0%
CIP6 resolution	0	0.0%	0	0.0%
TOTAL ASSIMILATED	219	1.8%	110	1.0%
TOTAL CHARGES A₃	11,962	100.0%	10,685	100.0%

Source: ARERA. Processing of GSE data.

The reduction is largely attributable to the drastic increase in the Single National Price (PUN) recorded in the second half of the year, as a result of the strongly bullish trend in energy commodity prices. In fact, the increase in the PUN has a positive effect on the charges in the A₃ account pertaining to the same year, both because the revenues from the sale of subsidised energy increase and because certain types of breaks decrease as the PUN increases. This increase has a positive impact, in perspective, also for the following year, especially in connection with the incentive update mechanism that replaced green certificates.

The tariff component that feeds into the A₃ account (A_{SOS}) from the third quarter of 2021 onwards was subject to extraordinary manoeuvres that significantly reduced its level, in order to at least partially offset the impacts of the energy price increase on final customers.

In particular, in Q3 2021 the level of the A_{SOS} component was reduced by approximately 50% compared to the previous quarter, while in Q4 2021 this level was maintained in general terms but the rates for all households and those with other uses that are served at low voltage and with available power up to 16.5 kW were cancelled.

The aforementioned manoeuvres would not have been sustainable in any case without the contributions from the State Budget established by Decree-Laws 73/2021 and 130/2021.

3.1.5 Regulation of network security and reliability

Adequacy of system capacity and security

The final version of the National Integrated Energy and Climate Plan (PNIEC) confirmed the relevance of the Capacity Market, considering it a useful tool to preserve the adequacy conditions of the electricity system and to promote efficient, flexible and less polluting investments, with a view to decarbonising the sector and accelerating the penetration of renewable energy resources.

In June 2021, the Minister for ecological transition expressed, among other things, the need to conduct Capacity Market tenders for the years 2024 and 2025 within predefined deadlines.

In order to enable the capacity tenders for the delivery periods 2024 and 2025 to take place, the Authority adopted several decisions, mainly concerning:

- the determination of the adequacy standard and the value of the non-supplied energy of the Italian electricity system, pursuant to Regulation (EU) 943/2019;
- the verification of changes and additions to the regulations and technical provisions for the operation of the Capacity Market, recommended by Terna;
- the approval of the updated version of the regulation on the modalities of qualification and participation in the Dispatching Service Market (MSD) of Consumption Units for the Capacity Market (UCMC);
- the definition of the economic parameters of the competitive procedures for the aforementioned delivery years.

Adequacy standards and value of non-supplied energy in the Italian electricity system

Pursuant to Regulation (EU) 943/2019, from the year 2020 the implementation of capacity remuneration mechanisms presupposes, *inter alia*, that:

- the European resource adequacy assessment (ERAA) and/or the corresponding national assessment, show a worse result than the Reliability standard (RS) set by the Member State itself;
- this standard, expressed in terms of expected hours of load disconnection (Loss Of Load Expectation or LOLE) and expected energy not supplied, is calculated according to a predetermined methodology taking into account the Value of Lost Load (VOLL) and the Cost of New Entry (CONE) and is set by the Member State or by a competent authority designated by the Member State, following a recommendation by the national regulatory authority;
- for the definition of the standard, the regulatory authorities or any other competent authorities designated by the Member States shall determine an estimate of the value of the energy not supplied for their territory.

Following ACER decision no. 23-2020 of 2 October, whereby the methodologies proposed by ENTSO-E in relation to the adequacy standard, the value of non-supplied energy and the cost of new entrants were approved with modifications, in December 2020, the Authority initiated²⁶ a proceeding to prepare a recommendation to the Minister of economic development regarding the adequacy standard, requesting Terna to prepare a study on the values of the standard and the relative determining variables.

Based on the study conducted by Terna, the Authority, in September 2021²⁷ has:

- indicated the estimated value of the non-supplied energy of the Italian electricity system of 20,000 €/MWh;
- recommended to the Minister for the ecological transition a standard of adequacy of the Italian electricity system equal to three hours/year of LOLE, calculated as the ratio, rounded to the unit, between the minimum level of the new entrant cost range, equal to 53,000 €/MW/year, and the value of energy not supplied.

²⁶ Resolution of 1 December 2020, 507/2020/R/eel.

²⁷ Resolution of 7 September 2021, 370/2021/R/eel.

With the decree of 28 October 2021, pursuant to Regulation (EU) 943/2019, the Minister for ecological transition established the Italian electricity system adequacy standard in line with the Authority's recommendation, setting the target value for the electricity system adequacy indicator, expressed in terms of LOLE, at three hours/year.

More details on the determination of the relevant parameters for the definition of the adequacy standard are given below.

Value of energy not supplied

With regard to the value of non-supplied energy, Terna's study reports the results of a detailed demographic survey, which was carried out by administering questionnaires to a representative sample of different categories of final customers, aimed at estimating the value they attribute to the disconnection of their load. The survey was conducted with reference to three customer categories (residential, tertiary and industry) and to interruption scenarios with a duration of two minutes and one hour.

For the residential and tertiary segments, the value of non-supplied energy was calculated by averaging the amounts resulting from the application of the Willingness-To-Pay (WTP) and Willingness-To-Accept (WTA) approaches, according to which the aforementioned value corresponds respectively to the maximum price the customer is willing to pay to avoid suffering a supply interruption and to the minimum countertrade the customer expects to receive for accepting the same interruption. For the industry segment, the Direct Worth (DW) approach was used, which identifies the value of the energy not supplied in the economic loss associated with the interruption. The methodological choice for the industry segment is based on the assumption that:

- for rational operators such as industrial companies, there is no difference between WTP and WTA;
- the DW approach makes the estimate of WTP more robust, since the damage due to the interruption corresponds to the price rational operators are willing to pay to avoid it.

The value of 20,000 €/MWh, indicated by the Authority in September 2021, comes from the values reported in Terna's study.

Cost of the new entrant

Terna's study, in which the various technologies capable of contributing to the adequacy of the electricity system were reviewed, identifies open-cycle gas turbine plants (OCGT) as the reference technology potentially capable of meeting the need for new capacity required to reach a predefined adequacy target.

With regard to the aforementioned technology, the study provides a range of new entrant cost values - from 54,000 to 63,000 €/MW/year - as an effect of different investment cost estimates.

The value of 53,000 €/MWh indicated by the Authority in September 2021 is the result of the data contained in the study, applying, however, a different rate of remuneration of real capital *before tax* (5.3%) than that assumed by Terna.

3.1.6 Quality and output standards for distribution and transmission services

Regulation of the continuity of the electricity distribution system

In December 2019,²⁸ The “Integrated text of output-based regulation of electricity distribution and metering services” for the period 2020-2023 (TIQE) was approved.

In implementation of the TIQE, in November 2021, the proceedings for the determination of bonuses and penalties for 2020 for output-based regulation of the electricity distribution system were closed²⁹. With regard to the regulation of the duration and number of unannounced interruptions, Euro 38.4 million in net bonuses were disbursed, divided up as follows:

- bonuses of Euro 9.9 million for long unannounced interruptions (lasting more than 3 minutes), as the balance of Euro 12.4 million in bonuses and Euro 2.5 million in penalties;
- bonuses of Euro 28.5 million for the number of long and short unannounced interruptions (duration between 1 second and 3 minutes), as the balance between Euro 35.2 million in bonuses and Euro 6.7 million in penalties.

Based on the 2019 and 2020 electricity service continuity data, the Authority published in February and November 2021, respectively, the eighth and ninth national rankings of electricity distribution companies regarding the number and duration of interruptions; both rankings are available on the Authority's website. The published data confirms that the households and small electricity customers benefiting from the improved service continuity are mainly located in northern Italy, in urban areas, and are served by distribution companies with mostly underground networks. Even for medium voltage industrial customers, the data show that the lowest number of interruptions occurs in the provinces of Northern Italy. The Authority's commitment to promoting, through a variety of initiatives, including incentives, the reduction of the gap between electricity service quality levels in Northern Italy and those in Southern Italy remains unchanged.

Voltage quality on medium voltage networks

In addition to interruptions, industrial customers, particularly those with continuous production activities, are sensitive to the voltage quality disturbance known as “voltage dips”. A voltage dip is a sudden drop in operating voltage, followed by its rapid restoration. Voltage dips are characterised by residual voltage (usually expressed as a percentage of the operating voltage) and duration (usually expressed in milliseconds).

In November 2021, the Authority published, for the first time, information on voltage quality on medium voltage (MV) networks, with particular reference to the number of voltage dips originating on the MV networks of distribution companies, for whatever cause.

The data refer to all distribution companies supplied with high voltage; voltage dips are monitored by means of installed equipment, the features of which were defined within the framework of a working table set up by the Authority. The indicator of the voltage quality level is the average number of “severe” voltage dips per MV user, understood as the voltage dips originating on the medium voltage networks that are most significant in terms of impact on users.

²⁸ Resolution of 23 December 2019, 566/2019/R/eel.

²⁹ Resolution of 30 November 2021, 535/2021/R/eel.

Resilience of the electricity distribution system

In implementation of the TIQE:

- in May 2021³⁰ the bonuses for the company e-distribuzione were determined, totalling Euro 5.3 million, relating to the interventions to increase the resilience of the electricity distribution system completed in 2019 and approved³¹ by the Authority in December 2019;
- in November 2021, the interventions eligible for bonuses and/or penalties aimed at increasing the resilience of electricity distribution networks (in terms of increased network robustness to the stresses caused by critical risk factors, with particular reference to the formation of ice sleeves due to snow or wind, heat waves, flooding and falling plants due to excessive snow load) were determined³²; these interventions were selected by the distribution companies participating in the incentive mechanism in 2021 and included in the resilience sections of the 2021-2023 Development Plans (2021-2023 Resilience Plans);
- also in November 2021, the bonuses for six distribution companies (Areti, e-distribuzione, Ireti, Servizi a rete, set-distribuzione and Unareti) were determined³³, totalling Euro 15.4 million, relating to the interventions to increase the resilience of the electricity distribution system completed in 2020 and approved³⁴ by the Authority.

Incentive to reduce the duration of planned interruptions

In November 2021,³⁵ penalties were assigned to the company e-distribuzione, amounting to Euro 2.6 million, relating to the experimental regulation offering incentive for the reduction of the duration of interruptions with notice of the electricity distribution system.

Quality of the electricity transmission system

In December 2019, the "Integrated text of output-based regulation of the electricity transmission system" for the period 2020-2023 (TIQ.TRA) was approved³⁶, which promotes the improvement of the continuity of the electricity transmission system through a mechanism of bonuses and penalties referring to the Unserved Energy Reference (ENSR) indicator, calculated on a national basis and subject to verification by the Authority.

The Authority's Offices, with the cooperation of the Tax Police, carried out³⁷ an on-site inspection towards Terna, concerning the year 2020 transmission system continuity data, with particular reference to the ENSR indicator. In November 2021, the Authority ordered³⁸ the allocation to Terna of a bonus of Euro 23 million in connection with the improvement of the ENSR for 2020.

³⁰ Resolution of 25 May 2021, 212/2021/R/eel.

³¹ Resolution of 17 December 2019, 534/2019/R/eel.

³² Resolution of 30 November 2021, 536/2021/R/eel.

³³ Resolution of 30 November 2021, 537/2021/R/eel.

³⁴ Resolutions of 17 December 2019, 534/2019/R/eel and of 1 December 2020, 500/2020/R/eel.

³⁵ Resolution of 30 November 2021, 535/2021/R/eel.

³⁶ Resolution of 27 December 2019, 566/2019/R/eel.

³⁷ Resolution of 28 September 2021, 394/2021/E/eel.

³⁸ Resolution of 30 November 2021, 538/2021/R/eel.

Resilience of the electricity transmission system

In February 2021,³⁹ new provisions on the resilience of the electricity transmission network were introduced, providing in particular for Terna to conduct a public discussion on the new methodology for defining resilience indices and to submit the results to the Authority by 31 July 2021. Subsequently, analyses continued with Terna aimed at verifying and consolidating the methodology.

Individual regulation of micro-interruptions for final customers of the Transmission System (RTN) supplied at high and extra-high voltage

A new phase for monitoring micro-interruptions (transient interruptions and voltage dips) for final customers of the National Transmission Network supplied with high and extra-high voltage was established⁴⁰ in 2022, to which final customers corresponding to 42 withdrawal points, to which individual regulation of micro-interruptions is to be applied in the period from 1 January 2023 to 31 December 2023, adhered.

Quality of electricity distribution: duration and number of interruptions

There was a slight improvement in 2021 compared to 2020 concerning the average duration of interruptions per user and a slight deterioration for the average number of interruptions per user.

Therefore, the marked improvement in the duration and number of interruptions is confirmed compared to the three-year period 2017-2019, years in which the impact of exceptional weather events contributed substantially to the increase in the duration and number of interruptions.

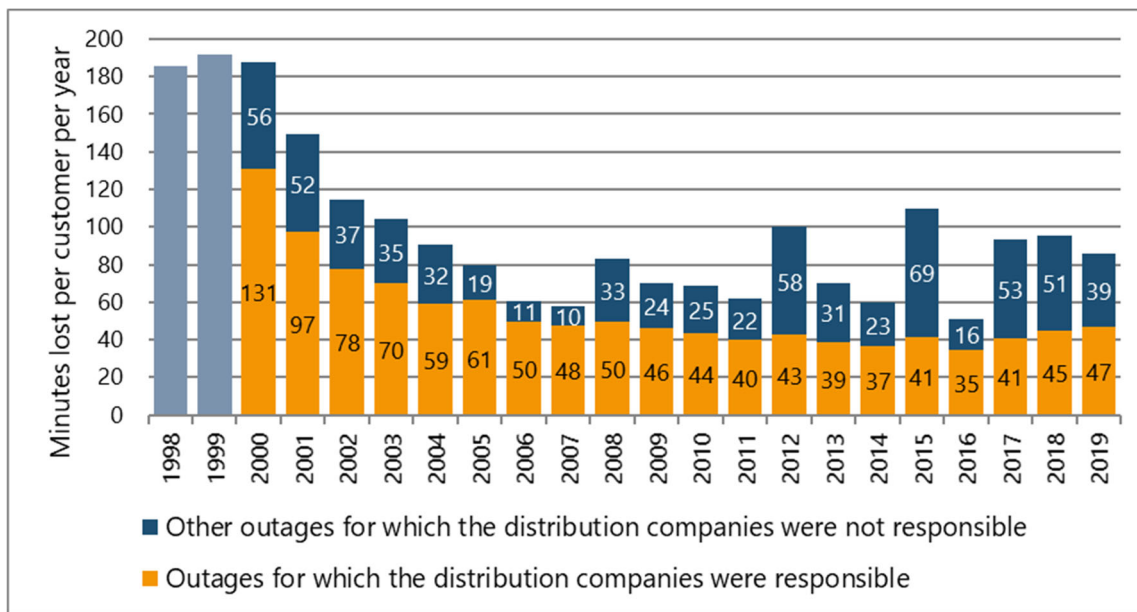
Compared to 2000, the year in which the bonus-penalty regulation of service continuity for distribution companies was first introduced, 2021 shows an improvement of 67% for the duration of interruptions and 41% for the number of long interruptions (lasting more than three minutes).

Analysing in detail the indicators for 2021, which are still subject to verification by the Authority, the duration of unannounced interruptions for which distribution companies are responsible stands at 41 minutes on a national level (Figure 3.1) and the number of long and short unannounced interruptions (lasting between one second and three minutes) for which distribution companies are responsible stands at 3,23 interruptions per low-voltage user on a national basis (Figure 3.2), an improvement of 30% compared to 2008 (the year in which the bonus-penalty regulation for the number of interruptions was first introduced). In calculating these values, interruptions originating on the RTN and on the high-voltage network, exceptional interruptions occurring during periods of disturbed conditions and on days with exceptional lightning strikes (identified according to two specific statistical methods), as well as interruptions due to exceptional events, acts of public authority and theft are deducted.

³⁹ Resolution of 23 February 2021, 64/2021/R/eel.

⁴⁰ Resolution of 9 December 2020, 524/2020/R/eel.

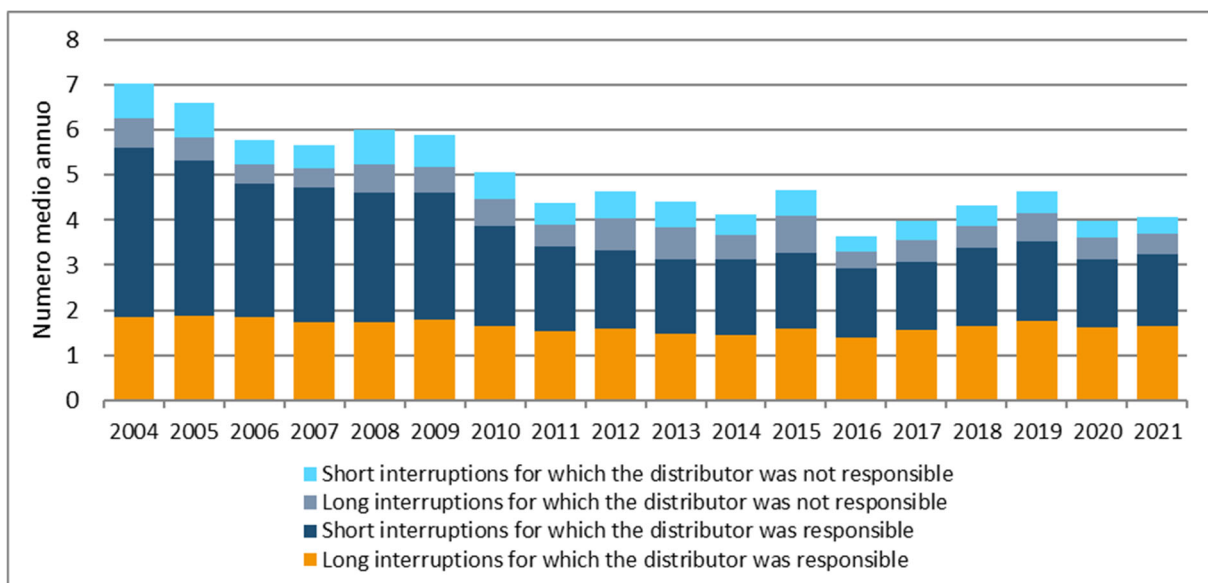
Figure 3.1 Duration of outages per low-voltage customer^(A)



(A) Referring to e-distribuzione and other distribution companies (excluding major incidents on the RTN, defence system interventions and interruptions due to theft).

Source: ARERA. Processing of declarations of operators.

Figure 3.2 Number of unannounced interruptions per low-voltage customer for which distribution companies are responsible^(A)



(A) Referred to e-distribuzione and other distribution companies.

Source: ARERA. Processing of declarations of operators.

Network connection times

User connections to the network can be active or passive. "Active connections" are those required by power generation plants to the transmission network or distribution networks, primarily to enable

these plants to feed energy into the electricity system. "Passive connections", on the other hand, are those requested by final customers to the transmission or distribution networks to allow energy withdrawals from the electricity system.

The data on the connection of active users with the transmission network reported on these pages refer to activities that were carried out by Terna, while the data on the connection of active users with distribution networks refer exclusively to activities that were carried out by distribution companies with more than 100,000 customers⁴¹. The values for the connections of passive users, on the other hand, were collected by Terna and the distribution companies as part of the customary Survey of regulated sectors, carried out annually by the Authority.

With regard to active connections with the transmission network, in 2021 Terna received 1,945 connection requests for electricity production plants, corresponding to a total power output of about 150 GW, for which it made 952 quotations available in the same year, corresponding to a total power output of about 56.6 GW, with an average time for making the quotation available, net of permitted interruptions, of 112 working days.

During the year, 495 quotations were accepted out of the total number made available, corresponding to a total power of approximately 28.2 GW. For only two of these quotations, corresponding to a total power of approximately 46.8 MW, the request for the provision of the Minimum Technical Detail Solution (STMD) was submitted, but these STMDs were not accepted by 31 December 2021. Consequently, the corresponding connections have not been made and activated within the year.

In 2021, the distribution companies received just under 143,000 connection requests for electricity generation plants to be connected to the low- and medium voltage networks, corresponding to a total power of about 13.5 GW, for which, in the same year, they made available just over 124,200 quotations, corresponding to a total power of about 7.8 GW, with average times for making the quotation available, net of permitted interruptions, of:

- 18 working days, for required feed-in power up to 100 kW;
- 34 working days, for required feed-in power of more than 100 kW and up to 1,000 kW;
- 51 working days, for required feed-in power of more than 1,000 kW.

Just under 112,000 quotations out of the total of those made available were accepted in 2021, for a total power of just under 4.3 GW.

During the year, in relation to the requests received in 2021, almost 63,900 connections were made, corresponding to more than 0.6 GW, with average connection times, net of permitted interruptions, of:

- 23 working days in the case of simple works;
- 65 working days in the case of complex works;

while the average time for connection activation, net of permitted interruptions, is 9 working days.

In 2021, the distribution companies that received connection requests for electricity production plants to be connected to the high-voltage networks were e-distribuzione and Edyna (the latter for

⁴¹ The calculations made are based on data made available by distribution companies with more than 100,000 customers in compliance with the regulation. In particular, with reference to 2021, the data provided by Areti, Deval, e-distribuzione, Edyna, Inrete, Ireti and V-Reti was used, which transmitted to the Authority, in due time for the preparation of this Annual Report, the information on the connections of electricity production plants; on the other hand, data not communicated in due time was not considered.

a single production plant with a power of 27 MW) with a total of 348 connection requests, corresponding to a total power of almost 5.3 GW; in the same year, 139 quotations were made available, corresponding to a total power of almost 3 GW, with an average time for making the quotation available, net of permitted interruptions, of 49 working days.

Among all the quotations made available, 79, corresponding to a total power of slightly more than 1.6 GW, were accepted in 2021; for none of them, as of 31 December 2021, the request to make available the Minimum Technical Detail Solution (STMD) had been submitted and, therefore, no connection requests were made in 2021 for electricity production plants to be connected to the high-voltage networks of the distribution companies that had submitted connection requests in the same year.

As far as the connections of passive users (Table 3.2) are concerned, the data collected show that 226,825 connections were made to the distribution networks in 2021, almost all of them in low voltage. For 70% of them, the supply was activated during the year. The average time to connect customers was 7.8 working days. In particular, the average time for making low-voltage connections was 6.2 working days. The average time taken to obtain a medium voltage connection is slightly longer and amounts to 14.3 working days.

Table 3.2 Connections of passive users with distribution networks

VOLTAGE LEVEL	NUMBER OF CONNECTIONS		AVERAGE TIME (WORKING DAYS) ^(A)	
	2020	2021	2020	2021
Low voltage	181,423	225,322	5.6	6.2
Medium voltage	1,159	1,503	16.3	14.3
TOTAL	182,582	226,825	8.1	7.8

(A) Value calculated net of operators who have not made any connections, excluding the time spent in obtaining any authorisations and/or for any formalities to be fulfilled by the final customer.

Source: ARERA. Annual survey of regulated sectors

Again, and as was to be expected, the data show an increase in the number of requests (+24.2%) compared to 2020 and also an overall improvement in connection times: from 8.1 to 7.8 days. The detail shows, however, that the shortening of time only occurred in medium voltage, where an average of 16.3 working days were needed to obtain a connection in 2020, while in 2021 it took two days less. In contrast, in the low voltage sector, connection took on average 10% longer in 2021 than in 2020. It should always be pointed out, however, that the days indicated do not include the time spent in obtaining any authorisations and the time needed for any formalities to be carried out by the final customer.

In 2021, each distributor made an average of 1,705 connections during the year. If we exclude from the calculation those operators who did not make a single connection (40 subjects), the average number of connections made by each distributor in the year is 1,829. Terna, on the other hand, did not connect any new passive customers to high and extra-high voltage.

3.1.7 Monitoring the electricity supply and demand balance

Monitoring the balance between electricity supply and demand does not fall within the competence of the Authority: according to Art. 1 of Legislative Decree no. 93/11, this competence is attributed to the Ministry for economic development (MSE).

3.1.8 Monitoring investments in generation and storage capacities from a security of supply perspective

Pursuant to Legislative Decree no. 93/11, the following functions regarding the monitoring of capacity investments have been assigned to the MSE:

- operational network security (Art. 7 directive 89/2005/EC);
- investments in interconnection capacities in the next 5 years or more (Art. 7 directive 89/2005/EC);
- supply and demand forecast for the next 5 years and 1-15 years (Art. 7 directive 89/2005/EC).

3.1.9 Implementation of Network Codes and guidelines for the integration of European electricity markets

Network codes and guidelines for the electricity market

The European electricity market regulations are technical regulatory decisions for the completion of the internal energy market. Informally, regulations can be grouped into three large families: market, connection and network management. The complete list can be found at Table 3.3.

Table 3.3 Network codes and guidelines under Regulation (EC) 714/2019

CODE	REGULATION	ABBREVIATION (ACRONYM)	ENTRY INTO FORCE
Market codes	(EU) 2015/1222	Capacity allocation and congestion management guideline (CACM GL)	15 August 2015
	(EU) 2016/1719	Forward capacity allocation guideline (FCA GL)	17 October 2016
	(EU) 2017/2195	Electricity balancing guideline (EB GL)	18 December 2017
Connection codes	(EU) 2016/631	Requirements for generators network code (RfG NC)	17 May 2016
	(EU) 2016/1388	Demand connection network code (DCC)	07 September 2017
	(EU) 2016/1447	High voltage direct current network code (HVDC NC)	28 September 2016
Network Management Codes	(EU) 2017/1485	System operation guideline (SO GL)	14 September 2017
	(EU) 2017/2196	Emergency and restoration network code (ER NC)	18 December 2017

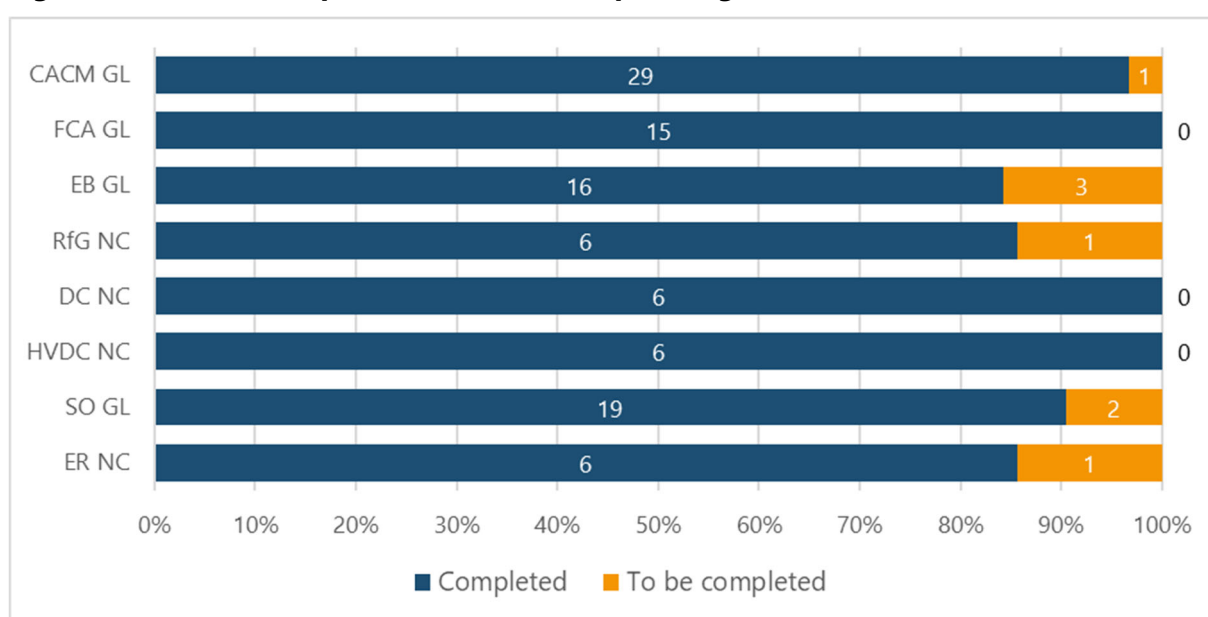
Source: ARERA.

The regulations are divided into Network Codes (NC) and Guidelines or Guidance (GL): the former primarily identify rules that can be directly implemented at national level, while the latter focus on broad indications on the basis of which implementation protocols, called Terms and Conditions or Methodologies, are to be developed. It follows that the publication of regulations does not exhaust the activity of developing and publishing secondary regulations; on the contrary, each regulation in the form of a guideline (or guidance) envisages, within it, the development of specific rules (the methodologies, precisely) by the network operators (Transmission System Operators - TSOs) and/or by the Nominated Electricity Market Operators (NEMOs) that the regulatory authorities of each EU member state are called upon to assess and approve; the development of methodologies is also envisaged within the framework of the network codes, albeit to a lesser extent and limited to detailed

aspects or for the specification of certain parameters at national level.

The process of developing methodologies started in 2015 with reference to the CACM GL regulation, and it was then extended between 2016 and 2017 to all other guidelines (or guidance) and network codes. Figure 3.3 summarises the status of implementation at the end of 2021. The implementation of the FCA GL, DC NC and HVDC NC regulations is now complete, while some CACM GL, SO GL and EB GL methodologies still have to be completed, while the methodology with the cost-benefit analysis criteria for the retrofitting of existing generation plants under the RfG NC code (which will only be developed when the Authority actually intends to assess measures to this end) and the methodology for carrying out tests with reference to the network code under the ER NC regulation (for which Terna is expected to update the network code provisions) still have to be defined at the national level.

Figure 3.3 Status of implementation of European regulations as at 31 December 2021



Source: ARERA.

Integration of electricity wholesale markets: market codes

During 2021, the implementation of market codes saw the adoption of different methodologies within the FCA GL, CACM GL and EB GL regulations, as well as the monitoring and improvement of methodologies adopted in previous years.

Forward capacity allocation regulation (FCA GL)

The FCA GL regulation describes the requirements and criteria for the issuance and allocation of long-term transmission rights (with a time horizon of at most one year) between market areas within the European Union. For Italy, this regulation applies on the borders with France, Austria, Slovenia and Greece; similar provisions to those of the FCA GL regulation are also in force on the border with Switzerland. For inland areas, on the other hand, the Authority continues to rely on the coverage products in force to date (CCC), consistent with the decision taken in 2017 under Article 30 of the

FCA GL regulation and confirmed⁴² during 2021.

In 2021, the Authority mainly monitored and refined what had already been adopted in previous years. In particular, at the European level, ACER re-adopted the methodology for the allocation of costs associated with the remuneration of long-term transmission rights (Decision 12-2021), which had been annulled due to a formal flaw by the Board of Appeal, and the rules for the allocation of long-term transmission rights (Decision 15-2021) were updated. At the Italian level, the Authority⁴³ updated the Regional Annex to the rules for the allocation of transmission rights for the Greece-Italy region, in order to take into account the new time-frame for the curtailment of these rights resulting from the start of market coupling with Greece at the end of 2020.

Capacity allocation and congestion management regulation (CACM GL)

The CACM GL regulation defines the modalities for implementing market coupling at European level on the daily (with capacity allocation through implicit tenders in the so-called Single Day Ahead Coupling - SDAC) and intra-day horizons (with capacity allocation through firm trading in the so-called Single Intra-Day Coupling - SIDC, accompanied by specific capacity assessment mechanisms and implicit tenders at regional level on a voluntary basis).

Italy has been participating in the SDAC since February 2015, as part of a project for the early implementation of market coupling on the borders with France, Austria and Slovenia (in the latter case, voluntary coupling has been active since 2011). Since December 2020, coupling with Greece has also been active, the last step towards the complete integration of the national electricity system into the European day ahead, while the last two missing pieces at European level were completed in 2021, namely the implementation of coupling on the Greece-Bulgaria border (in May 2021) and the coupling between the 4M MC (the coupling project between Romania, Hungary, the Czech Republic and Slovakia) and MRC (the coupling project including the other European borders and in which Italy participates) (in June 2021).

As of 21 September 2021, Italy joined the SIDC in the so-called third wave with the introduction of continuous intra-day allocation on the borders with France, Austria and Slovenia and between the internal areas within the national territory, accompanied by implicit tenders also active on the border with Greece. In this framework, the Authority intervened with implementation protocols necessary to allow the start-up of the SIDC⁴⁴, in order to verify the relevant contractual fulfilments and to approve the explicit allocation rules on the Italy-Switzerland border⁴⁵, as it was no longer possible to continue on that border with the implicit allocation implemented in 2019.

In terms of methodologies under the CACM GL regulation, 2021 finally saw the approval⁴⁶ of the corrective action cost allocation methodology for the Italy North region: this is a temporary solution based on allocation coefficients proportional to congestion rents, in force from the beginning of 2022 and destined to be applied as long as corrective actions are defined on the basis of multilateral procedures between TSOs; when, on the other hand, a centralised coordination procedure is adopted, an *ad hoc* methodology will have to be developed, in line with the provisions of the CACM Regulation and Regulation 943/2019 in this regard. However, the methodology for the

⁴² Resolution of 16 November 2021, 504/2021/R/eel.

⁴³ Resolution of 16 November 2021, 505/2021/R/eel.

⁴⁴ Resolution of 25 May 2021, 218/2021/R/eel.

⁴⁵ Resolution of 7 September 2021, 371/2021/R/eel.

⁴⁶ Resolution of 21 December 2021, 606/2021/R/eel.

harmonisation of capacity calculation remains to be approved (initially planned for the end of 2020 but postponed in order to monitor the implementation of regional methodologies, some of which are not yet fully active).

2021 also saw some updating of existing methodologies: ACER revised⁴⁷ the congestion rents allocation rules, in order to take into account certain aspects inherent to the application of a flow-based approach and defined⁴⁸ the CCRs⁴⁹, following the annulment of the previous decision adopted in 2016 by the European Court of Justice for a formal flaw. The Authority, on the other hand, updated⁵⁰ the fall-back procedures for the CCR Italy North to be used in the event that the SDAC is unable to reach a solution. A similar update took place in 2020 for the fall-back procedures for the CCR Greece-Italy.

Finally, 2021 saw the start of the revision of the CACM GL Regulation, which became necessary to resolve the implementation issues that had arisen over the years and to align the regulation's provisions with the new ones introduced by regulation 943/2019. The discussion covered two main strands: the governance aspects of market coupling with the role for NEMOs and TSOs and the technical methodologies involved in capacity calculation, the revision of market areas, the creation of a common European network model and the implementation of redispatching procedures.

Balancing (BAL GL)

Regulation (EU) 2195/2017 lays down the modalities for the implementation of the European balancing market, with regard to the trade in balancing capacity and balancing energy, as well as harmonisation criteria for settlement between TSOs and criteria for the valuation of imbalances.

Since January 2021, Italy has been an active and successful participant in the European platform for the exchange of balancing energy from Replacement Reserve, developed within the TERRE project, together with all the other European TSOs that make use of this type of reserve, while participation in the Imbalance Netting platform, for the countertrade of imbalances between adjacent systems, has been operational since 2020.

During 2021, the Authority, in coordination with the regulators involved in the TERRE balancing platform, approved⁵¹ an amendment to the platform's implementation framework, in order to bring the legal framework in line with the project's implementation time-frame and to define the entities responsible for operating the platform.

As far as the methodologies provided for by EB GL are concerned, the Authority was involved in the regional processes of the Italy-North and Greece-Italy CCRs, for the approval of the cross-border capacity allocation methodologies for balancing capacity trading or reserve sharing referred to in Articles 41 and 42 of the EB GL regulation, which provide, respectively, for a market-based methodology and a methodology based on economic efficiency criteria to allocate part of the cross-

⁴⁷ Decision of 17 December, 16-2021.

⁴⁸ Decision of 10 May, 4-2021.

⁴⁹ The CACM GL and FCA GL regulations refer to Capacity Calculation Regions (CCRs), each representing a set of boundaries between market areas for which a coordinated capacity calculation should be implemented. Italy is part of the CCR Italy North, which includes the borders with France, Slovenia and Austria, and of the CCR Greece-Italy, which includes the border with Greece and the borders between areas within the national territory. Italy is also paying attention to methodological developments concerning the CCR Core (which includes Central Europe from France down to Romania), since the CACM GL regulation envisages the merger of the CCR Italy North with the CCR Core.

⁵⁰ Resolution of 30 March 2021, 136/2021/R/eel.

⁵¹ Resolution of 13 July 2021, 304/2021/R/eel.

border capacity to balancing capacity trading. Coordination in regional processes led to the request for amendment and subsequent approval of the methodology in Article 41 of EB GL for the Italy North⁵² region, as well as the approval of the methodologies in Articles 41 and 42 of EB GL for the Greece-Italy region⁵³.

The Authority also participated, through the ACER working groups, in the process of finalising the impact analysis foreseen by ACER decision no. 12-2020 of 17 June on the co-optimised capacity allocation methodology under Article 40 of EB GL, as well as in the decision-making process to amend the pricing methodology for balancing energy and trading capacity⁵⁴.

On the national front, during 2021 the Authority worked on the implementation of the ACER decision no. 18-2020 of 15 July on the harmonisation of the rules for the valuation of imbalances. This implementation envisaged a reform of the national imbalance regulation, introducing a single pricing mechanism for all types of resources, overcoming the dual pricing model previously applied to qualified units. The activity saw a public consultation⁵⁵ and its final decision⁵⁶, which set the start of the new framework at 1 April 2022.

Network Management Codes

The network operation regulations, which came into force in the second half of 2017, lay down provisions on the operation of the transmission network both in normal and alert states of operation (SO GL) and in emergency and restoration conditions of the power system (ER NC).

As far as the SO GL regulation is concerned, in 2021 there were only maintenance interventions regarding the existing methodologies: ACER approved⁵⁷ the second version of the European-wide general principles for the coordination of corrective actions for safety purposes, while the Authority revised the methodology for the coordination of corrective actions specifically for CCR Italy North (joint decision with the other regulators in the Region in December 2021, ratified⁵⁸ by the Authority in the following month).

The ER NC regulation, as a network code, makes limited use of terms, conditions and methodologies submitted to the regulatory authorities. The regulator's intervention is, in fact, only required for national implementation, carried out in Italy through amendments to Terna's network code, which the Authority approved at the end of 2019, and through further implementing decisions on settlement in emergency conditions and the bonus mechanism for plants included in the restart plan adopted during 2020. Instead, 2021 saw the introduction⁵⁹ of a specific bonus mechanism for the installation of PSS (Power System Stabiliser) devices to comply with the electricity system defence standards.

⁵² Resolutions of 26 January 2021, 24/2021/R/eel and of 15 June 2021, 251/2021/R/eel.

⁵³ Resolution of 6 July 2021, 291/2021/R/eel.

⁵⁴ The decision-making process culminated in 2022 with ACER decision no. 3-2022 of 28 February.

⁵⁵ Consultation document of 06 July 2021, 292/2021/R/eel.

⁵⁶ Resolution of 23 November 2021, 523/2021/R/eel.

⁵⁷ Decision of 14 June no. 7-2021.

⁵⁸ Resolution of 18 January 2022, 14/2022/R/eel.

⁵⁹ Resolutions of 09 February 2021, 44/2021/R/eel and of 09 December 2021, 568/2021/R/eel.

Connection codes

The connection codes define the requirements to be fulfilled by the various users connected to the electricity system, from generators (RfG NC), to demand response service suppliers (DCC NC), to operators operating direct current connections (HVDC NC). The implementation of these codes takes place at national level without the need for any form of coordination at European level. It should be noted, however, that at the end of 2021 ACER began the process of revising the RfG and DCC codes with the aim of resolving the critical issues that had arisen during their implementation and to take into account technological (electric mobility, storage) and regulatory (energy communities) developments that had occurred in the meantime.

Regulation 943/2019

Regulation 943/2019, part of the more comprehensive Clean Energy Package, significantly revised the core principles of the electricity market, providing, in particular:

- a minimum capacity level of 70% between the market areas to be offered in the markets;
- new criteria for the review of market areas with the launch of a pan-European review;
- specific rules for the adequacy of the system with the drafting of specific methodologies by the TSOs;
- the strengthening of cooperation between TSOs with the creation of Regional Coordination Centres (RCCs) instead of Regional Security Coordinators (RSCs) introduced with the SO GL regulation;
- new criteria for the use by TSOs of congestion rents collected on the borders between market areas.

The Authority is directly involved in the implementation of the aspects listed above, both through participation in working groups within ACER and through the adoption of specific decisions at national level.

Minimum level of 70%

The provision of the 70% minimum level between market areas is mandatory for all TSOs from 1 January 2020, unless a specific derogation is granted by the competent national regulator. Article 16(3) of Regulation 943/2019, however, states that, for a given relevant period, the capacity offered may be less than 70% if no adequate corrective resources are available to ensure the capacity associated with 70%.

For 2020, the Authority granted Terna a derogation both with reference to CCR Italy North and with reference to the areas inside the national territory, because the tools for monitoring the minimum capacity level were still being developed. For CCR Italy North, the derogation has been confirmed⁶⁰ also for 2021, while for the inland areas Terna is formally subject to the obligation since 2021: in these areas, however, in many situations capacity is limited by the absence of adequate resources for voltage regulation, resulting in the application of article 16(3) of regulation 943/2019, which, in these cases, allows for a capacity lower than 70%. In 2021, however, Terna completed the development of special tools for monitoring the level of capacity offered between market areas: since 2 August 2021,

⁶⁰ Resolution of 15 December 2020, 551/2020/R/eel.

a calculation algorithm has been in place for inland areas that provides a capacity value compatible with the 70% minimum level, while since 29 October 2021, automatic mechanisms for adjusting capacity to the 70% minimum level have been in place on the borders of CCR Italy North, on the import side. These tools will allow Terna to meet the minimum level in most relevant periods, with the exception of situations where capacity is limited by voltage regulation requirements or specific allocation constraints. This made it possible to significantly reduce the scope of the derogation⁶¹ which for 2022 will only concern export capacity on the northern border and relevant periods characterised by allocation constraints (constraints that Terna prefers to keep in place a priori fearing that there may not be sufficient corrective actions in real time: in this case article 16(3) of regulation 943/2019 cannot be applied with certainty, as the inadequacy of corrective actions is suspected, but not necessarily proven in all cases).

In addition to granting derogations, the Authority is also called upon to assess each year whether or not Terna has actually complied with the 70% minimum level obligation. In 2021, the report for 2020 was published⁶², in which the situation at each border was highlighted: the status of the interconnection with Greece was optimal (100% of the offered capacity in all the hours in which the connection was available), the situation of the inland areas was very good, with the exception of the North-Central interface for which the offered capacity was only sufficient in 35% of the relevant periods, and the situation at the northern border was equally positive (with more than 78% of the hours with sufficient offered capacity). In any case, from a legal point of view, for the year in question Terna had to timely comply with the obligation only for the interconnection with Greece (obligation fulfilled), as for all the other borders it was covered by the derogations granted by the Authority.

Review of market areas

In addition to introducing new principles for the review of market areas that will feed into the revision of the CACM GL, regulation 943/2019 initiated a specific review of areas at European level. The process, which started in the second half of 2019, saw ACER's approval of the criteria for assessing the various area configurations in 2020. However, the actual area configurations to be analysed in order to identify those ACER has asked TSOs to run simulations on nodal prices are missing. The processing of the requested information extended throughout 2021.

The process involves Italy limited to the North area only, while the other areas are exempted, since the Authority and Terna conducted a review process in 2018 that led to the area configuration approved by the Authority in March 2019 and put into operation on 1 January 2021.

Adequacy

Following the provisions of regulation 943/2019, ENTSO-E developed a methodology for determining the value of non-supplied energy (VoLL), cost of new entrant (CoNE) and adequacy standard (RS) and a methodology for the European adequacy assessment (ERAA), which were approved by ACER during 2020⁶³.

The ERAA - through a simulation model based on data provided by the TSOs for demand, generation, storage and the electricity network - makes it possible to assess annually the expected level of adequacy of the European electricity system over a ten-year horizon. Through the ERAA, it is

⁶¹ Resolution of 21 December 2021, 607/2021/R/eel.

⁶² Resolution of 12 October 2021, 420/2021/R/eel.

⁶³ Decisions nos. 23-2020 and 24-2020.

therefore possible to identify potential expected adequacy problems, so that Member States can assess the need to introduce complementary measures to the energy market (e.g. capacity markets). The analysis can be complemented by national adequacy assessments (NRAA).

During 2021, ENTSO-E implemented the ERAA methodology⁶⁴ for the first time and in a simplified way and forwarded the results to ACER for follow-up. Considering that the ERAA methodology envisages a gradual implementation of the various modules of the model to be completed by the end of 2023, ACER was unable to approve the results, since the underlying model was not fully in line with the provisions of regulation 943/2019. As a result, ACER published decision no. 2-2022 of 23 February, in which it provided ENTSO-E with some precise indications regarding the necessary implementation evolutions of the model functional to the analysis to be carried out in 2022.

Regional Coordination Centres (RCC)

Regulation 943/2019 introduced the figure of RCCs with the intention of strengthening the cooperation between TSOs already provided for in the third energy package. In particular, the RCCs are called upon, as of 1 July 2022, to replace the RSCs introduced by the SO GL regulation, with an extension of the tasks assigned to them.

The scope of the RCCs' activities coincides with the System Operation Regions (SORs), the configuration of which is recommended by ENTSO-E and submitted to ACER for approval. The process of defining SORs was, however, rather troubled: the first ACER decision on the matter adopted in 2020 was annulled for lack of motivation by the Board of Appeal. ACER then adopted a new decision during 2021 (Decision no. 8-2021), which was again challenged by ENTSO-E for lack of motivation and procedural defect; ACER, with decision no. 13-2021, then withdrew decision no. 8-2021 and reopened the proceeding for the definition of the SORs with conclusion expected in April 2022.

In the meantime, on the basis of the first ACER decision of 2020, the TSOs have started to define the set-up of the RCCs in each region, submitting for approval to the regulators the recommendation for the establishment of the RCCs themselves together with their statutes and operating rules. Italy was directly included in the SOR Central Europe through the Northern area: the Authority, therefore, participated in the decision-making process on the establishment of the relevant RCC, which was concluded in early 2021 with the appointment⁶⁵ of the existing RSCs, Coreso and TSCNET, as future RCCs with operation scheduled from July 2022. For the other Italian areas, ACER's initial 2020 recommendation envisaged that they would form an interface between the SOR Central Europe and the SOR SEE (including Greece and Bulgaria). During 2021, however, the situation evolved significantly: In fact, with decision no. 8-2021, ACER recognised the peculiarity of Terna's control area, extended over two different synchronous areas (continental Europe and Sardinia) and therefore included it in both the SOR Central Europe and in the SOR SEE, with Terna's full participation in the RCCs of both regions. The Authority has therefore initiated cooperation with the other regulatory authorities involved in the SOR SEE with the aim of updating the recommendation for the establishment of the RCC of the region, providing for the full participation of Terna.

Congestion rents

Article 19 of regulation 943/2019 provided that congestion rents are primarily used for the guarantee

⁶⁴ www.entsoe.eu/outlooks/eraa/.

⁶⁵ Resolution of 2 February 2021, 33/2021/R/eel.

of the availability of capacity for exchanges between market areas or for maintaining and increasing this capacity (priority targets); only if both of these targets are fulfilled can the use of congestion rents for the reduction of network tariffs be envisaged.

The verification of compliance with the aforementioned targets is the responsibility of the regulatory authorities on the basis of a methodology developed by the TSOs and approved by ACER⁶⁶, which is expected to be fully implemented by 2022 with reference to 2021. Pending the full implementation of this methodology, the Authority published⁶⁷ the data and information relating to 2020 with particular reference to the monthly balance of revenues and charges deriving from the procedures for the allocation of transmission capacity on the interconnection network with foreign countries (Table 3.4) confirming, also based on the information provided by Terna, that the use of these revenues is in line with the priority targets set out in article 19 of regulation 943/2019.

Table 3.4 Congestion rents at borders for 2020

BOUNDARY	AMOUNT (euros)	Of which Terna's share
Austria	10,758,626.03	5,379,313.02
France	127,535,706.69	63,767,853.35
Greece	23,660,318.10	11,830,159.05
Montenegro	10,991,738.26	5,495,869.13
Slovenia	14,852,647.40	7,426,323.70
Switzerland	83,340,462.20	41,736,690.60
TOTAL	271,139,498.68	135,636,208.84

Source: Terna.

Other aspects of the integration of electricity wholesale markets

The efficiency of the integrated market cannot be separated from the availability of adequate transmission capacity between the various market areas. For Italy, the most critical situation concerns the interconnection with Greece, which since 2012 has been affected by significant unavailability due to both planned maintenance (also of an extraordinary nature) and failures due to issues intrinsic to the facilities or to external mechanical actions. In this regard, in 2018, in cooperation with the Greek Regulatory Authority, a special fact-finding investigation was launched, which was concluded in 2021 with the publication⁶⁸ of the final report, in which the causes of the various disruptions were analysed and a number of recommendations were sent to the TSOs aimed, among other things, at assessing, through cost-benefit analysis, the effectiveness of certain measures that could mitigate the risk of disruption or reduce the time needed to restore the connection. The latter, in particular, were sometimes lengthy due to the need to find suitable equipment on the market for interventions on submarine cables.

Finally, the Authority plays an active role in the management of exemptions inherent in private initiatives to develop interconnection capacity for the electricity system. In particular, until October 2021, the Authority would control the relevant contract outlines and, in cooperation with the regulatory authorities of the countries involved, would analyse the conditions for granting the exemption, issuing an opinion to the Ministry that was entitled to grant the exemption. As of November 2021, with the adoption of Legislative Decree no. 210 of 8 November 2021 transposing

⁶⁶ Decision no. 38-2020.

⁶⁷ Resolution of 9 March 2021, 98/2021/R/eel.

⁶⁸ Resolution of 30 November 2021, 548/2021/E/eel.

directive 2019/944 and implementing the provisions of regulation 943/2019, the Authority became directly responsible for issuing exemptions. In the area of exemptions, in 2021, the contract outlines for the technical operation of the Piedmont Savoia interconnector ⁶⁹ and for the technical and commercial operation of the Passo Resia interconnector ⁷⁰ were approved, both under the provisions of Law no. 99 of 23 July 2009. Finally, in November 2021, the proceeding concerning the revision of the duration of the exemption for Eneco Valcanale's private initiative was concluded⁷¹, and the relevant analysis was sent to the Ministry of ecological transition, showing the absence of reasons justifying the reduction of the exemption period compared to what was initially planned in 2010.

3.1.10 International coordination

Coordination between EU Member States and with Switzerland

For years, the Authority has been actively cooperating with other European regulators, both multilaterally, through the Agency for the Cooperation of Energy Regulators (ACER), the Council of European Energy Regulators (CEER) and the regional platforms provided for in the European electricity market regulations, and through bilateral meetings to explore topics of common interest, in particular with regulators from neighbouring countries. In 2021, in continuity with previous years, interaction continued on the implementation of the network codes and guidelines adopted as a result of the Third Energy Package and in the transposition of the provisions of the Clean Energy Package. In addition, the discussion on the revision of network codes and guidelines, starting with the CACM regulation, has also begun.

European Union Agency for the Cooperation of Energy Regulators (ACER)

ACER is the agency introduced with the Third Energy Package to foster cooperation between the regulatory authorities of EU countries and assist them "in the exercise, at Community level, of the regulatory functions performed in the Member States". The operational set-up is currently governed by Regulation 942/2019, which made some changes to the governance and competences of the Agency. In particular, ACER is now responsible for all the decisions concerning the implementing acts of the network codes originally submitted for approval by all authorities at European level: these recommendations are then directly sent to the Agency, which gives its own decision within 6 months of receipt. On the other hand, the primary competence of the regulatory authorities remains unchanged with regard to implementing acts of regional competence.

ACER is also responsible for adopting a set of methodologies under regulation 943/2019 concerning the adequacy of the system and the tasks of the Regional Coordination Centres.

At the organisational level, ACER has a director, currently Christian Zinglensen from Denmark, and a Board of Regulators (BoR) with representatives from the regulatory authorities of the 27 European countries. In 2021, Clara Poletti, ARERA commissioner, was re-elected chair of the BoR. The Director proposes the decisions that the Agency intends to take to the BoR, which delivers a binding opinion by a qualified two-thirds majority: under the new regulation 942/2019, the members of the BoR may also formulate amendments to the Director's recommendations which, if approved by a qualified

⁶⁹ Resolution of 13 April 2021, 149/2021/R/eel.

⁷⁰ Resolution of 3 August 2021, 362/2021/R/eel.

⁷¹ Resolution of 9 November 2021, 485/2021/R/eel.

majority, must be taken into account by the director. The Agency also has a Board of Appeal, a first-tier court body, competent to hear appeals against decisions taken by the Agency.

The Authority has been actively cooperating with ACER for some time now, often assuming leading roles in the working groups entrusted with the preparation of the various dossiers under the Agency's responsibility: in particular, in 2021, as regards the electricity sector, ARERA saw its representatives active as leaders of specific task forces (markets, system operation, balancing and facilities), while, with reference to all the sectors under the Agency's responsibility, it actively participates in the discussion in the various working groups by providing suggestions and comments.

Council of European energy regulators (CEER)

The CEER, the independent association of national energy regulators, includes among its members not only representatives of the EU countries, but also those of the UK, Norway, Iceland and, as observers, of Albania, Switzerland, Montenegro, North Macedonia, Kosovo, Moldova, Bosnia-Herzegovina, Georgia and Serbia. Since December 2018, the role of Chairman has been held by Annegret Groebel of the German Regulatory Authority.

The Authority has always been actively involved in the activities promoted by the CEER. During 2021, one of the main topics the CEER focused on was the development of the hydrogen sector and how this should be regulated. This is one of the most debated issues at European level at the moment, since it is at the heart of the European Commission's recommendation of the legislative reform package for the decarbonisation of the gas sector and the development of the hydrogen sector. In particular, the Authority actively participated in the drafting of the following documents: CEER-ACER, Position paper on the key regulatory requirements to achieve gas decarbonisation, 20 December 2021; CEER-ACER, Regulatory treatment of power-to-gas, "European Green Deal" regulatory white paper series #2, 11 February 2021; ACER-CEER, When and how to regulate hydrogen networks?, 7 February 2021; "European Green Deal" regulatory white paper series #1, 9 February 2021.

The CEER is also the promoter of several courses, open to both its own members and external participants, in which Authority staff are often involved as lecturers and/or testimonials.

Coordination with Switzerland

Switzerland is, of course, not a member of the European Union; however, due to its geographically central location on the continent, it plays an important role in both market transactions and operational security. For this reason, the Swiss regulator has long been coordinating with the regulatory authorities of the neighbouring countries, also in order to define how the Swiss and Italian electricity systems should interact.

With regard, in particular, to the relationship with ARERA, during 2021 the methods for allocating intra-day capacity on the Italy-Switzerland border were changed: as of 21 September 2021, with the start of the continuous trading provided for by regulation (EU) 1222/2015 - CACM, for the entire European Union it was, in fact, no longer possible to maintain the implicit intra-day tenders, active since 17 April 2019, and the allocation through explicit tenders was therefore reinstated. However, studies are underway to replace such tenders with a continuous intra-day allocation on a first come first served basis. Explicit tenders, on the other hand, will continue to be used for long-term transmission rights (with rules along the lines of those in use for all other European borders under regulation (EU) 1719/2016 - FCA) and for the daily horizon (since a switch to implicit modality under market coupling is currently not permitted for Switzerland).

Relations and initiatives with non-EU countries

In 2021, the Authority consolidated its activities at the international level, strengthening its involvement in technical and institutional cooperation and support activities, both at bilateral and multilateral level. In the energy sector, it continued to promote the exchange of technical knowledge and best practices, in order to foster market development and integration.

Energy market in south-eastern European countries

With a view to continuing to provide support to the Euro-Balkan market integration process, in 2021 the promotion of a series of support activities continued within the framework of the Berlin process⁷² Western Balkans 6 (WB6) which, among its many targets, envisages fostering the development of electricity day ahead market coupling mechanisms in the six Western Balkan countries (Albania, Bosnia-Herzegovina, North Macedonia, Kosovo, Montenegro and Serbia). In particular, the countries involved agreed on a number of soft measures to foster regional market development through the removal of legislative and regulatory barriers and the strengthening of existing institutional structures for market functioning, in line with the principles of the *acquis communautaire*.

In 2021, the Energy Community Regulatory Board (ECRB) continued its work of coordinating and supporting the implementation of the *acquis communautaire* for the parties of the Energy Community Treaty. Also for this year, the agreement on the implementation of electricity network codes in the Energy Community, which would have implied a reform of the Treaty itself, was not concluded. At least for the time being, regulation 1222/2015 - CACM (Capacity allocation and congestion management), which is crucial for the implementation of market coupling mechanisms, will not be adopted and transposed into the national laws of the Energy Community (EnC) participating countries.

At the 50th meeting of the ECRB on 30 November, the "Clean energy for all European package" was adopted with a view to its full transposition into the national laws of the contracting parties to the Treaty⁷³.

At the Energy Community Forum (10-11 June 2021), it was emphasised that the adoption of the Clean Energy Package will help promote market integration with the European Union.

During the Energy Community Gas Forum (16 September 2021), although the progress in the implementation of the *acquis communautaire* in the gas sector was duly noted, it was emphasised that important further steps need to be taken regarding the implementation of unbundling measures, Third Party Access (TPA) and the adoption of network codes.

KEP project: support for strengthening energy regulatory authorities in the western Balkans

As part of the activities related to the Western Balkans area, the Authority has participated since 2018 in the Know Exchange Programme (KEP) project "Central European Initiative (CEI) - Support for strengthening energy regulatory authorities in the Western Balkans", co-funded by the

⁷² Launched with the Conference of the Western Balkan States on 28 August 2014 in Berlin, the Berlin Process (also referred to as the Western Balkan 6 Process-WB6) is a diplomatic initiative of intergovernmental cooperation, promoted by German Chancellor Angela Merkel and aimed at the future enlargement of the European Union to the countries of the Balkan region.

⁷³ Albania, Bosnia and Herzegovina, Kosovo, Georgia, North Macedonia, Moldova, Montenegro, Serbia, Ukraine.

intergovernmental forum “Central European Initiative”. For 2021, the 2020 activities were extended, due to the Covid-19 pandemic emergency, and the regulators of Bosnia and Herzegovina, Greece and Kosovo were also involved as observers, in order to complete the project's area of influence, which already included the regulators of Albania, Bulgaria, North Macedonia, Montenegro and Serbia.

Over the years, project activities have focused on enabling the beneficiaries to manage the integration process of the Balkan electricity market according to EU best practices, a target partially achieved, because market coupling projects have been initiated but not yet completed, due to the beneficiaries' failure to transpose the EU regulation into their legal framework. Also thanks to the knowledge transfer carried out by this Authority, assisted by Energy Markets Operator (GME), Gestore dei servizi energetici (GSE) Energy Services Manager, Ricerca sul sistema energetico (RSE), Snam and Terna, both Albania and Montenegro successfully managed the creation of the national power exchange. A similar process took place in North Macedonia, which only joined the KEP project in 2020.

In 2021, the scope of activities was also extended to the gas sector, including general principles to support the energy transition process in the Balkan area.

At the end of 2021, after four years of intensive capacity building and technical knowledge exchange, the project ended with a final conference on 16 December. On the sidelines of the conference, the Authority announced the establishment of the Balkan Energy School (BES) in 2022. The BES will aim at a more inclusive, stable and continuous institutional and capacity building action for the benefit of the Balkan region and in support of the Euro-Balkan market development and integration process.

Furthermore, with regard to the market coupling project between Albania, Italy, Montenegro and Serbia (AIMS project), implemented at the same time with the KEP project, in 2021 activities focused on the process of joining the ALPEX Albanian stock exchange to the group, through the signing of a formal agreement.

Energy market in Mediterranean countries

Also in 2021, the Authority continued its action within the MEDREG (Mediterranean Energy Regulators) association, of which it is permanent Deputy Chairman, also hosting the Secretariat staff in Milan.

With regard to the electricity sector, the report on the security of supply in the electricity systems of the Mediterranean area, “Security of Supply”, on the situation and possible measures regarding the security level of the national reference systems, was approved.

The report was also submitted to the Mediterranean Association of Network Operators (MED-TSO) for comments.

Regarding the development of renewable energy resources and energy efficiency, the report “Energy Efficiency Programmes and Electric Mobility in the Mediterranean Countries” was approved. Among the various conclusions of the report there is the indication, based on specific country-case assessments and on the scenarios recommended by OME (*Observatoire Méditerranéen de l'Énergie*), of a high potential for energy efficiency development in the entire Mediterranean area.

With regard to the natural gas sector, the report “Analysis of gas facilities to improve flexibility and interoperability of energy systems” was approved. It is useful to provide insights into improving the flexibility and interoperability of facilities in the Mediterranean area with a view to reducing emissions and combating climate change. Furthermore, as part of the activities of the gas group, on 3

November 2021, the first MEDREG workshop on the prospects for the development of hydrogen in the southern shore of the Mediterranean was organised at the initiative of this authority.

Concerning customers, the working group devoted itself to the drafting of the first report on the role of digitisation and its impact on customer issues, "Role of digitisation and its impact on customer issues", which aims to explore how digitisation will support the development of smarter energy, helping customers to better manage their consumption. In addition, the following were approved: an update of the "Regulatory outlook" report (the last version dates back to 2018), which focuses on a comparative analysis of the powers and competences of regulators in the Mediterranean, based on six criteria: legal status, independence, competences, internal organisation, enforcement, transparency and enforcement; and the "Study on the Interlink between Good Regulatory Principles and the Energy Transformation Challenge", which provides an overview of the tools regulators are equipping themselves with in order to address and govern the energy transition.

The Association also launched an initiative to support young researchers who produce research work on relevant topics, the MEDREG Award, and organised a number of webinars for the benefit of its members.

Within the framework of the Cooperation Protocol between CEER (Council of European Energy Regulators), ECRB (Energy Community Regulatory Board) and MEDREG, signed by the three institutions in 2018, the customary annual meeting, "Trilateral Meeting Regulatory means to foster active customer engagement Flexibility, demand response, prosumers" was held on 26 and 27 May, which discussed, among other things, the future prospects of digitisation for the final customer along with the critical issues related to cybersecurity.

With regard to the three platforms for the Union for the Mediterranean (UfM)⁷⁴, a meeting of the Energy Ministers of the UfM countries took place on 14 June 2021, during which the adoption of roadmaps was recommended to develop integrated national energy and climate programmes; increase energy efficiency targets and foster the development of innovative technologies; encourage investments in renewable energy production sources; support the development of regulatory frameworks useful for the achievement of integrated Euro-Mediterranean energy markets; encourage processes aimed at promoting the digitisation of energy systems, taking into account cybersecurity profiles.

On 20 October, the informal group meeting of the CDs took place. "Regulators of the South", at the initiative of the regulators of France (CRE) and Greece (RAE), with the participation of the promoters, of this Authority and of the regulators of Cyprus, Portugal, Slovenia and Spain. The purpose of the informal group is to create a link between regulators in the southern European Union to exchange views on topical energy topics, to share information on regulatory policies in their respective countries, and to seek possible common positions in dialogue with European institutions.

The group tackled the issue of relations in the joint membership organisations (ACER, CEER and MEDREG), discussed the energy price crisis, which affected Southern European countries in particular), and examined strategies, identified needs and possible aspects of collaboration in emergency management.

⁷⁴ At the Ministerial Meeting on Energy of the Union for the Mediterranean (UfM) on 1 December 2016, the Ministerial Declaration on the implementation of Euro-Mediterranean platforms for electricity, gas, renewable energy resources and energy efficiency was adopted. The Union for the Mediterranean is an intergovernmental organisation that brings together 42 countries from Europe and the Mediterranean reservoir: the 27 member states of the European Union and 15 Mediterranean partner countries from North Africa, the Middle East and south-eastern Europe; it has its own Secretariat based in Barcelona.

COP26

On 24 May 2021, the event “Regulating for a Green, Fair Future” took place, promoted and organised by the UK regulator OFGEM, as part of the preparatory work for the UN Conference of the Parties on Climate Change (COP26) in November 2021. The main target of the meeting was to highlight the views and contribution that regulators can make in the energy transition process underlying the fight against climate change.

Bilateral relations with EU and non-EU countries

Greece. A bilateral meeting between the Authority and the Greek regulator was held in Athens on 19 October, discussing the role of Italian stakeholders in Greece and cooperation in the Mediterranean.

France. A bilateral meeting took place between the Authority and the French regulator, during which European topics of common interest were discussed, such as facilities development (SACOI and Piedmont-Savoia), relations with third countries and international cooperation activities.

South Africa. The meeting stemmed from a request by the South African Energy Authority (NERSA) to learn more about our Country's experience on topics such as the progressive integration of renewable energy into the national network, the natural gas supply system and the development of international electricity networks. NERSA is, in fact, carrying out a series of consultations with authorities from countries considered as international benchmarks.

3.2 Competition and the functioning of markets

3.2.1 Wholesale markets

Table 3.5 shows the electricity balance in Italy in 2021 compared to the previous year; the data is from Terna and is provisional for 2021.

Table 3.5 Terna's balance of electricity in Italy

AVAILABILITY AND USE (GWh)	2020	2021 ^(A)	VARIATION
Gross production	280,531	286,905	2.3%
Auxiliary services	8,883	9,231	3.9%
Net production	271,648	277,674	2.2%
Received from foreign suppliers	39,790	46,564	17.0%
Sold to foreign customers	7,590	3,771	-50.3%
Intended for pumping	2,668	2,827	6.0%
Availability for consumption	301,180	317,640	5.5%
Network leakage	17,366	17,051	-1.8%
Consumption net of leakage	283,814	300,589	5.9%

(A) Provisional data.

Source: ARERA processing of Terna data.

In 2021, the national demand for electricity was up (5.5%) compared to the previous year when, due to the extraordinary pandemic situation, consumption in the industrial sector had slowed down

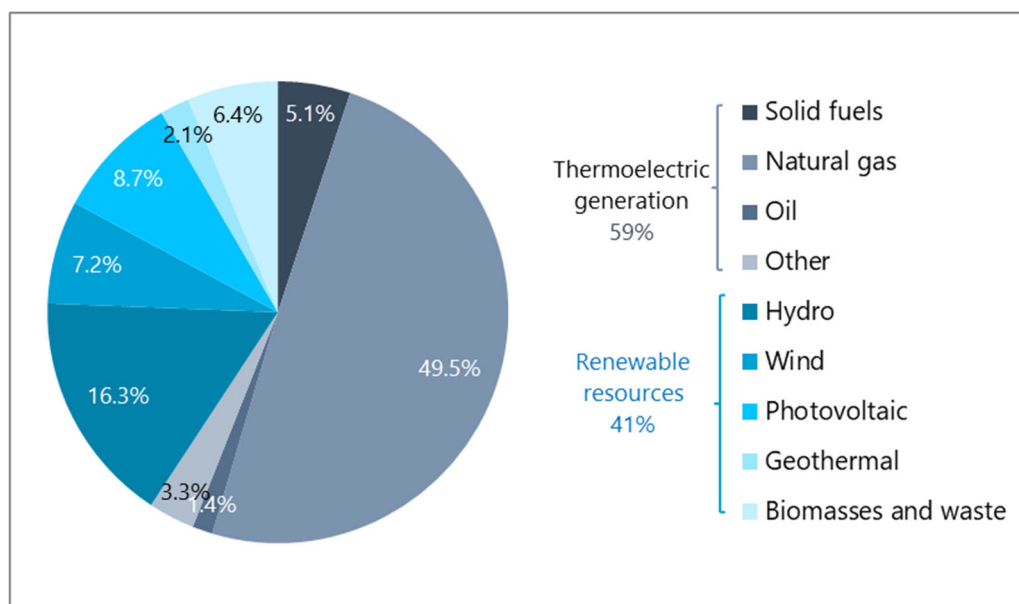
considerably. The increase was recorded in all customer sectors.

The availability of electricity is therefore back in line with the pre-Covid levels of 2019 (-0.6% compared with 2019) and was satisfied for 86.5% by net national production (less energy for pumping), which rose by 2.2%, while the remaining 13.5% by the balance abroad. Exported energy has halved and imported energy has increased by 17%, recording a balance of import-export energy of 42,793 GWh, up 32.9% compared to 2020.

In 2021, gross national electricity production in Italy reached 286.9 TWh, from the 280.5 TWh in 2020, thereby increasing 2.3%. Growth took place in particular in thermoelectric production, which went from around 161.7 TWh to 170 TWh (+5.2%), thanks above all to the greater production from natural gas (142 TWh), which produced 8.4 TWh more than in 2020 and that from solid fuels (28 TWh), which generated 1.2 TWh more than last year. Production from renewable energy sources (114.7 TWh), on the other hand, decreased (-1.9%). More specifically, production from bioenergy decreased by 6.9%, as did hydroelectric and geothermal generation by 5.9% and 2.1% respectively, while production from wind power increased considerably (10.8%). Photovoltaic production has stayed almost unchanged (25 TWh), up 0.5%.

The split between traditional thermoelectric and renewable sources sees a weight of 59.3% for thermoelectric production and 40% for renewable production; thus, the contribution of thermoelectric production to the overall national production is increased by 1.6% compared to 2020. Out of the total national generation, gas accounts for 49.5%. The share of renewables rises to 41% if pumped storage hydroelectric production is included (Figure 3.4).

Figure 3.4 Gross production by source in 2021



Source: Terna, provisional data.

Table 3.6 shows for thermoelectric, renewable and mixed sources the number of producers, the available power and the related production in 2021, using the data collected from the Authority's Annual Survey on Regulated Sectors, which this year covers 95% of the generation indicated by Terna. The table shows that mixed type operators, with both thermoelectric and renewable generation, hold almost half of the total power, i.e. 51,321 MW, and represent, as usual, about 3% of the power producers (399 out of 14,561). Although the number of "mixed" producers and their available power have remained essentially unchanged since 2020, their percentage contribution to

the overall generation has increased significantly compared to the previous year, from 37% to 44%.

Table 3.6 Producers, plants and electricity generation in 2021

PRODUCERS, PLANTS AND GENERATION BY SOURCE	THERMOELECTRIC	RENEWABLES	MIXED	TOTAL
Number of producers	458	13,704	399	14,561
Gross power (MW)	20,785	32,825	51,321	104,931
Gross generation (TWh)	76.4	75.4	120	271.8

Source: ARERA. Annual survey of regulated sectors.

The share of gross generation of the top three corporate groups (Enel, Eni and A2A) increased to 33.1% (from 31.8% in 2020), because the share of all three groups has grown. In particular, with an increase in share from 6% to 6.9%, in 2021 the A2A group overtook the Edison group (historically in third place), which instead saw its market share fall from 7% to 6.2%. The share of EPH, which is the fifth largest group in Italian electricity generation, also increased slightly (from 5.4% to 5.9%).

The concentration indices in gross electricity generation all increased: the C5 rose from 43.2% to 45.9%, as did the Herfindahl-Hirschman index (HHI) in 2021 to 560 from the 496 value in 2020.

Table 3.7 Development of the wholesale market

YEAR	REQUEST ^(A) (TWh)	PEAKING DEMAND (GW)	NET INSTALLED CAPACITY (GW)	CORPORATE GROUPS WITH >5% SHARE IN NET GENERATION	% SHARE OF TOP 3 GROUPS IN NET GENERATION
2001	304.8	52.0	76.2	4	70.7
2002	310.7	52.6	76.6	3	66.7
2003	320.7	53.4	78.2	4	65.9
2004	325.4	53.6	81.5	5	64.4
2005	330.4	55.0	85.5	5	59.4
2006	337.5	55.6	89.8	5	57.1
2007	339.9	56.8	93.6	5	54.7
2008	339.5	55.3	98.6	5	52.0
2009	320.3	51.9	101.4	5	50.6
2010	326.2	56.4	106.9	5	48.2
2011	332.3	56.5	118.4	4	43.6
2012	325.5	54.1	124.2	3	41.2
2013	316.0	53.9	124.7	3	39.1
2014	308.2	51.6	121.8	3	41.2
2015	315.0	60.5	118.3	3	40.1
2016	311.8	56.1	114.2	4	43.9
2017	318.1	56.4	114.2	5	35.6
2018	319.1	57.6	115.2	4	35.4
2019	317.2	58.8	116.4	5	33.3
2020	298.5	55.4	116.4	5	31.7
2021 ^(B)	314.8	55.0	116.6	5	33.6

(A) Net of energy for pumping and gross of network leakage.

(B) Provisional data.

Source: ARERA processing of Terna data and Annual survey on regulated sectors.

In 2021, total net power stands at 116.6 GW (Table 3.7; provisional figure), which is split between 49.6% renewables and 50.4% thermoelectric. The peak demand occurred on 8 July 2021, when power demand at peak reached 55 GW (down -0.7% from the previous year's peak of 55.4 GW recorded on 31 July 2020). Even the summer peak of 2021 remained far from the absolute peak for the Italian electricity system, recorded in the summer of 2015 (equal to 60.5 GW).

There are four groups with a net installed capacity share of more than 5%: Enel (22%), A2A (8%), Eni (5.4%) and Edison (5.2%); in 2020, there were three of them (Enel, A2A and Edison). The share of capacity held by the first three groups is 35.4%, lower than the 36.3% in 2020. The HHI index for net installed capacity also shows a reduction in market concentration; in fact, the value for 2021 is 652, whereas it was 682 in the previous year.

In Italy, multiple incentive mechanisms coexist for electricity production plants fuelled by renewable energy resources, ranging from all-inclusive incentive tariffs (feed-in tariff⁷⁵) to feed-in-premium incentive tools⁷⁶. All in all, the incentive tools allowed incentives in the amount of just over 62 TWh of electricity in 2021 (preliminary figure), i.e. about 0.4 TWh more than the quantity for which incentives were offered in 2020. According to preliminary figures, in 2021, 33% of the 62.3 TWh of the incentives offered on renewable energy was produced by photovoltaic plants, 26% by wind power plants, 26% by biomass, 13% by hydroelectric plants and, finally, 2% by geothermal energy. These quotas have not substantially changed since 2020.

With the discontinuation (in 2016) of the green certificate mechanism, the costs of incentivising renewable energy resources are generally covered by the A_{SOS} tariff component set quarterly by the Authority⁷⁷. Overall for 2021, the costs of incentivising renewable energy resources are estimated to be around Euro 10.5 billion. The A_{SOS} tariff component, in addition to the aforementioned costs, also allows for the disbursement of the costs of support for special commercial outlines (guaranteed minimum prices and on-the-spot trading) and the costs relating to plants powered by sources assimilated to renewable ones that benefit from the CIP 6/92 decision. It should be noted that this last decision expired in April 2021, when the remuneration period for the last eligible plant ended.

Consistent with the higher overall demand for electricity in 2021, the foreign balance also increased sharply: net imports rose to 42.8 TWh from 32.2 TWh in the previous year (+33%). As a result, the share of household demand covered by the external balance rose to 13.5% from last year's low of 10.6%. The increase in the external balance was achieved by both an increase in imports (17%) and a simultaneous reduction in exports (-50%). The increased reliance on imports is due to the need to cover rising demand, in a year of lower penetration of renewable energy resources caused by insufficient hydroelectric production in a context of low hydraulic capacity. The strong recovery of imports only abated in the last quarter of the year, mainly due to the unavailability of part of French nuclear production for the periodic maintenance programmes of French plants. Switzerland remained the country from which most (43%) of our foreign balance came in 2021, although the share decreased by 10 percentage points compared to 2020. Another 33% of net imported electricity comes from France (39% in 2020), 13% from Slovenia (11% in 2020), 7% from Montenegro (2% in

⁷⁵ Feed-in tariff means that the incentive recognised for electricity fed into the network includes the sale of the electricity, which, therefore, does not remain at the producer's disposal. The electricity fed into the network is taken back at a price that already includes the incentive.

⁷⁶ Feed in premium means that the incentive recognised for the electricity produced does not include the sale of the electricity, which remains at the producer's disposal.

⁷⁷ There are two tariff components paid by electricity customers to cover general system charges: A_{SOS} is precisely the one relating to the support of renewable energies and cogeneration, while the A_{RIM} tariff component is the one intended to cover the remaining general charges.

2020), 3% from Austria and the same from Greece.

The structure of the electricity market

The Energy Markets Operator is in charge of managing the energy markets, which are divided into the Spot Energy Market (MPE) - in turn divided into the Day-Ahead Market, the Intra-Day Market and the Day-Product Market - and the Forward Electricity Market with the obligation of physical delivery of energy.

Finally, the GME collects offers on the Dispatching Service Market (MSD) operated by Terna.

The Day-Ahead Market (MGP) relates to the trading of energy with reference to the 24 hours of the day of delivery, which is managed by means of hourly tenders at a clearing price (system marginal price). The MGP is a zone market: the territory is divided into areas representing portions of the transmission network with limited exchange capacity between them. If the flows exceed the maximum transit limit allowed by the interconnections between areas, the price is recalculated in each area as if each one was a separate market from the others (market splitting). While sale offers are valued in each hour at the relevant zonal price, purchase offers are valued in each hour at a Single national purchase price (PUN), defined as an average of the zonal prices weighted by the value of purchases from each area, net of purchases from pumping and foreign areas. In this market, the GME acts as a central counterparty for operators.

During 2021, the process of extending the coupling of the Italian day-ahead market with the day-ahead markets of other European states (market coupling), which began in 2011 with the coupling of the Italian and Slovenian markets, continued. By the end of 2020, there were 22 participating states in Single Day-Ahead Coupling (SDAC). On 1 January 2021, Great Britain withdrew its membership of SDAC as a result of Brexit. During 2021, first the Czech Republic, Slovakia, Hungary and Romania (on 17 June 2021) and then Bulgaria (on 27 October 2021) joined the SDAC. At the end of 2021, therefore, SDAC had 26 member states⁷⁸. With reference to national borders, the explicit allocation of transmission capacity between Italy and Switzerland and between Italy and Montenegro remains.

Also for the Intra-Day Market (MI), the European regulatory framework provided, as for the MGP, for a coupling mechanism of the national markets, Single Intra-Day Coupling (SIDC). As for Italy, with effect from 21 September 2021, the new mechanism was implemented through the introduction of three regional implicit tenders (MI-A), which replace the previous 7 tenders that made up the MI, and a continuous trading session (MI-XBID) coupled with those of the other European countries that have joined the SIDC⁷⁹. The session in continuous negotiation, in turn, is divided into three phases. Unlike the MGP, in the MI sessions the accepted purchase offers are valued at the zonal price. The GME acts as the central counterparty.

As of 29 September 2016, the Day-Product Market (MPEG) was established, where all electricity market operators can continuously trade daily contracts of different profiles (baseload and peakload). At present, operators can only offer volumes at prices expressed as differentials from the actual average PUN for the delivery date of the product being traded.

⁷⁸ Austria, Belgium, Bulgaria, Czech Republic, Croatia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Ireland, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden.

⁷⁹ All EU countries (excluding Greece and Slovakia, as well as Malta and Cyprus) plus Norway.

The purpose of the Dispatching Service Market (MSD) is to supply for Terna the resources necessary for the safe operation of the system through the resolution of intra-zone congestion, the provision of reserve capacity, and real-time balancing. Unlike the other markets, in this case Terna acts as the central counterparty for the authorised operators. With reference to the Balancing Market, as of 13 January 2021, Italy also uses the European platform TERRE for the exchange of balancing energy from the replacement reserve. On the TERRE platform, as on the other platforms envisaged by regulation (EU) 2195/2017 (the Balancing Regulation), which came into force on 17 December 2018, the exchange of balancing energy takes place via standard products characterised by specific activation times, according to a multilateral TSO-TSO model with activation of offers by merit order.

The Forward electricity market (MTE) managed by the GME was established in November 2008, in order to allow operators a more flexible management of their energy portfolio. It consists of the negotiation of forward contracts with the obligation to deliver and take back energy. Trading is continuous and involves two types of contracts, baseload and peakload, which can be traded with monthly, quarterly and annual delivery periods. Once the trading phase is over, contracts with a monthly delivery period are recorded in corresponding transactions on the Energy Accounts Platform (PCE), subject to the fairness controls provided for in the platform rules. For contracts with quarterly and yearly delivery periods, the "cascade" mechanism is provided for⁸⁰.

Operators can sell and purchase energy not only through the organised market of the GME, but also by concluding trading contracts outside the offer system. As of May 2007, the PCE came into force, introducing broad flexibility for operators to optimise their contract portfolio in the medium to long term. Quantities underlying bilateral forward contracts (mostly traded on brokerage platforms) are recorded on the PCE⁸¹.

To date, 289 operators have been admitted to the electricity market.

Stock exchange and bilateral contracts

In 2021, in an economic context characterised by a growing aggregate demand and by a supply that is trying to stabilise after the easing of the pandemic containment measures, there was an increase in the amount of electricity traded on the Italian system's MGP, amounting to 290.4 TWh (+3.6% compared to 2020). This increase was due to higher household purchases (286.1 TWh; +5.4%), only partly offset by lower exports (4.3 TWh; -50%). On the other hand, the volumes offered in the Italian System decreased (472.4 TWh; -5%) (Table 3.8).

⁸⁰ Procedure whereby quarterly and annual forward contracts (futures, forwards and contracts for differences) are replaced, at the time of maturity, by an equivalent number of contracts with shorter maturities. New positions are opened at a price equal to the final settlement price of the original contracts.

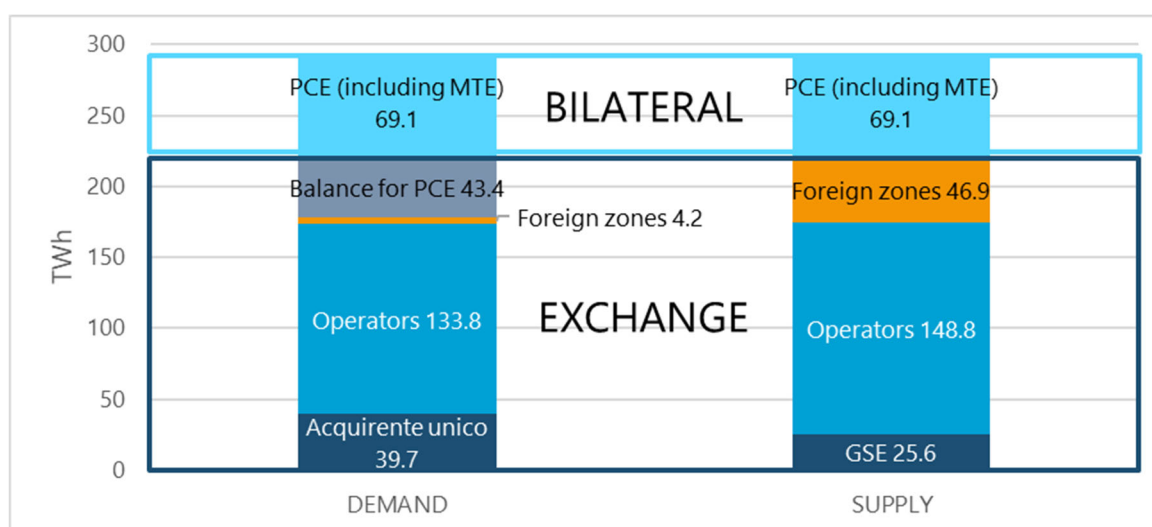
⁸¹ For more details on the volumes, prices and dynamics affecting the MI and MSD markets, as well as for further insights on the evolution of the wholesale electricity market, please refer to the GME Annual Report and to the Monitoring Report for Dispatching Service Market published by the Authority on 21 July 2020 (see Resolution 282/2020/E/eel of 21 July 2020).

Table 3.8 Electricity market

YEAR	CONTRACTS ON THE MGP (TWh)		
	Comprehensive	<i>of which Stock Exchange</i>	<i>of which bilateral</i>
2004	231.6	67.3	164.3
2005	323.2	203.0	120.2
2006	329.8	196.5	133.3
2007	330.0	221.3	108.7
2008	337.0	232.6	104.3
2009	313.4	213.0	100.4
2010	318.6	199.5	119.1
2011	311.5	180.4	131.1
2012	298.7	178.7	120.0
2013	289.2	206.9	82.3
2014	282.0	185.8	96.1
2015	287.1	194.6	92.5
2016	289.7	202.8	86.9
2017	292.2	210.9	81.3
2018	295.6	213.0	82.6
2019	295.8	213.3	82.6
2020	280.2	209.8	70.3
2021	290.4	221.3	69.1

Source: ARERA processing of GME data.

The general drop in the number of offers submitted mainly affected thermoelectric (combined cycle and coal-fired plants) and hydroelectric plants, although this drop in offers was not associated with a corresponding drop in sales. Thermoelectric plants, which accounted for 60% of total sales (as in 2020), recorded year-on-year increases ranging from +71% for coal-fired plants (8.8 TWh; 6% of thermoelectric sales) to +75% for mixed-fuel oil-fired plants (3.8 TWh; 3% of thermoelectric sales), while sales of natural gas-fired plants (116.8 TWh; 81% of thermoelectric sales) decreased by 1%. Thus, in 2021, the latter accounted for about 48% of total sales. By contrast, the percentage share sold by renewable plants remained stable (40%).

Figure 3.5 Breakdown of electricity supply and demand in 2021

Source: ARERA processing of GME data.

The share of volumes traded directly on the stock exchange was up (221.3 TWh; +5.5%) (Table 3.8) and reached 76.2% of total trade on the MGP (+1.3 percentage points compared to 2020); the significant growth in liquidity was favoured by an increase in imports (48 TWh; +14.6%), partially contained by the halving of exports (4.3 TWh; -50%); Acquirente Unico volumes, equal to 14% of total purchases and fully supplied on the stock exchange, fell by almost 2%. The programmes coming from the PCE registrations of bilateral over-the-counter trade also continued to lose share (69.1 TWh, -1.7%) (Table 3.9).

Table 3.9 Purchased bilateral contracts

CONTRACTS (GWh)	2016	2017	2018	2019	2020	2021
National	134,862	125,750	136,867	129,368	114,745	112,531
<i>of which Acquirente Unico</i>	17,594	3,714	2,459	-	-	0.02
<i>of which other operators</i>	117,267	122,037	134,408	129,368	114,745	112,531
Foreign	34	69	0	-	4	34
PCE programme balance	-48,019	-44,540	-54,233	-46,804	-44,403	-43,445
Bilateral contracts	86,876	81,279	82,635	82,564	70,346	69,121

Source: ARERA processing of GME data.

3.2.1.1 Monitoring of wholesale market prices

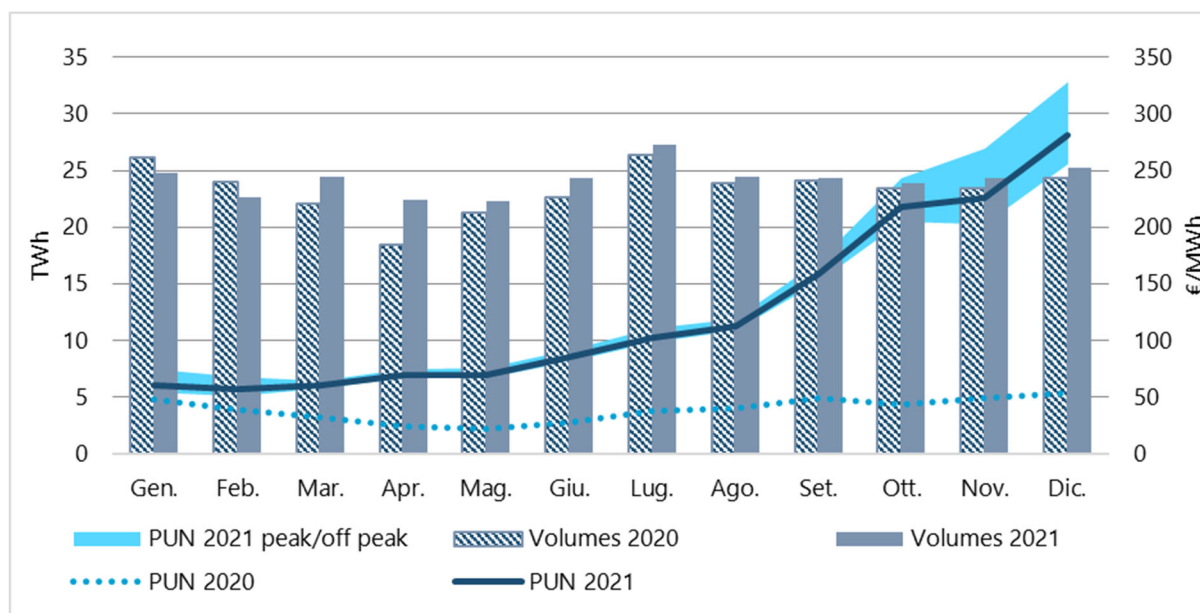
The day-ahead market

After the all-time low in 2020 (38.92 €/MWh), the average annual electricity purchase price (PUN) in 2021 reached a record high of 125.46 €/MWh (Figure 3.6), a sharp increase over 2020 (+222%) and in line with the prices on the main European power exchanges (Figure 3.8).

The increase was supported not only by the recovery in electricity demand, but also by the rise in thermoelectric generation costs, fuelled by record high prices of natural gas, coal and CO₂. The dynamics of the PUN remained homogeneous for all groups of hours: the annual average stood at 141.55 €/MWh (+214%) in peak hours, at 121.06 €/MWh (+221%) in off-peak hours on working days, and at 111.92 €/MWh (+237%) on public holidays. Looking at the daily profile, the ratio of peak to off-peak hours was down (1.21; -6%), favoured by a reduction in the differential in the evening hours (-7%) only partially offset by an increase in the differential in the morning hours (+4%).

Trading on the Day-Product Market (MPEG) decreased, which recorded 504 transactions (-55% compared to 2020), with a total of 296 GWh (-59%) traded, almost exclusively with a baseload profile. Trade was concentrated in the first and fourth quarters of the year.

The average price of daily products remained essentially constant at € 0.23/MWh, with no particular intra-annual variations.

Figure 3.6 Monthly trend of PUN and total traded volumes for the Italian System

Source: GME.

Intra-day market

The total volumes traded in 2021 on the Intra-day Market (26.0 TWh) showed an increase over the previous year (+1.1 TWh; +4%), signalling the need for operators to adjust their schedules in a better way. This increase occurred entirely in the first two market sessions (17.8 TWh; +1.1 TWh), rather than in subsequent ones (8.2 TWh; -0.7 TWh).

With the changes made to the market, starting in September 2021, there was a concentration of trades in the first tender (MI-A1), while the high share of trades made in the continuous trading session (MI-XBID) with a foreign counterparty showed the collection of previously untapped market share.

Prices in the MI were at average monthly levels in line with those of the corresponding values in the MGP, showing progressive increases during 2021, up to a maximum of 290 €/MWh in December, coinciding with the strong increase in natural gas and CO₂ prices.

Forward energy market

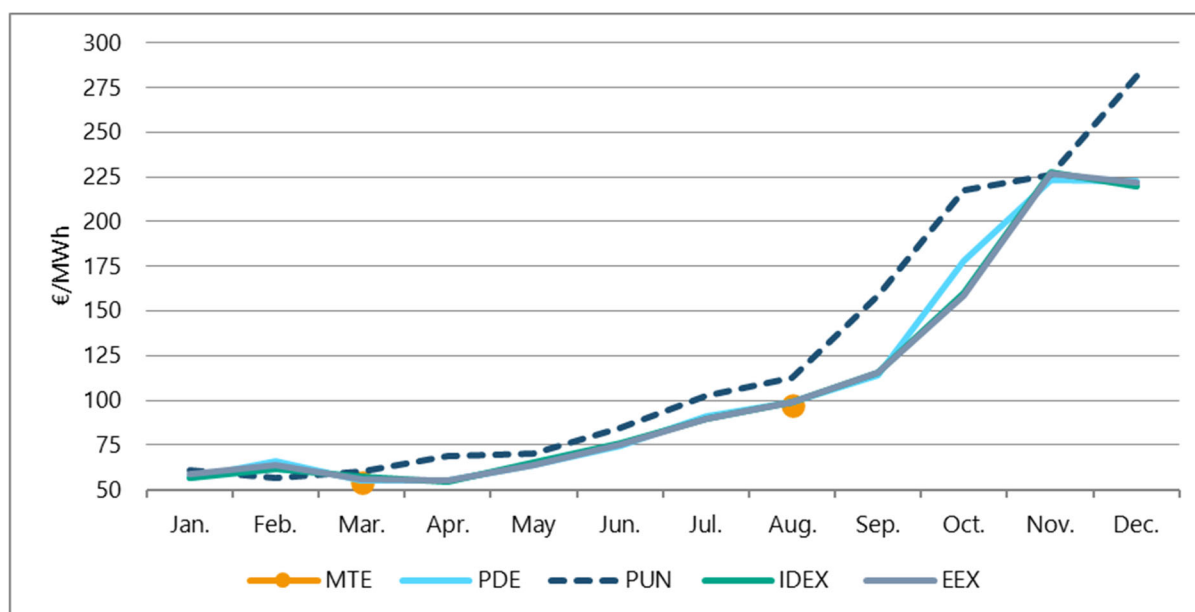
On the Forward electricity market (Table 3.10), with regard to standardised products with physical delivery, in 2021, there were only 7 pairings for a total of 22 GWh, which is a sharp decrease compared to last year (-97%) for only the monthly (18 MW) and annual (1 MW) products, both with a baseload profile. For the seventh consecutive year, there is no bilateral transaction for clearing purposes only.

Table 3.10 Volumes traded on the MTE

DURATION	2015	2016	2017	2018	2019	2020	2021	2021/2020 VARIATION
CONTRACTS (MW)	1,004	411	518	391	596	213	19	-91%
Baseload	899	323	449	357	561	174	19	-89%
Peakload	105	88	69	34	35	39	0	-100%
VOLUMES (GWh)	5,087	1,069	1,356	1,191	1,641	771	22	-97%
Baseload	5,007	1,002	1,335	1,155	1,602	730	22	-97%
Peakload	79	67	21	36	38	41	0	-100%

Source: ARERA processing of GME data.

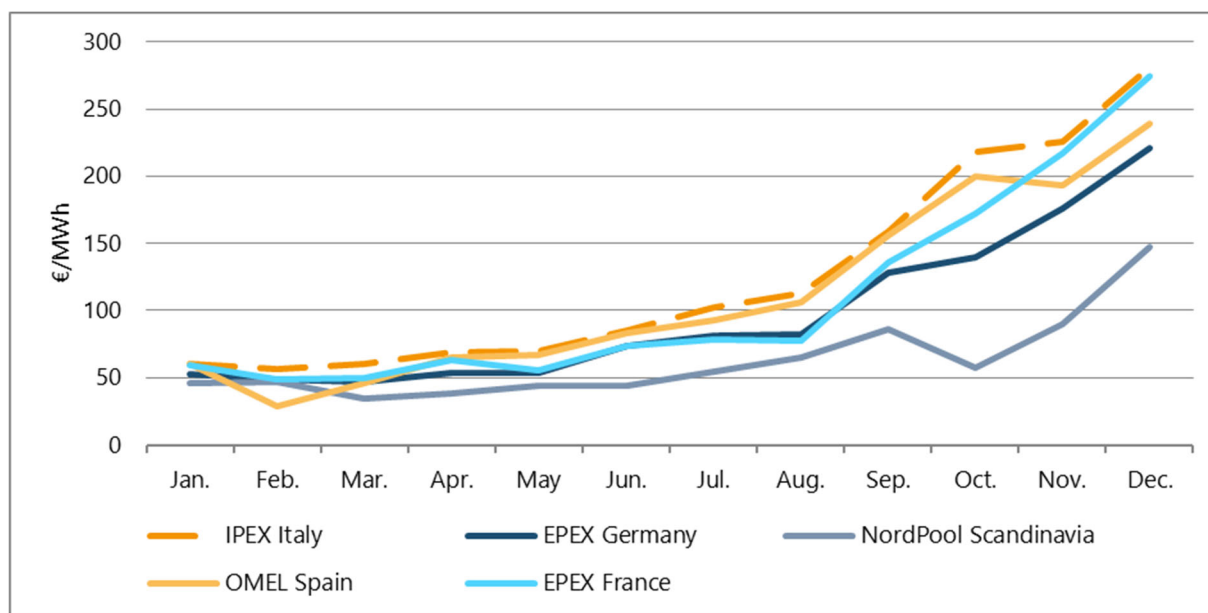
Looking at the price development of the generally more liquid forward product, i.e. the monthly baseload maturing in the next month (M+1), prices ranged from 55 €/MWh (April) to 223 €/MWh (December). This trend is in line with the one recorded over the year by the underlying PUN (with reference to the same month of delivery), but it also shows significant disconnections in the last four months of the year, registering (compared to the PUN) differentials of up to 40-60 €/MWh (Figure 3.7).

Figure 3.7 Average prices in 2021 of the baseload product with a duration of one month and maturity in the following month on the different trading platforms

Source: ARERA processing of data from different sources.

The degree of integration of the Italian market in the European context

Against a global backdrop of sharply rising fuel prices, electricity prices in other European countries also recorded unprecedented increases, reaching three times those of 2020 (Figure 3.8). Prices in the day-ahead markets averaged 110 €/MWh in France and Spain and 97 €/MWh in Germany. On a yearly average, prices rose by 239% in France, 230% in Spain, 218% in Germany and 475% in Scandinavia.

Figure 3.8 Monthly average price trend on major European stock exchanges in 2021

Source: ARERA processing of data from European Electricity Stock Exchanges.

Although market-coupling mechanisms have enabled an efficient management of cross-border flows, a reduction in price convergence between countries has been observed, driven by differences in the cost and availability of the capacity of their generation parks. For Italy, France and Germany, prices were perfectly aligned with each other in 18% of the hours (-11 percentage points compared to 2020), while the Italian price was higher than the French price in 66% of the hours, higher than the Austrian price in 75% of the hours and higher than the Slovenian price in 52% of the hours. This growth in the differential between Italian and foreign prices led to an increase in imports (48 TWh, +15%) and to a decrease in exports (4.3 TWh, -51%). In addition, exports to Greece (0.5 TWh; -81% compared to 2020) were affected by the unavailability of transit for a significant number of hours (around 30%).

3.2.1.2 Monitoring of the level of transparency, including compliance with obligations on transparency and the level and effectiveness of market opening and competition

Monitoring of the wholesale market

At an advanced stage of regulation, the wholesale market monitoring function is the main tool the Authority has for assessing the structure of markets and their proper functioning, as well as the behaviour of operators and the adequacy of the system. In the electricity sector, the Authority has therefore equipped itself⁸², since 2008, with the Integrated Text on the Monitoring of the Wholesale Electricity Market and of the Dispatching Service Market (TIMM), in order to strengthen its monitoring function in the sector.

The importance of the monitoring function carried out by the regulatory authorities at national level - and already provided for ARERA by its founding law - is also recognised at European level: in addition to the directives on energy markets, regulation (EU) 1227/2011 on Wholesale Energy Market

⁸² By Resolution ARG/elt 115/08 of 5 August 2008, as amended.

Integrity and Transparency (REMIT) has strengthened and expanded the monitoring powers of national regulators. In particular, the monitoring function envisaged by REMIT is aimed at increasing the general transparency of markets and promoting a more level playing field among operators, intercepting abusive conduct relating to market manipulation and insider trading, including cross-border and cross-product practices (spot and forward, physical and financial products); this important function is therefore coordinated at European level by the Agency for the Cooperation of Energy Regulators (ACER).

Following the publication of the “Report of the Italian Regulatory Authority for Energy, Networks and Environment on the Monitoring of the Dispatching Service Market: Voltage Regulation Segment”, in July 2020 the Authority ordered⁸³ the start of in-depth investigations into the conducts of dispatching users who own production units eligible for reactive reserve services and located in the areas of Southern Italy on which there are voltage constraints. Therefore, in 2021, the aforesaid in-depth investigations were conducted also in consideration of the significant cost incurred by Terna specifically for resolving local voltage constraints, which in 2021 amounted to about Euro 990 million, down from Euro 1,400 million in 2020.

These costs were recovered through the “fee for the supply of resources in the Dispatching Service Market” (the uplift) burdening dispatching users and, through them, customers.

At the same time, in order to monitor other specific aspects of the MSD, the analysis of the implicit supply of frequency regulation resources, i.e. active power reserve requirements, was initiated.

Finally, market fundamentals were monitored, in order to identify the main causes of the marked increases in natural gas and electricity prices in the wholesale markets. The sustained recovery of the global economy and tensions in the supply of raw materials and intermediate inputs, partly due to the rapidity of growth itself and partly due to supply bottlenecks that emerged in global supply chains as a result of the pandemic, provided the framework within which the upward trend in energy prices developed. In particular, during 2021, a scarcity situation arose in the global LNG market, leading to strong pressure on European natural gas storage and thus on prices. At the same time, there was a sharp increase in the price of CO₂ emission permits, partly related to the dynamics of the natural gas price itself and partly influenced by the climate policy decisions taken at European level, with particular reference to the target of reducing emissions by at least 55% compared to 1990 by 2030. The rise in European gas prices and CO₂ emission permits resulted in an increase in the generation costs of natural gas-fuelled thermoelectric plants and, consequently, in the spot price of electricity, given the high number of hours (around 50% in Italy) when combined cycle plants were the marginal technology in the day-ahead market.

Implementation of REMIT

Pre-investigation activities were conducted during 2021, resulting from recommendations of suspicious orders and/or transactions in the wholesale electricity and natural gas markets, potentially abusive under the REMIT regulation.

In particular, on 22 December 2021, the Authority published a press release highlighting the results of the in-depth studies carried out on what was reported in the article published by S&P Global Platts, on 11 November 2020, regarding possible distorting effects in the natural gas market caused

⁸³ By Resolution of 21 July 2020, 282/2020/E/eel.

by balancing rules. The article had, in fact, suggested the systematic use of strategies of withholding capacity in imports or in storage, implemented by traders in the early hours of the day, in order to supply a negative imbalance (i.e. a deficit) in the gas system, such as to induce, in the afternoon, the intervention in purchase of the responsible for balancing (Snam Rete Gas), with a consequent increase in prices in the intra-day market. As a result of these investigations, however, the Authority found neither evidence of violations of the prohibition of market manipulation under REMIT, nor distorting effects attributable to the provisions of the European legislative framework on balancing. Therefore, the conclusions assumed in the S&P Global Platts article were not confirmed.

The Authority also confirmed its proactive contribution to the working groups in both ACER and CEER, in order to promote a coordinated approach in the implementation of the REMIT regulation, contributing:

- the restructuring and updating of ACER's General Guidance on the Application of REMIT, with the publication of the sixth edition of the document on 22 July 2021;
- sharing of tools, methodologies and means for the surveillance of wholesale markets, as well as issues related to the coordination of potential market abuse cases with a cross-border dimension;
- monitoring the development of financial regulations and contributing to the creation of CEER-ACER positions in areas relevant to the proper functioning of energy markets.

3.2.2 Retail market

In 2021, according to provisional data published by Terna, total consumption (net of leakage) amounted to approximately 301 TWh, an increase of 5.9% compared to 2020. Consumption recovered in all sectors, including the household sector where, however, the increase was much more limited than in the other sectors: 1.5% against increases of more than 6% in the other sectors (Table 3.11).

Table 3.11 Breakdown of national electricity consumption by end sector

PRODUCTION SECTOR (TWh)	2016	2017	2018	2019	2020	2021 ^(A)	2019/20 variation
Household	64.3	65.5	65.1	65.6	66.2	67.2	1.5%
Agriculture	5.6	6.0	5.8	6.1	6.3	6.7	6.5%
Industry	122.7	125.5	126.4	128.9	125.4	134.4	7.2%
Tertiary	102.9	104.9	106.0	101.2	85.9	92.3	7.5%
TOTAL	295.5	301.9	303.4	301.8	283.8	300.6	5.9%

(A) Provisional data.

Source: Terna.

Within the scope of the Authority Registry of Operators, 112 entities in the standard offer market, 4 in the gradual standard offer service, 3 in the safeguard service and 804 in the free market declared to have carried out electricity sales activities in 2021 (even for a limited period of the year).

592 free market companies responded to the Survey (i.e. 74% of those in the market), 55 of which reported that they had been inactive during the year. Taking into account the fact that 43 entities sell energy in both the free and in the market with a reference price, as well as the fact that the companies in the safeguard and gradual protection offers also sell in the free and/or in the standard offer market (and are therefore already counted in those segments), the total number of companies active and operating in the end market for electricity sales is 602 (i.e. 657 respondents from which

the 55 inactive companies must be subtracted). In 2020, there were 119 suppliers in the standard offer market, 3 in the safeguard market and 564 in the free market (of which 43 were inactive). As a result, the number of operators exercising standard offer decreased by seven compared to 2020, as a result of corporate procedures involving the alienation of business. In contrast, the number of electricity sales companies in the free market increased again by 16. The expansion trend of suppliers has continued almost uninterrupted since 2008 (see also Figure 3.10).

Table 3.12 presents the breakdown of final sales of electricity (net of self-consumption and network leakage) together with the total number of customers⁸⁴ by type of market, determined on the basis of data from the Authority's Annual Survey provided by electricity operators: producers, operators of the standard offer, gradual protection and safeguard services, wholesale suppliers and suppliers on the free market. The sales data collected by the Authority (taken together with self-consumption) are representative of a population that reflects 84%⁸⁵ of the final consumption estimated by Terna, the electricity network operator.

Table 3.12 Final electricity sales market (net of self-consumption and leakage)

	VOLUMES (GWh)			WITHDRAWAL POINTS (thousands)		
	2020	2021	VARIATION	2021	2021	VARIATION
Standard offer service	35,459	28,258	-20.3%	15,923	14,199	-10.8%
Household	25,684	23,860	-7.1%	13,622	12,397	-9.0%
Non-household	9,774	4,398	-55.0%	2,300	1,802	-21.7%
Gradual standard offer service	-	4,599	-	-	226	-
Safeguard service	3,065	3,293	7.4%	70	77	9.7%
Free market	202,444	216,493	6.9%	20,982	22,431	6.9%
Household	34,117	36,864	8.1%	16,178	17,462	7.9%
Non-household	168,327	179,628	6.7%	4,804	4,969	3.4%
END MARKET	240,968	252,642	4.8%	36,975	36,933	-0.1%

Source: ARERA. Annual survey of regulated sectors.

The results of the Annual Survey (as usual, to be considered as provisional for 2021) show that the economic recovery, made possible by the massive vaccination campaign that eased the restrictive measures imposed in 2020 to counter the Covid-19 epidemic, brought electricity consumption back up: according to the data collected, 253 TWh were sold in the end market last year to around 37 million customers. Compared to 2020, total electricity consumption increased by almost 5%, while withdrawal points decreased slightly. The increase in non-household consumption was significant due to the recovery of the industrial sector and even more so of the construction sector, while the recovery of the tertiary sector remained limited by the nonetheless high trend of contagions during the year. Consumption in the household sector, also thanks to the spread of remote work in homes and a hotter summer than in 2020 that pushed up the use of air conditioners, also grew quite a bit. Withdrawal points in the household sector remained essentially unchanged (+0.2%), while those in the non-household sector decreased (-2%), as in the previous year.

More precisely, Italian **households** purchased a total of 60.7 TWh compared to 59.8 TWh in 2020, thus registering an increase of 1.5%, while energy purchased by the non-household sector rose from

⁸⁴ Approximated by the number of withdrawal points always counted on a *pro die* basis (i.e. counted for the fractions of the year for which they were served).

⁸⁵ In order to obtain the percentage indicated, the data collected in the Survey for self-consumption and network leakage must be added to the final consumption shown in Table 3.12 .

181.2 to 191.9 TWh, marking an increase of 5.9%, insufficient to fully recover pre-Covid levels (198 TWh in 2019). In 2021, the number of households was 29.9 million, of which 12.4 million served under the standard offer service and 17.5 million on the free market: the surpassing by the free market of the standard offer service, which had begun in 2020, therefore continued. The percentage of household points served on the free market rose to 58.5%, as compared with 54.3% in 2020. If we then look at the volumes, the free market is even wider: in 2021, in fact, energy purchased by the household sector in this market rose to 60.7% from 57.1% of the previous year. The transition to the free market is, however, a process that takes time: fourteen years after the complete opening of the electricity market on 1 July 2007, the household withdrawal points that are supplied in the standard offer service are still a significant portion, amounting to 41.5% of the total.

The average unit consumption of households in the market with a reference price is slightly lower than that of households purchasing energy in the free market: 1,925 kWh/year versus 2,111 kWh/year. This differential is narrowing over time, because in the early stages of market opening the first households to move to the free market were those characterised by large consumption, while as the transition to the free market is completed, households with lower consumption also move. In 2021, the gap narrowed from 223 kWh to 186 kWh.

For the supply of electricity of small companies⁸⁶ and micro-companies with a committed power of more than 15 kW⁸⁷, price protection ended on 1 January 2021; therefore, the total volumes sold under price protection in 2021 still include those to industry low-voltage customers for whom price protection is still allowed, i.e. those of micro-companies with a committed power of less than 15 kW. If the consumption of the household sector is added to the consumption of these micro-companies, the share of electricity sold in the **standard offer service** is, however, very small, amounting to only 11.2% of the volumes of the entire Italian electricity market (corresponding to 38.4% of the total withdrawal points).

As of January 2021, small and micro-companies forced to leave the standard offer market (those with committed power in excess of 15 kW), which have not opted for a supply in the free market, will be supplied under the **gradual standard offer service** by a supplier selected by public tender⁸⁸, as defined by ARERA⁸⁹. In 2021, the service served 226,000 withdrawal points, or 0.6% of all customers in the electricity market, to which it supplied 4.6 TWh, or 1.8% of the energy sold in the total market.

With 216.5 TWh sold, the share of electricity intermediated by the **free market** rose to 85.7% (60.7% of withdrawal points) in 2021, partly because the portion of electricity purchased in the **safeguard**

⁸⁶ Companies with between 10 and 50 employees and/or an annual turnover of between Euro 2 and 10 million, owners of "low voltage" withdrawal points.

⁸⁷ Companies with less than 10 employees and an annual turnover not exceeding Euro 2 million owning at least one withdrawal point with a commitment to contracted power exceeding 15 kW.

⁸⁸ Until 30 June 2021, and pending the conclusion of the competitive procedures for the allocation of the gradual standard offer service, these customers were assigned to the same supplier of the standard offer service with which they had an active user.

⁸⁹ The contractual terms and conditions of the service correspond to those of the free-price offers with equivalent protection conditions (PLACET offers), defined by the Authority with regard to the billing methods and times, the content of the billing documents, the guarantees to be requested from the customer, the payment times and methods, as well as the instalment terms and the application of interest on non-payment of bills in the event of non-payment by the final customer. The economic conditions for energy expenditure are based on the actual values of the Single National Price, and include fees to cover other supply and marketing costs. The price paid by final customers therefore depends above all on the level of the remuneration parameters offered by each gradual standard offer service operator in each territorial area in order to be awarded the service.

service remained unchanged at 1.3% (0.2% of withdrawal points). In an end market that overall grew by 11.7 TWh compared to 2020, sales volumes in the market with a reference price decreased by 7.2 TWh (-20%), the free market gained 14 TWh compared to the previous year (+6.9%), while sales in the safeguarded regime grew by 227 GWh (+7.4%).

The total number of customers decreased in 2021 by 83,000, reaching 36.9 million: the standard offer market lost about 1.7 million points, the customers of the safeguard service increased by about 7,000 units, while in the free market the number of customers increased by 1.4 million compared to 2020.

Switching

On the basis of data provided by distributors in the Annual Survey and of data from the IIS⁹⁰, it can be seen that in 2021 household switching grew again, whether measured in terms of withdrawal points or in terms of volumes (Table 3.13), approaching that of non-household users. 15.7% of households - about 4.7 million withdrawal points - changed supplier at least once during the year. The volumes corresponding to this portion of customers amounted to about 17.9% of the total energy purchased by the household sector, while the volumes corresponding to the 13.1% of households who changed supplier in 2020 corresponded to 14.2% of the energy withdrawn.

Table 3.13 Electricity customer switching rates

CUSTOMER TYPE	2020		2021	
	VOLUMES	WITHDRAWAL POINTS	VOLUMES	WITHDRAWAL POINTS
Household	14.2%	13.1%	17.9%	15.7%
Non-household	17.6%	16.5%	22.4%	18.7%
<i>of which:</i>				
- low voltage	18.4%	16.5%	29.4%	18.7%
- medium voltage	18.8%	16.4%	20.5%	19.4%
- high and extra-high voltage	12.8%	23.0%	13.8%	26.1%
TOTAL	16.8%	13.8%	21.3%	16.2%

Source: ARERA. Annual survey of regulated sectors.

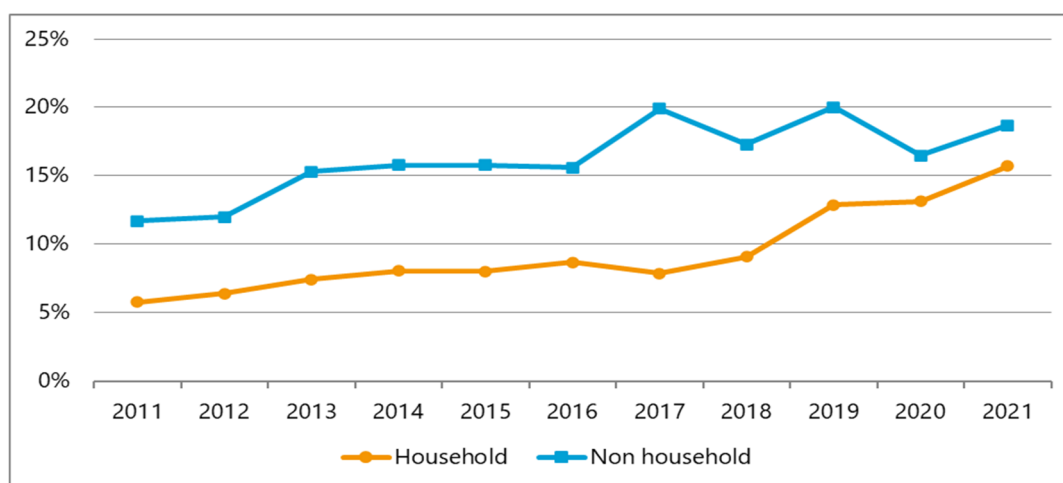
In recent years, household switching activity has shown some acceleration compared to a more modest trend until 2018 (Figure 3.9); this may have been stimulated by the removal expectations of price protection, now expected by January 2024. There is no doubt that the numerous announcements (and postponements) on the end of the standard offer service may have created a climate of ferment and curiosity towards the free market. Moreover, starting from the second half of 2021, prices have been rising at an extraordinary rate: in a context of sharply rising prices, the search for more favourable economic conditions tends to push supplier changes.

The exclusion from the standard offer service, as of 1 January 2021, for small and micro-companies (with a committed power of more than 15 kW) certainly had an impact on the switching activity of industry low-voltage customers, which showed a rather high pace in 2021: 18.7% in terms of customers and almost 30% in terms of volume. More generally, it should be emphasised that 2021 was a year of economic recovery, thanks to the exit from the initial and harshest phase of the

⁹⁰ Integrated Information System (IIS): this is an information system, set up at the Single Buyer by Law no. 129 of 13 August 2010, with the aim of managing information flows between the entities (mainly distributors and suppliers) participating in the electricity and gas markets according to the rules and proceedings defined by the Authority. It is based on a database, called the Official Central Register, which contains the complete list of national withdrawal points and the basic data for the management of the related processes.

pandemic, which increased the demand for energy, which in itself is an incentive to seek new and more favourable supply conditions. The sharp increases in international commodity prices, which have driven up electricity and gas prices in Italy as well, albeit starting in the second half of the year, are obviously to be considered, even more so for non-households than for households, as a stimulus for switching activity. Indeed, during 2021, other non-households also showed a significant rate of switching: 19.4% of customers connected to medium voltage (for a total of 20.5%) and 26.1% of customers connected to high or extra-high voltage, for a volume of approximately 14%, changed supplier. Overall, just under 1.3 million industry withdrawal points changed supplier in 2021. In terms of underlying volumes, about 43.2 TWh, corresponding to 21.3% of the volumes purchased by non-households.

Figure 3.9 Switching rates (of withdrawal points) in the electricity sector since 2011



Source: ARERA, Annual survey on regulated sectors and processing on IIS data.

Standard offer service

In 2021, households and micro-companies⁹¹ served at low voltage and with a committed power of less than 15 kW who had not yet concluded a trading contract in the free market used the **market at standard conditions** or the **standard offer service**.

National legislation has provided for the gradual transition from the market with a reference price to the free market, stipulating the dates from which price protection is no longer available: for the supply of electricity to small⁹² and micro-companies with a committed power of more than 15 kW⁹³, price protection ended on 1 January 2021. For micro-companies with a power of less than 15 kW,

⁹¹ Pursuant to Decree Law no. 73 of 18 June 2007, converted with amendments into Law no. 125 of 3 August 2007, micro-companies are production entities with less than 10 employees and with an annual turnover not exceeding Euro 2 million.

⁹² Pursuant to Decree Law no. 73 of 18 June 2007, converted with amendments by Law no. 125 of 3 August 2007, “small companies” are final customers, supplied at low voltage and other than households, with less than 50 employees and with an annual turnover or balance sheet total not exceeding Euro 10 million.

⁹³ More precisely, for micro-companies with at least one withdrawal point with a contractually committed power of more than 15 kW.

the end of price protection is set for 1 January 2023, while for households for 10 January 2024. Customers who lose their right to the standard offer service without having chosen a free market supplier are assigned to the gradual standard offer service, which guarantees them continuity of electricity supply (see below).

The standard offer service is provided by specific sales companies or by distribution companies with less than 100,000 users connected to their network, on the basis of economic and commercial quality conditions indicated by the Authority. Under the standard offer regime, a single buyer (the company "Acquirente Unico") is responsible for the supply of electricity on the wholesale market, which it resells to the operators at a price reflecting the costs it has incurred, including those for energy materials. The higher standard offer prices are set by the Authority on the basis of wholesale market prices in order to cover the supply costs incurred by the companies entrusted with providing this service. As regards the component covering marketing costs, the criterion used by the Authority reflects the costs incurred by a hypothetical new operator to the market segment of electricity sales to households. In summary, the energy component of the standard offer prices is set according to a market-based methodology, while the marketing component is set according to a standard cost methodology, based on the entry costs of a hypothetical new operator. The total price is charged to all customers supplied in the stand-alone offer regime without geographic differentiation.

The first results of the Annual Survey show that in 2021, 28.3 TWh were sold, under standard offer supply conditions for electricity, to approximately 14.2 million withdrawal points (calculated on a *pro die* basis). Compared to 2020, consumption fell by 7.2 TWh (-20.3%), while the number of withdrawal points served decreased by 1.7 million (-10.8%). Partly as a result of the aforementioned regulatory provisions, the standard offer service has been declining for years. Last year, 1.2 million households (-9%) and 0.5 million non-households (-21.7%) left the standard offer service: about half of the latter, no longer entitled to the standard offer service, switched to the new gradual standard offer service. Within households, the decrease in residents (1 million, -9.2%) is proportionally close to that of non-residents (0.2 million, -8.2%).

While for households there are similar reductions in the number of points served (-9%) and in consumption (-7.1%), for non-households the decrease in quantities sold (-55%) is more than double compared to that of points served (-21.7%): this figure reflects the exit of customers who switched to the gradual standard offer service, which, as mentioned above, are the largest production units. The public lighting segment was almost completely emptied, for which there was a 90.7% decrease in energy sold and an 85.4% decrease in the number of points served, which were almost entirely switched to the new gradual standard offer service. As a result of the above, the shares of the various categories in the overall consumption have changed significantly compared to 2019. 84.4% of the volumes (23.9 TWh) were purchased by households (72.4% in 2020), which, in terms of numbers (12.4 million withdrawal points), accounted for 87.3% of the total.

Within **households** (Table 3.14), residents account for 78.2% of the withdrawal points and 88.8% of consumption. Almost all households (99.2%) are charged the two-tier tariff, i.e. the economic condition for which the price varies according to the hourly band in which consumption takes place; the remaining 0.8% of household withdrawal points are still charged the old non time-of-use tariff. Even more residual (0.2%) is the share of non-households with a non time-of-use tariff.

In 2021, the average unit consumption of households was 1,925 kWh/year, higher than the 1,886 kWh recorded in 2020 (+2.1%), also slightly higher than the previous year. With regard to households, residents recorded a unit consumption of 2,187 kWh, an increase (+1.7%) compared to 2,149 kWh in the previous year; significantly lower, as usual, was the unit consumption level of non-residents, at 987 kWh and also an increase, even more marked (+6.1%), compared to the previous year (930 kWh).

Almost all (87.5%) of the households served under standard conditions, however, consume less than 3,500 kWh per year.

Table 3.14 Households in the standard terms service by type and consumption class in 2021

CUSTOMER TYPE AND ANNUAL CONSUMPTION CLASSES	VOLUMES (GWh)	VOLUME SHARE	WITHDRAWAL POINTS (thousands)	CUSTOMER SHARE	AVERAGE CONSUMPTION (kWh)
0-1,000 kWh	1,611	6.8%	3,857	31.1%	418
1,000-1,800 kWh	4,014	16.8%	2,855	23.0%	1,406
1,800-2,500 kWh	4,699	19.7%	2,195	17.7%	2,141
2,500-3,500 kWh	5,735	24.0%	1,944	15.7%	2,950
3,500-5,000 kWh	4,400	18.4%	1,073	8.7%	4,100
5,000-15,000 kWh	3,057	12.8%	460	3.7%	6,649
> 15,000 kWh	344	1.4%	13	0.1%	25,474
TOTAL HOUSEHOLDS	23. 860	100.0%	12,397	100.0%	1,925
OF WHICH:					
Resident households	21,187	88.8%	9,688	78.2%	2,187
Non-resident households	2,673	11.2%	2,708	21.8%	987

Source: ARERA. Annual survey of regulated sectors.

Table 3.15 Non-households in the standard terms service by type and consumption class in 2021

Volumes in GWh; number of withdrawal points in thousands; average consumption in kWh

CUSTOMER TYPE AND ANNUAL CONSUMPTION CLASSES	VOLUMES (GWh)	VOLUME SHARE	WITHDRAWAL POINTS (thousands)	CUSTOMER SHARE	AVERAGE CONSUMPTION (kWh)
0-5 MWh	1,747	39.7%	1,572	87.2%	1,112
5 - 10 MWh	963	21.9%	138	7.6%	7,003
10 - 15 MWh	570	13.0%	47	2.6%	12,212
15 - 20 MWh	372	8.5%	21	1.2%	17,331
20 - 50 MWh	655	14.9%	24	1.3%	27,575
50 - 100 MWh	62	1.4%	1	0.1%	61,802
100 - 500 MWh	19	0.4%	0	0.0%	165,715
500 - 2,000 MWh	8	0.2%	0	0.0%	787,630
2,000 - 20,000 MWh	2	0.0%	0	0.0%	2,783,370
TOTAL NON-HOUSEHOLDS	4,398	100.0%	1,802	100.0%	2,440
OF WHICH:					
Public lighting	29	0.7%	3	0.1%	11,000
Other non-household uses	4,369	99.3%	1,799	99.9%	2,428

Source: ARERA. Annual survey of regulated sectors.

Table 3.15 shows the size of withdrawal points (1.8 million) and volumes (4.4 TWh) of **non-household uses** served at standard conditions, by consumption class. In 2021, almost 40% of energy was sold to customers in the first consumption class (<5 MWh/year), who make up 87.2% of all non-households. The second class, that of customers with annual consumption between 5 MWh and 10 MWh, comprises 7.6% of the withdrawal points and absorbs 21.9% of the electricity sold. Thus, 94.8% of non-households purchasing electricity in the standard offer service have annual consumption of

no more than 10 MWh.

As mentioned, withdrawal points with public lighting use represent only 0.1% of non-households and consume 29 GWh, 0.7% of the electricity purchased by non-households under standard conditions. Withdrawal points for other uses make up almost all (99.9%) of the non-households served under standard offer market and have an average consumption that has fallen to 2,428 kWh.

Among non-households (other uses), the absolutely most prevalent economic condition is the time-of-use one: it is, in fact, applied to 98.6% of the withdrawal points and to 98.4% of the volumes sold. The alternative is the non time-of-use condition, which affects 1.2% of the withdrawal points and 1.4% of the energy. Even more marginal are the shares of the two-tier tariff, under which 0.2% of customers and purchased energy is billed.

Gradual standard offer service

As already anticipated, as of 1 January 2021, micro-companies⁹⁴ with at least one withdrawal point with a contractually committed power of more than 15 kW and small companies⁹⁵ must obtain their supplies on the free electricity market. In order to guarantee continuity of supply to those among them who have not yet chosen an offer in the free market and to give these customers time to choose the one best suited to their needs, the Authority has introduced the gradual standard offer service. Until 30 June 2021, the gradual standard offer service was provided by the operator of the standard offer service. From 1 July 2021 and for three years, the service will be provided by suppliers selected through specific competitive procedures for each of the 4 specially defined territorial areas, as set out in Table 3.16.

Table 3.16 Operators selected to provide the gradual standard offer service for the period 1 July 2021-30 June 2024 in each territorial area

TERRITORIAL AREA	GRADUAL STANDARD OFFER SERVICE SUPPLIER
Lazio, Lombardy, Veneto, Liguria, Trentino	A2A Energia
Campania, Marche, Umbria, Abruzzo, Molise, Basilicata, Calabria, Sicily, Sardinia	Hera Comm
Friuli-Venezia Giulia, Aosta Valley, Apulia, Tuscany and the Municipality of Milan	Iren Market
Piedmont, Emilia-Romagna	Axpo Italia

Source: ARERA.

The first results of the Annual Survey show that in 2021, 4.6 TWh were sold in the gradual standard offer service to 226,000 withdrawal points (calculated on a *pro die* basis; Table 3.17).

Within the service, the most numerous type of customer is that of non-households with consumption other than public lighting (hereafter, other uses), who consumed about 4.4 GWh and counted almost 212,000 withdrawal points, just under half the number of those who left the standard offer market at the beginning of the year (483,000), most of whom then switched to the free market.

Approximately 70% of the withdrawal points for other uses fall into the four smallest size classes (up

⁹⁴ Entities with less than 10 employees and an annual turnover not exceeding Euro 2 million.

⁹⁵ Final customers, supplied at low voltage and other than households, with less than 50 employees and an annual turnover or balance sheet total not exceeding Euro 10 million.

to 20 MWh/year), but together these classes account for only 19.5% of the category's consumption. Most of the consumption (78.6%) is concentrated in the three medium to large classes (20 to 500 MWh/year), while the subsequent classes have an almost insignificant incidence.

The national average *per capita* consumption is 20,338 kWh, with a slightly lower value for public lighting (15,596 kWh) and similar in other uses (20,665 kWh).

Table 3.17 Non-households in the gradual standard offer service by type and consumption class in 2021

CUSTOMER TYPE AND ANNUAL CONSUMPTION CLASSES	VOLUMES (GWh)	VOLUME SHARE	WITHDRAWAL POINTS (thousands)	CUSTOMER SHARE	AVERAGE CONSUMPTION (kWh)
0-5 MWh	159	3.5%	95.7	42.3%	1,663
5 - 10 MWh	220	4.8%	29.0	12.8%	7,582
10 - 15 MWh	261	5.7%	20.4	9.0%	12,809
15 - 20 MWh	259	5.6%	14.5	6.4%	17,817
20 - 50 MWh	1,394	30.3%	43.1	19.1%	32,345
50 - 100 MWh	1,156	25.1%	16.8	7.4%	68,916
100 - 500 MWh	1,066	23.2%	6.6	2.9%	161,415
500 - 2,000 MWh	67	1.4%	0.1	0.0%	709,005
2,000 - 20,000 MWh	10	0.2%	0.0	0.0%	3,116,367
> 20,000 MWh	7	0.2%	0.0	0.0%	35,241,609
TOTAL NON-HOUSEHOLDS	4,599	100.0%	226.1	100.0%	20,338
OF WHICH:					
Public lighting	228	5.0%	14.6	6.5%	15,596
Other non-household uses	4,371	95.0%	211.5	93.5%	20,665

Source: ARERA. Annual survey of regulated sectors.

Safeguard service

The safeguard service accommodates non-households who find themselves, even temporarily, without an electricity trading contract in the free market, but who are not entitled to access the standard offer service. These same customers are also admitted to the safeguard service when they persist in a condition of non-payment of bills. Since 2008, the service has been provided by sales companies selected by tender, which obtain the right to operate the service for two consecutive years. The tender for the safeguard service for the two-year period 2021-2022 ended in November 2020 with the award of the service to the same three suppliers who had operated the service in the previous two-year period: A2A Energia, Enel Energia and Hera Comm.

The awarding of the tender for the two-year period 2021-2022, however, changed the distribution of the service among the three suppliers, with a downsizing of the territories covered by Hera Comm (which was awarded only 3 regions against the 15 it had in the previous two-year period) and an increase in the territories served both for A2A (one region more than in the previous two-year period), but especially for Enel Energia (14 regions compared with 2 in the previous two-year period).

According to the data received from the three operators in 2021, and for the first time in the last three years, the service expanded again. More precisely, last year, 76,685 withdrawal points were served under the safeguard service (calculated on a *pro die* basis, i.e. counted for the fractions of the

year for which they were served), compared to 69,914 points in 2020, which represent the historical minimum for this market since its start in 2007. Overall, 3,293 GWh were withdrawn against 3,065 in 2020. Thus, the safeguard market grew by 9.7% in terms of withdrawal points and by 7.4% in terms of energy consumed compared to 2020 (Table 3.18).

Table 3.18 Safeguard service by customer type

CUSTOMER TYPE	VOLUMES (GWh)			WITHDRAWAL POINTS (thousands)		
	2020	2021	VARIATION	2020	2021	VARIATION
Public lighting	377	372	-1.3%	15.1	15.9	5.4%
Other uses	2,688	2,920	8.6%	54.8	60.8	10.9%
TOTAL SAFEGUARD	3,065	3,293	7.4%	69.9	76.7	9.7%

Source: ARERA. Annual survey of regulated sectors.

Overall, the number of withdrawal points with public lighting use served with the safeguard service increased by about 820 units, while those for other uses grew by 5,950 units. The consumption of public lighting decreased by 1.3%, while an increase of 8.6%, i.e. from 2,688 to 2,920 GWh, occurred in the consumption of other uses.

Mainly as a result of the change of territories assigned to the three operators, the national increase of 7.4% in the volumes of electricity acquired in the safeguard service manifested itself to very different degrees among the three companies providing the service. Compared to 2020, the volumes sold by Enel Energia and A2A Energia have almost tripled (from 678 to 2,030 GWh those of Enel Energia, from 201 to 592 GWh those of A2A Energia), while those sold by Hera Comm have decreased by 69% (from 2,186 to 670 GWh).

As a result of these trends, Enel Energia's share of the safeguard market rose to 61.7% from the previous 22.1%, that of Hera Comm fell from 71.3% to 20.4%, and that of A2A Energia rose from 6.6% to 18%.

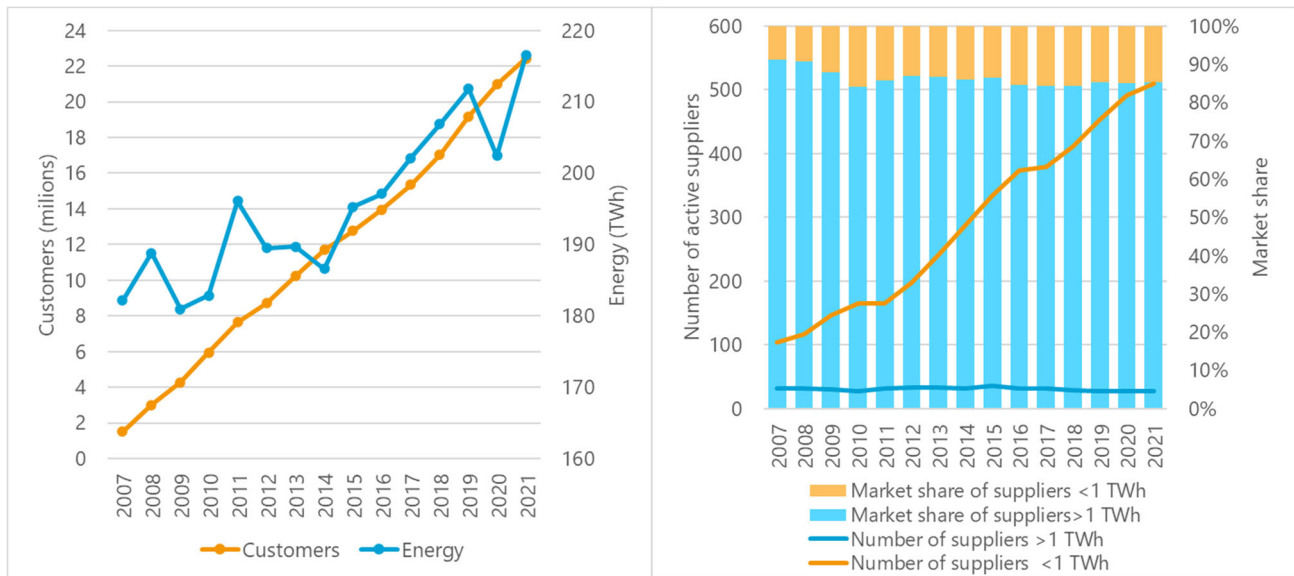
Free market

As seen in the previous pages, according to the (provisional) data collected in the Annual Survey of Regulated Sectors, 216.5 TWh were sold in the free electricity market in 2021, 14 TWh more than in 2020, to just over 22 million customers, up 6.9% from 2020.

Since its opening in 2007, the number of customers on the free market has increased steadily and markedly, just like the energy it has brokered and the number of suppliers operating on it. In terms of energy sold, the free market has grown by 15%, from the initial 182 TWh to the current 216.5 TWh, although this expansion has not always taken place at a sustained pace and has even experienced some setbacks over the fourteen years.

2021 was a year of expansion, both in terms of electricity sales and the number of customers served.

Regardless of the trend in quantities sold, however, the number of suppliers active on this market has been growing uninterruptedly since 2007, or rather, every year there is an increase in the number of companies with sales of less than 1 TWh, although their market share is more or less stable at around 15% (Figure 3.10).

Figure 3.10 Development of the free electricity market

Source: ARERA. Annual survey of regulated sectors.

In 2021, the number of operators also rose, albeit to a lesser extent than in recent years: according to the responses from the Annual Survey of Regulated Sectors, 16 new active companies entered the market (+3.1%). Since the market has since expanded by more than twice as much (6.9%), the average unit sales volume of companies operating in this market has increased slightly for the first time since 2011. In 2021, in fact, the average unit sales volume of companies operating on the free market was 403 GWh, i.e. 3.8% higher than the 389 GWh in 2020, the lowest point reached in the historical series. Compared to the value observed in 2007 (1,349 GWh), i.e. in the year of full market opening, the present value is in fact 1.3 times lower.

The corporate composition of the share capital of companies active in sales to free final customers as at 31 December 2020, limited to first-tier direct participations, shows a low foreign presence, with only 5% of the total capital shares held by foreign entities. Only 23 companies (out of the 510 that provided this data) have a non-Italian majority shareholder. Direct foreign participants are mostly German, British, Spanish, Luxembourgian or Chinese companies, but there are also majority shareholders from other countries (Austria, Belgium, Ireland, the Netherlands, Portugal, Romania, Slovenia, the United States and Switzerland).

28% of the 537 suppliers active in the free market who responded to the Annual Survey sell energy in between 1 and 5 regions; 189 companies, or 35%, sold electricity in almost the entire national territory, i.e. in at least 18 regions; the remaining 189 companies (36%) operated between 6 and 17 regions.

The breakdown of customers by type and voltage (Table 3.19) shows an increase of more than 1.4 million points served. This result was almost exclusively due to low-voltage customers, and in particular households, although a numerically significant increase was also seen at the withdrawal points of other low-voltage connected users. The number of household points served in the free market increased by 1,284,000 units, or 7.9% compared to 2020; 176,000 new withdrawal points purchased electricity in the free market for other low-voltage uses (+3.9%), while medium voltage points decreased by 6,000 units (-5.4%). High/extra-high voltage withdrawal points also showed an increase (3.4%) to almost 1,100 units.

Table 3.19 Free market by customer type

CUSTOMER TYPE	VOLUMES (GWh)			WITHDRAWAL POINTS (thousands)		
	2020	2021	VARIATION	2020	2021	VARIATION
Low voltage	87,757	94,885	8.1%	20,877	22,331	7.0%
Household	34,117	36,864	8.1%	16,178	17,462	7.9%
Public lighting	3,745	3,476	-7.2%	236	231	-2.3%
Other uses	49,894	54,545	9.3%	4,462	4,638	3.9%
Medium voltage	90,078	94,040	4.4%	104	99	-5.4%
Public lighting	257	247	-3.9%	0.81	0.82	0.8%
Other uses	89,821	93,793	4.4%	103	98	-5.5%
High and extra-high voltage	24,609	27,567	12.0%	1.04	1.07	3.4%
Other uses	24,609	27,567	12.0%	1.04	1.07	3.4%
TOTAL	202,444	216,493	6.9%	20,982	22,431	6.9%

Source: ARERA. Annual survey of regulated sectors.

In terms of energy sold, however, all voltage levels recorded an increase. In fact, sales to low-voltage customers increased by 8.1% compared to 2020, medium voltage customers purchased almost 4 TWh more than in the previous year (+4.4%), and sales to high-voltage customers grew by almost 3 TWh, marking a very high increase of 12%. In the low-voltage sector, purchases by households rose by 8.1% compared to 2020, partly due to the arrival of customers from the standard offer category, and partly due to the growth in consumption probably favoured by the expansion of remote work, as well as the occurrence of a warmer summer than 2020, which increased consumption for air conditioning.

Among **households**, the most important classes in terms of withdrawal points are the first two, i.e. those with annual consumption up to 1,000 kWh and between 1,000 and 1,800 kWh, both of which account for a quarter of customers. However, the classes immediately above also have a not too dissimilar weight. In fact, 85.8% of the withdrawal points have a consumption level of no more than 3,500 kWh/year (Table 3.20).

In the various classes, with the exception of the first and the last, the average consumption figures for the free market are very similar, although slightly higher, to those of the households served in the standard offer market (Table 3.14). Mainly due to differences in the extreme classes (the first and the last), the overall average consumption of households in the free market (2,111 kWh) is almost 10% higher than that of standard offer households (1,925 kWh).

In 2021, just over 1.2 million households appear to have signed a dual fuel contract⁹⁶. The number of customers with this type of contract increased by 20% compared to 2020; their share of the total number of customers served in the free market thus rose to 7.2% from 6.5% last year. The total electricity consumption of customers with a joint supply contract for electricity and gas is 2.8 TWh, 7.6% of all energy sold to households on the free market. The average consumption of dual fuel customers in the various classes is slightly higher (about 5% on average) than that of customers with electricity-only contracts.

⁹⁶ Customers who receive the same bill for the supply of electricity and gas are considered dual fuel; customers who have a contract with the same supplier for both electricity and natural gas but receive separate bills for the two services are therefore excluded from the count.

Table 3.20 Household free market in 2021 by consumption class

CONSUMPTION CLASS	VOLUMES (GWh)	VOLUME SHARE	WITHDRAWAL POINTS (thousands)	SHARE ON WITHDRAWAL POINTS	AVERAGE CONSUMPTION (kWh)
< 1,000 kWh	2,057	5.6%	4,304	24.6%	478
1,000-1,800 kWh	6,026	16.3%	4,297	24.6%	1,402
1,800-2,500 kWh	7,185	19.5%	3,367	19.3%	2,134
2,500-3,500 kWh	8,860	24.0%	3,015	17.3%	2,938
3,500-5,000 kWh	6,879	18.7%	1,683	9.6%	4,087
5,000-15,000 kWh	5,159	14.0%	772	4.4%	6,681
> 15,000 kWh	700	1.9%	23	0.1%	29,968
TOTAL HOUSEHOLDS	36,864	100.0%	17,462	100.0%	2,111
<i>of which with dual fuel contract</i>					
< 1,000 kWh	132	4.7%	224	17.8%	588
1,000-1,800 kWh	482	17.3%	338	26.8%	1,429
1,800-2,500 kWh	603	21.6%	279	22.1%	2,162
2,500-3,500 kWh	733	26.3%	247	19.6%	2,973
3,500-5,000 kWh	517	18.5%	125	10.0%	4,130
5,000-15,000 kWh	300	10.7%	45	3.6%	6,667
> 15,000 kWh	25	0.9%	1	0.1%	23,855
TOTAL WITH DUAL FUEL CONTRACT	2,792	100.0%	1,259	100.0%	2,218

Source: ARERA. Annual survey of regulated sectors.

In contrast to what happens in the standard offer service, where the two-tier tariff is largely prevalent because it is mandatory from a certain date onwards, the breakdown of customers by tariff applied in the free market shows a constant and substantial preference for the non time-of-use price, which in 2021 will be chosen by 63.5% of all customers, equivalent to 62.2% of volumes (in 2020, this price modality was chosen by 60.7% of customers). 26.3% of customers chose the two-tier modality and only 10.2% the time-of-use mode, the latter slightly up from 8.4% in 2020. The elements that make non time-of-use price more attractive are probably related to the simplicity of calculation and cost control in the bill, as well as to the absence of a constraint on the time of consumption.

As far as **non-households** are concerned, sales in volume terms are fairly concentrated in consumption classes ranging from 100 to 20,000 MWh/year, which together comprise 57% of the total energy purchased by the non-household sector. However, 65% of customers belong to the first class, i.e. they consume less than 5 MWh per year.

The average consumption of non-households is of course highly differentiated between the various classes, but it is still largely up compared to the consumption observed in 2020. Overall, the average consumption of all non-households purchasing electricity on the free market was 36,148 kWh in 2021, 3.5% higher than in 2020 (35,039 kWh).

Among non-households, dual fuel contracts are not very widespread: the number of withdrawal points that preferred such a supply in 2019 is around 69,000 out of a total of almost 5 million (1.4%), and they are almost all connected to low voltage; purchased energy accounts for 1.9% of the total.

Available offers and sales contracts in the free electricity market

Also this year, the Annual Survey on the Regulated Sectors asked electricity and natural gas suppliers

a number of questions aimed at assessing the quantity of offers that companies make available to customers who choose to supply in the free market and, above all, the distribution of their customers between the different types of contract they have actually chosen.

The panorama of commercial offers available on the free market constitutes a very complex and varied reality, which has been joined for some years now by PLACET offers. Each free market supplier has to include in its commercial offers, for the benefit of small customers⁹⁷, two PLACET offer formulas - one at a fixed price and one at a variable price - characterised by general supply conditions fixed by the Authority with the exception of the price, the level of which is freely defined by the supplier (in accordance with a predefined fee structure). The data commented below on the types of contracts chosen by customers in 2021 also include PLACET offers, without, however, separating them⁹⁸.

As in previous years, the target of the questions posed to the suppliers on the quantity and quality of the commercial offers then actually chosen by the customers was to classify the numerous offers on the market, albeit not completely exhaustive of reality. The results presented in these pages should be treated with caution. On the other hand, the consolidation of the results, after a number of years in which the questionnaire on the offers and contracts chosen by customers is submitted to the suppliers, also makes it possible to display the results obtained with regard to non-households.

The **average number of commercial offers** that each sales company is able to propose to its potential households was 16.9 for households and 25.5 for non-households, who obviously enjoy greater choice and for whom the supplier is certainly able to provide more customised services and individualised contracts. The number of offers available to non-households remained largely unchanged compared to 2020, when it was 25.8. By contrast, the number of offers for households decreased slightly (17.6).

Out of the 16.9 offers made available on average to the household, 5.8 are **only available on-line** (4.5 in 2020), i.e. only through the Internet. The success of on-line offers among households remains limited, but it is growing: in 2021, 9.7% of households (corresponding to 10.5% of electricity purchased in the free market) signed a contract offered through this modality. If we look at non-households, on the other hand, of the 25.5 offers on average proposed to customers only 4.3 are subscribed via the web, which is quite logical, considering that non-households often have special needs and therefore cannot be standardised within the framework of an offer proposed via the web; in the same way, we can understand how the success of on-line offers among non-households is even lower than among households, given that only 4.9% of customers have subscribed to an on-line offer.

With regard to the preferred **type of price** (Table 3.21), it was found out that 81.4% of households signed a fixed-price contract in the free market (i.e. with the price not changing for at least one year from the time of signing), while 18.6% chose a variable-price contract, i.e. with the price changing at a time and in a way determined by the contract itself. The preference for variable price is low, but

⁹⁷ The PLACET offers are intended to increase the ability to assess the commercial offers of small customers, identified, for the electricity sector, with all customers (households and non-households) connected to the low-voltage network and, for the natural gas sector, with final customers (household, condominiums and other uses) owning points with annual consumption of less than 200,000 m³. They present easily understandable offer structures, comparable between suppliers (differentiated only in price level), and they have to be distinguished from any additional services recommended by the same supplier.

⁹⁸ For an in-depth look at the spread of PLACET offers, see the Retail Market Monitoring Report published on the Authority's website (https://www.arera.it/it/operatori/Monitoraggio_retail2.htm).

tends to grow over time, albeit at a moderate rate; last year, the variable-price contract was chosen by 16% of households.

Table 3.21 Contracts for the supply of electricity in the free market in 2021 by type of price and average price (percentage of customers having signed the indicated contracts)

CONTRACTS	HOUSEHOLDS		NON-HOUSEHOLDS	
	SHARE	PRICE ^(A) €/MWh	SHARE	PRICE ^(A) €/MWh
Fixed-price contracts	81.4%	132.43	54.9%	91.37
Variable-price contracts	18.6%	171.98	45.1%	132.48
TOTAL CUSTOMERS	100%	140.43	100%	120.81

(A) Supply cost component.

Source: ARERA, Annual survey on regulated sectors.

Variable-price contracts are more popular among non-households: 54.9% of them chose the variable price, while the fixed-price contract was chosen by 45.1% of the non-household points. The data collected in the Survey also showed that in fixed-price contracts valid in 2021⁹⁹, the price paid for the supply component was at least 30% cheaper than in variable-price contracts.

In addition, 2.6% have signed a contract with a **minimum contractual duration clause**, meaning that the customer does not have to change supplier for a minimum amount of time specified in the contract in order for the price to be applied. The percentage is higher in the case of variable-price contracts, where the minimum contract term applies to 7.4% of customers, while it is 1.5% in the case of fixed-price contracts. In the case of non-households, the minimum contractual duration clause was applied to 1.8% of contracts or, more precisely, to 2% of those with variable prices and to 1.7% of those with fixed prices.

In variable-price contracts, **indexation** to the trend of the average PUN is the most frequent modality in both contracts to households (67.2%) and those to non-households (51.6%).

The second most popular price indexation method chosen by households is that of a discount on one of the components set by the Authority for the standard offer service, which concerns 27.7% of customers. Households who signed a dynamic-price contract¹⁰⁰ accounted for 3.9% of the variable-price households, while contracts with limited indexation gathered only 0.5% of households. Dynamic-price contracts, on the other hand, represent the second most important modality of indexation among non-households, who chose them in 6.4% of the cases; a small share (2.7%) of non-households chose a contract indexed to some external, controllable variable (which sometimes also refers to gas prices at TTF); only 1.9% of non-households have an indexation contract linked to the prices established by the Authority for protective systems. Looking at the average values of the supply component paid in these contracts, it can be observed that the indexation methodology found to be most convenient is the one based on some external and controllable variable in the case of households, and the one with a discount on the price set in a Consip or other public tender in the case of non-households.

⁹⁹ All of the information requested from suppliers relates to contracts in force in 2021 regardless of the year in which they were signed: in other words, the count of the withdrawal points that signed them, the energy sold, and the average price indicated by suppliers are those relating to customers who were served during the year even under a contract signed in previous years (but not expired).

¹⁰⁰ Established by Article 2(15) of Directive (EU) 2019/944 of 5 June 2019.

About 20% of households signed a contract providing for a **rebate or a discount** of one or more free periods or a fixed sum in cash or volume, which may be one-off or permanent and possibly conditional on the occurrence of a certain circumstance (e.g. a discount for contracts signed by friends of the customer, a discount for bank account clearance, etc.).

In the 2021 *Annual Survey*, the presence of **additional services** in contracts and their consistency was also investigated. The additional services that suppliers could select were as follows:

- 100% renewable energy guarantee (total green offer);
- auxiliary energy services (e.g. digital and collaborative tools to control energy consumption and costs, tools to increase energy efficiency, professional services such as telephone assistance, plant maintenance, energy plant insurance, etc.);
- advantages on the purchase of other goods or services (e.g. petrol discounts, magazine subscriptions, etc.);
- points collection programme (own or others);
- free gift or gadget;
- guarantee of energy produced in Italy;
- other products or services offered together with electricity (e.g. Internet, telephone subscription, TV subscription, insurance/financial product, etc.);
- a combination of additional services (specify which additional services are included in the contract, choosing from those already listed or others);
- other not included in the above items.

As last year, suppliers choosing the option “A combination of additional services” were asked to specify which additional services the combination consisted of, and the corresponding withdrawal points were then reallocated *pro rata* to the individual additional services indicated. According to suppliers, there is a high presence of contracts with a combination of additional services in the market, at least among customers choosing a fixed-price contract: the share of withdrawal points that suppliers attributed to this option was 67.6%; the combination of additional services is less present, however, in contracts signed by households with a variable-price contract, where it accounts for only 8.1%.

The results collected (Table 3.22) revealed a clear propensity, as in the past, for fixed-price households to purchase energy with a contract that includes an additional service; among the additional services, the greatest preference is for contracts with a guarantee to purchase electricity produced from renewable energy resources (41.5%) and for participation in a points collection programme (30.2%). The opportunity to receive other products or services together with electricity (5.3%), as well as the provision of auxiliary energy services (3.9%) also attracted a fair amount of interest. As regards households who have signed a variable-price contract, on the other hand, in 2021, the share of those who have chosen one without additional services decreased slightly to 50.9% (53.2% in 2020). Even among customers purchasing variable-price contracts that also include additional services, the greatest interest lies in the guarantee of purchasing electricity produced from renewable energy resources (27.8% of cases). The second preference goes to the possibility of obtaining, together with electricity, auxiliary energy services (11.7%). The opportunity to receive other products or services together with electricity, points collection programmes, obtaining free gifts/gadgets and the presence of benefits on the purchase of other goods or services gather smaller shares of preferences. The guarantee to purchase energy produced in Italy did not gain favour even among variable-price customers.

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Table 3.22 Contracts for the supply of electricity in the free market in 2021 by type of additional services and average price (percentage of customers having signed the indicated contracts)

CONTRACTS	HOUSEHOLDS		NON-HOUSEHOLDS	
	SHARE	PRICE ^(A) €/MWh	SHARE	PRICE ^(A) €/MWh
Additional services of fixed-price contracts				
No additional service	14.8%	132.85	71.9%	88.78
Guarantee of energy from renewable energy resources	41.5%	132.82	22.9%	98.49
Guarantee of energy produced in Italy	0.0%	119.39	0%	80.00
Points collection programme (own or others)	30.2%	135.59	1.4%	107.15
Auxiliary energy services	3.9%	122.46	1.6%	86.71
Free gift or gadget	1.4%	131.54	0.4%	134.50
Advantages over the purchase of other goods or services	2.0%	126.91	0.4%	124.94
Other products or services offered together with electricity	5.3%	126.48	1.2%	113.17
Other	0.9%	120.32	0.3%	153.38
TOTAL FIXED-PRICE CONTRACTS	100%	132.43	100%	91.37
Additional services of variable-price contracts				
No additional service	50.9%	170.97	67.8%	130.19
Guarantee of energy from renewable energy resources	27.8%	163.03	27.3%	144.14
Guarantee of energy produced in Italy	0.0%	-	0.0%	175.09
Points collection programme (own or others)	1.8%	135.49	0.9%	198.06
Auxiliary energy services	11.7%	163.44	3.0%	135.81
Free gift or gadget	1.6%	150.38	0.4%	134.92
Advantages over the purchase of other goods or services	1.6%	152.24	0.0%	178.28
Other products or services offered together with electricity	4.1%	153.13	0.4%	162.79
Other	0.5%	120.32	0.2%	175.85
TOTAL	100%	171.98	100%	132.48

(A) Supply cost component.

Source: ARERA, Annual survey on regulated sectors.

The results for non-households¹⁰¹ show a significant lack of interest in additional services among

¹⁰¹ The incidence of answers concerning "a combination of additional services" for non-households is lower than for households. More specifically, the presence of contracts that include a combination of additional services was indicated for

those who have chosen a fixed-price contract: almost three quarters of these customers have signed a contract without additional services; the remaining part of these customers show appreciation for the guarantee of energy from renewable energy resources (22.9%) and a modest level of interest in the presence of auxiliary energy services or a points collection programme or other products/services offered together with electricity. A substantial indifference towards additional services also emerges for non-households who have signed a variable-price contract, where 67.8% does not have them. A third of these customers, on the other hand, chose a contract with at least one additional service, and here again the guarantee of energy from renewable energy resources (27.3% of withdrawal points) and the presence of auxiliary energy services (3%) received the highest approval.

Looking at the values of the average supply cost component paid in these contracts, the results show that the contract without additional services is not always the most cost-effective compared to contracts that include them. On the contrary, in the case of variable-price households, the contract without additional services is the one in which the supply component is the highest. This may be the result of a marketing strategy of the suppliers, who by offering an additional service (which may be relatively inexpensive to them) can achieve greater customer loyalty.

Among the additional services most appreciated by fixed-price households, the guarantee to purchase green energy is the most expensive additional service, as is participation in a points collection programme. The green energy guarantee also appears expensive among variable-price households, although the contract with auxiliary energy services is the most expensive additional service, after the one without additional services.

Among non-households with a fixed-price contract, who, as mentioned, account for about 55% of all non-households, the contract without additional services is cheaper than the one with a renewable energy guarantee; the other additional services concern a residual share of customers. Even among variable-price non-households, signing a contract without any additional services leads to significant savings compared to purchasing energy with a renewable guarantee, which is the other most popular additional service.

Concentration in the electricity retail market

The ranking (provisional, due to the preliminary nature of the data collected) of the top twenty groups by total sales to the end market in 2021 (Table 3.23) shows several changes of position, even in the highest ones.

The Enel group remains, as always, the dominant operator in the entire Italian electricity market, albeit with a slightly declining share over the past few years: in 2021 it fell to 34.5% (35.6% in 2020) due to a relatively modest overall sales increase of 1.6%. This variation is, in turn, the result of differentiated trends in the various market segments, where against very positive growth in sales to medium voltage customers (9.4%) and high voltage customers (24.3%), there were reductions in sales to households (-3%) and to low voltage non-households (-1.8%). These negative variations slightly reduced the dominance of the Enel group in the mass market, consisting of the household sector and of non-households connected to low voltage, which nevertheless remained high: 46.6% of this market is in fact served by Enel, compared to 49.6% in 2020. Therefore, the Enel group remains the leader in all market segments (household and non-household at all voltages), in each of which - with

3.9% of customers with a fixed-price contract and 2.8% of customers with a variable-price contract. As for households, these customers were reallocated *pro rata* to the additional services indicated by the suppliers.

the exception of non-households at high voltage - its share is also far ahead of the trailing group.

With a share of 6.3% in 2021, the A2A group rose to second place in the overall ranking, where the Edison group has traditionally been placed, gaining one position compared to 2020. The A2A group's sales grew in all segments and particularly in the low voltage (1 TWh more than in 2020, +32%) and medium voltage (+1.3 TWh, +18.7%) non-household segments. The group also significantly increased its sales to households (+3.8%), so it moved to second place in the mass market segment (with a 5% share), overtaking the Hera and Eni groups, which were in second and third place last year.

Table 3.23 Top twenty groups by end-market sales in 2021

GROUP	SALES (GWh)				TOTAL	SHARE	POSITION IN 2020
	HOUSEHOL DS	NON-HOUSEHOLDS					
		LV	MV	HV/VHV			
Enel	36,758	23,311	21,316	5,743	87,128	34.5%	1st
A2A	1,984	4,452	8,401	1,104	15,941	6.3%	3rd
Edison	1,274	2,526	5,995	3,511	13,305	5.3%	2nd
Axpo Group	296	2,384	5,991	3,871	12,541	5.0%	5th
Hera	2,074	3,625	5,295	251	11,245	4.5%	4th
Eni	4,539	1,019	4,190	857	10,606	4.2%	6th
Acea	1,979	2,058	3,397	361	7,794	3.1%	7th
Engie	471	171	2,242	4,408	7,292	2.9%	11th
Duferco	137	1,108	1,629	4,003	6,878	2.7%	9th
Alperia	389	985	4,427	540	6,341	2.5%	10th
E.On	657	1,753	3,299	199	5,907	2.3%	8th
Egea	180	1,188	3,707	238	5,313	2.1%	14th
Iren	1,591	1,552	1,637	296	5,077	2.0%	12th
Repower Ag	0	2,165	2,053	55	4,274	1.7%	15th
Dolomiti Energia	735	1,412	1,450	11	3,609	1.4%	16th
AGSM AIM	559	1,550	1,385	98	3,591	1.4%	-
Nova Coop	28	769	1,883	41	2,722	1.1%	18th
Sorgenia	450	1,175	1,009	46	2,681	1.1%	17th
Alpiq	0	44	1,857	292	2,194	0.9%	21st
Iberdrola	540	452	1,046	3	2,041	0.8%	23rd
Other operators	6,082	14,572	13,703	1,806	36,163	14.3%	-
TOTAL OPERATORS	60,724	68,272	95,912	27,734	252,642	100%	-

Source: ARERA. Annual survey of regulated sectors.

The Edison group dropped to third place with an overall market share of 5.3% of the total market (5.9% in 2020), due to an overall reduction in sales of 6.1%. The higher quantities of energy sold to household and non-household low-voltage customers, 388 GWh more than in 2020, were in fact not enough to compensate for the lower quantities sold to non-household medium- and high-voltage customers (-1.3 TWh).

The Axpo group also gained a position in the overall ranking, rising to fourth place with a share of 5%; its sales increased overall by 1.6 TWh, mainly in the mass market (+ 841 GWh compared to 2020), but also among non-household medium voltage and high-voltage customers (up 4.5% and 13.4% respectively compared to 2020).

Thus, the Hera group dropped to fifth place with a share of the overall market in 2021 of 4.5% (5.1% in 2020), due to declining overall sales in 2020 (-8.6%). The Eni group maintained its sixth position with a share of 4.2%, essentially unchanged from 4.3% of last year, thanks to positive growth rates in

all market segments, averaging around 3.5%. The Acea group also remained in seventh position, as last year, albeit with an increased share from 2.7% to 3.1%, due to an increase in overall sales of 18% compared to 2020. In the lower positions of the¹⁰² ranking, several groups gained ground.

Table 3.24 shows the details of the concentration measures, also broken down by voltage level. In the first part of the table, measures are calculated from the volumes sold by the corporate groups in the retail market, while in the second part of the table, measures are calculated from the customers (withdrawal points) served by the corporate groups themselves.

Table 3.24 Concentration measures in the electricity retail market

Metering calculated on corporate groups

VOLTAGE LEVEL	2020			2021		
	GROUPS >5%	C3	HHI	GROUPS >5%	C3	HHI
METERING CALCULATED ON THE BASIS OF ENERGY SOLD BY CORPORATE GROUPS						
Households	2	73.9%	4,115	2	71.4%	3,773
Non-households	5	39.8%	938	4	39.9%	936
Low voltage	3	47.5%	1,492	3	46.0%	1,327
Medium voltage	5	36.4%	756	5	37.2%	796
High and extra-high voltage	5	48.0%	1,092	5	51.0%	1,286
TOTAL MARKET	4	46.9%	1,446	4	46.1%	1,379
METERING CALCULATED ON THE BASIS OF CUSTOMERS SERVED BY THE CORPORATE GROUPS						
Households	2	75.2%	4,325	2	72.9%	3,982
Non-households	1	61.0%	2,929	1	58.8%	2,652
Low voltage	1	61.3%	2,976	1	59.0%	2,681
Medium voltage	3	43.6%	1,033	3	45.7%	1,200
High and extra-high voltage	5	37.4%	668	6	35.9%	684
TOTAL MARKET	2	72.0%	4,028	2	69.8%	3,699

Source: ARERA. Annual survey of regulated sectors.

Using the concentration measures calculated on the energy sold, it can be seen that in 2021, the level of concentration in the total market decreased slightly. C3, i.e. the share of the top three operators (corporate groups), fell to 46.1% of total sales, whilst it had been 46.9% in 2020. The HHI index dropped to 1,379 from 1,446 recorded in 2020, moving a little further away from the first attention threshold of 1,500. An HHI value between 1,500 and 2,500 indicates a moderately concentrated market, while a value above 2,500 identifies a highly concentrated market (the maximum value of the index is 10,000). The number of corporate groups with a share of over 5% remained unchanged at 4. However, the concentration in the Italian electricity market has two opposing sides: in the household segment it is high, albeit steadily decreasing, while in the non-household segment it is very low and stable.

Using the indicators calculated on the withdrawal points, the concentration values are higher than those indicated by the volumes of energy sold, except - clearly - for those relating to non-households

¹⁰² Which are to be considered more uncertain due to the fact that the group that was in 13th position last year did not participate in the Annual Survey this year, as well as the fact that the differences in quantities sold between one group and another are very limited.

served at high and extra-high voltage. However, in comparison with 2020, the data show a reduction in concentration in almost all market segments, with the exception of non-households connected to medium voltage.

3.2.2.1 Monitoring of the level of the retail market pricelevel of transparency, the level and effectiveness of market opening and competition

Monitoring of the retail market price level

On the subject of sales prices in the electricity retail market, the Authority has two readings:

- that of the *Average prices charged in the electricity and natural gas market* carried out pursuant to resolution 168/2018/R/com of 29 March 2018, in which, on a half-yearly basis, quarterly data is collected on the prices billed¹⁰³ by suppliers to households and non-households, broken down into consumption classes and by type of market;
- that carried out as part of the *Annual Survey of Regulated Sectors*, in which data is collected for the previous year and broken down according to various categories of detail (type of market, sector and consumption classes, type of contract applied).

The prices collected on the basis of resolution 168/2018/R/com also converge into the retail market monitoring carried out by the Authority pursuant to the *Integrated Text on the Monitoring of the Retail Electricity and Natural Gas Markets* (TIMR)¹⁰⁴, which in addition to prices carries out the analysis of numerous indicators with regard to end-operators of electricity with more than 50,000 withdrawal points served (see below). Moreover, by virtue of an institutional agreement, all data collected under resolution 168/2018/R/com are provided on a half-yearly basis to the Ministry of Economic Development, which sends them to Eurostat to fulfil the obligations on electricity and natural gas end-price statistics, dictated by *Regulation (EU) 2016/1952 concerning European statistics on natural gas and electricity prices and repealing directive 2008/92/EC*¹⁰⁵. The data in the *Annual Survey* presents a more functional detail for the preparation of annual reporting to national and European authorities.

As part of the *Annual Survey of Regulated Sectors*, sales operators were asked, as usual, to submit data on the final prices charged to their customers both net of taxes and for the part related only to supply costs, which are given by the sum of the components relating to energy, dispatching, network leakage, imbalance and sales marketing costs.

The first (provisional) results of the analysis of the data submitted by the operators, both for the supply cost component alone and for the final prices net of taxes, show the usual high variability in the unit expenditure incurred by customers. As can be seen in Table 3.25, which shows the average prices charged to households by annual consumption class, the values range from 117€/MWh, found for the largest customers (more than 15,000 kWh/year), to 553 €/MWh, for the smallest class (0-1000 kWh).

Prices fall steadily as the size of customers increases. In comparison with the previous year, there are increases, particularly in the supply component, which are all the greater the larger the size of the

¹⁰³ More precisely, these are average unit turnovers obtained from the ratio of revenues collected to the quantities of energy billed in the reference quarter.

¹⁰⁴ Approved by resolution of 3 November 2011, ARG/com 151/11.

¹⁰⁵ Italy obtained an extension for the application of Regulation 2016/1952 until 2018.

customers: while for those in the smallest class (up to 1,000 kWh/year) there are values that are essentially identical to 2020, since the 20% increase in supply costs is offset by reductions in the other components (system charges and network costs) as a result of Government and Authority decisions, for the largest ones (over 15,000 kWh/year) there is a 26% increase in the final price and a 51% increase in supply costs. At the comprehensive level, i.e. for all households, there is an increase of 11.5% in the final price and 30.3% in the supply component.

Table 3.25 Average prices to households in 2021

CONSUMPTION CLASS (kWh/year)	QUANTITY OF ENERGY (GWh)	WITHDRAWAL POINTS (thousands)	PRICE NET OF TAXES (€/MWh)	OF WHICH: SUPPLY COSTS (€/MWh)
< 1,000 kWh	3,668	8,160	553.2	231.2
1,000-1,800 kWh	10,040	7,151	267.9	153.2
1,800-2,500 kWh	11,884	5,562	230.2	140.5
2,500-3,500 kWh	14,595	4,960	213.0	133.4
3,500-5,000 kWh	11,278	2,756	201.5	127.8
5,000-15,000 kWh	8,215	1,232	191.3	123.0
> 15,000 kWh	1,044	37	171.4	117.8
TOTAL HOUSEHOLDS	60,724	29,859	240.2	141.2

Source: ARERA. Annual survey of regulated sectors.

A breakdown of prices between the free market and the standard offer service is shown in Table 3.26. Within the supply cost component, on average the free market is slightly less expensive (-1.7%); only the consumption classes between 1,000 and 2,500 kWh appear to be bucking the trend, however to a limited extent (about +1%). The general convenience of the free market is initially explained by the presence of fixed-price contracts, which have stemmed the strong increases that occurred in the wholesale markets during 2021, particularly in the final part of the year. Proof of this is the fact that the cost of supply in the standard offer service increased on average by 75% compared to the previous year, while in the free market the increase was only 9%; this major difference is the basis for the reversal of the convenience assessment compared to the previous year.

Table 3.26 Average prices to households in 2021 by consumption class and market type

CONSUMPTION CLASS (kWh/year)	AVERAGE PRICE NET OF TAXES (€/MWh)			OF WHICH: SUPPLY COSTS (€/MWh)		
	FREE MARKET	STANDARD OFFER	DIFFERENCE	FREE MARKET	STANDARD OFFER	DIFFERENCE
< 1,000 kWh	541.0	568.8	-4.9%	228.2	235.1	-2.9%
1,000-1,800 kWh	275.6	256.2	7.6%	154.0	152.0	1.3%
1,800-2,500 kWh	237.3	219.4	8.1%	140.8	140.1	0.5%
2,500-3,500 kWh	220.1	201.9	9.0%	133.1	133.9	-0.6%
3,500-5,000 kWh	208.9	190.0	10.0%	126.9	129.1	-1.7%
5,000-15,000 kWh	197.6	180.6	9.4%	122.0	124.7	-2.2%
> 15,000 kWh	172.5	169.3	1.9%	116.7	120.1	-2.8%
TOTAL HOUSEHOLDS	244.3	233.9	4.5%	140.3	142.7	-1.7%

Source: ARERA. Annual survey of regulated sectors.

It should be noted, however, that the results of the convenience comparison change completely if

one goes to the final price, including all components (except taxes). The free market is once again more expensive (+4.5%), albeit to a lesser extent than in the past (in 2020 the difference was close to 24%). This higher charge is systematic, in the sense that, as in the previous year, it affects all consumption classes except the first one (up to 1,000 KWh/year), for which the free market has a slightly lower price (-4.9%), which can be attributed to a different incidence of resident customers, who are burdened less by system charges. On the contrary, for almost all classes (withdrawals between 1,000 and 15,000 KWh/year, 92% of consumption) the higher cost of the free market is between 7.6% and 10%.

As far as non-households are concerned, Table 3.27 contains data on their average supply quantities and costs, broken down by voltage level. The amount of unit fees has, as usual, an inverse relationship with the voltage level. Compared to the previous year, there was an increase in the quantity of energy sold (+6%), in line with the increase in Gross Domestic Product, and strong increases in supply costs, which were all the greater the higher the voltage level: from +53% for customers served at low voltage to +91% for those served at high and extra-high voltage, while the overall average variation was 58%.

Finally, Table 3.28 shows the breakdown of non-household low-voltage customers by market type. Again, the increase in volumes is in line with that of the Gross Domestic Product (about +6%). In contrast with 2020, it is the free market that has the lowest price component, which is lower than both the standard offer (-19%) and, to a lesser extent (-8%), the new gradual standard offer service, which benefits from the competitive effects of the insolvency proceedings carried out for the award of this service. The reversal of the assessment of convenience with respect to the standard offer depends on the higher adjustment of the latter to the strong increases in wholesale prices: in fact, it has a supply cost that has doubled since 2020, while in the free market the increase is limited to 45%, thanks to the presence in the latter of contractual formulations with a blocked price.

Table 3.27 Supply costs for non-households in 2021

VOLTAGE LEVEL	QUANTITY OF ENERGY (GWh)	WITHDRAWAL POINTS (thousands)	SUPPLY COSTS (€/MWh)
Low voltage	68,272	6,970	139.8
Medium voltage	95,912	103	107.7
High and extra-high voltage	27,734	1	109.6
TOTAL NON-HOUSEHOLDS	191,918	7,074	119.4

Source: ARERA. Annual survey of regulated sectors.

Table 3.28 Supply costs for non-household low voltage customers in 2021, by market type

TYPE OF MARKET	QUANTITY OF ENERGY (GWh)	WITHDRAWAL POINTS (thousands)	SUPPLY COSTS (€/MWh)
Standard offer	4,398	1,802	168.6
Gradual standard offer	4,599	226	147.3
Safeguard	1,254	72	177.9
Free market	58,021	4,870	135.9
NON-HOUSEHOLD LOW-VOLTAGE CUSTOMERS	68,272	6,970	139.6

Source: ARERA. Annual survey of regulated sectors.

Table 3.29 shows the value of supply costs by subdividing electricity customers by type of hourly tariff and excluding the safeguard market, while the next table shows the supply costs paid by free

market customers who have signed a dual fuel contract. For households, the electricity prices emerging from dual fuel contracts are always less favourable than for the purchase of electricity with a specific contract, but as also mentioned in the previous pages, the number of such customers and the energy purchased by them are very limited.

Table 3.29 Supply costs in 2021 by type of hourly pricing

HOURLY PRICING	QUANTITY OF ENERGY (GWh)	WITHDRAWAL POINTS (thousands)	SUPPLY COSTS (€/MWh)
Non time-of-use	23,137	11,200	138.5
Two-tier	33,683	16,884	139.9
Time-of-use	3,904	1,775	169.2
Households	60,724	29,859	141.2
Non time-of-use	33,708	1,560	127.3
Two-tier	43,720	986	110.6
Time-of-use	111,197	4,452	119.7
Non-households^(A)	188,625	6,997	119.0

(A) In the standard offer service and in the free market. Excluded are safeguard customers for whom this type of pricing is not available.

Source: ARERA. Annual survey of regulated sectors.

Table 3.30 Supply costs in the free market for customers with dual fuel contracts in 2021

CONSUMPTION CLASS (kWh/year)	QUANTITY OF ENERGY (GWh)	WITHDRAWAL POINTS (thousands)	SUPPLY COSTS (€/MWh)
Households			
< 1,000 kWh	132	224	224.4
1,000-1,800 kWh	482	338	152.7
1,800-2,500 kWh	603	279	135.1
2,500-3,500 kWh	733	247	125.7
3,500-5,000 kWh	517	125	119.7
5,000-15,000 kWh	300	45	115.3
> 15,000 kWh	25	1	115.2
TOTAL HOUSEHOLDS	2,792	1,259	134.7
Low voltage	1,054	68	137.1
Medium voltage	1,152	1	95.7
High and extra-high voltage	17	0	118.9
TOTAL NON-HOUSEHOLDS	2,222	69	112.4

Source: ARERA. Annual survey of regulated sectors.

Monitoring of the level of transparency and of the degree and efficiency of market opening and competition

Legislative Decree no. 93 of 1 June 2011, implementing directives 2009/72/EC and 2009/73/EC, gave the Authority the task of monitoring retail markets, with reference to both the electricity and natural gas sectors. This activity started in 2011 for both sectors with the *Integrated Electricity and Natural*

*Gas Retail Market Monitoring Regulation (TIMR)*¹⁰⁶, which arranged the publication of an annual monitoring report. Since, as just mentioned, the analysis is joint between the electricity and gas sectors, the **monitoring results for both sectors** are reported below.

Retail Monitoring: The **Report for 2020**¹⁰⁷ presents the main outcomes of the monitoring activity, describing, where possible, the development of relevant phenomena since 2012, the first year in which the monitoring was carried out. Consistent with previous Reports, the 2020 Report analyses data collected on:

- competitive dynamics;
- offers and prices;
- quality of sales service;
- billing quality;
- non-payment of bills.

Within each thematic area, results are analysed, where necessary, separately by sector and customer type, taking into account the uneven levels of maturity and competitiveness achieved among the various customer segments.

The results of the retail monitoring activity for 2020, first of all, confirm, in the electricity sector for customers other than those connected to medium voltage, the absence of specific critical issues. In particular, the increase in concentration is limited and customer dynamism is sustained. Therefore, also for that year, it can be said that the functioning of the market, with reference to the segment of customers other than medium voltage, does not require any specific regulatory intervention.

For customers other than those connected to the low-voltage network, evidence on the competitive dynamics and structure of the sales market shows, on the one hand, some encouraging signs of liveliness and, on the other hand, also aspects that require further investigation. Despite increases in some concentration indices, their levels are not critical. Rather, it is their tendency to increase over time that represents the element of potential criticality, to be carefully monitored in the coming years in order to assess their possible impact on the development of competition.

For households in the electricity sector, the signs of a slight improvement in the degree of competitiveness shown in recent years are being consolidated, although it remains at a lower level than for non-households. Signs of improvement in the degree of concentration are also consolidated with regard to households and condominiums in the natural gas sector.

The critical issues that have historically characterised these market segments, which still persist today, suggest greater attention in the accompanying process, including regulatory, towards full liberalisation. Particular attention should be paid, first of all, to the high levels of concentration and to the continuing competitive advantage of the operators of standard offer services and an as yet insufficient level of capacity of the "average" customer to act conveniently in the market. Other elements that are likely to be explored in more detail are the impacts:

- on final prices of the greater offer differentiation found in the household versus non-household segment;
- on how variations in supply prices in wholesale markets may or may not be passed on in the offers available to final customers in downstream markets and in the prices paid by customers.

For both sectors, the aforementioned elements, relating to the configuration of the markets and to

¹⁰⁶ Adopted by Resolution of 7 November 2011, ARG/com 151/11.

¹⁰⁷ Report of 21 December 2021, 605/2021/l/com.

the difficulty for final customers to find their way around the offers present in the free market, must be taken into due consideration in the path of complete liberalisation envisaged by Law no. 124/2017, which provides for the removal of the standard offer services as illustrated in the sections above. This is to avoid that in the forthcoming context of full liberalisation customers fail to take full advantage of all the opportunities offered by the free market.

The retail monitoring system, meanwhile, continues to evolve, both to exploit the potential of the IIS more and more, and to achieve, at the same time, other targets: expand and update the phenomena monitored; increase the detail of the information available; define new and more timely publication and reporting methods; and lighten the information burden on operators.

To this end, the publication of periodic retail monitoring analyses on the special web page of the Authority's website¹⁰⁸ in open data format was expanded during 2021. In addition, the use of data extracted from the IIS was also strengthened in the context of regulatory enforcement activities.

In addition to the annual Retail Monitoring Report, the Authority is forced by law¹⁰⁹ to transmit to the Minister for ecological transition (formerly the minister for economic development) and to the competent parliamentary committees a **Monitoring report on the electricity and gas retail markets** (MiTE Report), with particular regard to the following aspects:

- a) switching actions at national and regional level;
- b) evolution of final customer behaviour, setting out the results of the new demoscopic survey carried out between May and September 2021, addressed to households and non-households at national level and aimed at detecting and measuring the behaviour, perceptions and choices of these final customers in the liberalised electricity and gas market;
- c) trends in the prices offered to final customers, analysing the offers available on the Portale Offerte, the annual expenditure that certain typical customers would obtain by consulting the Portale Offerte each month of the year, as well as the investigations carried out on a sample of customers who left the standard offer service in the period July 2020-September 2021;
- d) transparency and publicity of the tenders and related services, with regard to the specific controls on the tenders published on the Portale Offerte that the Authority carries out, also through the IIS Manager;
- e) assessment of the introduction of regulatory measures to strengthen the effectiveness of tools for comparability of offers.

This report must be drawn up and forwarded to the Minister for ecological transition and to the relevant parliamentary committees every six months starting on 1 July 2021 and ending on 31 December 2022. On 27 July 2021 and 1 February 2022, the Authority sent the first two reports¹¹⁰ whose analyses focused on customers entitled to standard offer in the electricity sector (households and other uses connected to low voltage) and those in the standard offer in the natural gas sector (households and condo households with consumption of up to 200,000 S(m³) per year).

¹⁰⁸ See the link www.arera.it/it/operatori/monitoraggio_retail.htm.

¹⁰⁹ Pursuant to the provisions of Article 2(6) of the Decree of the Ministry of Economic Development of 31 December 2020 on "First modalities to favour the conscious entry of final customers into the free electricity and gas market".

¹¹⁰ Report 327/2021/l/com and 37/2022/l/com.

Complaints related to the commercial quality of the electricity sales service and compensation

The provisions for **monitoring the quality of sales services** ensure, on the one hand, the protection of customers in relation to certain sales service performances and, on the other hand, the availability of comparative elements also in relation to the results emerging from the Retail Monitoring Report.

The quality of sales services involves all the suppliers engaged in the sale of electricity and natural gas to final customers. The *Integrated Text Regulating the Quality of Supply of Electricity and Natural Gas Sales Services* (TIQV)¹¹¹, in fact established a set of rules to protect final customers and commercial quality indicators, which all electricity and gas sales companies are required to comply with. These indicators are of two types: general and specific. Overall standards represent the level of quality referring to the overall performance of one and the same type.

Failure to comply with overall quality standards does not result in compensation to the customer, but in the event of a serious breach of these standards, the Authority may open proceedings to impose administrative sanctions on the offending supplier.

If the supplier fails to meet specific commercial quality standards, on the other hand, the customer automatically receives compensation in the first useful billing. The basic automatic compensation (equal to Euro 25) doubles if the performance of the indemnified service takes place beyond a time twice the standard and triples if the performance takes place beyond a time three times the standard or more. Regardless of the escalation envisaged, compensation must in any case be paid to the customer within 6 months by the supplier who received the written complaint or the request for bill adjustments or double billing. Compensation is not due if compensation has already been paid to the customer in the calendar year for failure to meet the same quality standard and in the case of complaints for which the customer cannot be identified (because the complaint does not contain the minimum necessary information). Furthermore, the supplier does not have to pay automatic compensation if the non-compliance with the specific quality standards is attributable to *force majeure* - understood as acts of public authority, exceptional natural events for which a state of calamity has been declared, strikes called without statutory notice, failure to obtain authorisation - or to causes attributable to the customer or third parties, or damage or hindrances caused by third parties.

Written complaints, bill adjustments and double bill adjustments are subject to specific minimum standards on the time of performance, while written requests for information are subject to overall standards.

For 2021, 468 companies reported data on the commercial quality of sales services in the electricity sector, which stated that they serve a total of 32.6 million electricity customers. The average lead times for commercial services (response to complaints, response to requests for information, execution of bill adjustments and double billing), declared by suppliers for 2021, are below the respective standards for all services (Table 3.31).

¹¹¹ Annex A to resolution 413/2016/R/com of 21 July 2016.

Table 3.31 Standards for electricity sales service and actual average times in 2021

PERFORMANCE	SPECIFIC STANDARDS (calendar days)	OVERALL STANDARDS (%)	EFFECTIVE AVERAGE TIMES (calendar days)
Maximum time for a reasoned response to written complaints	30	-	15.85
Maximum time for bill adjustments	60 or 90 ^(A)	-	24.19
Maximum time for double bill adjustments	20	-	15.02
Replies to written requests for information sent within a maximum of 30 calendar days	-	95%	6.21

(A) 90 calendar days in the case of four-monthly invoices.

Source: ARERA, processing of data declared by operators.

Overall, companies serving customers in the electricity sector received a total of 289,035 written complaints, a slight decrease compared to the previous year (-2.8%) (Table 3.32); two thirds of the complaints came from households, 33.1% from non-households; 65.4% of the complaints came from customers in the free market, 26.2% from customers in the market with a reference price. Requests for information received from companies amounted to 228,171, an increase of 17.6% compared to the previous year.

The majority of requests (75.1%) came from households. 79.3% of the requests for information came from customers in the free market and, in particular, from households (63.3%), while customers in the market with a reference price accounted for 13.5%. Bill adjustments totalled 7,862, a decrease of 2.4% compared to the previous year. The corrections, which followed written complaints on already paid invoices whose content was contested, mainly concerned households (57.3%) and, in particular, those on the free market (52.8%), followed by non-households on the free market (28.6%) and 4.5% the segment of households under protection. Double bill adjustments caused by errors in the switching procedures (for the same consumption period, the final customer receives a bill from both the outgoing and from the incoming supplier) amounted to 859, a year-on-year decrease of 11.2%. The adjustments affected households and non-households in the free market in 82.3% of the cases.

Table 3.32 Complaints, information requests and bill adjustments received from electricity suppliers

	2017	2018	2019	2020	2021
Number of complaints	323,572	284,507	304,118	297,341	289,035
Number of requests for information	211,619	147,167	207,399	193,960	228,171
Number of bill adjustments	19,006	9,245	9,973	8,053	7,862
Number of double bill adjustments	3,798	2,191	2,058	967	859

Source: ARERA processing of data declared by operators.

The analysis of the reasons for non-compliance with the standard shows that in 98.3% of the cases, non-compliance is attributable to causes for which the company is responsible, in 1.6% of the cases to third-party causes (customer, other companies) and in 0.05% of the cases to *force majeure*. Considering, on the other hand, the number of automatic compensations accrued for non-compliance with specific standards by electricity suppliers (25,335), it can be seen that 95.8% are related to non-compliance with response times to written complaints, 3.5% to bill adjustments and only 0.7% to double bill adjustments. Of this, 68.8% was accrued by households and non-households in the free market, 23.8% by customers in the market with a reference price, 6.1% by multi-site

customers and 1.2% by medium voltage customers.

A similar situation can be seen for the compensation actually paid out in terms of amounts, which is also more concentrated in the free market: in 2021, automatic compensations of more than Euro 1.1 million were paid out to electricity customers in their bills. Households and non-households in the free market were the recipients of 70.4% of the total compensation paid, households and non-households in the market with a reference price received 22.0% of the compensation, while multi-site and medium voltage customers received 6.2% and 1.3% of the compensation, respectively.

The topics of complaints that customers forwarded to the companies under the direct responsibility of suppliers for 39.3% of the cases concerned billing and everything related to billed consumption and fees, self-reading, billing periodicity, including the closing invoice, making payments and refunds; for 14%, contractual issues, such as withdrawal, change of header, transfer and taking over; for 13%, market-related topics, such as the way new contracts are concluded, the timing of switching and the economic conditions proposed by the supplier in the offer compared to those provided for in the contract and actually applied. 12% of the topics of complaints related to non-payment of bills and suspension, 8.5% to connections, works and technical quality issues, 6.1% to metering, 2.7% to commercial quality, 0.7% to social bonus, and 3.5% to other residual topics not related to the previous categories. Only 0.2% of the complaints concerned requests that were not within the supplier's area of responsibility.

3.2.2.2 Recommendations on final sales prices, investigations, inspections and imposition of measures to promote competition

Extraordinary measures for rising commodity prices

the Authority, in implementation of Law no. 234 of 30 December 2021 (Budget Law 2022), has defined¹¹² the modalities for the payment in instalments of the amounts relating to the invoices issued in the period between 1 January 2022 and 30 April 2022 that all suppliers (both of standard offer service and of the free market) are required to offer to household electricity and natural gas customers who are in default of payment of the invoices issued in that period.

Before carrying out the procedures for suspending the supply of electricity and natural gas, suppliers must offer the defaulting final customer an instalment plan, without interest, which includes:

- a periodicity of instalments equal to that of the billing period ordinarily applied to the final customer, with a number of instalments equal to the number of bills issued, as a rule, in 10 months and each of a value of not less than Euro 50;
- a first instalment of 50% of the amount covered by the instalment plan and subsequent instalments of a constant amount.

The supplier may, if deemed necessary, negotiate a different agreement, in order to better meet the customer's needs, within the limits of the 2022 Budget Law.

The Authority's decision also defined the modalities for the disbursement to suppliers of the advance of the amounts to be paid in instalments, as well as the modalities and timing for the repayment, by suppliers, of the amounts disbursed (the 2022 Budget Law set the payment of at least 70% of the

¹¹² By Resolution of 30 December 2021, 636/2021/R/com.

amounts advanced by 31 December 2022 and the remaining part by 31 December 2023).

Investigations and inspections

The enforcement of the provisions laid down by the Authority is implemented by monitoring the conduct of operators, identified from time to time on the basis of policy documents prepared annually or following recommendations or evidence in the possession of the Offices. To this end, the Authority makes use of investigations, on-site inspections and document controls concerning plants, processes and services in the sectors of interest to the Authority.

In cases where control activities reveal cases of non-compliance with regulatory provisions, consequent sanctioning and/or prescriptive decisions are taken against operators. The results of this activity are also relevant for the implementation or updating of the regulatory framework, with a view to its continuous improvement and effectiveness, in the adopted regulatory cycle process. Control activities go hand in hand with a growing number of initiatives of the Authority aimed at promoting *ex ante* regulatory compliance, through interaction with stakeholders, information and dissemination seminars, aimed at illustrating the application methods of decisions, in particular of the newly issued ones.

In 2021, control activities were carried out through:

- documentary controls, in particular concerning the costs to be recognised in the tariff, the compliance with regulation by electricity and gas retail companies, the correct disbursement of incentives to energy-intensive companies, as well as the correct contribution by regulated companies to the Authority's operating costs;
- on-site inspections, covering priority issues such as security of service, consumer protection, the proper functioning of markets and the control of the incentives provided and the cost items recognised or to be recognised in the tariff.

With resolution 258/2021/E/com of 22 June 2021, a **programme of documentary controls** was approved **in respect of 30 suppliers of electricity and/or gas in the free market**, on compliance with the main regulatory requirements related to the performance of these activities.

More specifically, the controls concerned the obligations connected with sales to final customers with reference to certain regulatory provisions such as, for example, those relating to the information to be provided to the Authority, obligations relating to offers and in particular to PLACETs, the timing of invoices, the correctness of bills, and the way in which accounting records are kept, in particular with reference to compliance with the provisions in force on accounting unbundling, the management of complaints, the determination and display of data relating to the fuel mix (i.e. the average composition of the energy resources used to produce the electricity sold), any tariff breaks granted to energy-intensive subjects, and the correctness of the information transmitted to the Registry of Operators.

As a result of these audits, significant critical issues in the application of the regulation were recorded in several areas, including in particular that of billing documents and that of the determination of the fuel mix, as well as in other areas characterised by specific detailed provisions (e.g. website obligations). Specific prescriptive measures have therefore been adopted, the outcome of which will be the initiation of sanction proceedings, where appropriate. On the other hand, positive results were recorded in the preparation of the comparability sheets and in the publication of the offers on the Portal.

During 2021, the **controls**¹¹³ continued **on the data declared by energy-intensive companies to the Energy and Environmental Services Fund**, in order to obtain, for the years 2019 and 2020, the breaks provided for by the Decree of the Ministry of Economic Development of 21 December 2017; the aforementioned breaks consist of a significant financial transaction (Euro 1.9 billion for 2019 and Euro 1.7 billion for 2020), the burden of which falls (through a part of the A_{SOS} tariff component) on all other customers, including household ones. The current controls also affect companies that only benefit from a discount of the A_{SOS} component in their bills, unlike those previously carried out for the 2018 breaks, which only affected energy-intensive companies benefiting from the maximum break, i.e. zeroing the A_{SOS} component in their bills.

Measures for the effective promotion of competition: initiatives to overcome standard offer

Over the course of time, the Authority has helped to provide final customers with numerous tools (described in the various editions of the Annual Report) to increase their understanding of the free market and their ability to consciously choose their supplier, as well as to regulate numerous aspects (such as, for example, the content of bills, changes to the code of business conduct, etc.).

These are in particular:

- framework of PLACET offers;
- Portale Offerte, which contains a description of the fixed and variable offers of the free market, PLACET offers, as well as the calculation of the cost of standard offer services for both electricity and natural gas;
- Portale Consumi, which is the institutional website where customers can access data on their electricity and natural gas supplies, i.e. historical consumption data and key technical and contractual information;
- framework of gradual standard offer service.

Since 2017, moreover, the Authority has established¹¹⁴ that the operators of the standard offer and the suppliers within the gas standard offer, as of 1 January 2018 and until the price protections as defined by the specific legislation are exceeded, had to send their customers, within the summary invoice, a special information, whose content was defined by the Authority, regarding the exceeding of the price protections.

During 2021, the Authority continued to define and to communicate to suppliers, on a half-yearly basis, the content of the disclosures to be made on their invoices. The communications included in the bills issued in the first and second half of 2021 informed the final customer that changing contract or supplier is simple and free of charge and that the continuity of service is guaranteed; they also provided the elements that should prompt the customer to make use of the Authority tools aimed at making an informed and aware choice, such as the "Portale Offerte luce e gas" and the PLACET offers.

Moreover, in consideration of the entry into force of the gradual standard offer service¹¹⁵, in the first

¹¹³ Approved by Resolution 216/2020/E/eel of 16 June 2020.

¹¹⁴ By resolution 746/2017/R/com of 10 November 2017, as amended by resolution 197/2019/R/com of 21 May 2019.

¹¹⁵ Regulated by resolution of 24 November 2020, 491/2020/R/eel.

half of 2021, the operators of the standard offer service, with reference only to the final customers supplied in the gradual standard offer service for the period of provisional allocation, sent a specific notice in their bills that informed the customers concerned of the end of the standard offer service, directing them, for further information, to a dedicated page of the Authority's website or to the toll-free number of the Energy and Environment Consumer Help Desk.

4 THE NATURAL GAS MARKET

4.1 Infrastructure regulation

4.1.1 Tariffs for connection and access to LNG networks and infrastructures

Tariffs and access to LNG regasification plants

In November 2019, the Authority approved¹¹⁶ the tariff regulation criteria for the liquefied natural gas regasification service (RTRG) for the regulatory period 2020-2023 (5PR LNG).

In June 2021, the Authority, as a result of its control of the tariff recommendations submitted by the regasification companies pursuant to RTRG 5PR LNG, approved¹¹⁷ the reference revenues and determined the tariff fees for the LNG regasification service for 2022.

Tariffs and access to the storage service

In October 2019, the Authority defined¹¹⁸ the tariff regulation criteria for the natural gas storage service (RTSG) for the fifth regulatory period (5PRS) 2020-2025.

In August 2021, the Authority, as a result of its review of the tariff recommendations submitted by the storage companies pursuant to the RTSG 2020-2025, approved¹¹⁹ the company revenues for the storage service for 2022.

In August 2021, the Authority also ordered¹²⁰ the initiation of proceedings to review the criteria for determining the x-factor for the natural gas storage service for the tariff updates for the years 2023-2025. In this context, the Authority's guidelines for determining a level of x-factor to ensure, in particular, the transfer of any higher (or lower) productivity gains realised in the first years of the 5PRS within the 5PRS itself were published¹²¹.

It should be emphasised that the tariffs now have a residual application, as they only concern the operational balancing services of transmission operators and the gas producer storage of household production companies, which account for less than 2% of the total storage capacity.

Strategic storage, which absorbs about a quarter of the capacity and is aimed at coping with possible critical issues in supply or in the operation of the gas system, is remunerated through the variable fee C^{ST} , applied to the quantities of imported gas and to those deriving from household production.

The remaining storage capacity (over 70%), intended for seasonal and multi-year modulation services, is allocated and remunerated on the basis of competitive procedures, governed by the Regulation for Access to and Provision of Storage Services (RAST), as defined¹²² by the Authority in

¹¹⁶ Resolution of 19 November 2019, 474/2019/R/gas.

¹¹⁷ Resolution of 28 June 2021, 268/2021/R/gas.

¹¹⁸ Resolution of 23 October 2019, 419/2019/R/gas.

¹¹⁹ Resolution of 21 July 2020, 275/2020/R/gas.

¹²⁰ Resolution of 03 August 2021, 347/2021/R/gas.

¹²¹ Consultation document of 26 October 2021, DCO 452/2021/R/gas.

¹²² Resolution of 26 February 2019, 67/2019/R/gas.

February 2019. The service fees related to this capacity are determined by the market as a result of special tenders, which are open to the participation of natural gas market operators.

Tariffs and access to the gas transmission service

In March 2019, the Authority defined¹²³ the tariff regulation criteria for the natural gas transmission and metering service (RTTG) for the period 2020-2023 (fifth regulatory period - 5PRT). The new criteria, which implement Regulation (EU) 460/2017 on the harmonisation of gas transmission tariff structures (the "TAR Code"), have been published as a result of an extensive public consultation process initiated in 2017 and concluded in 2018¹²⁴, and take into account what ACER reported in the "Analysis of the consultation document on the gas transmission tariff structure for Italy", released on 14 February 2019, consistent with the provisions of the TAR Code, on the final guidelines on reference price methodology and cost allocation criteria, submitted for consultation in October 2018¹²⁵.

The main changes in the tariff regulation criteria for the transmission service for the new period (5PRT), compared to the previous one, concern in particular:

- overcoming the determination of fees according to the so-called matrix methodology, in favour of the capacity-weighted distance methodology (or CWD), identified as the reference methodology within the TAR Code;
- the elimination of the "postage stamp" fee applied to redelivery points on the national territory to cover regional transmission costs, the costs of gas transmission on the regional networks being included in the costs to be recovered through entry and exit tariffs defined through the tariff methodology; this inclusion also entails the elimination of capacity allocations at exit points of the national network to withdrawal areas.

In June 2021, the Authority, as a result of its control of the tariff recommendations submitted by the transmission companies pursuant to the RTTG 2020-2023, approved¹²⁶ the reference revenues and determined the tariff fees for the natural gas transmission and metering service for 2022.

In November 2021, the Authority approved¹²⁷ the regulation of the metering service on the natural gas transmission network (RMTG), which defines the reorganisation of the service and the related responsibilities, defining in particular:

- responsibility and scope of metering and meter reading activities;
- minimum and optimum plant, performance and maintenance requirements;
- predefined service quality levels;
- incentives upon compliance with these service quality levels;

¹²³ Resolution of 28 March 2019, 114/2019/R/gas.

¹²⁴ During the proceedings, initiated by resolution 82/2017/R/gas of 23 February 2017, the following documents were submitted for consultation:

- document 182/2018/R/gas of 29 March 2018, containing initial guidelines on reference price methodology and cost allocation criteria;
- document 347/2018/R/gas of 21 June 2018 containing initial guidelines on the criteria for determining recognised revenue;
- document 512/2018/R/gas of 16 October 2018, containing final guidelines on criteria for determining the revenue recognised for transmission services, reference price methodology and cost allocation criteria for transmission services.

¹²⁵ Consultation paper of 16 October 2018, 512/2018/R/gas.

¹²⁶ Resolution of 1 June 2021, 230/2021/R/gas.

¹²⁷ Resolution of 23 November 2021, 512/2021/R/gas.

- system for monitoring requirements and quality levels.

Regarding access to the transmission service, please refer to the section on cross-border issues.

Tariffs for distribution and metering services

In December 2019, the new version of the Gas Distribution and Metering Services Tariff Regulation for the Regulatory Period (RTDG) was approved¹²⁸ with the following main features:

- in relation to the quantification of the invested capital, recognition criteria based initially on the revalued historic cost and the introduction of incentive regulation outlines based on standard cost recognition logics, envisaging that it may be applied starting from the investments made in 2022, taking into account the need to adjust the accounting systems necessary to support the suggested incentive outlines;
- recognition of operating costs (application of the price cap method), with the aim of achieving full convergence of operating costs between operators of different sizes, resulting in a differentiation of the x-factor (in addition to that linked to the different density of customers served);
- provision that, on the occasion of the mid-term review, any effects of environmental policies defined at EU level on the evolution of the number of redelivery points served should be assessed and the way in which risk is allocated between final customers and companies should be considered;
- provision that, for the second half of the regulatory period, proceedings will be initiated for the definition of parametric cost recognition modalities for metering/remote management systems and concentrators, based on efficiency analyses.

In December 2021, the mandatory tariffs for natural gas distribution and metering services for 2022 were approved¹²⁹.

Gas infrastructure

In Italy there are nine companies operating the **National** (10,316 km) and **Regional** (24,937 km) **Gas Transmission Network**: three for the National Network and eight for the Regional Network. The largest gas transmission operator company is Snam Rete Gas; in addition to it, two other companies own and operate small sections of the national network: Società Gasdotti Italia and Infrastrutture Trasporto Gas. The Snam group owns 92.9% of the networks: 32,767 km of network out of the 35,253 km that make up the Italian gas transmission system. The second operator is Società Gasdotti Italia, which manages a total of 1,719 km of network (4.9%), of which 661 km are on the national network. The company Retragas, of the A2A group, is third with a share of 1.2%, thanks to its 421 km of regional network. The remaining six smaller operators have small regional network sections.

The Italian gas transmission network is connected to several international natural gas pipelines:

- at Gries Pass, in Piedmont, it connects with the TENP (Trans Europa Naturgas Pipeline) natural

¹²⁸ Resolution of 27 December 2019, 570/2019/R/gas.

¹²⁹ Resolution of 28 December 2021, 596/2020/R/gas.

- gas pipeline to import gas from the Netherlands and Northern Europe;
- in Tarvisio, Friuli-Venezia Giulia, it connects with the TAG (Trans Austria Gas Pipeline) for the import of Russian gas;
- in Mazara del Vallo, Sicily, it connects with the Transmed (Trans-Mediterranean Pipeline) for the import of Algerian gas;
- in Gela, also in Sicily, it connects with the Greenstream for the import of Libyan gas.

Since the end of 2020, the Trans Adriatic Pipeline (TAP) has become operational, which, among other things, received (in 2013) from the competent authorities of Greece, Albania and Italy a 25-year exemption from third-party access for the initial capacity of 10 billion cubic metres per year. The TAP transports gas from Azerbaijan to Europe via the Trans Anatolian Pipeline (TANAP), northern Greece, Albania and the Adriatic Sea and then reaches the landfall point and connects to the Italian transmission network at the Melendugno (LE) point. The TAP constitutes the European section of the Southern Gas Corridor, is approximately 900 km long and its current capacity is expandable up to 20 G(m³) per year. It is managed by the company Tap AG whose shareholders are BP, Socar and Snam with 20% each, Fluxys with 19%, Enagás with 16% and Axpo with 5%.

Liquefied natural gas is fed into the Italian national transmission network through the interconnection with the terminals in operation in Panigaglia (in Liguria), Cavarzere (in Veneto) and Livorno (in Tuscany). The Panigaglia plant is owned by the company GNL Italia belonging to the Snam group, has a maximum regasification capacity of 13 M(m³)/day and the maximum annual quantity of gas it can feed into the transmission network is 3.5 G(m³). The Cavarzere terminal is an off-shore facility located in the Adriatic Sea off the coast of Rovigo with an annual regasification capacity of 8 G(m³) and approximately 26.4 M(m³)/day. Of the maximum regasification capacity, 80%, i.e. 21 M(m³)/day, is reserved for the terminal operator, the company Terminale GNL Adriatico, which has been exempted from third-party access for 80% of capacity, for 25 years¹³⁰, i.e. until the thermal year 2032-2033; the remaining 20%, together with any unused capacity, is offered on the market through capacity subscription procedures. The Livorno terminal, owned by the company OLT Offshore LNG Toscana, results from the conversion of an LNG carrier - the "Golar Frost" - into a floating regasification terminal anchored about 22 km off the coast between Livorno and Pisa. Its maximum daily regasification capacity is 15 M(m³)/day, its annual capacity is 3.75 G(m³).

Natural gas **storage** is carried out on the basis of 15 concessions held by five companies: Stogit, Edison Stoccaggio, Ital Gas Storage, Geogastock, Blugas Infrastrutture. All active storage sites are built at depleted gas fields. Stogit, which belongs to the Snam group, is the main storage company owning 10 of the 15 concessions. The Italian gas storage system is of significant size: in the 2021-2022 thermal year, which ended on 31 March 2022, the system offered an overall availability for allocation in terms of total space for active reserve (so-called working gas) amounting to 17.7 G(m³), of which 4.6 G(m³) is for strategic storage. The space offered at tender was 90%. As of 31 October 2021, the filling of the storage was 11.3 G(m³). The nominal peak delivery achieved during the year was 259.5 M(m³)/day: 248 M(m³)/day in Stogit storage, 9 M(m³)/day in Edison storage and 2.5 M(m³)/day in Ital Gas Storage storage.

Natural gas **distribution** in Italy takes place through 268,138 km of network (of which 270 km will not be in operation in 2021), 57.4% in low pressure, 41.9% in medium pressure and 0.7% in high pressure. The length of the networks increased by 2,181 km compared to 2020. In addition to the networks, gas distribution takes place via 6,808 reduction stations and 102,650 final reduction units.

¹³⁰ Pursuant to Law 239 of 23 August 2004 and European Directive 2003/55/EC.

57.6% of the networks (154,374 km) are located in the North, 22.7% in the Centre (60,992 km) and the remaining 19.7% (52,772 km) are in the South and Islands. There were 188 companies active in gas distribution in 2021 (five less than in 2020), of which six were very large (with more than 500,000 customers), 22 with between 100,000 and 500,000 customers, 20 medium (50,000-100,000 customers), 91 small (10,000-50,000) and 49 very small (less than 5,000 customers). The number of companies with more than 100,000 redelivery points has fallen in recent years (28 units, down from 33 in 2013). However, their share in terms of gas distributed has not fallen, remaining stable at around 82% until 2018 and has then gradually risen to 85% in the last three years. Overall, the 188 operators active in 2021 distributed 32.3 G(m³), 2.2 G(m³) more than the previous year, to 24 million customers. The service was operated through 6,495 concessions in 7,298 Municipalities.

Quality of gas distribution system

At the end of 2019,¹³¹ was approved the *Regulation of the quality of gas distribution and metering services for the regulatory period 2020-2025 - Part I of the Consolidated Text of the regulation of the quality and tariffs of gas distribution and metering services for the regulatory period 2020-2025* (RQDG). The RQDG regulates certain activities relevant to the safety of the gas distribution system. These include emergency service, inspection of the distribution network, locating leaks following inspection or recommendation by third parties, and gas odourisation.

The regulation of these aspects has the aim of minimising the risk of explosions, outbreaks and fires caused by distributed gas and, therefore, it has as its ultimate goal the safeguarding of persons and property from damage resulting from accidents caused by distributed gas. The graphs and tables below illustrate the safety trend in the gas sector in recent years.

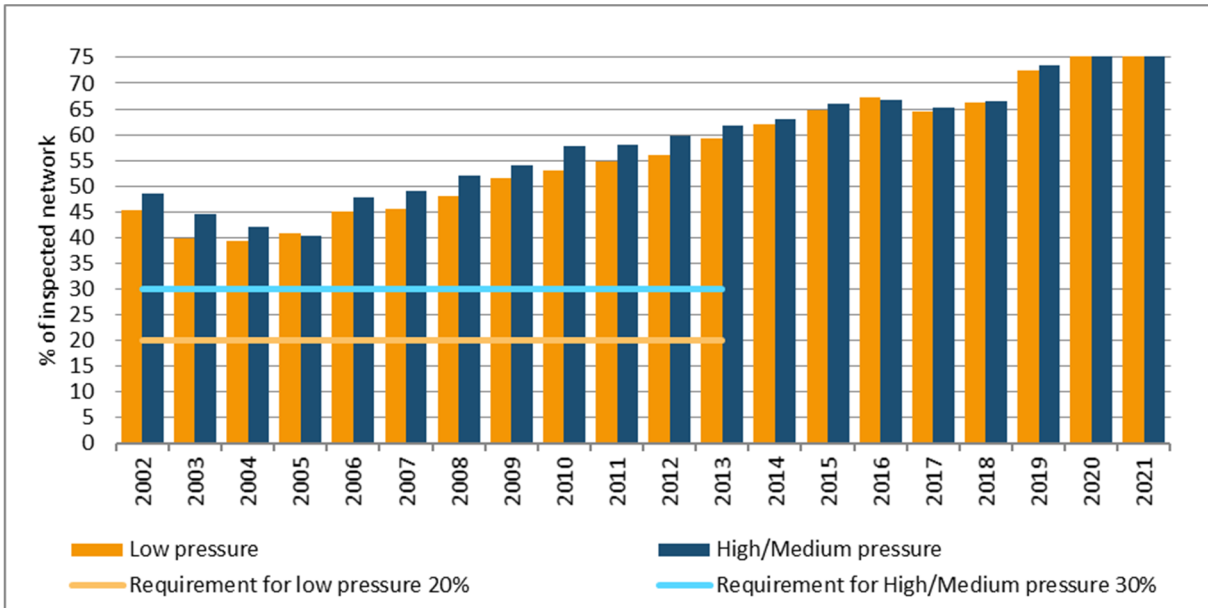
Errore. L'origine riferimento non è stata trovata. shows the amount of network inspected annually since 2002. Until 2013, the regulation established a minimum percentage to be inspected each year, while since 2014, an obligation has been introduced for 100% of the network on a multi-year basis: the three-year rolling period, for high and medium pressure (HP/MP) pipelines, and the four-year rolling period, for low pressure (LP) pipelines. For 2021, there is a slight increase compared to 2020 and a greater share of the inspected network as compared with the levels recorded before 2014. The inspection of the network generally aims at intercepting the phenomenon of network leaks and thus enhancing the safety of citizens.

With regard to emergency service obligations, Figure 4.2 shows the arrival time at the place of (telephone) call updated to 2021. The national average value is about 36 minutes, which is slightly lower than in 2020. The obligation establishes a minimum annual percentage of calls with arrival time at the place of call for emergency service within the maximum time of 60 minutes equal to 90%.

The mandatory voice recording of calls, introduced as of 1 July 2009 and accompanied by control campaigns on the gas emergency service, implemented with the help of the Tax Police, induces companies to record data accurately. Furthermore, it should be added that the number of companies forced to participate in the bonus-penalty regulation concerning safety recoveries has gradually increased, and compliance with the emergency service is a prerequisite for bonus recognition.

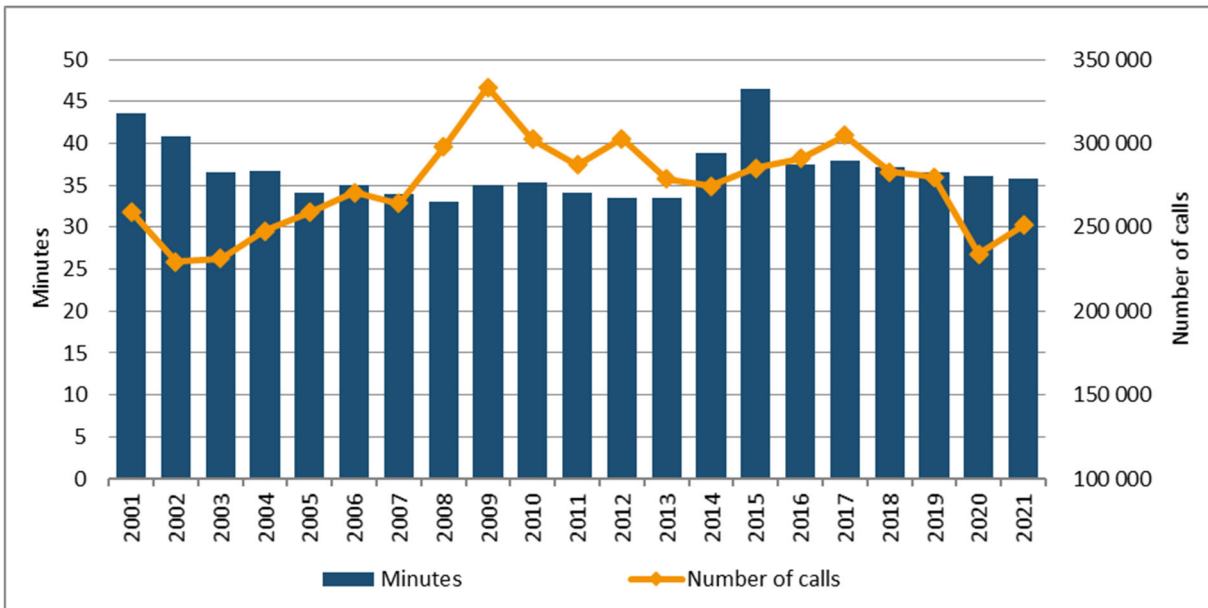
¹³¹ By resolution of 27 December 2019, 569/2019/R/gas.

Figure 4.1 Percentage of network inspected since 2002



Source: Distributing companies' declarations to ARERA.

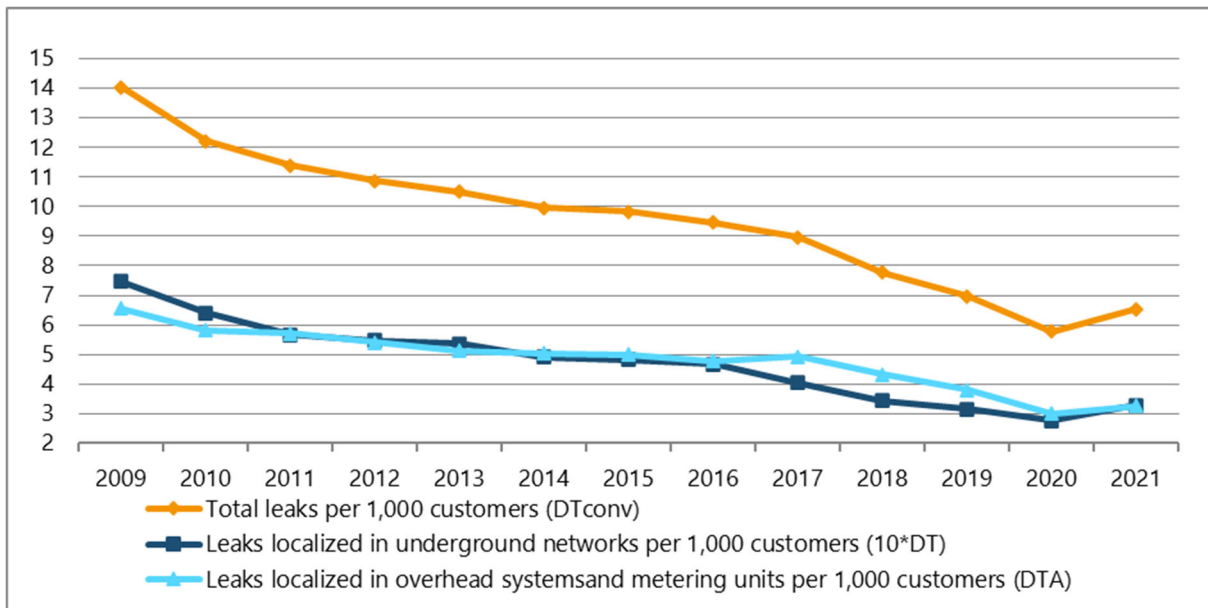
Figure 4.2 Emergency service on distribution system since 2001



Source: Distributing companies' declarations to ARERA.

Figure 4.3 shows the number of leaks localised in the networks as a result of third-party recommendations per thousand customers (for distribution plants subject to the bonus-penalty regulation), there is a slight increase both for leaks localised on underground networks (10*DT), which are usually the most dangerous, and for those on overhead networks (DTA). The number of conventional leaks localised as a result of third-party recommendation per thousand final customers (DT_{conv}) is also on the rise.

Figure 4.3 Number of localised leaks as a result of third-party recommendation per 1,000 customers on plants subject to incentive regulation



Source: Distributing companies' declarations to ARERA.

Connection times to transmission and distribution networks

Data on connections are distinguished according to whether they are connections to transmission pipelines or to distribution networks. Within each type of plant, data is shown on the number of connections made and the average time elapsed to obtain them, net of the time needed to acquire any administrative authorisations or fulfilments on the part of the final customer requesting the connection. The average time is given in the number of working days taken to set up the redelivery point and any other works required to make the transmission capacity available, as established in the contract.

In 2021, 92 connections to transmission networks were made, of which 72 were high-pressure pipelines and 20 medium-pressure pipelines (On average, a wait of 83.6 working days was required for high-pressure pipelines and 32.4 days for medium-pressure pipelines. Compared to the previous year, there was a slight deterioration for high-pressure connections and, conversely, an improvement for medium-pressure connections. The number of high-pressure connections decreased from 89 to 72, and the average time to obtain them increased by 6.6 days. Conversely, medium-pressure connections rose to 20 (from 12 the previous year) and took, on average, 7.7 days less to create. A total of 41% of the connections realised activated the supply during the year: more precisely, supply activation concerned 28 of the 72 high-pressure connections (39%) and 10 of the 20 connections realised in medium pressure (50%).

Table 4.1). On average, a wait of 83.6 working days was required for high-pressure pipelines and 32.4 days for medium-pressure pipelines. Compared to the previous year, there was a slight deterioration for high-pressure connections and, conversely, an improvement for medium-pressure connections. The number of high-pressure connections decreased from 89 to 72, and the average time to obtain

them increased by 6.6 days. Conversely, medium-pressure connections rose to 20 (from 12 the previous year) and took, on average, 7.7 days less to create. A total of 41% of the connections realised activated the supply during the year: more precisely, supply activation concerned 28 of the 72 high-pressure connections (39%) and 10 of the 20 connections realised in medium pressure (50%).

Table 4.1 Connections to transmission networks and average connection time

Number and average time in working days

PRESSURE	2020		2021	
	NUMBER	AVERAGE TIME ^(A)	NUMBER	AVERAGE TIME ^(A)
High pressure	89	77.0	72	83.6
Medium pressure	12	40.1	20	32.4
TOTAL	101	72.6	92	72.5

(A) It excludes time spent in obtaining any authorisations.

Source: ARERA. Annual survey of regulated sectors.

Table 4.2 Connections to distribution networks and average connection time

Number and average time in working days

PRESSURE	2020		2021	
	NUMBER	AVERAGE TIME ^(A)	NUMBER	AVERAGE TIME ^(A)
High pressure	0	-	0	-
Medium pressure	4,342	8.1	7,627	8.0
Low pressure	102,654	18.5	97,333	26.1
TOTAL	106,996	8.5	104,960	9.3

(A) It excludes the time spent in obtaining any authorisations and the time needed for any fulfilment by the final customer.

Source: ARERA. Annual survey of regulated sectors.

In the case of local distribution networks, a slight decrease in the number of realised connections was observed (Table 4.2): 104,960 in 2021 compared to 106,996 in 2020 (-2%). As always, most of the connections concerned low-pressure pipelines (92.7%) and the remainder medium-pressure pipelines, as no connections were made by distributors for the high-pressure network, as in the previous year. There was a lengthening of waiting times for connections to low-pressure networks (which went from an average of 18.5 to 26.1 working days), while for connections to medium-pressure networks the lead time remained the same as in 2020 and amounted to 8 working days.

4.1.2 Balancing

Settlement rules

In February 2018, the Authority approved¹³² the reform of the gas settlement rules, contained in the *Integrated text of the provisions for the regulation of the physical and financial transactions of the natural gas balancing service (TISG)*. This reform, which came into force on 1 January 2020, is characterised by the following main provisions:

- entrusting the balance responsible entity (RdB), i.e. the main transmission operator company,

¹³² Resolution of 08 February 2018, 72/2018/R/gas.

with the task of sourcing the difference between the quantities injected into the distribution system by suppliers and those withdrawn by final customers (ΔI^O or ΔI_O);

- the simplification of the procedures for determining the physical and financial transactions for balancing and adjustment sessions;
- the sterilisation of uncertainty for the user of balancing (UdB) with reference to withdrawals destined for redelivery points (PoD) with a reading frequency lower than monthly; in fact, the quantities to be supplied for these points are forecast by the RdB and these lots are not redetermined, thus reducing the risk associated with their adjustment;
- the centralisation in the Integrated Information System (IIS) of certain activities, which previously were the responsibility of distribution companies;
- the implementation by the RdB of a methodology for the assessment of the climatic factor in the determination of daily withdrawals concerning DRPs with less than or equal to monthly reading frequency, as well as the revision of withdrawal profiles.

As a result of a consultation launched in September 2018¹³³, a new version of the TISG was approved¹³⁴ in April 2019, which incorporated a new regulation on the determination of physical daily batches.

In May 2019, the Authority then approved¹³⁵ a series of provisions aimed at defining the regulatory framework relating to the activities that Snam Rete Gas must carry out as of 1 January 2020 for the market supply of the resources needed to operate the system.

In November 2019,¹³⁶ further provisions were approved concerning the supply by the RdB of the resources necessary for the functioning of the system, providing, in particular, that

- supply takes place through marginal price tenders within the MP-GAS sector;
- transactions concluded in tenders are excluded from the formation of the System Average Price (SAP);

With regard to the purchase and sale prices of Snam Rete Gas, it was established:

- that the purchase prices are equal to the SAP average for the 7 days preceding the trading day increased by 30 €/MWh;
- that sales prices are 0 €/MWh.

It was also established that Snam Rete Gas may continue to supply any additional quantities of system gas and, in particular, self-consumption, in accordance with the modalities established in May 2019¹³⁷.

In June 2020, amendments to the settlement framework were approved¹³⁸ in order to optimise the timing of the activities involved in establishing the final budgets.

In January 2021, the Authority intervened¹³⁹ on the application modalities of the regulation of deviation fees due to withdrawals attributed at distribution redelivery points that were found to be

¹³³ Consultation document of 20 September 2018, 462/2018/R/gas.

¹³⁴ Resolution of 16 April 2019, 148/2019/R/gas.

¹³⁵ Resolution of 28 May 2019, 208/2019/R/gas.

¹³⁶ Resolution of 05 November 2019, 451/2019/R/gas.

¹³⁷ Point 7 of resolution of 28 May 2019, 208/2019/R/gas.

¹³⁸ Resolution of 16 June 2020, 222/2020/R/gas.

¹³⁹ Resolution of 14 January 2021, 3/2021/R/gas.

abnormal as a result of settlement sessions.

- In August 2021, the Authority proposed¹⁴⁰ the introduction of a mechanism to make distribution companies responsible for the volumes to cover the difference between the quantities injected at the exit points of the transmission network interconnected with distribution networks (city gates) and those withdrawn from final customers supplied through the same points. The mechanism envisaged provides for a simplified approach to assessing the performance of distribution companies, aimed at addressing the macroscopic aspects of the phenomenon through the introduction of economic incentives, pending the definition of a more articulated accountability mechanism. For the first step, it was therefore proposed to identify, on the basis of the available information, deviations representative of a situation of manifest and macroscopic inefficiency of the distribution company, against which it is considered legitimate to charge a partial share of the cost that the deviation causes for the system. Amongst others, the document proposed an integration of the regulatory framework on the subject of fraudulent withdrawals and localised leakages (gas leaked in cases of service emergencies or in cases of damage to plants or pipelines of the distribution network).

In November 2021, the Authority approved¹⁴¹ amendments and additions to the TISG for the implementation of the new transmission tariff regulation¹⁴². In particular, on the determination and settlement of financial transaction adjustments:

- the obligation to balance the components covering network leakage and gas not accounted for as a result of the adjustment sessions was eliminated;
- variable transmission fees were introduced.

4.1.3 Cross-border issues

Access and development of the transmission system

The Trans Adriatic Pipeline (TAP), the pipeline that transports natural gas from the Shah Deniz II field in Azerbaijan to Europe, came into operation at the end of 2020. In 2013, TAP AG obtained an exemption from certain European regulations (third-party access, regulated tariffs and unbundling), under conditions set by the Final Joint Opinion, a document jointly approved by the regulatory authorities of Italy (ARERA)¹⁴³, Greece (RAE) and Albania (ERE). Among the conditions imposed, TAP AG must conduct a Market Test at least every two years to verify the market's interest in booking transmission capacity with long-term contracts between the entry and exit points of the natural gas pipeline. In the event of a positive outcome of the Market Test (as well as the verifications of the technical-economic feasibility of the requests), TAP AG has to build capacity increases from the current 10 G(m³) standard per year up to the maximum expansion capacity of 20 G(m³) standard per year.

Subsequent to 2013, regulation (EU) 459/2017 of the European Parliament and of the Council of 16 March 2017 (the CAM NC) has been issued which, in addition to the allocation of existing capacity,

¹⁴⁰ Consultation document of 03 August 2021, 357/2021/R/gas.

¹⁴¹ Resolution of 16 November 2021, 496/2021/R/gas.

¹⁴² Resolution of 28 March 2019, 114/2019/R/gas.

¹⁴³ Resolution of 06 June 2013, 249/2013/R/gas.

contains specific provisions regarding the realisation of incremental capacity, also providing for a two-year procedure (generally starting in odd years).

In light of the changed regulatory environment and at the request of the Authorities, TAP will, as of 2019 (the year in which the first Market Test was launched), coordinate (to the extent possible) the Market Test procedure set out in the Final Joint Opinion with the Incremental Capacity Procedure governed by the CAM NC.

In the framework of the aforementioned context, in May 2021 the Authority, jointly with the regulators of Greece (RAE) and Albania (ERE), approved¹⁴⁴ the capacity increase recommendation submitted by TAP, SRG and DESFA relating to the procedure initiated in July 2019. Furthermore, in June 2021, the Authority, always in agreement with the Regulatory Authorities of Albania (ERE) and Greece (RAE), approved¹⁴⁵ the document "Guidelines for the 2021 Market Test of Trans Adriatic Pipeline" with which a new Market Test for 2021 was initiated.

Finally, during 2021, the Authority made partial changes to the established rules on access to transmission networks¹⁴⁶; in detail, it was established that:

- deviations at transmission network interconnections in and out with foreign countries are assessed in the same measurement unit used for user nominations (kWh)¹⁴⁷;
- for the annual capacity allocations at the interconnection points with foreign countries other than Switzerland and the countries of the European Union, i.e. the Mazara del Vallo (connection with Algeria) and Gela (connection with Libya) points, the possibility was introduced (under certain conditions) to submit an annual capacity allocation request even after the thermal year had started according to the first come first served (FCFS) time criterion¹⁴⁸.

Assessment of the ten-year transmission network development plan outlines and consistency with the Community Development Plan

As part of the proceedings started¹⁴⁹ in December 2020 for the assessment of the ten-year plans for the development of the 2019 and 2020 natural gas transmission networks, in December 2021, the Authority presented¹⁵⁰ guidelines on incentives to keep the networks in operation, on efficiency criteria in the case of the development of the transmission network in areas of new methanization, and on criteria for the return of revenues from the operation of dual-fuel power plants to the system.

On 7 June 2021, the Authority launched the public consultation on the Natural Gas Transmission Network Development Plans for 2021. As part of this consultation, which ended on 30 July 2021, an on-line public session was organised by the largest transmission operator company, on behalf of the Authority, to present and discuss specific aspects of the Plans and to answer questions submitted by stakeholders, which took place on 15 July 2021.

¹⁴⁴ Resolution of 11 May 2021, 189/2021/R/gas.

¹⁴⁵ Resolution of 28 June 2021, 273/2021/R/gas.

¹⁴⁶ Resolution of 17 July 2002, 137/02.

¹⁴⁷ Resolution of 11 May 2021, 189/2021/R/gas.

¹⁴⁸ Resolution of 27 July 2021, 324/2021/R/gas.

¹⁴⁹ Resolution of 15 December 2020, 539/2020/R/gas.

¹⁵⁰ Consultation document of 23 December 2021, 616/2021/R/gas.

The assessment proceedings of the 2021 Natural Gas Transmission Network Development Plans are still ongoing and will be conducted jointly with the assessment proceeding of the 2022 Plans.

4.1.4 Implementation of Network Codes and Guidelines

Approval and updating of service codes

The regulation of access and provision of natural gas transmission, storage and regasification services, contained in Italian Legislative Decree no. 164 of 23 May 2000, requires that the companies providing the aforementioned services define their own codes in accordance with the criteria established by the Authority, which approves them once it has verified their consistency with these criteria.

During 2021, several codes for transport, storage and regasification services were approved and/or updated, in order to incorporate new regulatory provisions, provisions of the Authority or management methods aimed at improving service provision. Among the most important changes are:

- in January 2021, the Authority approved¹⁵¹ a recommendation to update the conditions of the Virtual Trading Point and their annexes transmitted by the company Snam Rete Gas and aimed, in particular, at updating the functional provisions for the management, by the Gestore dei servizi energetici (GSE) Energy Services Manager and the regasification companies, of gas transactions at the PSV;
- in February 2021, the Authority approved¹⁵² a recommendation to update the Storage Code submitted by Italgas Storage, which was finalised: (i) to introduce a new flexible storage service (the "Full Flex Storage Service") which provides for the availability to the user (within the limits of the storage capacities allocated to the same), on each gas day of the contract, of both withdrawal and injection services; (ii) to define the fees applied to users for the recovery of electricity costs prior to the allocation of capacities; (iii) to provide that capacity alienations between users take place according to predefined combinations of withdrawal and injection space in order to ensure the orderly management of the overall service offered;
- in March 2021, the Authority approved¹⁵³ a recommendation to update the Edison Stoccaggio company's Storage Code with regard to: (i) the implementation of the provisions of the Regulation on the Quality of Gas Storage (RQSG); (ii) the adjustment, downwards, of the credit "minimum rating" values; (iii) the introduction of the procedure for controlling the congruence of storage data; (iv) the introduction of the "unilateral transaction" functionality of gas in storage between two services provided to the same user;
- also in March 2021, the Authority approved¹⁵⁴ a recommendation to update Stogit's Storage Code regarding, among other things, the introduction of unbundled products of injection and supply capacity on the secondary market; as well as regarding the new structure of the strategic storage service, for which the Authority implemented¹⁵⁵ the provisions of Decree-Law no. 76 of 16 July 2020;

¹⁵¹ Resolution of 26 January 2021, 19/2021/R/gas.

¹⁵² Resolution of 23 February 2021, 68/2021/R/gas.

¹⁵³ Resolution of 02 March 2021, 78/2021/R/gas.

¹⁵⁴ Resolution of 02 March 2021, 79/2021/R/gas.

¹⁵⁵ Resolution of 20 October 2020, 396/2020/R/gas.

- in May 2021 the Authority approved¹⁵⁶ the proposed update of the Regasification Code submitted by OLT Offshore LNG Toscana, which provides for the extension of the capacity offer period for multi-year capacity allocations up to the 25th thermal year and the discipline of capacity release; the update also qualifies the Small Scale LNG (SSLNG) services as additional to the regasification service, which in any case remains the service with priority access over the SSLNG services;
- in June 2021, the Authority approved¹⁵⁷ the proposed amendment to the Snam Rete Gas Network Code concerning financial guarantees for the transmission service, which provides for a reduction in the time-frame and a simplification of the procedures for submitting guarantees; these changes were introduced in order to increase the security of the system and limit fraudulent behaviour;
- in July 2021, the recommendation to update the Italian LNG Regasification Code was approved¹⁵⁸ with which the provisions concerning the extension of the capacity offering period for multi-year capacity allocations, the rules on the release of capacity and the application of the “use it or lose it” rules consistent with the provisions of the Integrated LNG Regasification Text (TIRG) were implemented;
- in August 2021 the Authority approved¹⁵⁹ the proposed update of the Regasification Code of the company Terminale GNL Adriatico, which incorporates the procedure for the allocation of non-exempt capacity, pursuant to the Ministerial Decree of 8 July 2020, and the incorporation of the provisions of the Integrated LNG Regasification Code (TIRG) concerning the capacity release and the application of the so-called “use it or lose it” clause;
- in September 2021, the Authority approved¹⁶⁰ the recommendation to update the Snam Rete Gas Network Code on annual capacity allocation at entry points of the national transmission network interconnected with foreign countries, other than points interconnected with EU countries and Switzerland;
- in November 2021, the Authority approved¹⁶¹ the recommendation to update the regasification code of the company OLT Offshore LNG Toscana, which introduces the virtual liquefaction service pursuant to the Integrated LNG Regasification Text (TIRG); the Authority also approved the recommendation of the same company for the valuation of the fee for the new service;
- also in November 2021, the Authority approved¹⁶² the recommendation to update the Snam Rete Gas Network Code on: (i) the expected changes to the billing chapter in connection with the adjustment session; (ii) the changes regarding the adjustment of inconsistent withdrawals as a result of the adjustment session; as well as (iii) a necessary addition regarding regulation applicable to boil-off gas injections into the natural gas distribution network;
- in November 2021 it was also established¹⁶³ that the balance responsible entity shall make the results of balancing and adjustment sessions available to the distribution companies in an agreed way and time-frame;

¹⁵⁶ Resolution of 11 May 2021, 190/2021/R/gas.

¹⁵⁷ Resolution of 08 June 2021, 240/2021/R/gas.

¹⁵⁸ Resolution of 20 July 2021, 313/2021/R/gas.

¹⁵⁹ Resolution of 03 August 2021, 355/2021/R/gas.

¹⁶⁰ Resolution of 30 September 2021, 408/2021/R/gas.

¹⁶¹ Resolution of 02 November 2021, 474/2021/R/gas.

¹⁶² Resolution of 16 November 2021, 496/2021/R/gas.

¹⁶³ Resolution of 16 November 2021, 496/2021/R/gas.

- in December 2021, the Authority approved¹⁶⁴ a recommendation to update the Edison Stoccaggio company's Storage Code with regard to: (i) gas metering devices; (ii) regulatory compliance and changes related to self-consumption.

4.2 Competition and the functioning of markets

4.2.1 Wholesale markets

According to provisional data released by the Ministry of Economic Development, gross natural gas consumption in 2021 increased by 5.2 G(m³), recording a 7.3% increase (Table 4.3).

Table 4.3 Gross natural gas consumption in Italy

AVAILABILITY (M(m ³))	2020	2021 ^(A)	VARIATION
National production	4,014	3,343	-16.7%
Imports	66,393	72,995	9.9%
Exports	316	1,543	388.3%
Stock variation	-1,076	-1,591	-
GROSS DOMESTIC CONSUMPTION	71,167	76,386	7.3%

(A) Provisional data.

Source: Ministry of Economic Development.

With consumption back on the rise and household production at an all-time low (3.3 G(m³), down 16.7% compared to 2020), imported gas volumes consistently showed an increase of 9.9%, approaching 73 G(m³), almost 2 G(m³) higher than in 2019. In 2021, imports also included gas from Azerbaijan that arrived in Italy via TAP, the natural gas pipeline in Apulia which started operation at the end of 2020. In 2021, however, exports also grew significantly. The volumes of gas exported have multiplied five times as compared with 2020, rising from 316 M(m³) to 1.5 G(m³). The increase in exports, which was seen in particular in the last quarter of the year, was fostered by the abundance of gas that made Italian gas more convenient than that available for purchase at the TTF. The volumes in storage at the end of the year were 1.6 G(m³) less than at the beginning of the year. Therefore, part of the consumption was covered with gas in storage. Thus, as mentioned, gross domestic consumption in 2021 was 76.4 G(m³), 7.3% higher than in 2020, but also 2.6% higher than pre-pandemic levels in 2019. The level of foreign dependence, measured as the ratio of net imports to the gross value of household consumption, has risen again; 93.5% of the gas available in Italy comes from abroad (92.8% in 2020).

Production

Even in the data collected in the Authority's customary *Annual Survey of Regulated Sectors*, a considerable contraction of household gas production was revealed: in 2021, a total of 3,248 M(m³) was extracted from 21 companies combined in 17 corporate groups (17 companies combined in 14 corporate groups in 2020). Since last year's production was 4,051 M(m³), the drop measured in the

¹⁶⁴ Resolution of 09 December 2021, 561/2021/R/gas.

survey data in 2021 was 19.8%.

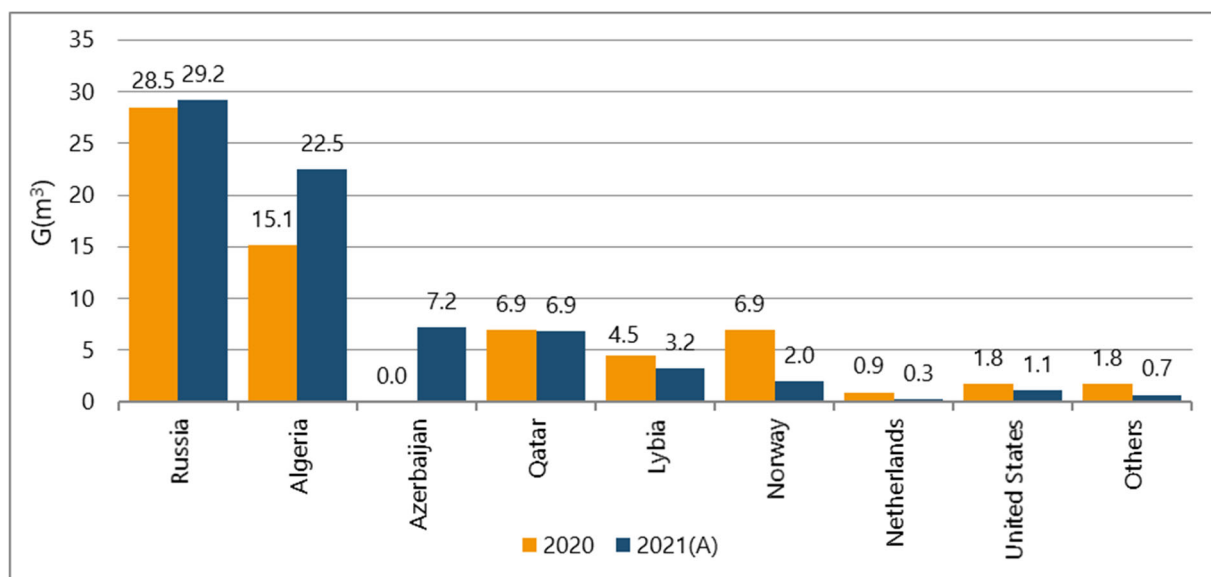
The share of household production held by the Eni group companies also decreased slightly in 2021, falling below 70% from 71.6% in the previous year. In 2021, in fact, Eni group companies extracted about 650 M(m³) less than in 2020, thus recording a 22.3% drop in production. However, the group remains the dominant operator in this segment with a decidedly majority share and far behind the second group, Royal Dutch Shell. As in 2020, the latter's production still decreased, by about 134 M(m³) (-20.5%), but its share remained essentially unchanged at 16%. The share of the third group, Energean PLC, whose companies extracted about 46 M(m³) less gas than in 2020 (-15.2%), rose slightly from 7.5% to 7.9%, as did that of the Gas Plus group, this year at 2.7% against 2.3% in 2020, which extracted 6 M(m³) less than the previous year. Conversely, the share of other producers grew to 3.9% (from 2.4% in 2020), who together extracted 128 M(m³), 29 more than the previous year.

Imports

As just anticipated, according to the preliminary data released by the Ministry of ecological transition, in 2021 Italy imported 6.6 G(m³) more natural gas than in 2020: in fact, gross imports rose to 73 G(m³), showing an increase of 9.9% compared to 2020.

Figure 4.4 shows the quantities of gas supplied in the last two years by country of origin¹⁶⁵. The main change in 2021 is Azeri gas imports to Italy via the TAP pipeline. The natural gas pipeline came into operation at the end of 2020 and in its first year of operation, it delivered 7.2 G(m³) of gas to Italy, bringing Azerbaijan to third place in the ranking of countries from which we import natural gas.

Figure 4.4 Gross gas imports according to origin



(A) Preliminary data.

Source: Ministry of Economic Development.

A notable increase was recorded in imports from Algeria, which, at 7.3 G(m³) more than in 2020, almost doubled. Also from Russia, 0.7 G(m³) more arrived in Italy compared to 2020, a growth of

¹⁶⁵ Imports are broken down by country of physical origin of the gas and non-contractual one. Gas imported under a swap arrangement is also accounted for according to the physical origin of the gas.

2.4%. On the contrary, in 2021, there was a decline, albeit of different magnitude, from all other countries from which gas is historically purchased. The reduction is very slight in the case of Qatar (from which about 80 M(m³) less arrived) and is more significant in the case of the Netherlands and the United States, countries from which we acquired about 630 M(m³) less than in 2020. On the other hand, the reduction appears marked if we look at gas from Libya (-1.2 G(m³)) and even more so from Norway, whose exports to Italy fell by 5 G(m³), from 6.9 to 1.9 G(m³). Also according to preliminary data from ministerial sources, in 2021, out of the 73 G(m³) of gas imported into Italy, 9.9 G(m³) arrived by ship. Alongside the traditional – and majority – origins from Qatar and Algeria, which together account for 82% of all LNG imported, in recent years cargoes from other countries are also becoming important in the import by ship: primarily from the United States, which has become very significant since 2019, and Nigeria, whose quantities have been increasing for three years now.

In 2021, therefore, the weight of Russia amongst the countries exporting to Italy reduced by 40% (42.9% in 2020), while Algeria's share rose from 22.8% to 30.8%. In third place in terms of importance, as just mentioned, comes Azerbaijan, with a 9.9% share. The ranking then continues with: Qatar, from which comes 9.4% of all gas imported into Italy (10.5% in 2020), followed by Libya, whose share is at 4.4% and Norway, which is at 2.7% (10.4% in 2020). The share of US LNG fell from 2.6% to 1.5%, while the share of Dutch gas practically fell to zero, which has been decreasing over time and now stands at 0.4%; the share of imports from Northern Europe (i.e. from Norway and the Netherlands together) thus fell sharply from 11.8% to 3.1%.

According to (provisional) data from the Authority's Annual Energy Sector Survey, 71 G(m³) were imported into Italy in 2021, 8.3 more than in 2020¹⁶⁶.

The increase was, therefore, 13.2% higher than the Ministry of ecological transition's data¹⁶⁷. 2.8% of the total gas supplied abroad, i.e. about 2 G(m³), is purchased on European stock exchanges.

As always, Eni is the leader of importing companies, with 34.3 G(m³) imported in 2021, almost 5 G(m³) more than the previous year. The strong increase in Eni's imports (15.8%), higher than that shown by total household imports, caused the company's market share to increase slightly to 48.4% (47% if calculated on the value of imports from ministerial sources), from 47.3% shown in 2020. Edison, second in the rankings as in 2020, also imported more than in 2020: the quantities supplied by the company rose from 10.8 to 11.1 G(m³); its share of the import market fell to 15.7% from the previous 17.3%, and the distance to Eni widened by almost three percentage points compared to that observed in 2020. The main change in the ranking of importers concerns Azerbaijan Gas Supply Company Limited, which imports Azeri gas that arrives in Melendugno via the TAP (see the following section on gas transmission): with 5.91 G(m³) imported during the year, it moved up to third position, surpassing, albeit by a small margin, Enel Global Trading. This is also because the quantities acquired by the latter decreased by 1 G(m³) compared to 2020, to 5.89 G(m³). The share of both is therefore 8.3%.

¹⁶⁶ Data from the Annual Energy Sector Survey.

¹⁶⁷ The differences with respect to ministerial data depend, in part, on the number of companies responding to the Authority's Annual Survey and, in part, on discrepancies in the ranking of import data. It is then likely that some quantities, which in the ministerial data are classified as imports, in the Authority's Survey are considered as "Purchases at the Italian border", in view of the customs clearance procedures.

Table 4.4 Development of the wholesale market

Year	Demand Total ^(A) G(m ³)	Peaking demand ^(B) M(m ³)/g	Production G(m ³)	Import capacity via tube M(m ³)/g	no. of groups with supply quota >5% ^(C)	no. of groups with available gas quota >5% ^(D)	C3 of major groups on total demand
2001	125.1	n.a.	15.5	n.a.	n.a.	2	68.2%
2002	111.8	n.a.	14.3	216.4	3	3	67.4%
2003	123.6	n.a.	13.9	224.9	3	3	63.8%
2004	127.3	386	12.9	237.9	3	3	62.4%
2005	138.3	421	12.0	260.1	3	3	66.7%
2006	134.3	443	11.0	251.1	3	3	66.5%
2007	136.1	429	9.7	271.1	3	3	63.8%
2008	151.5	410	9.3	276.5	3	3	57.1%
2009	147.2	436	8.0	289.8	3	4	49.2%
2010	173.5	459	8.3	296.2	3	5	42.3%
2011	178.9	401	8.4	296.2	3	3	42.1%
2012	178.3	464	8.6	298.6	3	3	40.5%
2013	180.8	360	7.7	298.6	3	3	42.7%
2014	210.9	330	7.1	298.6	3	3	51.4%
2015	244.5	340	6.8	293.8	3	3	50.6%
2016	267.4	384	5.8	296.4	3	3	46.3%
2017	285.7	425	5.5	294.0	3	3	44.4%
2018	287.5	396	5.4	293.8	4	4	47.2%
2019	329.4	394	4.9	293.8	3	3	46.8%
2020	386.4	366	4.0	291.4	4	4	42.1%
2021	360.6	391	3.3	297.8	5	5	39.2%

(A) Volumes of gas sold on the national wholesale and retail market; it includes resales and self-consumption.

(B) The indicated volume includes inputs, releases from storage, leakage and internal network consumption.

(C) Number of companies with a share of gas produced and/or imported of more than 5%.

(D) Number of companies with a share >5% of available gas volumes, including production, net imports and storage.

Source: ARERA processing of Snam Rete Gas data and on operators' declarations.

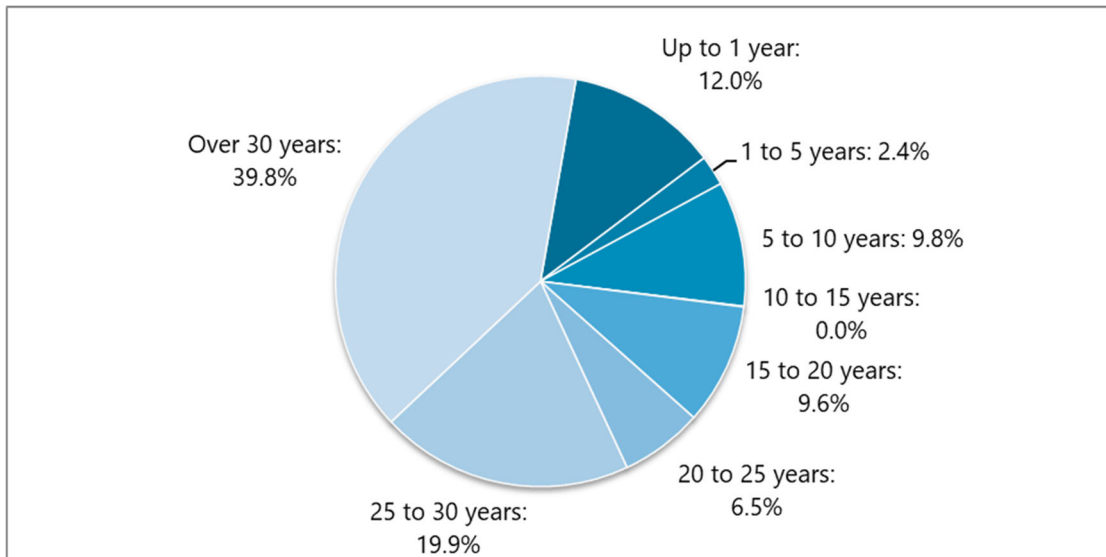
The groups¹⁶⁸ that own more than 5% of the total gas supplied (i.e. produced or imported) became five: Eni, Edison, Enel and Royal Dutch Shell, as in 2020, joined by Azerbaijan Gas Supply Company, the company that imports Azeri gas into Italy (Table 4.4). Together they imported 62 of the 71 G(m³) of foreign gas that entered the Italian market. Considering also the quantities produced within national borders, the five groups account for 87.3% of all the gas supplied. The five groups are also the only ones that have a share of more than 5% of the available gas (which in addition to imports and production also includes gas in storage), with an overall share for the four (85%) slightly lower than the share of gas supplied.

The structure of import contracts (annual and multi-year) active in 2021 according to full term (Figure 4.5) has lengthened compared to 2020: the share of long-term contracts, i.e. those with a full term of more than 20 years, was 66.2%, whereas last year it was 64.7%. Moreover, in 2021, the incidence

¹⁶⁸ In the context of the gas market investigation, participation in a corporate group is defined according to what is specified in Art. 7 of Law no. 287 of 10 October 1990: very briefly, membership of a group is thus established even if there is de facto control of the participant in the investee.

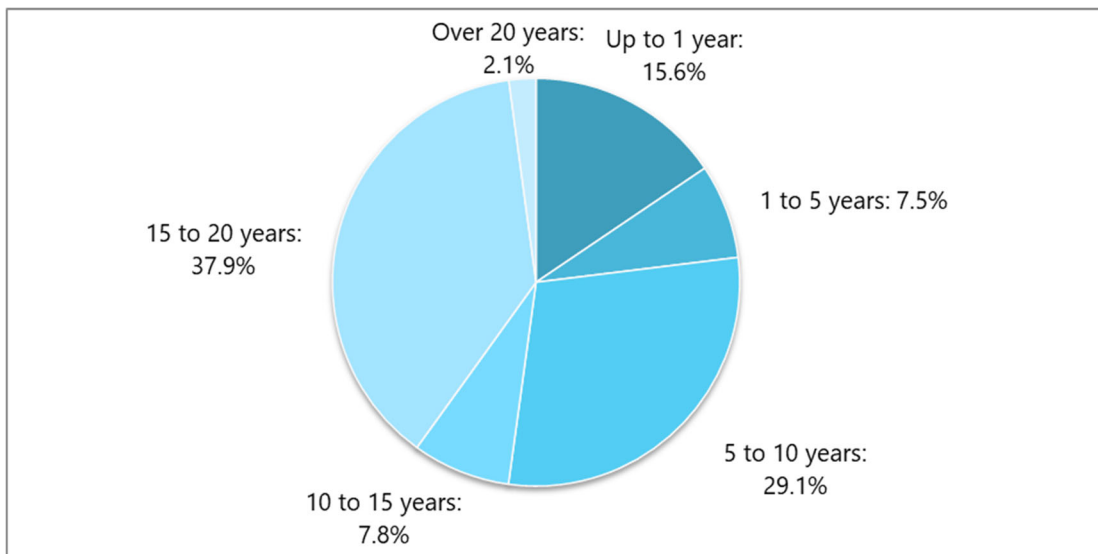
of short-term imports, i.e. those with a duration of less than five years, fell sharply, from 22.6% to 14.3%; the incidence of medium-term contracts (5-20 years) rose by almost 7 percentage points (19.4% instead of 12.7% in 2020). The annual contract quantities underlying the quotas expressed in the figure, however, decreased slightly: in 2020, contracted volumes totalled 85.8 G(m³), whereas in 2021 they fell to 83.8 G(m³). By contrast, the incidence of spot imports¹⁶⁹, i.e. those with a duration of less than one year, which has been steadily increasing for years, has decreased in the last two years: by almost four percentage points in 2020 and a further three and a half points in 2021, to 12%.

Figure 4.5 Structure of active import contracts in 2021, according to their full term



Source: ARERA. Annual survey of regulated sectors.

Figure 4.6 Structure of active import contracts in 2021, according to their remaining duration



Source: ARERA. Annual survey of regulated sectors.

¹⁶⁹ It is worth remembering that this was assessed, as in past years, excluding the annual contract quantities of spot contracts that did not give rise to imports into Italy, as the gas was resold directly abroad by the operator, active in Italy, who purchased it.

In terms of residual life, the import contracts in place in 2021 (Figure 4.6) show that 23.1% of the contracts will expire within the next five years (the same share was 28% in 2020) and 52.2% will expire within the next ten years. Of the contracts in force today, 40% have a residual life of more than 15 years. This share, which had been on the rise since 2014, also declined sharply in 2019, and then rose steadily; in 2021 it reached 40% and concerned a total quantity of 33 G(m³).

In 2021, total demand in the gas sector, understood as the sum of gas volumes sold in the wholesale market (including resales) and in the retail market plus self-consumption, decreased for the first time by 6.7% to 360.6 from 386.4 G(m³) in 2020 (Table 4.4). This was due to the significant reduction in marketed gas, as self-consumption increased.

Overall, marketed gas in the total sales market (wholesale and end market) fell to 342.1 G(m³), a reduction of 7.5% compared to the same figure for 2020, which should be assessed taking into account the impact of the pandemic emergency on 2020, which had caused wholesale sales to rise significantly. The wholesale market in fact handled 285.1 G(m³), a decrease of 9.3% compared to 2020, the retail market handled 57 G(m³), an increase of 3.1% compared to 2020, and self-consumption amounted to 18.4 G(m³), also a sharp increase (11.3%). The industrial groups serving a share of total demand of more than 5% in 2021 are 5 as in 2020.

More precisely, the industrial groups and their respective shares, in brackets, are: Eni (18.2%), Engie (13.3%), Alpiq (7.7%), Enel (7.3%) and Edison (7.1%). The first three groups together cover 39.2% of the total demand, a share that is down from last year (42%).

4.2.1.1 Monitoring of wholesale market prices

The data relative to the gas wholesale market come, as usual, from the first and provisional processing of the data collected in the *Annual survey on the regulated sectors* that the Authority carries out on the state of the electricity and gas markets, administering the questionnaires to the companies accredited in the Registry of Operators that have declared to carry out in the previous year (even for a limited period of the year) the activity of selling gas at wholesale or to the end market.

The number of companies that reported selling gas was 803. 614 companies (76.5%) responded to the *Annual Survey*: of these, 71 stated that they were associated to a natural gas distribution company and 11 to a transmission operator company.

Of the 614 companies that participated in the survey, 40 stated that they had remained inactive during the year. Of the remaining 574 active ones, 86 sold gas only to the wholesale market and were classified as **pure wholesale suppliers**, 381 sold gas only to final customers and were classified as **pure suppliers**. The remaining 104, which operated on both the wholesale and the end market, were classified as **mixed operators**.

Table 4.5 Sales and prices in the wholesale market in 2021

Operators	Number	Sales M(m ³)	Price c€/m ³
Pure wholesale suppliers	86	165,133	53.84
Mixed operators	104	119,974	34.35
TOTAL WHOLESALE	190	285,107	45.64

Source: ARERA. Annual survey of regulated sectors.

The wholesale market was supplied 58% by pure wholesale suppliers and the remaining 42% by mixed operators. In 2021, the number of companies that operated in the wholesale market decreased by 10 (190 compared to 200 in 2020, but it is important to note that the count of operators - which is based on companies that respond to the Annual Survey - is the phenomenon that is most affected by the different rate of response to the Survey from one year to the next) while the volume of gas they sold in the wholesale market decreased by more than 29 G(m³) (-9.3%), resulting in the average unit sales volume dropping by almost 5%, from 1,572 to 1,501 M(m³). This is the first decrease since 2012.

In the natural gas wholesale segment, the presence of non-Italian companies concerns 25% of the companies present.

During the year, 9 companies started natural gas wholesaling and 4 companies ceased the activity; 5 companies changed corporate groups. There was also one merger between companies that already belonged to the same corporate group and two business acquisition/alienation procedures.

In 2021, the level of concentration in this market decreased further: the share of the top three companies (Eni, Engie Global Markets and Alpiq) was 28%, below the already low 29.7% calculated in 2020. The cumulative share of the top five companies (the three already mentioned plus Enel Global Trading and Eni Global Energy Markets) fell from 44.6% to 41.5%. The HHI index calculated on the wholesale market alone also fell from 547 to 503.

In 2021, the average price in the wholesale market was 45.64 c€/m³, a marked increase from the 15.64 c€/m³ demanded in 2020, due to the well-known events surrounding international gas prices. This is in line with the price trend at the PSV, which increased by 350% in 2021 compared to the average in 2020. The price charged by mixed operators was 34.35 c€/m³, which is about 20 euro cents lower than that charged by pure wholesale suppliers (53.84 c€/m³).

Virtual exchange point

The main trading platform in the wholesale market in Italy is the Virtual Trading Point (PSV), operated by the transmission network operator, Snam Rete Gas. Alienations that can be registered are both those that take place through bilateral contracts and those that take place within the regulated markets managed by the GME. Since September 2015, it has also been possible to register contracts operated by third-party exchanges¹⁷⁰ at the PSV, thus expanding the offer of forward products with physical delivery of gas at the PSV. In order to operate the PSV, it is necessary to be a subscriber, i.e. to be in possession of the requirements and to have signed a membership form or access contract, whereby one undertakes to comply with the conditions approved by the Authority¹⁷¹.

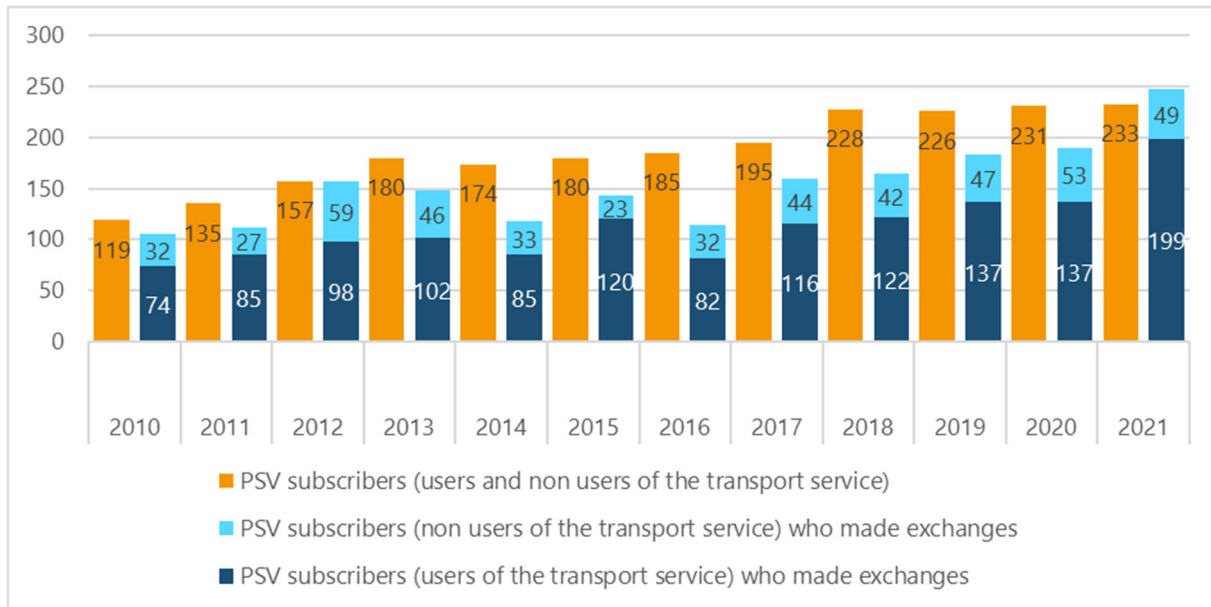
In 2021, 199 entities traded, alienated and acquired gas at the PSV. Only 49 of these were traders, as they were not users of the transmission system. The number of PSV subscribers increased by two units compared to the previous year, standing at 233 compared to 231 in 2020. However, in line with

¹⁷⁰ A third-party stock exchange is defined as the operator of a foreign regulated market on which derivative financial instruments involving physical delivery are traded and whose clearing and guarantee activities for transactions concluded on that market are settled through a clearing house (i.e. the third party which assumes the counterparty risk); or it is the clearing house itself which, either directly or through its subsidiaries or affiliates, is responsible for the physical delivery of the products offered.

¹⁷¹ By resolution of 16 March 2017, 147/2017/R/gas.

the increase in the demand for natural gas, the number of subjects, among subscribers, who carried out transactions increased significantly from 137 in 2020 to 199 in 2021 (+45%), while the number of pure traders (i.e. subscribers who are not users of the transmission system) decreased slightly from 53 to 49.

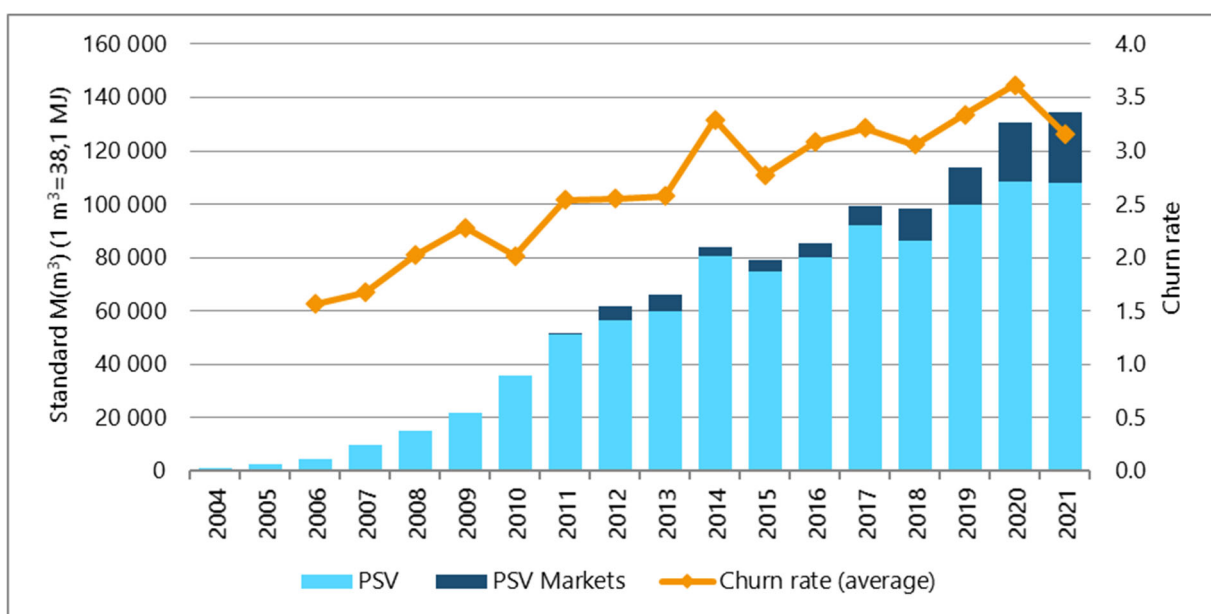
Figure 4.7 PSV subscribers since 2008



Source: ARERA. Annual survey of regulated sectors.

Figure 4.8 shows the development of trade registered at PSV. Under the heading “PSV”, redeliveries resulting from daily OTC, multi-day OTC and forced LNG alienations have been grouped together, while under the heading “PSV-Markets”, trades recorded at PSV resulting from trading on centralised markets and those operated as clearing houses have been grouped together.

Figure 4.8 Transaction volumes at PSV and churn rate



Source: ARERA processing of Snam Rete Gas data.

In 2021, OTC volumes traded at the PSV increased by 2.1%, from 105 to 107 G(m³). By contrast, volumes with forced delivery to the PSV fell sharply (-68%; from 3.6 to 1.2 G(m³)). Therefore, total deliveries to the PSV remained essentially unchanged at around 108 G(m³). By contrast, volumes traded in the markets increased significantly, as always, by 19%, albeit less than in the previous two years (77% and 58% respectively).

The volumes traded on the stock exchange reached 26 G(m³) from 22 the previous year, thanks to a high increase in volumes handled in the centralised markets (+16%), which was accompanied by a marked growth in energy traded as clearing house (+55%).

The churn rate is a synthetic indicator that measures the average number of times the commodity (gas) is traded between the time of its initial sale and its physical delivery. The indicator can be calculated in different ways. That illustrated in the figure is obtained by relating the total volumes traded at the PSV to the value of records that result in physical delivery. The more liquid the market, the more this value increases. This rate increased greatly between 2006 and 2014, declined sharply in 2015 and then stabilised in the years 2016 to 2018 at around 3.1. In 2019, the increase in activity brought its value to 3.3 and the growth was even more significant in 2020, when it reached 3.6. In 2021, on the other hand, there is a fall back to 3.2, explained by the relatively small growth in the average number of daily transactions (+5% for PSV and +19% for PSV Markets) as well as that of traded volumes (+3% overall).

Gas stock exchange

The creation of a gas stock exchange in Italy started in 2007 with Decree-Law no. 7 of 31 January 2007, converted into Law no. 40 of 2 April 2007, which established:

- for importers, the obligation to offer a share of the imported gas on the regulated capacity market;
- for holders of concessions for the exploitation of natural gas, the obligation to transfer the rates of gas produced in Italy due to the State (the royalties).

With the decree of the Ministry of ecological transition of 18 March 2010, the actual creation of the first core of the Stock Exchange took place, with the establishment of the trading platform for trading imported gas quotas, called P-GAS.

With the establishment of M-GAS in October 2010, the spot market for natural gas was launched, with the GME in the role of central counterparty. On this market, operators authorised to trade on the PSV can purchase and sell spot volumes of natural gas. It consists of:

- MGP-GAS (Day-Ahead Gas Market), where trading takes place with sale and purchase offers for the next gas-day. Trading is continuous;
- MI-GAS (Intra-Day Gas Market), where gas trading takes place for the gas day itself. Trading is continuous.

With Decree no. 110 of 9 August 2013, the Ministry of ecological transition set the date of 2 September 2013 for the start of the GME-managed forward market (MT-GAS)¹⁷². This market, which has been added to the existing spot markets, is conducted in the way of continuous trading with

¹⁷² In implementation of Article 32(2) of Legislative Decree no. 93 of 1 June 2011.

several trading books, each for each type of product that can be traded and referring to different delivery periods, where offers to purchase and sell gas are selected.

Following the approval of the European Balancing Regulation, as of 1 October 2016, a balancing system was introduced that competes, during the day, all available flexible resources, such as LNG storage, import or regasification.

In this system, users and Snam Rete Gas access the same spot product markets, MGP-GAS and MI-GAS, to supply the resources needed to balance the individual and aggregate system positions, respectively. This reform also introduced imbalance prices that make individual users responsible for balancing their positions, so that the network as a whole is also balanced. In this context, the system operator Snam Rete Gas provides users with real-time information on the state of the network, so that they can efficiently balance the system, while limiting its purchasing and selling actions on the market to what is strictly necessary to provide "price signals". In addition to the existing MGP-GAS and MI-GAS, the following spot product markets useful for balancing purposes were activated on 1 October 2016:

- the Market for Gas in Storage (MGS), which allows all users to exchange, through a single tender session at a marginal price, the ownership of gas held in storage; Snam Rete Gas can access this market both to safely manage any overall network deviations and for other procedures;
- the Market for Locational Products (MPL), which is conducted according to tender trading methods and solely at the request of Snam Rete Gas. On this market, Snam Rete Gas supplies, from eligible users, the quantities of gas needed to manage physical needs located within the balancing area or any expected deviations between total network injections and withdrawals.

Trading in both segments, organised on a transitional basis within the Balancing Platform (PB-GAS), has been part of the Gas Market Organisation (M-GAS) since April 2017. As of 2015, operators can also extend PSV registration for transactions concluded on stock exchanges operated by entities other than the GME. In particular, the GME was commissioned to register at the PSV the transactions executed on the platforms operated by ICE Endex and Powernext (PEGAS platform of the EEX group), which had already launched futures products with delivery at the PSV in April 2015.

The GME, in line with the guidelines expressed by the Authority and following a consultation of its operators, introduced, between January and February 2018, a number of measures to encourage the development of liquidity in the natural gas markets it manages and, in particular, in the spot market. Of particular importance has been the creation of market making figures, i.e. entities (so-called liquidity providers) who undertake, in return for an economic advantage, to maintain in the market, at the same time, sale and purchase offers contained within a predefined price differential; liquidity providers operate in day-ahead trading. To the liquidity providers that have carried out the market making activity in compliance with the terms, modalities and conditions provided, for a calendar month, the GME recognises a fixed fee equal to 160 € for each useful session and a fee equal to 0.01 €/MWh for each MWh traded on the MGP-GAS for the daily product G+1. 2018 also saw the integration of the markets operated by the GME within the Trayport platform, where the main foreign markets were already present, a measure that allows users to optimise their trading activities by operating simultaneously on several markets from a single trading platform.

Also with the aim of promoting the liquidity of the natural gas spot market by expanding the range of products available for trading and the flexibility for market participants, at the end of 2019, the

Ministry of ecological transition introduced the weekend product in the MGP-GAS market¹⁷³, which has been able to be traded since 1 January 2020.

Finally, as of 1 January 2020, a new section of M-GAS was activated for the supply, by the balance responsible entity (RdB), of the resources necessary for the operation of the system¹⁷⁴. This segment, known as AGS, is divided into two tenders for products with delivery on each gas-day, to be held on gas-day G-1, following an initial assessment of the quantities to be supplied, and on day G, with no suspension of the continuous trading market during the course of the tender. Participation in the tenders is open to all operators admitted to operate on M-GAS with offers opposite to those of the RdB.

Prices and Volumes

In gas markets managed by the GME, total volumes of 131 TWh were traded in 2021 (Table 4.6), up by 15% compared to 2020. This growth reflects the significant increase in household consumption, which reached its highest level in the last decade (around 807 TWh).

Table 4.6 Annual volumes for each of the gas markets managed by the GME

MARKETS	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
P-GAS											
Import	-	-	-	-	-	-	-	-	-	-	-
Royalties	2,870	2,708	1,801	-	-	-	1,057	2,471	1,290	-	1,351
LD no. 130/10	-	-	-	-	-	-	-	-	-	-	-
M-GAS											
MI-GAS	13	36	4	102	1,009	7,090	23,826	27,862	41,053	46,701	44,086
MGP-GAS	149	136	13	-	-	335	3,280	13,006	24,564	30,079	45,401
MT-GAS	-	-	-	-	-	-	171	602	3,225	655	33
MGS	-	-	-	-	-	3,269	16,633	13,502	13,365	6,450	5,084
MPL	-	-	-	-	-	-	-	-	-	-	-
MGP-AGS										25,716	33,790
MI-AGS										4,363	1,608
PB-GAS											
PB-GAS (G+1)	1,712	34,925	40,833	38,584	40,833	30,568	-	-	-	-	-
PB-GAS (G-1)	-	-	48	2,940	7,326	6,218	-	-	-	-	-
TOTAL (GWh)	4,743	37,805	42,699	41,627	49,199	47,480	44,967	57,443	83,497	113,965	131,352

Source: GME.

In contrast to 2020, in 2021 the greatest liquidity is observed on the Day-Ahead Market (45.4 TWh; +51%) and, in particular, in the trading session on the day before delivery. Monthly trends show higher trading levels in the last quarter of the year, with October more than doubling volumes compared to 2020 (+128%). As regards the different product types, the weekend product reached a share of 25% of the total (+4 p.p. over 2020). In its second year of operation, the AGS segment

¹⁷³ By its own decree of 12 December 2019, after the Authority had issued a favourable opinion in Resolution of 26 November 2019, 496/2019/l/com.

¹⁷⁴ The structure of which was defined in Resolution of 5 November 2019, 451/2019/R/gas.

recorded exchanges totalling 33.8 TWh (+32% compared to 2020), almost entirely attributable to sales by Snam Rete Gas (90% of volumes).

On the other hand, there was a decline in volumes traded on the Intra-day market (44.1 TWh; -5.6%), mainly due to the lower handling of the Balance Responsible Entity (RdB) (13.1 TWh; -23%), while volumes traded by other operators increased (31 TWh; +4%), accounting for 70% of the total traded in the sector. Also for AGS in MI, trades totalling 1.6 TWh (-66%) were mostly attributable to sales by Snam Rete Gas (63% of volumes).

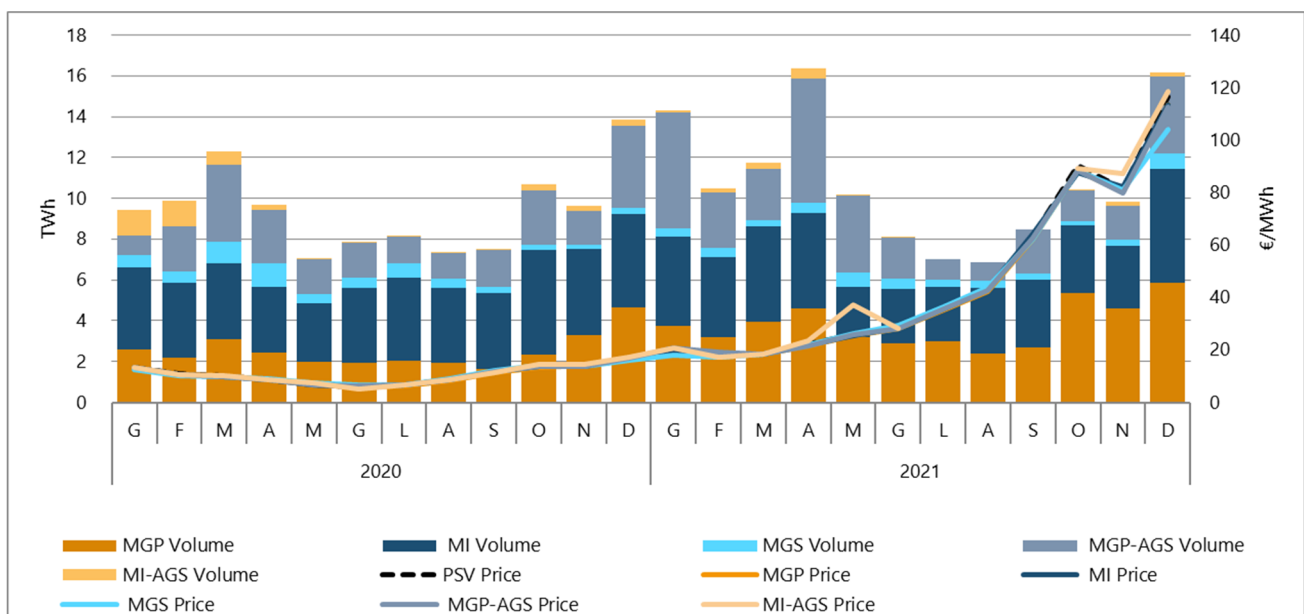
Negotiations on the Market for Gas in Storage (MGS) show exchanges of 5.1 TWh, for Stogit alone, attributable both to third-party operators (2.8 TWh; -36% over 2020) and to Snam Rete Gas handling for all purposes (2.3 TWh; +37% over 2020).

During the year, no sessions activated by Snam Rete Gas on the Market of locational products (MPL) were observed.

With regard to forward products traded on the MT-GAS market, a decrease in trade continues to be observed, with 10 pairings relating exclusively to monthly products, totalling 33 GWh delivered in 2021. On the other hand, a recovery of trading is observed in the P-GAS "royalties" segment with 1.3 TWh of volumes delivered in 2021 and previously traded.

The prices recorded on the various platforms can be traced back to an annual average of around 46 €/MWh, in line with the annual average spot price at PSV (47.20 €/MWh; +347%). In particular, the average prices of the two M-GAS segments, respectively 46.30 €/MWh for MGP-GAS and 46.70 €/MWh for MI-GAS, showed an interim trend that mirrors that of the PSV price. MGS prices were also dynamically in line with those of other markets, with the exception of December, for which a lower level was recorded.

Figure 4.9 Monthly price and volume trends in gas balancing markets



Source: GME.

4.2.1.2 Monitoring of the level of transparency, including compliance with obligations on transparency and the level and effectiveness of market opening and competition

Monitoring of the wholesale market

At the end of 2018, the Authority adopted¹⁷⁵ the Integrated Text of Natural Gas Wholesale Market Monitoring (TIMMIG) in order to strengthen its monitoring function in the sector¹⁷⁶.

The TIMMIG commissioned the GME to monitor the competitive dimension and the largest transmission operator company, Snam Rete Gas to monitor the structural dimension. In addition, the largest transmission operator company has to collect and organises data on monitoring activities in a database, the "Core Data Database". This database is accessible to the Authority and to the GME. The outline of the Convention, as well as the subsequent updates, are approved by the Authority, based on a recommendation by SRG and the GME.

Market fundamentals were monitored in 2021 in order to identify the main causes of the marked increases in natural gas and electricity prices in the wholesale markets during 2021 (see the corresponding section 3.2.1.2).

In 2021, the Authority initiated 1 sanctioning proceeding in simplified form against a gas distribution company for breach of disclosure obligations in the area of natural gas settlement. In particular, the distributor had not transmitted to the balance responsible entity, in accordance with the rules established for this purpose, the metering of the natural gas withdrawals necessary for the determination of the relevant physical and financial transactions. The proceeding ended with the adherence to the simplified procedure through the payment of a reduced fine of Euro 7,000 (the contested conduct had already ceased).

In addition, commitments submitted by two operators in the context of their respective sanction proceedings initiated for violations of wholesale market integrity and transparency, i.e. for engaging in wholesale energy product transactions that provide or that are likely to provide false or misleading indications as to the supply, demand or price of such products, were declared inadmissible in 2021.

4.2.2 Retail market

The provisional results of the Annual Survey, on which the comments given over these pages are traditionally based, showed that just over 57 G(m³) were sold in the retail market in 2021, to which must be added 240 M(m³) supplied through last resort and default services¹⁷⁷. Overall, therefore, the value of final sales was 57.3 G(m³), an increase of 1.8 G(m³) over 2020.

However, in order to have a figure comparable with that of the final gas consumption published by the Ministry of ecological transition, and commented on in the previous pages, it is necessary to take into account the volumes relating to self-consumption, 18.4 G(m³), which brings the value of total consumption resulting from the Annual Survey to 75.7 G(m³), i.e. a value comparable to the 74.1

¹⁷⁵ By Resolution of 05 December 2018, 631/2018/R/gas.

¹⁷⁶ For more details on the structure, purpose and provisions of the TIMMIG, please refer to the 2019 Annual Report.

¹⁷⁷ The request for last resort and default supply data is present in the Annual Survey in a very simplified way. Therefore, the details (consumption sector, type of connection, etc.) with which final sales are usually analysed are not available for this type of supply. Hence, in the remainder of the section all detailed analyses are carried out net of this market component.

G(m³) from the ministerial source. As usual, there are differences between the two sources, which classify the volumes of gas handled during the year differently. The upturn in final consumption that emerges in both the Annual Survey data (5.1%) and the ministerial data, albeit to a sharper extent (8.3%), is mainly due to a significant recovery in the production sectors.

Table 4.7 Final consumption of natural gas

	VOLUMES M(m ³)			WITHDRAWAL POINTS (thousands)		
	2020	2021	VARIATION	2020	2021	VARIATION
Final sales	55,319	57,039	3.1%	21,914	21,573	-1.6%
Last resort and default supplies	190	240	26.1%	127	111	-12.1%
TOTAL MARKET	55,509	57,279	3.2%	22,041	21,684	-1.6%
Self-consumption	16,561	18,436	11.3%	1.3	1.2	-12.8%
END CONSUMPTIONS	72,070	75,715	5.1%	22,042	21,686	-1.6%

Source: ARERA. Annual survey of regulated sectors.

Of the 57 G(m³) of gas sold in the end market, 18.8 G(m³) were sold by pure suppliers, while the remaining 38.3 G(m³) were brokered by suppliers also operating in the wholesale market (Table 4.8). The average price charged to customers in the retail market by all sales companies operating in that market was 52.28 c€/m³, 18.4 c€ (+54%) higher than in 2020. As usual, this price is higher than the price offered to the end market by wholesale suppliers, which was 49.77 c€/m³. The reason for the positive differential, this year amounting to 2.5 c€, lies mainly in the type of customers served and the related features. In fact, companies operating mainly in the end market mostly target households who are connected to distribution networks and who, although numerous, are characterised by low consumption. On the other hand, the customers served by wholesale suppliers are predominantly large customers, especially industrial ones, who due to their high levels of consumption are certainly able to obtain more favourable prices. In addition, industrial customers are often connected directly to the transmission network and, therefore, they do not pay the cost of distribution.

Table 4.8 Retail sales and prices in 2020

Operators	Number	Sales M(m ³)	Price c€/m ³
Pure suppliers	381	18,785	57.38
Mixed operators	104	38,254	49.77
TOTAL RETAIL	468	57,039	52.28

Source: ARERA. Annual survey of regulated sectors.

In 2021, the number of active suppliers in the retail market rose again and substantially¹⁷⁸. As the gas sold increased, overall, by 3.1%, and the number of suppliers increased to a lesser extent (2.8%), the average unit sales volume increased slightly, by an average of 0.3%, from 117.2 to 117.6 M(m³). However, the increase in the number of suppliers has been eroding this value for many years (suffice it to say that in 2010, the average sale was twice as high as it is today, at 237 M(m³)).

¹⁷⁸ As seen in the section dedicated to the wholesale market, in fact, this year 614 companies responded to the Annual Survey out of the 803 that, in the Authority Registry of Operators, were found to be carrying out the activity of selling gas at wholesale or retail level during 2021 (even if only for a limited period of the year). Apart from the 43 companies that declared to have remained inactive, out of the remaining 571 there are 86 that sold gas exclusively in the wholesale market. This resulted in a total of 485 persons operating in the retail market, 13 more than in 2020.

Of the companies active in the end market, 6.2%, i.e. 30 out of 485, sold more than 300 M(m³) in 2021; together, these companies cover 83.7% of all the gas purchased on the retail market.

Also in 2021, there was a lot of movement among companies: 47 companies have started selling to final customers, while 6 went out of business; 4 companies have acquired or disposed of sales activities (even partially); 8 companies have been merged; 14 companies have changed corporate groups.

25.4% (i.e. 123 companies) of the 485 active suppliers who responded to the Annual Survey serve customers in a large part of the national territory, i.e. in at least 17 Italian regions¹⁷⁹; 52.2% (253 companies) sold electricity in between 6 and 16 regions; the remaining 109 companies (22.5%) operated in between 1 and 5 regions. The number of companies operating on all or on a large part of the national territory is growing. The corporate composition of gas suppliers, limiting the analysis to direct participations, shows a low foreign presence: only 29 companies (out of the 480 that provided this data) have a non-Italian majority shareholder. Direct foreign participants are mostly companies from the UK, Luxembourg, Switzerland, Spain and Austria, but there are also companies from Croatia, Germany, Ireland and many other nationalities.

As mentioned, net of last resort and default supplies, 75.5 G(m³) - of which 18.4 for self-consumption and 57 for sale - were sold to 21.6 million customers (redelivery points) in 2021. Overall, gas sales increased by 5% compared to 2020. However, this increase was also due to a strong contribution from self-consumption. Overall, the latter, which mostly belong to the industrial and electricity generation sectors, recorded an increase of 11.3%; the quantities of gas sold in the free market, at 51.2 G(m³), showed an increase of 4%, while sales in the market with a reference price, at 5.9 G(m³), fell by 15.2%. The values of the market with a reference price shown in the table do not include the quantities supplied in the default and last resort services, as they cannot be broken down into different segments. These were 240 M(m³) in 2021 and 190 M(m³) in 2020. If default and last resort services are also considered, the gas sold in the market with a reference price rises to 6.1 G(m³).

Also thanks to favourable weather conditions, consumption in the household sector rose by 3.4%, and by 1.5% in condominiums. The consumption of the production sectors (industry and thermoelectric generation) increased from 47.2 to 50 G(m³), thus recording an increase of 5.9%. Tertiary sector consumption (trade and services, together with public service activities) grew by 3.6%, from 7.5 to 7.8 G(m³).

More specifically, in 2021 gas sales:

- to the household sector decreased by 4.3% in the standard offer service, while they grew by 8.3% in the free market;
- to condominiums decreased by 6.2% in the standard offer service, while they increased by 2.9% in the free market;
- to the industrial sector increased from 17.8 to 18.9 G(m³) (+6.4%), but self-consumption also grew strongly (+1.3 billion m³ compared to 2020): overall, therefore, industry consumption grew by 10.9% in 2021;
- to the thermoelectric sector decreased by 1.7% (-220 M(m³)), but self-consumption increased by 4.8%: taking both items into account, therefore, the sector's consumption was 1.4% higher than in 2020;
- to the trade and services sector, sales and self-consumption both grew by 6.7%, for a total increase of 444 M(m³);

¹⁷⁹ In Sardinia, the gas service has just arrived.

- to public service activities fell by 177 M(m³), quantifying the leakage at 20.8%.

Table 4.9 End market by customer sector

CUSTOMER SECTOR	2020				2021			
	STANDARD OFFER SERVICE	FREE MARKET	SELF-CONSUMPTION	TOTAL	STANDARD OFFER SERVICE	FREE MARKET	SELF-CONSUMPTION	TOTAL
VOLUMES (M(m³))								
Household	5,757	8,991	2	14,750	5,510	9,738	2	15,250
Condo households	381	2,000	5	2,386	357	2,059	5	2,421
Trade and services	-	6,638	22	6,660	-	7,080	23	7,104
Industry	-	17,781	4,487	22,268	-	18,920	5,781	24,700
Power generation	-	12,923	12,045	24,967	-	12,703	12,625	25,327
Public service activities	-	848	0	849	-	672	0	672
TOTAL VOLUMES	6,138	49,181	16,561	71,880	5,867	51,171	18,436	75,475
REDELIVERY POINTS (thousands)								
Household	8,096	12,349	0	20,445	7,414	12,753	0	20,167
Condo households	56	136	0	192	48	132	0	181
Trade and services	-	1,049	1	1,050	-	1,001	1	1,002
Industry	-	183	0	183	-	181	0	181
Power generation	-	1	0	1	-	2	0	2
Public service activities	-	45	0	45	-	42	0	42
TOTAL REDELIVERY POINTS	8,152	13,763	1	21,916	7,462	14,111	1	21,574

Source: ARERA. Annual survey of regulated sectors.

In 2021, the average consumption for households was 756 m³, that of condo households was 13,413 m³, 7,093 m³ for commerce, 136.2 M(m³) for industry, 16.1 M(m³) for electricity generation, and, finally, 16,097 m³ for public service activities. In the free market, the average consumption of households (764 m³) was slightly higher than in the market with a reference price (743 m³), while in the case of condominiums, the average consumption in the free market, at 15,583 m³, was more than twice as high as in the standard offer market, at 7,412 m³.

The portion of volumes purchased on average on the free market is 67.8%, that of the market with a reference price is 7.8%, while 24.4% is self-consumed. Considering sales in the strict sense and thus excluding self-consumption, 89.7% of gas is purchased on the free market and the remaining 10.3% in the standard offer service.

In terms of customers, however, 34.6% purchase on the market with a reference price, while 65.4% on the free market.

Considering only the **household sector**, it can be seen that the share of volumes purchased on the free market in 2021 reached 63.9% for households and 85.2% for condominiums (both shares are calculated on total sales in the strict sense, i.e. net of self-consumption). In 2020, the values were 61% and 84%, respectively. In terms of withdrawal points, in 2020, the share of households that acquired gas in the standard offer service dropped to 36.8%; in 2020, it was 39.6%.

The breakdown of sales to the end market (net of self-consumption) by consumption sector and customer size (Table 4.10) shows that, on average, the class with annual consumption up to 5,000 m³ purchases 28.9% of all the gas sold in the retail market; that with consumption between 5,000 to 50,000 m³/year absorbs 9.3%; the third class (50,000-200,000 m³/year) 4.2%; the fourth class (200,000-2,000,000 m³/year) 9.3%; the penultimate class (2 to 20 million) 16.8%; the last class (over 20 million) 31.4%. 97.7% of the volumes sold to the household sector are purchased by households with an annual consumption of no more than 5,000 m³: this share is 97.8% for households purchasing

in the standard offer sector and 97.5% for those purchasing in the free sector. On the other hand, the largest share of volumes sold to condominiums is concentrated in the annual consumption class between 5,000 and 50,000 m³: this class, in fact, absorbs 76.1% of the gas volumes purchased by condominiums in the standard offer service and 71% of those purchased in the free market. 64% of all the gas purchased by the commercial sector is concentrated in the first three classes. Conversely, the classes with the highest annual consumption are particularly relevant for industrial consumption and thermoelectric generation. The consumption of public service activities is relatively equally distributed among the intermediate classes: 29.9% is consumed by customers with annual consumption between 5,000 and 50,000 m³, 19.3% by those with consumption between 50,000 and 200,000 m³, 28% is consumed by customers with annual consumption between 200,000 and 2,000,000 m³, another 16.9% is sold to customers consuming between 2 and 20 M(m³)/year.

Table 4.10 End market by customer type and size in 2021

SECTOR	CUSTOMERS DISTRIBUTED BY ANNUAL CONSUMPTION CLASS (m ³)						TOTAL M(m ³)
	<5,000	5,000- 50,000	50,000- 200,000	200,000- 2,000,000	2,000,000- 20,000,000	>20,000,000	
MARKET WITH A REFERENCE PRICE	5,435	390	42	0.0	-	-	5,867
Household	5,391	118	0.6	0.0	-	-	5,510
Condo households	44	272	41	-	-	-	357
FREE MARKET	11,032	4,910	2,369	5,331	9,592	17,937	51,171
Household	9,499	219	7	4	9	-	9,738
Condo households	76	1,461	437	85	0	-	2,059
Trade and services	1,257	2,223	1,049	1,631	773	147	7,080
Industry	158	803	736	3,265	7,789	6,169	18,920
Power generation	1	4	9	159	908	11,621	12,703
Public service activities	40	201	129	188	113	-	672
TOTAL	16,467	5,300	2,411	5,331	9,592	17,937	57,039

Source: ARERA. Annual survey of regulated sectors.

Switching

Also this year, the analysis of switching activity in the natural gas sector includes data collected from transmission and distribution operators through the Annual Survey of Regulated Sectors and Data from the Integrated Information System (IIS), managed by Acquirente Unico. On the basis of data provided by transmission operators and data from the IIS, the switching percentage, i.e. the number of customers¹⁸⁰ that changed supplier in the calendar year 2021, was 11.6% overall, or 13.4% when assessed on the basis of the consumption of customers who switched (Table 4.11). Compared to 2020, the percentages are increasing for all customers, with the exception of other uses. Also in 2021, the increase in household sector rates may have been affected by the imminent end of the standard offer service (although the date of the removal of price protection has been postponed several times).

¹⁸⁰ For the sake of convenience of writing, customers are referred to generically in the text. It should be noted, however, that we are talking about the number of redelivery points in the case of transmission users and the number of metering units in the case of distribution users.

Table 4.11 Final customer switching rates

CUSTOMERS BY SECTOR	2020		2021	
	CUSTOMERS	VOLUMES	CUSTOMERS	VOLUMES
Household	10.1%	11.4%	11.5%	13.2%
Condo households	9.4%	10.4%	11.0%	13.1%
Public service activities	12.8%	9.2%	23.6%	20.0%
Other uses	12.5%	23.8%	11.6%	13.9%
TOTAL	10.2%	20.4%	11.6%	13.4%

Source: ARERA. Annual survey of regulated sectors.

The changes in supplier of households in 2021 grew by one percentage point, confirming, indeed increasing the already significant liveliness recorded in 2018, after several years during which it had somewhat attenuated. Last year, about 2 million 500,000 customers, equivalent to a share of 11.5% (and corresponding to a volume share of 13.2%), switched at least one. Slightly smaller, at 11%, was the fraction of condo households that turned to another supplier, for volumes corresponding to 13.1% of the relevant consumer sector.

23.6% (equivalent to 20% in terms of volumes) of the entities operating a public service activity chose to switch to a new supplier; this is a high rate, but this is one of the "hybrid" categories that includes very different realities: not only small municipal offices (which are similar in consumption values to commercial establishments) but also large hospital complexes, which have very significant annual consumption and which, as a result, can greatly increase the volumes involved in switching. Non-household users (excluding public service activities) who changed their supplier accounted for 11.6% of the total in terms of redelivery points, and 13.9% in terms of volumes, showing less liveliness than in previous years.

Table 4.12 Switching rates by territory and customer type in 2021

TERRITORY	HOUSEHOLD		CONDO HOUSEHOLDS		OTHER USES		ACT OF PUBLIC SERVICE		TOTAL	
	CUSTOMERS	VOLUMES	CUSTOMERS	VOLUMES	CUSTOMERS	VOLUMES	CUSTOMERS	VOLUMES	CUSTOMERS	VOLUMES
	ERS	MES	ERS	MES	ERS	MES	ERS	MES	ERS	MES
NORTH	11.9%	13.1%	9.3%	11.3%	10.4%	17.8%	21.6%	18.7%	11.8%	16.6%
CENTRE	11.6%	13.6%	16.1%	21.4%	14.7%	6.6%	24.7%	22.8%	11.8%	9.3%
SOUTH AND ISLANDS	10.3%	13.1%	12.6%	10.7%	14.2%	1.5%	28.0%	21.5%	10.5%	2.0%
ITALY	11.5%	13.2%	11.0%	13.1%	11.6%	13.9%	23.6%	20.0%	11.6%	13.8%

Source: ARERA. Annual survey of regulated sectors.

The switching levels at territorial level, with details also by customer type, are shown at Table 4.12. Households located in the North show in 2021 a higher liveliness than the rest of Italy, with switching rates in terms of customers that on average are higher than the national average; the Northern rates are on average 11.9% in terms of customers and 13.1% in terms of volumes, against a national average of 11.5% (customers) and 13.2% (volumes). In the Centre, the switching rate in terms of customers is 11.6%, only a tenth of a point higher than the national average, but in terms of volumes, the gap on the national average rises to four tenths of a point. In the South and Islands, on the other hand, switching rates, in terms of customers, are lower than the national average, although not too far off, and in line with the national average in terms of volumes.

The switching of condo households in the Central regions is on average the highest in 2021, both

when assessed through redelivery points (16.1% against the national average of 11%), but even more when assessed through volumes (21.4% against the national average of 13.1%). In public service activities, the rates in the South are the highest in terms of customers (28% against 23.6% of the national average), while in terms of volumes, they are high but lower than those in the Centre. Finally, in the other uses, a fairly homogeneous switching activity is observed between the different areas in terms of customers, 11.6% of whom on average change supplier at least once a year. In terms of volumes, however, there are significant differences between the areas where the largest movements are made in the North.

Available offers and sales contracts in the free gas market

As already highlighted in Chapter 3 (see section 3.2.2), also this year the *Annual Survey on the Regulated Sectors* asked the suppliers of electricity and natural gas a number of questions aimed at assessing the quantity, types and modalities of supply that companies make available to customers who have chosen to be supplied in the free market and, above all, the distribution of their customers between the different types of contract actually chosen. The panorama of commercial offers available on the free market constitutes a very complex and varied reality, which has been joined for some years now by PLACET offers (Free price offers under uniform contractual conditions)¹⁸¹. The figures commented below on the types of contracts chosen by customers in 2021, therefore, also include PLACET contracts, but do not distinguish them.

As in previous years, the target of the questions posed to the suppliers on the quantity and quality of the commercial offers then actually chosen by the customers was to classify the numerous offers on the market, albeit not completely exhaustive of reality. The results presented in these pages should be treated with caution. On the other hand, the consolidation of the results, after a number of years in which the questionnaire on the offers and contracts chosen by customers is submitted to the suppliers, also makes it possible to display the results obtained with regard to non-households.

The **average of the commercial offers** to customers is 11.8 for households, 5.8 for condo households and 13.8 for non-households. The latter, of course, enjoys greater choice, being a generally more important customer in terms of volumes consumed and certainly with more differentiated needs than a household customer. Compared to the 2020 figures, the number of available offers increased slightly for households and decreased slightly for non-household ones (10.8 for households, 6.8 for condominiums and 15.1 for non-households). However, 15.6% of suppliers only submit their households one offer, 35.1% make up to three offers available and the remaining 49.4% of suppliers submit their customers a range of four offers or more. Compared to 2020, the numbers of business recommendations have not changed much.

Of the 11.8 offers made available to the household on average, 6.1 are only **available** on-line, i.e. only through the Internet, a sales channel through which the company can clarify its offer conditions while saving on operating costs (4.6 in 2020). The interest of households in on-line offers in 2021 declined slightly, as it turned out that only 7.2% of customers signed a contract offered via this modality (in 2020, this share was 7.9%). Considering condominiums, instead, of the 5.8 offers on average proposed to these customers, 3.6 are subscribed through the network and, on the basis of the results collected, only 4.6% of the redelivery points of condominiums actually subscribed the contract on-line. Finally, in the case of non-households (other uses), of the 13.8 offers made available

¹⁸¹ For a description of these offers, see the section on the free electricity market in Chapter 2 of this Volume.

to them on average, only 4.7 are subscribed to on-line, which is fairly logical considering that non-households have needs that are often difficult to standardise in an offer made over the Internet; among these customers, however, the success of on-line offers is significant, since 39% of customers are reported to have subscribed to an offer on-line.

With regard to the preferred **type of price** (Table 4.13), it was found out that 72.7% of households signed a fixed-price contract in the free market (i.e. with the price not changing for at least one year from the time of signing), while 27.3% chose a variable-price contract, i.e. with the price changing at a time and in a way determined by the contract itself¹⁸². The percentages are reversed in the case of condominiums, among which variable-price contracts are by far the most popular ones, while less than a third of customers chose fixed-price contracts. Non-households, on the other hand, are roughly divided in half between those who prefer variable-price contracts, which are slightly more numerous (56.3%), and those who, on the other hand, have signed a fixed-price contract (43.7%). Looking at the supply cost component of the price of these contracts, it can be seen that variable-price contracts are less convenient for all types of customers. However, the differential with a fixed-price contract is larger for condominiums, while it is relatively small for households.

These results are in line with expectations, considering that in 2021 the price of raw material gas has risen significantly starting from the second half of the year; therefore, it is very likely that the existing fixed-price contracts (signed at times when the price of raw material was low) were less affected by price increases.

Table 4.13 Contracts for the supply of natural gas in the free market in 2021 by price type and average price

CONTRACTS	HOUSEHOLDS		CONDOMINIUMS		NON-HOUSEHOLDS	
	SHARE	PRICE ^(A) c€/m ³	SHARE	PRICE ^(A) c€/m ³	SHARE	PRICE ^(A) c€/m ³
Fixed-price contracts	72.7%	43.73	27.9%	34.63	43.7%	33.85
Variable-price contracts	27.3%	48.12	72.1%	41.12	56.3%	43.63
TOTAL CUSTOMERS	100%	45.09	100%	41.21	100%	40.23

(B) Supply cost component.

Source: ARERA, Annual survey on regulated sectors.

For all types of customers, the most frequent price **indexation modality** in variable-price contracts is that linked to one of the components established by the Authority for the economic conditions of supply of the standard offer service, chosen by 56.4% of households by almost three quarters (73.3%) of the redelivery points of condo households and by 56.3% of the redelivery points for other uses; the other most common indexation method is linked to the gas price trend at the TTF (Title Transfer Facility), chosen by 34.2% of households, by 13.7% of condominiums and by 26.2% of non-households. In all cases, moreover, in 2021, the former was more convenient than the average of all variable-price contracts, while the latter led to a higher average value of the supply component than the average of all indexed contracts.

4% of households served on the free market have signed a contract with a **minimum contractual duration clause**, meaning that the customer does not have to change supplier for a minimum

¹⁸² All of the information requested from suppliers relates to contracts in force in 2021 regardless of the year in which they were signed: in other words, the count of the redelivery points that have signed them, the energy sold and the average price indicated by suppliers are those relating to customers who were served during the year even under a contract signed in previous years (but not expired).

amount of time specified in the contract in order for the price to be applied. Much lower percentages are recorded among other types of customers: the clause is applied to 1.7% of contracts to condominiums and 2.1% of contracts to non-households

35.1% of households have signed a contract providing for a **rebate or a discount** of one or more free periods or a fixed sum in money or volume, which may be one-off or permanent, and possibly provided for when a certain condition is met (e.g. discount for contracts signed by friends of the customer, discount for bank account clearance, etc.); on average, the discount is applied to 40.2% of customers who have chosen a fixed-price contract and to 21.4% of customers who have chosen a variable-price contract. Lower percentages are to be found for other customers: 14% of condominiums have signed a contract with a discount (30.3% with fixed price and 7.6% with variable price), while in the case of non-households, those with a contract with a discount in any form are 14.4% of the total (19.2% with fixed price and 10.7% with variable price).

In the *2021 Annual Survey*, the presence of **additional services** in contracts and their consistency was also investigated. The additional services that suppliers could select were as follows:

- 100% green energy guarantee;
- auxiliary energy services (e.g. digital and collaborative tools to control energy consumption and costs, tools to increase energy efficiency, professional services such as telephone assistance, plant maintenance, energy plant insurance, etc.);
- advantages on the purchase of other goods or services (e.g. petrol discounts, magazine subscriptions, etc.);
- other products or services offered together with gas (e.g. Internet, telephone subscription, TV subscription, insurance/financial product, etc.);
- points collection programme (own or others);
- free gift/gadget;
- other products or services offered together with natural gas (e.g. Internet, telephone subscription, TV subscription, insurance/financial product, etc.);
- a combination of additional services (specify which additional services are included in the contract, choosing from those already listed or others);
- other not included in the aforementioned items (specify).

According to suppliers, in contrast to the electricity sector, the frequency of contracts involving not a single additional service but rather a combination of additional services is not very high; in fact, it concerns about 8% of households, 0.5% of condominiums and just under 1% of non-households. In any case, also in the gas questionnaire, as in the electricity one, suppliers were asked to specify which combination of additional services was contained in the contracts chosen by their customers. Therefore, customers with contracts including a combination of additional services were reallocated *pro rata* to the additional services indicated by the suppliers.

The results obtained (Table 4.14) for households show that in the contracts signed by households, the presence of additional services is more common among fixed-price than among variable-price contracts: 60% of customers who chose a fixed-price offer sign a contract that also includes an additional service, while this percentage drops to 21.5% in variable-price contracts. In fixed-price contracts that provide an additional service, there is a clear preference (38.4%) for those that allow participation in a points programme and a good preference (8.1%) for those that offer additional energy services. With regard to the cost of additional services (measured by the component of the price that covers supply and sales costs), it can be observed that the contract for households with a fixed price and no additional services is cheaper than the contract including participation in a points

collection programme, which, as mentioned above, is almost as successful among customers; however, all other possible additional services show a lower price than the contract without additional services. For households with a variable price, on the other hand, the most popular options are the 100% green offer guarantee (8.8%) and the auxiliary energy services (5%) and immediately afterwards, participation in a points programme (3.1%); even for these customers, the contract without additional services shows one of the highest prices, surpassed only by the auxiliary energy services and the provision of other products or services offered together with gas. Considering the data of condo households, we note, and understandably so, a high lack of interest in additional services, especially in variable-price contracts: the portion of redelivery points of condominiums with a fixed-price contract and no additional services is about 71%, while it rises to 90% among those who have opted for the variable price. The contract without additional services is quite affordable for variable-price customers, while it is among the most expensive ones for fixed-price customers. Finally, as far as non-households are concerned, the choice of contracts without additional services is by far the most widespread, on average, about 90% of such customers, whether fixed-price or variable-price, choose a contract without other options. The price of such a contract tends to be affordable, however not in comparison with all the additional services available.

Table 4.14 Contracts for the supply of natural gas in the free market in 2021 by type of additional services and average price (percentage of customers having signed the indicated contracts)

CONTRACTS	HOUSEHOLDS		CONDOMINIUMS		NON-HOUSEHOLDS	
	SHARE	PRICE ^(A) c€/m ³	SHARE	PRICE ^(A) c€/m ³	SHARE	PRICE ^(A) c€/m ³
ADDITIONAL SERVICES OF FIXED-PRICE CONTRACTS						
No additional service	40.8%	43.62	81.9%	35.25	90.1%	34.07
100% green energy guarantee	2.2%	37.34	2.4%	33.55	2.2%	28.86
Auxiliary energy services	8.1%	41.06	11.0%	31.67	3.0%	24.45
Advantages over the purchase of other goods or services	3.7%	37.07	2.6%	31.55	0.5%	31.51
Other products or services offered together with gas	4.4%	38.81	0.6%	30.37	0.9%	32.49
Points collection programme	38.7%	46.19	0.3%	33.44	2.5%	40.85
Free gift or gadget	1.9%	41.15	0.9%	32.37	0.4%	33.78
Other not included in the aforementioned items	0.4%	45.86	0.4%	36.18	0.4%	29.93
TOTAL FIXED-PRICE CONTRACTS	100%	43.74	100%	34.62	100%	33.85
ADDITIONAL SERVICES OF VARIABLE-PRICE CONTRACTS						
No additional service	78.5%	48.67	70.9%	40.34	88.8%	43.69
100% green energy guarantee	8.8%	45.28	1.3%	72.02	4.2%	69.39
Auxiliary energy services	5.0%	50.85	26.9%	42.01	4.7%	38.42
Advantages over the purchase of other goods or services	1.0%	44.19	0.0%	36.00	0.7%	26.74
Other products or services offered together with gas	0.7%	52.50	0.0%	62.95	0.0%	65.81
Points collection programme	3.1%	43.78	0.0%	34.93	0.7%	68.42
Free gift or gadget	0.4%	42.57	0.2%	46.38	0.0%	40.35
Other not included in the aforementioned items	2.6%	41.31	0.7%	42.86	0.9%	30.61
TOTAL VARIABLE-PRICE CONTRACTS	100%	48.13	100%	41.11	100%	43.63

Source: ARERA. Annual survey of regulated sectors.

Concentration in the natural gas retail market

The analysis of the sales performance of corporate groups, instead of those of individual companies, allows a more accurate assessment of market shares and the level of concentration in the end sale market (Table 4.15).

No variations emerged in the top four positions of the end market, in which Eni, Edison, Enel and Hera remain firm. As in 2020, the Eni group's share decreased by about one percentage point, from 18.4% to 17.1%, because the group's sales fell by almost half a billion cubic meters (-4%). By contrast, the shares of the Edison and Enel groups have grown slightly: from 13.5% to 13.9% for Edison and from 11.8% to 12.4% for Enel. This was due to a clearly positive sales result of both groups: compared to 2020, the quantities placed on the retail market by the Edison group grew by 5.9%, while those sold by the Enel group increased by 8.5%. Thus, both the distance between Eni and Edison and that between Edison and Enel have shortened compared to 2020. In particular, that between the Eni and Edison groups decreased to 3.2% (in 2020 it was 4.9%), and that between the Edison and Enel groups decreased to 1.5% from 1.8% in 2020. Sales of the Hera group also increased significantly, by 9.2%. However, the gap between this and the Enel group remains wide (just under seven percentage points).

Table 4.15 Top twenty groups by end-market sales in 2021

GROUP	VOLUME M(m ³)	SHARE	POSITION IN 2020
Eni	9,775	17.1%	1st
Edison	7,929	13.9%	2nd
Enel	7,058	12.4%	3rd
Hera	3,293	5.8%	4th
Energetický a Průmyslový Holding	2,711	4.8%	6th
Iren	2,621	4.6%	5th
A2A	2,517	4.4%	7th
Axpo Group	1,782	3.1%	10th
Royal Dutch Shell	1,475	2.6%	9th
Sorgenia	1,451	2.5%	8th
Estra	1,166	2.0%	11th
E.On	952	1.7%	13th
Unoenergy	852	1.5%	14th
Engie	821	1.4%	12th
Solvay	620	1.1%	15th
Eg Holding	600	1.1%	16th
Aimag	559	1.0%	38th
Dolomiti Energia	532	0.9%	17th
Egea	524	0.9%	18th
Alperia	498	0.9%	20th
Other	9,302	16.3%	-
TOTAL	57,039	100.0%	-

Source: ARERA. Annual survey of regulated sectors.

Concentration in the final sales market in 2021, on average across all sectors, decreased slightly. However, trends differentiated between sectors. Table 4.16 shows the details of the concentration measures also broken down by consumer sector. In the first part of the table, metering is calculated from the volumes sold by the corporate groups in the retail market; in the second part of the table,

metering is calculated from the customers (redelivery points) served by the corporate groups themselves.

Using metering calculated on the volumes sold, it can be seen that the number of groups with a share of the total market of more than 5% remained unchanged at 4. Moreover, in 2021, the top three groups control 43.4%, while in 2020 the share was 43.7%. The Herfindahl-Hirschman Index (HHI) calculated on the sales market was 782, only slightly lower than the 2020 index, which was 788. However, the level of the index remained well below the 1,000 threshold below which concentration is normally judged to be poor.

Table 4.16 Concentration metering in the natural gas retail market

Metering calculated on corporate groups

SECTOR	2020			2021		
	GROUPS >5%	C3	HHI	GROUPS >5%	C3	HHI
METERING CALCULATED ON THE BASIS OF ENERGY SOLD BY CORPORATE GROUPS						
HOUSEHOLDS	4	48.4%	957	4	47.3%	928
Households	4	53.1%	1,139	4	51.8%	1,100
Condo households	4	36.3%	640	4	38.1%	734
NON-HOUSEHOLDS	5	52.9%	850	4	44.5%	857
Trade and services	5	30.5%	507	6	33.5%	563
Industry	4	59.9%	1,515	4	59.8%	1,536
Power generation	6	50.5%	1,253	6	57.8%	1,477
Public service activities	4	52.6%	1,207	3	43.7%	853
TOTAL MARKET	4	43.7%	788	4	43.4%	782
HOUSEHOLDS	4	54.3%	1,249	4	54.4%	1,245
Households	4	54.5%	1,258	4	54.6%	1,255
Condo households	5	40.9%	742	5	40.7%	723
NON-HOUSEHOLDS	4	37.1%	586	4	37.0%	583
Trade and services	4	36.4%	575	4	36.7%	581
Industry	3	43.2%	835	5	42.1%	813
Power generation	5	49.6%	1,203	4	68.5%	2,155
Public service activities	3	34.4%	530	3	36.1%	580
TOTAL MARKET	4	53.3%	1,199	4	53.4%	1,195

Source: ARERA. Annual survey of regulated sectors.

Larger reductions in the level of concentration are observed (via C3 and HHI indicators) in the household and public service sector; on the contrary, an increase in concentration emerges for condominiums and electricity generation. When measured in terms of customers served, concentration tends to rise in almost all sectors: the only exceptions are industry and public service, as well as the non-household sector as a whole.

However, it should be noted that the level of concentration in the Italian natural gas market remains generally low: with a few exceptions, C3 does not exceed 55%, but above all, the HHI index values

are, in almost all sectors, below the first attention threshold of 1,500¹⁸³.

4.2.2.1 Monitoring of the retail market price level, the level of transparency, the level and effectiveness of market opening and competition

As already described in detail in Chapter 3 (see section 3.2.2.1, to which reference is made) on the subject of sales prices in the electricity and natural gas retail markets, the Authority has two readings:

- that of the *Average prices charged in the electricity and natural gas market* carried out pursuant to Resolution 168/2018/R/com of 29 March 2018, in which, on a half-yearly basis, quarterly data is collected on the prices billed¹⁸⁴ by suppliers to households and non-households, broken down into consumption classes and by type of market;
- that carried out as part of the *Annual Survey of Regulated Sectors*, in which data is collected for the previous year and broken down according to various categories of detail (type of market, sector and consumption classes, type of contract applied).

The data from the *Annual Survey* are used for the statistical analyses carried out by the Authority, especially those presented in the annual reporting to national and European authorities.

An analysis of the data collected in the Survey run by the Authority in 2021 shows that last year, the average gas price net of taxes (weighted by quantities sold), charged by sales companies to final customers was 52.3 c€/m³ (Table 4.17), an unprecedented level in the last decade. This price was 33.9 c€/m³ in 2020; therefore, there was an increase of 12.3 c€/m³ in the last year, equivalent to 54.4%. The increase occurred in the year of the strongest increases in the cost of raw materials in the wholesale markets. It involves all consumption classes and to a greater extent the larger ones, which are more sensitive to price fluctuations in international markets.

Table 4.17 Average market retail sales prices (net of taxes)

ANNUAL CONSUMPTION CLASS	PRICES (c€/m ³)									
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Less than 5,000 m ³	60.3	61.2	58.8	55.7	51.7	52.1	58.3	63.4	58.1	65.9
Between 5,000 and 50,000 m ³	50.0	51.3	46.9	46.0	42.1	43.1	48.4	50.7	43.7	55.0
Between 50,000 and 200,000 m ³	48.3	44.4	41.4	41.0	37.0	36.2	43.7	44.7	37.3	48.8
Between 200,000 and 2,000,000 m ³	41.1	36.6	35.0	32.5	28.3	26.8	31.4	33.8	27.3	38.5
Between 2,000,000 and 20,000,000 m ³	36.9	33.8	34.0	28.0	24.2	23.0	26.5	28.2	21.9	35.1
More than 20,000,000 m ³	36.8	32.7	32.2	26.5	21.8	24.3	29.2	22.4	16.9	52.8
TOTAL	45.5	44.0	42.3	38.9	33.8	34.3	40.0	39.2	33.9	52.3

Source: ARERA. Annual survey of regulated sectors.

Table 4.18 shows the cross-section of average prices in 2021 by size and type of customer. The overall average for each customer type (shown in the last column on the right) depends on the distribution of volumes sold among the size classes. Households, characterised by the prevalence of lower unit

¹⁸³ An HHI value between 1,500 and 2,500 indicates a moderately concentrated market, while a value above 2,500 indicates a highly concentrated one (the maximum value of the index is 10,000).

¹⁸⁴ More precisely, these are average unit turnovers obtained from the ratio of revenues collected to the quantities of energy billed in the reference quarter.

consumption (and thus a higher incidence of fixed charges), have a higher total average price (65.49 c€/m³), while for the opposite reason, industry has a lower total price (39.9 c€/m³). Condominiums, public service, commercial activities and power generation are in an intermediate condition.

Table 4.18 Retail market sales prices (net of taxes) by consumption sector and customer size in 2021

SECTOR	CUSTOMERS DISTRIBUTED BY ANNUAL CONSUMPTION CLASS (m ³)						TOTAL (c€/m ³)
	<5,000	5,000-50,000	50,000-200,000	200,000-2,000,000	2,000,000-20,000,000	> 20,000,000	
Household	65.7	52.2	50.4	44.6	-	-	65.4
Condo households	66.0	57.1	55.2	49.9	-	-	56.9
Public service activities	70.5	54.3	46.2	36.8	33.8	-	45.3
Trade and services	66.6	54.9	48.0	39.7	36.2	36.1	50.0
Industry	70.9	52.5	46.3	37.8	34.5	44.6	39.9
Power generation	64.1	46.5	43.0	36.1	39.0	57.4	55.8
TOTAL	65.9	55.0	48.8	38.5	35.1	52.8	52.3

Source: ARERA. Annual survey of regulated sectors.

Table 4.19 shows price trends since 2011 for households (households and condominiums) with consumption up to 200,000 m³/year, broken down according to the main contractual conditions under which supply can take place, i.e. the standard offer service and the free market, with details by size class.

Table 4.19 Retail prices (net of taxes) to households by consumption class and market type in 2021

ANNUAL CONSUMPTION CLASS AND MARKET	PRICES (c€/m ³)									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Less than 5,000 m³										
Free market	62.0	65.3	64.0	61.5	58.4	56.8	60.4	65.9	62.7	67.7
Standard offer service	60.4	60.1	56.8	52.8	47.7	48.2	55.8	60.4	51.0	62.3
Difference	2.6%	8.5%	12.8%	16.6%	22.6%	17.9%	8.3%	9.0%	23.1%	8.6%
Between 5,000 and 50,000 m³										
Free market	51.7	55.0	51.7	47.1	46.1	45.8	51.3	53.5	46.1	57.9
Standard offer service	46.9	50.7	43.4	44.7	37.8	39.2	46.4	48.9	39.6	49.3
Difference	10.3%	8.4%	19.2%	5.5%	22.2%	17.0%	10.6%	9.4%	16.2%	17.6%
Between 50,000 and 200,000 m³										
Free market	50.9	47.9	49.8	45.8	42.8	41.9	48.2	49.3	41.3	56.2
Standard offer service	50.2	49.4	40.3	40.9	36.0	36.1	45.2	45.0	36.7	43.9
Difference	1.4%	-3.1%	23.6%	12.0%	18.9%	16.3%	6.5%	9.5%	12.5%	28.0%

Source: ARERA. Annual survey of regulated sectors.

In general, a lower cost-effectiveness, on average, of the free market is also confirmed for 2021. With regard to smaller customers (up to 5,000 m³/year, mostly single households), in all years, the free market has higher values than the standard offer service. On average, the difference is 13%, with a minimum of 2.6% in the first year and a maximum of 23.1% in 2020. In the last year, the difference narrowed to 8.6%, probably due to the strong dissemination in the free market of locked-price contractual formulas, which delayed the transfer to final customers of the significant growth in international gas raw material prices that occurred in 2021.

The class of customers with consumption between 5,000 and 50,000 m³/year (mainly condominiums) also has higher prices in the free market, with no narrowing of the differential in the last year.

A similar trend is recorded for larger customers (consumption between 50,000 and 200,000 m³/year, almost exclusively condominiums), with the exception of 2013 when the free market was cheaper (-3%). It should be noted that this is a marginal size class for household consumption.

The development over the past year is due to the fact that while in the standard offer service, all size classes show a fairly similar percentage increase of around 20%, in the free market, the development is clearly differentiated and ranges from an 8% increase for smaller customers to a 36% increase for larger customers.

The price differences found between the two markets may also depend on other factors. In particular, consideration should be given to what is indicated in the section on the free market, regarding the presence of commercial offers characterised by the joint purchase of the energy supply and other goods or services of various kinds (assistance services, maintenance, insurance policies, telephone services, discounts in supermarkets or on fuel, etc.) as well as different durations and activation dates.

Monitoring of the level of transparency including compliance with transparency obligations and of the degree and of the efficiency of market opening and competition.

The retail market monitoring system is common between the electricity and natural gas markets. Therefore, please refer to section 3.2.2.1 in which the Annual Report illustrating the main outcomes of the retail market monitoring activity with reference to 2021¹⁸⁵ is presented, describing, where possible, the evolution of the relevant phenomena in all the years in which it was carried out (2012-2020) and the new half-yearly monitoring reports on the electricity and gas retail markets prepared for the Ministry of ecological transition¹⁸⁶.

Complaints related to the commercial quality of the natural gas sales service and compensation

The rules for the protection of final customers and the commercial quality indicators that all electricity and natural gas sales companies are required to comply with, and which are monitored by the Authority, are set out in the Integrated Text Regulating the Quality of Electricity and Natural Gas Sales Services (TIQV) as described in section 3.2.2.1. Also in connection with the sale of natural gas, as in the electricity sector, if the supplier does not comply with specific standards, the customer automatically receives compensation, at the time of the first useful billing. The basic automatic compensation (Euro 25) doubles if the performance of the indemnified service takes place beyond twice the standard time and triples if the performance takes place beyond three times the standard time or more.

For 2021, a total of 380 suppliers reported on the commercial quality of sales services in the gas sector, who stated that they serve a total of 19.6 million final customers supplied with low-pressure

¹⁸⁵ Report of 21 December 2021, 605/2021/I/com.

¹⁸⁶ Report 327/2021/I/com and 37/2022/I/com.

gas.

Analysing the data on the actual average time for services requested by customers in 2021, for responses to complaints and bill adjustments the times stood at 17.70 and 29.23 calendar days respectively, below the minimum standards set by the Authority. With regard to average double-bill adjustments, against the standard set at 20 calendar days, the actual average correction time was 18.04 calendar days. The actual average response time for information requests, with an average of 6.48 calendar days, is also well below the overall standard (Table 4.20).

Table 4.20 Sales service standards and actual average times in the natural gas sector in 2021

PERFORMANCE	SPECIFIC STANDARDS	OVERALL STANDARDS	ACTUAL AVERAGE TIMES
	(calendar days)	%	
Maximum time for a reasoned response to written complaints	30	–	17.70
Maximum time for bill adjustments	60 or 90 ^(A)	–	29.23
Maximum time for double bill adjustments	20	–	18.04
Minimum percentage of replies to written requests for information sent within the maximum time of 30 calendar days	–	95	6.48

(A) 90 calendar days in the case of four-monthly invoices.

Source: ARERA on data declared by operators.

Sales companies serving the free natural gas market and the one with a reference price received a total of 156,407 written complaints, a decrease from the previous year (-9.1%) (Table 4.21). The majority of written complaints (84.8%) came from households. Written complaints referring to free market customers account for 74.1% of the total. Gas customer requests for information in 2021 totalled 133,063, an increase of 9.9% compared to the previous year; 75% of the requests concerned free market customers and, in particular, household ones. The number of written bill adjustments amounted to 11,400, a decrease compared to the previous year (-30.9%); the number of adjustments requested by households (81.4% of the total), both in the free market and in the market with a reference price (equal to 59% and 22.4% respectively) was significant. As in previous years, the phenomenon of double bill adjustments involved an extremely low number of cases (607), further decreasing compared to 2020 (-28.5%), especially when considering the total number of invoices issued during the year; significant, out of the total number of double bill adjustments, were the requests received from households in the free market (74%).

Table 4.21 Complaints, requests for information and bill adjustments

	2017	2018	2019	2020	2021
Number of complaints	216,704	194,074	197,928	172,004	156,407
Number of requests for information	99,300	86,728	107,937	121,054	133,063
Number of bill adjustments	44,217	20,587	19,325	16,487	11,400
Number of double bill adjustments	3,767	3,113	2,256	849	607

(A) Partial data referring to 64% of gas customers.

Source: ARERA processing of data from the Energy Consumer Help Desk.

In 2021, there were 17,885 cases of non-compliance with the standards set for services relating to the commercial quality of sales in the gas sector, which resulted in customers being entitled to compensation, a slight increase of 5.2% compared to the previous year; as in the electricity sector, the highest number of compensation cases in the gas sector was attributable to non-compliance

with the standards for responses to customer complaints (91.7%). The market segment with the highest number of compensations overall is that of households in the free market, accounting for 58.8%. During the year, compensation for gas customers totalling more than Euro 785,000 were made, a slight increase over 2020 (+3.3%). Similarly to the electricity sector, automatic compensations paid directly in the bill in the natural gas market, 92% of the compensation were paid for failure to respond to written complaints.

In the gas sector, the main subjects of complaints of company responsibility were, in 51.28% of cases, billing and everything concerning consumption and invoiced amounts, self-reading, billing periodicity, including the closing invoice, payments and refunds; in 12.46% of cases, the events of the contract, such as withdrawal, change of header, transfer and taking over (completion and related costs); in 9.84% of cases, complaints related to non-payment of bills and suspension; in 9.81% of cases, the market, such as the procedures for concluding new contracts, the timing of switching and the economic conditions proposed by the supplier in the offer compared to those provided for in the contract and applied. In 7.04% of the cases, complaints were related to metering; in 4.08% to connections, works and technical quality; in 2.19% to commercial quality; in 0.76% to the social bonus; and in 2.41% they concerned other residual topics not related to the previous categories. Finally, 0.13% of the complaints were related to further topics outside the suppliers' competence.

In 2021, **customers with dual fuel contracts** sent 27,714 written complaints, down 14.2% year-on-year, and 27,511 written requests for information, also down 6.9%. Bill and double-bill adjustments amounted to 1,667 (-32.6%) and 69 (-46.1%) respectively. Overall, there were 2,204 cases of non-compliance with standards that resulted in the right to automatic compensation in the bill for services related to the commercial quality of sales. 88.3% of the non-compliance cases are attributable to responses to customer complaints exceeding the standards in force. Also with regard to the amounts paid to customers for automatic compensations, the prevalence of cases is related to failure to comply with response times to complaints (89.5%); to a lesser extent, bill adjustments (7.6%) and double bill adjustments (3%). Overall, compensation amounting to Euro 96,975 was paid to the dual fuel customer segment.

The topics that generated complaints of direct responsibility of the sales companies for dual fuel customers most frequently concerned in 45.3% of cases, billing and everything related to consumption and the amounts billed, self-reading, billing frequency, including the closing invoice, and the making of payments and refunds; in 17% of cases, the modalities for concluding new contracts, the timing of switching and the economic conditions proposed by the supplier in the offer compared to those provided for in the contract and applied; in 10.9% of cases, the events of the contract, such as withdrawal, change of header, transfer and taking over (completion and costs). Complaints related to non-payment of bills and suspension accounted for 10%, while those related to metering accounted for 7.3%. In the rest of the cases, the complaints concerned connections, work and technical quality, commercial quality, social bonus, and other residual topics, which did not fall under the previous categories.

4.2.2.2 Recommendations on final sales prices, investigations, inspections and imposition of measures to promote competition

Measures to promote competition and recommendations on final sales prices

The Authority's activities in the area of analysis and recommendations on final sales prices are common to the electricity and gas sector and have already been described in detail in section 3.2.2.2

(to which reference is made).

Conducting investigations, inspections and imposing measures for the effective promotion of competition

With reference to the activities in 2021, see also section 3.2.2.2. In addition to the activities common to electricity, it should be noted that in 2021 the Authority closed 5 sanctioning proceedings with the imposition of an equal number of sanctions, namely three sanctions for violation of the obligation to participate in conciliation procedures (for a total amount of Euro 35,000), a sanction worth Euro 1,495,000 for having charged final customers for mailing paper invoices, and another of Euro 33,750 for violations of communication standards between entities operating in the natural gas sector.

4.3 Security of supply

Legislative Decree no. 93/11, in implementing the Third Energy Package, assigns the functions and competences referred to in this section of the Annual Report to the EC (i.e. monitoring the balance between energy demand and supply, forecasting future demand and available supply, additional capacity and measures to cover peak demand or supply shortfalls) exclusively to the Ministry of Economic Development.

5 CONSUMER PROTECTION AND DISPUTE RESOLUTION

5.1.1 The protection system: dealing with final customer complaints (basic level)

The customer standard offer system in the sectors regulated by the Authority consists of two macro-areas: the first concerns information and assistance to customers (basic level); the second concerns the resolution of issues and disputes that may arise between customer and service supplier. The activities related to the basic level, described below, are carried out nationwide by Acquirente Unico, on behalf of the Authority¹⁸⁷, through the Energy and Environment Consumer Help Desk (the Help Desk). The activities related to the basic service are represented by the responses of the Help Desk to:

- calls to the call centre,
- written requests for information,
- requests for the activation of special information procedures,
- second-level complaints.

An overview of the volumes processed by the protection system in 2021 and, in particular, of those entering the Help Desk is given at Table 5.1.

Table 5.1 Protection system: input volumes at the Help Desk and second level activities for energy sectors

ACTIVITIES	2021
Basic level (information and assistance)	(A)
Calls to the <i>call centre</i> 800.166.654 (received during working hours)	605,608
Written requests for information	18,834
Requests for activation of special information procedures	43,756
Second-level complaints redirected with information on conciliation	2,041
Second level (dispute resolution)	
Requests for the activation of special settlement procedures	11,298
Requests to the Authority Conciliation Service (mandatory conciliation)	16,795
Conciliation requests to ADR entities on the Authority's List (mandatory conciliation)	1,048

(A) The Help Desk is also active for environmental sectors regulated by the Authority. Only information on the energy sectors (electricity and natural gas) is included in the table.

Source: Energy and Environment Consumer Help Desk processing.

In 2021, 630,083 calls were received at the Help Desk call centre during working hours, a sharp increase (+31%) compared to 2020; of these, 563,816 were handled and 66,267 were dropped by customers without waiting for the operator to answer. Compared to 2020, both the average waiting time (229 seconds vs 174) and the average conversation time (241 seconds vs 227) increased, due to the pressure on the call centre from the sharp increase in calls and the multiplicity of questions posed in each call. Almost all the calls handled by the call centre concerned the electricity and gas sectors (605,608, or 96% of the total).

The topics discussed in the phone calls received at the Help Desk concerned social bonuses (45%),

¹⁸⁷ Renewed from the end of 2019 for the three-year period 2020-2022, by resolution of 10 December 2019, 528/2019/E/com.

rights and regulation (30%), dispute resolution (17%), practices at the Help Desk (6%) and in the residual 2% concerned other aspects (Portale Offerte, Portale Consumi, Purchasing Groups, Gradual standard offer service). There were 17,175 contacts, almost double the number of the previous year, in which information was provided on the subject of overcoming price protections in the energy sectors.

In terms of **written requests for information**, the Help Desk received 18,834 requests for the energy sectors in 2021, 40% more than the previous year. Almost three quarters of the requests for information can be traced back to just three topics: "social bonus" (25%), "billing" (19%) and "market" (18%). This was followed by questions relating to the topics "contracts" and "non-payment of bills and suspensions", each of which accounted for 11% of the written requests for information. Concerning the most popular topic, i.e. the social bonus, questions mainly concerned the identification of indirect customers served by condominium supplies¹⁸⁸ and, more generally, the new automatic recognition mechanism. Concerning the second topic, i.e. billing, the main subtopics were estimated consumption (36%) and recalculations (30%). With regard to the "market" topic, requests mainly concerned changing suppliers (40%) and alleged unfair commercial practices (22%). Requests relating to "contracts" mainly concern transfer over and taking over (29%) and withdrawal (22%), while requests relating to "non-payment of bills and suspensions" (81%) mostly concern the first of these two items.

Special information procedures make it possible to provide information without the need for assistance of the Help Desk staff. They are operational as of 1 January 2017 only for some specific topics in the energy sectors. By means of codified information in centralised databases (Integrated Information System, Indemnity System) and an "automatically applicable" case regulation, the Help Desk provides final customers or their proxies with the required information elements. Compared to the previous year, in 2021, requests for the activation of special information procedures increased by 36% to a total of 43,756 cases, broken down as follows: 70% for the electricity sector, 20% for the gas sector and 10% for both sectors; this breakdown is almost the same as the previous year. Most of the requests (44%) concern the identification of the "unknown supplier" in the case of a transfer, followed by those aimed at knowing the current supplier and the date of the switchover (36%), while the remaining share (20%) concerns questions to know the supplier who requested the application of the non-payment of bills fee (C^{mor}). Compared to the previous year, the requests that increased the most in absolute terms (+5,483 cases) were those to find out about the "unknown supplier", while those that increased the most in percentage terms (+39%) were those to find out about the supplier who applied for the non-payment of bills fee (C^{mor}).

Finally, the Help Desk also received 2,234 **second-level complaints**, namely those for which the first complaint made by the customer to the supplier (or other type of service provider) did not suffice to solve the issue; in these cases, the Help Desk informs the customer of the conciliation procedures that can be used to resolve the dispute, which can be activated by resorting to the Authority Conciliation Service or to other conciliation bodies. This type also concerns almost entirely (2,041 cases, 91% of the total) customers in the energy sectors.

¹⁸⁸ Communications referred to in Article 14 of Annex B to Resolution of 23 February 2021, 63/2021/R/com.

5.1.2 The protection system: out-of-court dispute resolution (second level)

Activities relating to the second level of the protection system concern the resolution of issues and disputes arising in the relationship between the customer and the regulated service supplier. They can be settled through the special settlement procedures of the Help Desk or through conciliation procedures. The latter may be brought before the Authority Conciliation Service or ADR entities registered on the Authority's special list.

Special settlement procedures

Similarly to what happens for special information procedures (relative to the basic level of the protection system), also for settlement procedures, the Help Desk accesses information encoded in centralised databases. In contrast to information procedures, special settlement procedures allow the outcome of the dispute to be determined and imply assistance of the Help Desk staff, in case further information is needed to consult databases, or to verify the correct fulfilment of the regulation following the resolution of the dispute.

In 2021, 11,298 requests for the activation of settlement procedures were received at the Help Desk, a sharp increase over 2020 (+22%). The breakdown of requests does not show any major differences compared to the previous year. The preponderant share concerned the special "bonus" procedure (86%); this was followed (13%) by requests on the application of the C^{MOR} fee (verification of the prerequisites for its cancellation), while those on "double billing" (1%), on the "voluntary restoration procedure"¹⁸⁹ (17 cases) and those for the activation of the special settlement procedure for "failure to provide automatic compensation" due within the regulatory deadline (10 requests) were marginal.

As in 2020, the sector most affected by the special settlement procedures was electricity, with 35% of the requests (10 percentage points less than in the previous year), followed by gas with 35% (4.5 percentage points less), while the remaining 28% concerned requests for dual fuel supplies (14.5 points more than in 2020). 92% of the special settlement procedures involved households, while 88% of the requests were submitted by final customers without the help of proxies. The most frequently used modality of access is the e-mail channel, followed by the Single Portal of the Help Desk.

The Authority's Conciliation Service

The Authority's Conciliation Service is a dispute resolution tool that can be activated by final customers of electricity and natural gas for issues arising with energy operators (suppliers and distributors), in case of missed or unsatisfactory response to a complaint. The procedure takes place entirely on-line and in the presence of a third-party, impartial mediator experienced in mediation.

Any final agreement has settlement effect between the parties pursuant to art. 1965 of the Civil Code. Moreover, with the approval of art. 141, par. 6, letter c) of the Consumer Code¹⁹⁰, the attempt at

¹⁸⁹ Procedure regulated by the Integrated text on preparatory measures for the confirmation of the electricity and/or natural gas supply contract and voluntary restoration procedure, TIRV, adopted by Resolution no. 228/2017/R/com of 6 April 2017.

¹⁹⁰ Legislative Decree no. 130/15 implemented into Italian law Directive 2013/11/EU of the European Parliament and of the Council of 21 May 2013 on consumer ADR, amending Regulation (EC) 2006/2004 and Directive 2009/22/EC (the Consumer ADR Directive).

conciliation has become a condition for proceeding before the courts for disputes arising in the sectors regulated by the Authority (with the exception of tax or fiscal profiles), unless urgent and precautionary judicial decisions are taken.

The Authority, in implementation of article 141-*sexies* of the Consumer Code, has laid down specific information obligations for energy suppliers towards final customers.

In 2021, customers and end users in the energy sectors submitted 16,795 requests to the Conciliation Service, 595 more than the previous year. The sectoral breakdown of the requests received by the Service in 2021, similar to the previous year, confirms the prevalence of electricity, with a 58% share of the requests submitted (9,784 requests); followed by gas customers with 31% (5,210 requests), dual fuel customers with 10% (1,688 requests) and prosumers with 1% (113 requests).

The main modality of submission is the use of delegates other than consumer associations (42%), followed by direct submission by customers (32%) and the use of consumer associations registered with the CNCU¹⁹¹ (26%); this breakdown is also very similar to the previous year. 74% of the requests received by the Service concerned a final household customer, as in the previous two years; there is a differentiation between electricity, where this percentage is 60.5%, and gas, where it is 89%. Regarding disputes, the prevalence of billing (53%) is confirmed; followed, at a great distance, by contracts (14%) and compensation of damages (10%). Breaking down the billing data between energy segments, slightly different percentages can be identified: in electricity it accounts for 51%, in gas for 60% and for dual fuel customers it accounts for 50%. With regard to prosumers, the most recurring topic is on-the-spot trading (39%).

Concerning the outcome¹⁹² of the requests received by the Service, 80% of the cases resulted in admission to the procedure, while the procedures concluded with an agreement between the parties accounted for 70%; these percentages are in line with the previous year. It took the parties an average of 58 days to reach agreement, 5 less than in 2020, probably due to a reduced impact of pandemic waves.

Out of 7,315 questionnaires completed at the end of the conciliation procedure, 95% of those who completed them (3 percentage points lower than in 2020) were satisfied with the service; in detail, 50% were very satisfied, 18% were satisfied and 27% were fairly satisfied.

Other conciliation services

As an alternative to the Authority's Service, the final customer may make a mandatory attempt at conciliation for judicial purposes also with recourse to other parties. The Authority, in implementation of art. 141-*decies* of the Consumer Code, in December 2015 established¹⁹³ the List of Organisations Entrusted to Manage ADR (Alternative Dispute Resolution) Procedures under Title II-bis of Part V of the Code.

¹⁹¹ The National Council of Consumers and Service Users (CNCU) is the representative body of consumer and user associations at national level. It is based at the Ministry of Economic Development and is composed of consumer associations recognised according to the criteria set out in the Consumer Code (Legislative Decree 206/2005, art. 137) and a representative designated by the Unified Conference State - Cities and Local Autonomies (Legislative Decree 281/1997, Art. 8).

¹⁹² The data presented in the remaining part of the section also concerns the water sector.

¹⁹³ Resolutions of 17 December 2015, 620/2015/E/com and of 14 July 2020, 267/2020/E/com.

At 31 December 2021, 28 ADR entities were registered in the Authority's List. Of these, 7 are sectoral joint conciliation bodies - based on special preliminary agreements concluded between consumer associations and companies, 1 body operates in a single region and limited to the water sector, while the remaining 20 are cross-sectoral bodies, also operating in sectors other than those falling within the Authority's competence; among the latter, 19 are mediation bodies and, as such, also part of the Register of Mediation Bodies kept by the Ministry of Justice¹⁹⁴. All bodies are competent for energy sectors, except for the regional level.

The information provided by ADR entities shows a slight decrease in the number of conciliation requests related to the energy sectors, which fell from 1,084 in 2020 to 1,048 in 2021; this figure is also affected by the fact that 2 entities did not receive any requests for pandemic-related issues.

Almost half of the requests (44%) were submitted by the customer through a consumer association. Even with the ADR channel, the prevailing topic of disputes is billing (57%), followed at a great distance by non-payment of bills and suspension of supply (11%) and contracts (11%). The percentage of successful requests remains high (87%); the relevant procedures were concluded during 2021 in 77% of the cases, mostly (70%) with an agreement. Finally, as regards the average time to conclude procedures, there is a difference depending on the outcome: on average, 59 days in the case of an agreement (55 in 2020) and 53 days in the case of no agreement (62 days in 2020).

5.1.3 Protecting vulnerable household consumers and energy poverty

Initiatives in favour of customers in economic hardship and serious health conditions: social bonuses

Since 2009, a protection mechanism has been in place for the supplies of electricity and natural gas to households in situations of economic hardship or serious health conditions who receive a bonus, i.e. a discount on the supply of electricity and/or natural gas.

In order to bridge the gap between the potential beneficiaries and the actual bonus recipients, which has always remained at considerable levels¹⁹⁵, Decree-Law no. 124 of 26 October 2019¹⁹⁶ innovated the regulatory framework by providing, inter alia, that from 1 January 2021, bonuses have to be recognised automatically to those entitled to them¹⁹⁷ and, therefore, without the need for them to submit a special request to the Municipalities and/or to tax assistance centres. To this end, the decree provides that the Authority, having consulted the Italian Data Protection Authority, shall define (i) the modalities for the transmission of relevant information by the National Social Security Institute (INPS) to the Integrated Information System (IIS) managed by Acquirente Unico; (ii) the application modalities for the disbursement of the breaks; (iii) the modalities for the sharing of information relating to those entitled to the bonuses between the IIS and the SGAt system (Breaks Management System), in order to ensure the full recognition of other social breaks to citizens.

¹⁹⁴ Legislative Decree no. 28 of 4 March 2010 and Ministerial Decree no. 180 of 18 October 2010.

¹⁹⁵ The recommendation to provide for the transition from an "on-demand" system to a system for the automatic allocation of bonuses to those entitled to them, based on the telematic exchange of the necessary information contained in the databases of the National Social Security Institute and the Manager of the IIS and compliant with the legislation on the protection of personal data, had been put forward by the Authority, most recently, in its Recommendation Paper of 25 June 2019, 280/2019/I/com.

¹⁹⁶ Converted with amendments by Law no. 157 of 19 December 2019.

¹⁹⁷ In particular, the decree-law introduces the automatic recognition of breaks for persons whose valid ISEE is within the limits set by the legislation.

In January 2020, the Authority initiated¹⁹⁸ the proceeding for the implementation of the provisions of Decree 124/19 and in June 2020, after discussions with the subjects and operators of the supply chains concerned, the Authority outlined¹⁹⁹ its guidelines on the possible application methods of the automatic bonus recognition system, with particular reference to: criteria and modalities for the recognition of breaks; the role and responsibilities of the various subjects in each of the phases into which the automatic bonus recognition process is divided; necessary information flows between the various subjects; processes through which the automatic attribution of breaks to the entitled parties can be realised; modalities for managing the transition from the previous "on demand" system to the new automatic system.

In March 2020, the Authority adopted²⁰⁰ urgent provisions on the electricity bonus, gas bonus and water bonus in connection with the urgent measures introduced in the Country for the Covid-19 epidemiological emergency. In particular, the postponement of deadlines related to the management of bonuses has been ordered²⁰¹.

In November 2020, the outline of the implementation of the automated system, together with a legal background note and a technical illustrative note, was forwarded to the Italian Data Protection Authority for the opinion required by Decree 124/19. Following further clarifications provided by the Authority at the request of the Offices of the Authority, the latter issued its opinion on 17 December 2020.

In February 2021, the methods were therefore approved²⁰² for requesting the regime for the automatic recognition of electricity, gas and water social bonuses for economic hardship, entirely replacing the regulation of the previous "on request" system. In this way, the framework of the new implementing rules was defined and made known to the entities involved well in advance of its operation, in order to allow them to start preparing the activities (adjustment of information systems and internal procedures) necessary to make the new regime technically operational according to the time-frame defined in the decision. However, the social electricity bonus for physical hardship does not fall within the scope of the decision, which remains "on request" and continues to be managed through the SGAt system under the scope of the specific Agreement²⁰³.

In short, the new mechanism provides for the following:

- on a monthly basis, the IIS Manager receives from the National Social Security Institute the personal data of households in a state of economic hardship based on the Consolidated Declarations (DSU) certified by the National Social Security Institute in the previous month. In order to access the automatic bonus recognition proceeding, it is therefore sufficient to submit the DSU each year to obtain the ISEE (Indicatore della Situazione Economica Equivalente -

¹⁹⁸ Resolution of 28 January 2020, 14/2020/R/com.

¹⁹⁹ Consultation document of 9 June 2020, 204/2020/R/com.

²⁰⁰ By Resolution of 17 March 2020, 76/2020/R/com.

²⁰¹ In detail, communication flows functional to the management of bonuses (renewal invitation, withdrawal of subsidies) were temporarily suspended. For the period from 1 March to 30 April 2020, the continuity of bonus payments was guaranteed to citizens whose bonuses were due to expire during the suspension period and who would have renewed them within 60 days after the deadline. In April 2020, due to the continuing emergency situation, the period of suspension of deadlines was extended to 31 May 2020 (Resolution of 28 April 2020, 140/2020/R/com).

²⁰² By Resolution of 23 February 2021, 63/2021/R/com.

²⁰³ SGAt allows Italian municipalities to fulfil their legislative obligations concerning the countertrade of expenses incurred by households in difficult conditions for the supply of electricity, natural gas and water. SGAt acts on the basis of an agreement with the Authority adopted by Resolution 13/2020/R/com of 28 January 2020.

- Equivalent Economic Situation Indicator) certificate of one's household;
- the IIS carries out all the controls necessary for the recognition of energy bonuses to those entitled to them, following the processes defined in the decision (uniqueness of the bonus per household, search for the supply to be facilitated and verification of the relative eligibility requirements) and transmits to the relevant operators all the information necessary for the subsequent disbursement of the break, which takes place in the same way as under the previous "on demand" system (with the exception of the transitional provisions); the annual amount of the bonus to be paid remains defined by the Authority (differentiated according to the size of the household and, for the gas bonus, to the use and climatic area);
 - bonuses have a duration of 12 months and a start date that varies depending on the "type" of break²⁰⁴. The modalities for the application and disbursement of bonuses have been kept substantially unchanged, when fully implemented, from those in force under the previous "on demand" system, in order to avoid impacts on existing billing logic and systems;
 - the decision takes effect, in terms of the recognition of breaks to those entitled, as of 1 January 2021, consistent with the provisions of Decree-Law 124/19. Taking into account the time required for the development of the related IT systems, the mechanism becomes operational as of 1 June 2021 and the resolution defines the procedures for the recognition of any share of the 2021 bonus accrued before said date.

In the context of sharp increases in energy commodity prices in 2021, Decree-Law no. 130 of 27 September 2021 provided, *inter alia*, for the reinforcement of social bonuses for electricity and gas in order to minimise, for disadvantaged households, the increases in supply costs expected for the fourth quarter of 2021, allocating a total of Euro 450 million. The Authority immediately implemented²⁰⁵ the decree by introducing, for the period from 1 October to 31 December 2021, supplementary countertrade (referred to as "CCI") to the expenditure incurred by households in economically distressed conditions for the supply of electricity and natural gas, in addition to those already defined for 2021.

In addition to these measures, in December 2021, the Authority implemented²⁰⁶ art. 1, par. 508 of Law no. 234 of 30 December 2021 (so-called 2022 Budget Law), which provided for a reinforcement of the electricity and gas bonuses in the first quarter of 2022, in order to minimise the expected increases in expenditure for the supply of electricity and gas to economically disadvantaged households, up to the amount of Euro 912 million.

Bonuses in figures

In 2021, which was the first year with the new automatic bonus recognition mechanism, the number of citizens who obtained the **social bonus for electricity supplies** tripled compared to the previous year, from 854,900 to 2,529,566, of which 2,487,599 (+209%) for economic hardship and 41,967 (+2.2%) for physical hardship. The total amount of bonuses disbursed for the electricity sector (for economic and physical hardship) was approximately Euro 488 million, an increase of 260%.

The beneficiaries of the social electricity bonus are located 31% in the North, 16% in the Centre and

²⁰⁴ The decision also regulates the way in which bonuses are administered in cases where, during the break period, there are significant variations in the eligibility conditions or in the conditions that contribute to determining the value of the break.

²⁰⁵ Resolution of 28 September 2021, 396/2021/R/com.

²⁰⁶ Resolution of 30 December 2021, 635/2021/R/com.

53% in the South and Islands. Of the beneficiaries, 46% are households with up to 2 members, 40% with 3 or 4 members, 14% with more than 4 members.

During 2021, the break through the Purchasing Card circuit was incorporated into the new automatic system.

As of 31 December 2021, there were 41,967 households with an active bonus for the use of electrical life-sustaining equipment (hardship bonus), an increase of 921 over the previous year. The hardship bonus is divided into three bands to take into account the type of equipment used, the average hourly consumption of each type of equipment and the average hours of use per day. On the basis of these elements, certified by the Local Health Unit, the customer is assigned to one of three countertrade bands. The three bands are then further differentiated according to the committed power²⁰⁷. Depending on these elements, the value of the bonus in 2021 was in the range of Euro 203 to Euro 700 per beneficiary.

The charges related to the disbursement of the electricity bonus for economic and physical hardship are placed among the components of the general charges pertaining to the electricity system and are covered by the A_{SRIM} component, which is included in the bill for final customers in the A_{RIM} tariff component²⁰⁸, which is applied to all customers who do not benefit from the electricity bonus.

In 2021, the number of households benefiting from the **social bonus for gas supplies** due to economic hardship also tripled, from 543,963 to 1,537,884 (+183%). The amount of bonuses disbursed for the gas sector in 2021 was about Euro 209 million (+174%); this amount does not include the entitlements of households served by condominium supplies, the automatic identification process of which is ongoing. With regard to the beneficiary households (holders of direct supplies), their distribution by number of members appears similar to the electricity sector, while the territorial distribution is different, with the North (43%) prevailing, followed by the South and Islands (37%) and the Centre (20%).

In order to cover the burden resulting from the application of the gas bonus, the Authority has established, within the mandatory tariff for natural gas distribution and metering services, the GS and GST components, charged to non-households. In addition to the funds collected from customers, there are also funds from the state budget. As in the electricity sector, the amount of the bonus is defined annually, at the same time as the tariff update.

5.1.4 Guarantees for the effective protection of gas consumers: compliance with art. 41(1)(o) of Directive 2009/73/EC

Article 41(1)(o) of Directive 2009/73/EC requires the regulator, also in cooperation with other authorities, to ensure that consumer protection measures, including those in Annex 1, are effective and enforced.

²⁰⁷ For details on the operation of bonuses, see also the 2013 *Annual Report*.

²⁰⁸ Article 1 of resolution 922/2017/R/eel of 27 December 2017 provided that, as of 1 January 2018, the A_{SRIM} element of the A_{RIM} component would be applied indiscriminately to all utilities, including those entitled to the electricity bonus. The effects of this application are compensated in favour of the users entitled to the electricity bonus by increasing the same bonus by the value of the A_{SRIM} element applied to the annual reference consumption for each type of disadvantaged customer under the TIBEG. As of January 2019, this component (former A_S component) represents 2.61% of the average expenditure of the typical user.

In Italy, these measures are now fully and extensively applied.

Over time, a number of bodies of legislation have been consolidated, bringing together in an organic way all the provisions on a number of relevant subject areas, in particular:

- the Code of Business Conduct²⁰⁹;
- the Integrated Sales Service Quality Text (TIQV)²¹⁰;
- the Integrated Billing Text (ITI)²¹¹;
- the Integrated Electricity and Gas Bonus Text (TIBEG)²¹²;
- the Integrated Text on Confirmation of the Electricity and/or Natural Gas Supply Contract and Voluntary Restoration Procedure (TIRV)²¹³;
- the Integrated Conciliation Text (TICO)²¹⁴.

5.1.5 Tools available to final customers

Informative actions in view of overcoming price protections

Since 2017, the Authority has established that the operators of the standard offer and the suppliers within the gas standard offer service, as of 1 January 2018 and until the price protections as defined by the specific legislation are exceeded, had to send their customers, within the summary invoice, a special information, with content defined by the Authority, regarding the exceeding of the price protections.

During 2021, the Authority continued to define and to communicate to suppliers, on a half-yearly basis, the content of the disclosures to be made on their invoices.

The communications included in the bills issued in the first and second half of 2021 informed the final customer that changing contract or supplier is simple and free of charge and that the continuity of service is guaranteed; they also provided the elements that should prompt the customer to make use of the Authority tools aimed at making an informed and aware choice, such as the "Portale Offerte luce e gas" and the PLACET offers.

Moreover, in consideration of the entry into force of the gradual standard offer service²¹⁵, in the first half of 2021, the operators of the standard offer service, with reference only to the final customers supplied in the gradual standard offer service for the period of provisional allocation, sent²¹⁶ a specific notice in their bills that informed the customers concerned of the end of the standard offer service, directing them, for further information, to a dedicated page of the Authority's website or to the toll-free number of the Energy and Environment Consumer Help Desk.

²⁰⁹ Latest version approved by Resolution 366/2018/R/com.

²¹⁰ Latest version approved by Resolution 413/2016/R/com.

²¹¹ Latest version approved by Resolution 463/2016/R/com.

²¹² Latest version resulting from Resolution 165/2019/R/com.

²¹³ Latest version approved by Resolution 28/2017/R/com.

²¹⁴ Latest version approved by Resolution 355/2018/R/com.

²¹⁵ Regulated by Resolution of 24 November 2020, 491/2020/R/eel.

²¹⁶ As provided for in Resolution of 22 December 2020, 584/2020/R/eel.

Strengthening of the Code of Business Conduct

As part of the launch of a proceeding²¹⁷ to define, among other things, regulatory tools for the information and empowerment of final customers in the electricity and natural gas retail markets, in October 2020 the Authority approved²¹⁸ measures to strengthen the information obligations of suppliers for the benefit of final customers in the pre-contractual and contractual stages by revising the Code of Business Conduct for the sale of electricity and natural gas to final customers.

The Code of Business Conduct defines, in accordance with the provisions of the Consumer Code²¹⁹ and the EU energy directives, the rules of conduct to be observed by suppliers of electricity and/or natural gas (including their agents in any capacity) in their business relations with final customers (households and small non-households). In particular, the Authority's intervention pursued a twofold purpose:

- to improve the understandability of contractual information, including the economic conditions of offers, for the final customer;
- to increase the comparability of offers proposed by suppliers, strengthening the complementarity of information tools available to the final customer.

To this end, interventions covered three areas: the pre-contractual phase, the contractual phase and the streamlining of the provisions of the Code of Business Conduct.

Bill 2.0 update

After the consultation phase²²⁰, in June 2021 the Authority ordered²²¹ the first interventions to update the regulation of Bill 2.0, with the aim of ensuring its consistency with the other measures already regulated with a view to overcoming price protections, as well as updating the regulation on the delivery to the final customer of the summary bill by ensuring that it is effective. The Authority also ordered the establishment of a Technical Board with associations representing household consumers, small and medium-sized companies, and associations representing operators for a more organic and all-inclusive revision of the Bill 2.0 regulation, the first convocation of which took place on 26 July 2021.

Also taking into account what emerged in the Technical Board, at the end of 2021 the Authority put out for consultation²²² further guidelines concerning the regulatory documents "summary bill" and "detailed elements", in order to make, in particular, the "summary bill" more consistent with the other interventions already regulated with a view to overcoming price protections (such as the "Portale Offerte", "Portale Consumi", the new "Code of Business Conduct") and more integrated in its information content with elements functional to increasing consumer awareness, the possibility of making comparisons and comparability.

The following innovations to the summary bill were outlined in the document:

²¹⁷ Resolution of 21 May 2019, 197/2019/R/com.

²¹⁸ Resolution of 27 October 2020, 426/2020/R/com.

²¹⁹ Legislative Decree no. 206 of 6 September 2005.

²²⁰ Consultation document of 13 April 2021, 148/2021/R/com.

²²¹ Resolution of 08 June 2021, 242/2021/R/com.

²²² Consultation document of 14 December 2021, 579/2021/R/com.

- the indication of the Offer Code, for offers in the free market (in contracts concluded as from 1 July 2021). It corresponds to the code that identifies the commercial offer in the "Portale Offerte", if present;
- the inclusion of the annual expenditure incurred, indiscriminately for all customers and contract types (free market and standard offer services), after one year of supply. This item of information corresponds to the sum of the expenditure reported over the last 12 months, including only the amount due for the supply of electricity or natural gas (separating the amounts relating to the "Television subscription fee for private use" and the amounts relating to the "Other items", such as any compensation and/or amounts for additional services or products for consideration provided in the offer), and is updated in each bill;
- the revision of the criterion for determining the annual consumption incurred for all final customers;
- the updating of the regulation of expense items in order to improve the understandability of the fees applied in the summary bill, as well as to provide greater uniformity in the presentation of the expense items themselves.

In order to pursue the comparability of one's own contract with other offers on the market, without, however, burdening the information content of the summary bill, the introduction of synthetic price indicators has also been envisaged within the document of detailed elements.

PLACET offers

Increasing final customers' understanding of commercial offers is a prerequisite for their active participation in the market and is therefore a key area for action to achieve an arrangement in which the free market is the ordinary way of supply even for small customers. Consistent with this framework, the Authority has, therefore, promoted interventions aimed at increasing final customers' awareness and the transparency of contractual conditions, in order to allow their widest participation in a competitive market.

With this in mind, in July 2017, the Authority introduced²²³, the discipline of the "free price offers under unitary contractual conditions" (PLACET offers), aimed at increasing the ability of customers to assess the commercial offers present on the free market, through the identification of offer structures that are easily comparable between suppliers (since they differ only in price) and that can be separated from any additional service recommendation of the same supplier. The regulation of PLACET offers applies to small customers served in the free market, identified, for the electricity sector, with all customers (households and non-households) connected to the low-voltage network and, for the natural gas sector, with final customers (household, condominiums for household and other uses) owning points with annual consumption of less than 200,000 S(m³).

As of 31 December 2021, there were 1,952 PLACET offers in the Portale Offerte (Table 5.2).

²²³ Resolution of 27 July 2017, 555/2017/R/com.

Table 5.2 Number of PLACET offers present in the Portale Offerte as at 31 December 2021, broken down by type of final customer

SECTOR	FIXED PRICE	VARIABLE PRICE	TOTAL
Household customer	186	219	405
Non-household customer	184	213	397
TOTAL ELECTRICITY SECTOR	-	-	802
Household customer	191	210	401
Non-household customer	191	209	400
Condo households with consumption of less than 200,000 m ³	168	181	349
TOTAL GAS SECTOR	-	-	1,150
TOTAL PLACET OFFERS	-	-	1,952

Source: ARERA. Processing of data from Acquirente Unico.

5.1.6 Access to consumption data

A first guarantee of access to consumption data is provided by the billing regulation. In particular, Bill 2.0, which came into force on 1 January 2016 (see 2015 *Annual Report*), must contain data on annual consumption and its breakdown by hourly bands. Further elements can be found in the detailed bill, available on the website. In addition, by means of complaints and requests, the customer may request the data from the supplier, who will request them from the distributor.

On the other hand, given the widespread use of smart meters, particularly in the electricity sector, the final customer has at his disposal, via an electronic display, the current consumption data in terms of both energy and power consumption, as well as the consumption values broken down into peak/off-peak/mid-level hours used for the last bill.

However, the right of final customers to have their historical consumption data was made explicit by Legislative Decree no. 102 of 4 July 2014, transposing Directive 2012/27/EU. The Authority in 2015²²⁴ and in 2017²²⁵ outlined its guidelines in relation to making historical consumption data available to final customers, taking into account both the regulatory changes that have taken place and the technological developments that have occurred and, in particular, the introduction of the 2G metering system in the electricity sector.

In detail, in December 2017, the Authority provided²²⁶ that consumption data, understood as historical billing data and historical withdrawal time profile data, should be accessible through the Integrated Information System (IIS), which is already a repository of such information pursuant to Law no. 27 of 24 March 2012. Furthermore, the Authority considered it appropriate that the digital provision of data should take place through a web portal, set up by Acquirente Unico (as manager of the IIS) and accessible to the final customer with authentication through the Public Digital Identity System (SPID). Subsequent to the consultation, the provisions of the 2018 Budget Law²²⁷ came into force, which specified deadlines and time-frames within which to complete the process.

²²⁴ Consultation document of 23 April 2015, 186/2015/R/eel.

²²⁵ Consultation document of 14 December 2017, 865/2017/R/efr.

²²⁶ Consultation document of 14 December 2017, 865/2017/R/efr.

²²⁷ Law no. 205 of 27 December 2017 on "State budget for the financial year 2018 and multi-year budget for the three-year period 2018-2020".

In June 2019, the Authority therefore defined²²⁸ the way in which final customers from 1 July 2019 can access their consumption data via the **Portale Consumi** on the Authority's website²²⁹. Consumers can access, in a simple, secure and free way, data on their historical consumption, reported in summary documents, numerical tables and graphs, as well as the main technical and contractual information.

Further developments of the Portal are planned, such as the extension of the period to which historical consumption refers from 12 to 36 months, the display of withdrawn power with an indication of the maximum value, and, for customers equipped with 2G meters, the display of historical band programming for meters and the availability of consumption data with quarter-hourly detail.

A further important development is the possibility for so-called third parties to access customer consumption data. This aspect, which is essential in order to disseminate the tools for awareness of one's energy footprint, requires further investigation, which is currently underway, in order to define who can be delegated, ensure adequate protection of personal data and manage authorisation by final customers.

5.1.7 Availability of price comparison tools

Law no. 124/2017 provided for preparatory measures for the termination of the transitional price discipline. These include, *inter alia*, a strengthening of the Authority's functions, with specific reference to publicising and disseminating information on the full opening of the market and the conditions under which services are provided. These include a price comparison tool for small customers²³⁰.

Within this framework, in February 2018 the Authority adopted²³¹ the Regulation for the creation and management, by the Integrated Information System Operator, of a website on which to display offers aimed at finale households and small companies of electricity and natural gas, called the **Portale Offerte**²³².

The Portale Offerte contains fixed and variable offers of the free market, PLACET offers, as well as the expenditure of protection outlines for both electricity and natural gas. These offers are all aimed at households, low-voltage electricity sector companies, condo households with gas consumption below 200,000 S(m³)/year, and gas sector companies with consumption below 200,000 S(m³)/year.

The design and implementation of the Portale Offerte is focused on ensuring ease of consultation by the end user. To this end, a usability and user-friendliness consultation analysis of the Portale Offerte is carried out on a quarterly basis, assessing its use both via PC-desktop and mobile devices.

In the fourth quarter of 2021, a total of 2,630,366 pages were visited by Portal users, including 1,132,144 unique views; most Portal users used browsers available via desktop devices for navigation.

²²⁸ Resolution of 25 June 2019 270/2019/R/com.

²²⁹ <https://www.consumienergia.it/portaleConsumi/>.

²³⁰ Article 1 paragraph 61: "... the creation and management ... of a special IT portal for the collection and publication in open data modality of the offers in force on the electricity and gas retail market, with particular reference to household users ... to companies connected in low voltage ...".

²³¹ Resolution of 1 February 2018, 51/2018/R/com, as amended by Resolution of 5 March 2019, 85/2019/R/com.

²³² <https://www.ilportaleofferte.it/portaleOfferte/>.

The Portale Offerte has numerous filters and options for refining the search (e.g. on the basis of a specific operator, or on the basis of the presence of offers subject to discount, etc.) that allow the user to select the offer that best meets his or her needs. During 2021, further major changes were made to the usability and layout of the Portal, with the dual aim of making it more user-friendly and providing as much useful information as possible.

At 31 December 2021, there were a total of 3,886 offers in the Portale Offerte database, of which 1,934 were free market and 1,952 PLACET offers. For the electricity sector, a total of 2,036 offers are available, for natural gas, 1,814; there are 36 dual fuel offers.

Periodic monitoring of the electricity offers on the Portal shows that in 2021, for a typical household customer²³³, the average pre-tax expenditure associated with the offers of the top 10 operators was 11% lower than the pre-tax expenditure of the standard offer for fixed-price offers and 6% lower for variable-price offers.

Periodic monitoring of the natural gas offers on the Portal shows that in 2020, for a typical household customer²³⁴, the average pre-tax expenditure associated with the offers of the top 10 operators was 24% lower than the pre-tax expenditure in the standard offer service for fixed-price offers and 13% lower for variable-price offers.

²³³ A typical household user for electricity is a resident household, with consumption of 2,700 kWh, two-tier price, power of 3 kW and located in Milan (postcode 20132).

²³⁴ A typical household user for natural gas is considered to be a household with consumption of 1,400 S(m³), for cooking, heating and domestic hot water production, meter < G6 and located in Milan (postcode 20132).