



# ARERA

Autorità di Regolazione  
per Energia Reti e Ambiente



SUMMARY  
2023

ANNUAL REPORT  
ON THE STATE OF SERVICES  
AND REGULATORY ACTIVITIES  
CARRIED OUT DURING 2022



**Note to the 2023 edition**

The elements contained in the two volumes of the ARERA Annual Report on Regulatory Activities and the State of Services cover the **12 months of the 2022 calendar year**. For ease of reference, tables and figures in this summary show the numbering and references of the two full volumes of the **2022 Annual Report**, which can be downloaded at [https://www.arera.it/it/relaz\\_ann/23/23.htm](https://www.arera.it/it/relaz_ann/23/23.htm)

This edition was distributed on the occasion of the ceremony of the Annual Report presentation on 11<sup>th</sup> July 2023.



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With Presidential Decree of 9 August 2018, (from left to right) Stefano Saglia, Stefano Besseghini (Chairman), Clara Poletti, Gianni Castelli and Andrea Guerrini were appointed as members of ARERA's Board.

## PRESIDENT'S FOREWORD

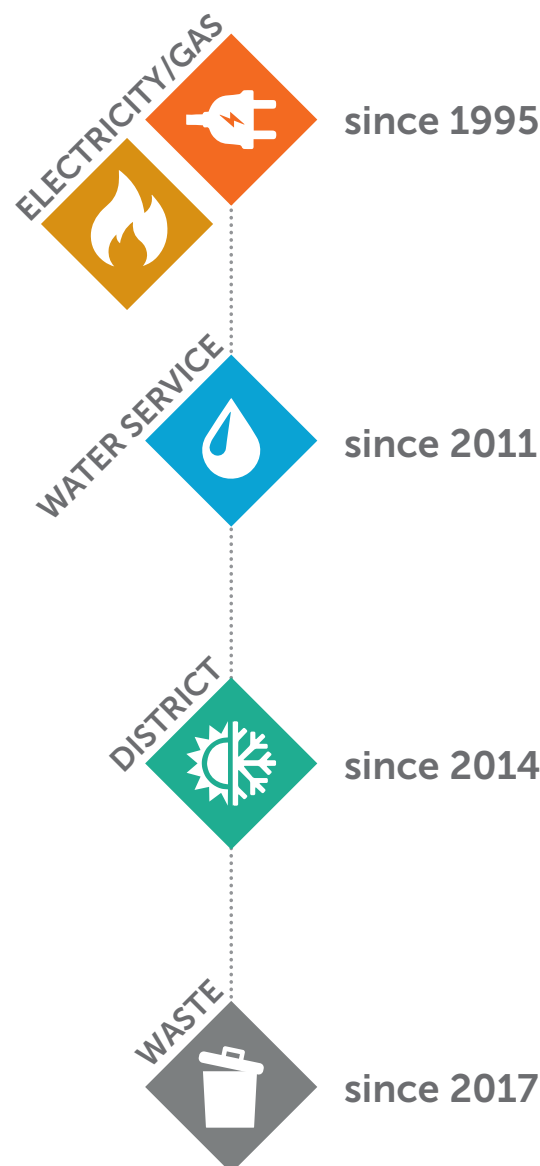
We come from two particularly challenging, at times dramatic years. Only management that was attentive to the needs of customers and operators made it possible to deal with the various critical issues that arose during this period. Looking back serves us to draw some conclusions and to check the consistency between the expectations with which actions were undertaken and the actual implementation, yet looking forward allows us above all to coordinate actions and to correctly set up the initiatives we need to undertake. It has been said that data is the oil of the future and in some ways this would appear to be coming true. The volumes of ARERA's Annual Report, as well as the institutional website, contain data and information available to different categories of users, from citizens who simply want to have an outline to researchers and experts interested in carrying out analyses and studies.

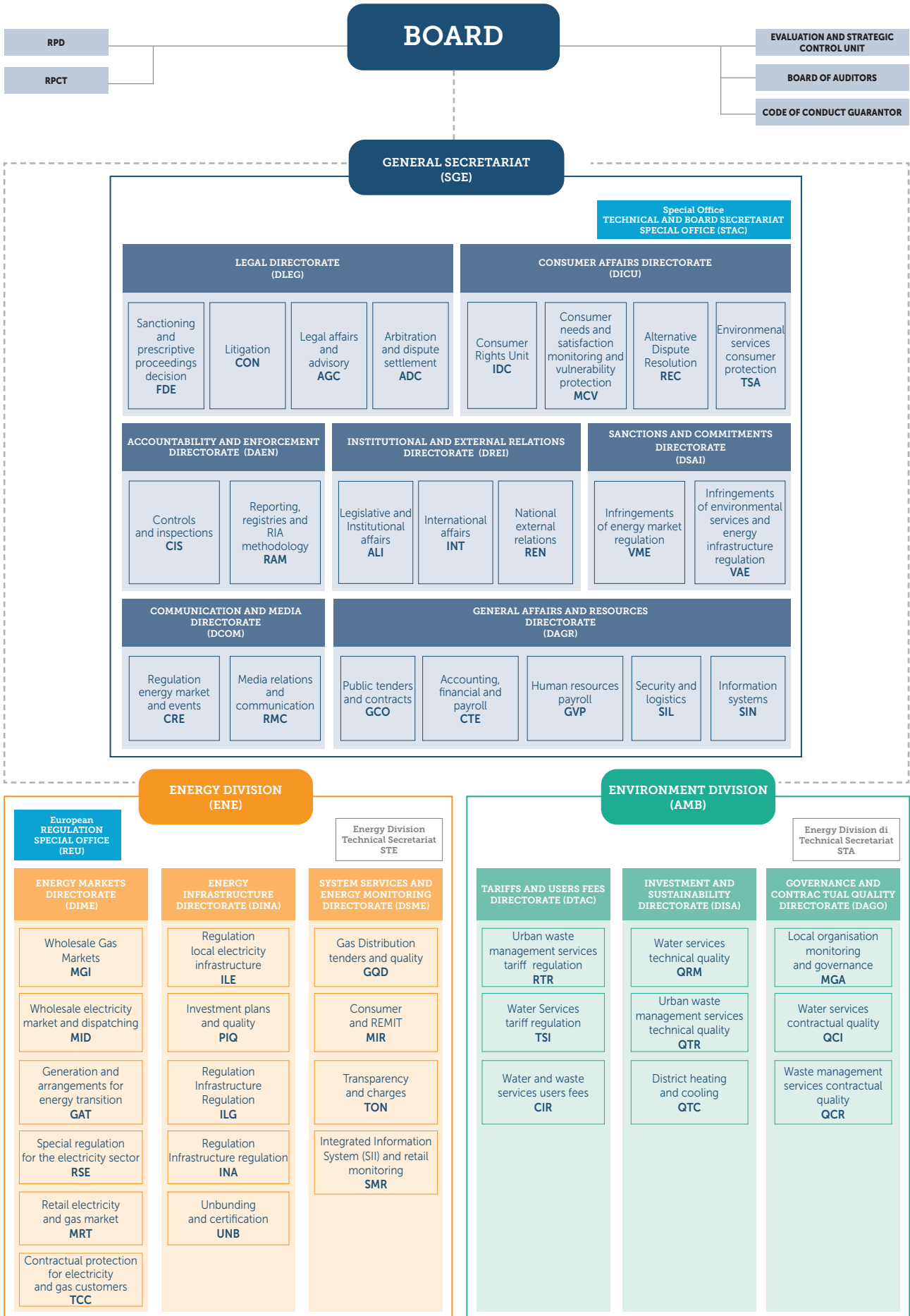
## ABOUT US

The Italian Regulatory Authority for Energy, Networks and Environment (ARERA), established by Law no. 481 of 1995 and fully operational since 1997, carries out regulation and control activities in the sectors of electricity, natural gas, water services, district heating and waste cycle. The Authority operates in full autonomy and with independent judgement within the framework of the general policy guidelines formulated by the Government and Parliament and of the regulations of the European Union.

It is a collegial body, the five members of which are chosen from among persons of high and recognised professionalism and competence. To safeguard its independence, the Board's appointment procedure provides for a broad institutional consensus: the members are appointed by decree of the President of the Republic, upon resolution of the Council of Ministers, following a recommendation by the Minister of Economic Development and the Minister of Environment and the Protection of Land and Sea (now the Minister of Environment and Energy Security, MASE), and with a binding opinion expressed by a qualified majority of the competent committees of the Chamber of Deputies and the Senate. Board members hold office for a seven-year non-renewable term.

Internationally, the Authority participates in the work of the European Union Agency for the Cooperation of Energy Regulators (ACER), which currently chairs the Board of Members, and it is a founding member of the Council of European Energy Regulators (CEER). It is the main initiator of the Association of Mediterranean Energy Regulators (MEDREG), of which it is appointed as permanent Deputy Chair and plays a leading role in the Energy Community Regulatory Board (ECRB). It also supports the International Confederation of Energy Regulators (ICER) and promoted the launch of the European Water Regulators (WAREG), a network for the cooperation between water regulators, which it currently chairs. As the owner of the ADR Conciliation Service Entity, ARERA is a member of NEON (National Energy Ombudsman Network), a European non-profit association network. Within the scope of the OECD, it participates in the Network of Economic Regulators (NER), the forum that promotes dialogue between the authorities of member countries and the Organisation's observers, who are responsible for economic regulation in multiple sectors. Finally, the Balkan Energy School was established at ARERA's headquarters - together with the regulatory authorities of Albania, Bosnia-Herzegovina, Montenegro, and North Macedonia - to support the harmonisation of the regulatory framework at the regional level, and to support the development of the Balkan energy market and its effective integration at a European level.





# ARERA IN NUMBERS

IN 2022

**DOCUMENTS**

- 745** resolutions
- 40** technical data sheets
- 4** reports
- 14** opinions
- 138** determinations
- 44** consultations
- 95** briefs

**ACTIVITIES**

- 25** inspection audits
- 32** sanzioni irrogate per un importo complessivo pari a 7.285.920 euro
- 132** complaints
- 1081** appeals

**ORGANISATION**

- 228** EMPLOYEES
- 50** AVERAGE AGE YEARS OLD
- 90%** OVER ARE UNIVERSITY GRADUATEES

**COMMUNICATION**

- 715** interventions TV who have mentioned ARERA
- 245** radio interventions who have mentioned ARERA
- 7,761** press articles
- 6,351** articles digital newspaper

**ARERA'S SOCIAL NETWORKS**

- 13 K** followers
- 1,300** members
- 41 K** followers

# NATIONAL AND INTERNATIONAL CONTEXT

## International oil market

After a strong recovery seen in 2021, with the gradual process of returning to post-pandemic normality, the growth of the world economy slowed in 2022, due to the Russian invasion of Ukraine, the energy crisis, the sharp rise in prices, the slowdown in world trade and the resurgence of Covid-19 in China. These factors led inflation, which had already risen in the second half of 2021, to shoot up to its highest level since 2008. The world's monetary authorities intervened with drastic increases in official discount rates to curb inflationary effects and to reduce the risk of an upward price-salary spiral: between 2022 and early 2023, the European Central Bank (ECB) set consecutive increases in key interest rates by a total of 375 basis points, thus ending an eight-year period of rate cuts.

According to data from the International Monetary Fund (IMF), the result of these dynamics is global growth of 3.4% in 2022 (6.1% in 2021). The European Union posted a rate of 3.7% (3.5% for the Euro area), the United States an increase of 2.1%, and China a growth rate of 3%, the lowest rate since 1977, except for 2020, the first year of Covid. The increase was higher in India (6.8%) and in Asian developing countries (4.4%). The only negative change was recorded in Russia, which recorded -2.1% as a result of the war.

## International oil market

In 2022, the structural fragilities of the market highlighted in the previous year were compounded by the conflict between Russia and Ukraine, leading Brent to exceed \$ 100/bbl from March to July.

For the second year in a row, industrialised countries recorded an increase in consumption (2.5% compared to 2021), reversing the trend of substantial stagnation visible in the two years before the pandemic. Supply also showed sustained growth in 2022 (+4.6 million barrels per day), reaching 99.9 million bbl/d, a level in line with consumption although still lower than pre-Covid.

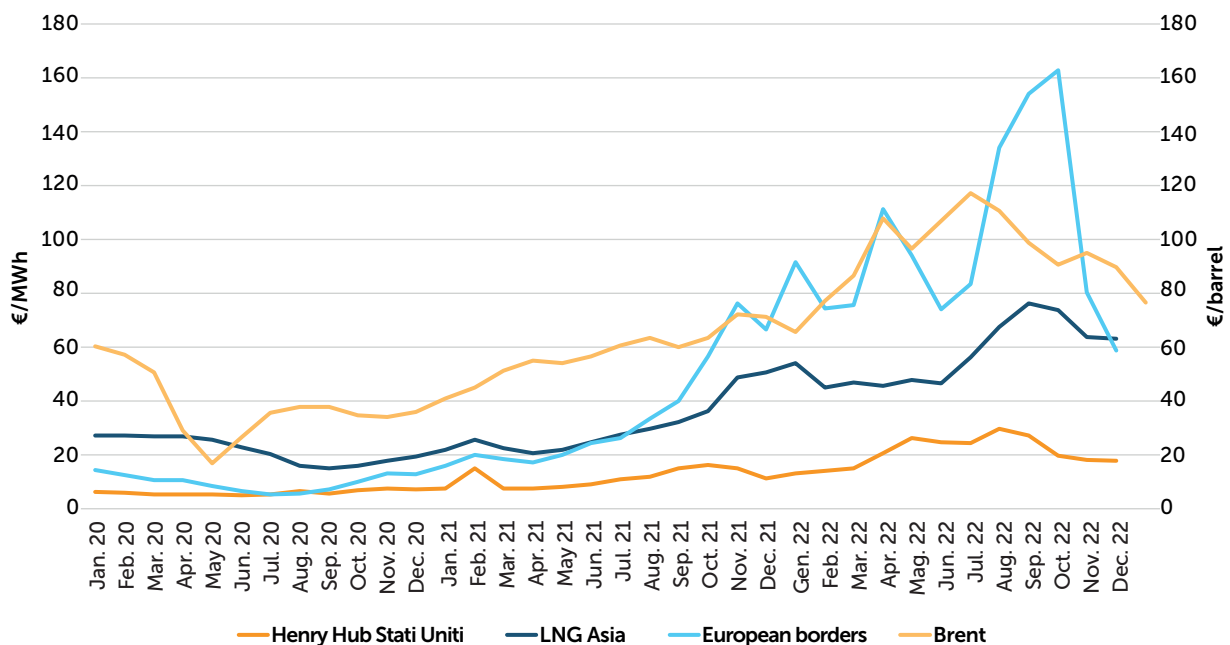
In 2022, the annual average price of Brent stood at \$ 101.2/bbl, up 43% from 2021 and 143% from 2020, with a predominantly bullish trend from \$ 80/bbl at the beginning of the year to a high of \$ 100-125/bbl during the period from March to July (a level not seen since the Arab Spring, 2012-2014). 2022 will also be remembered because the euro fell below parity with the dollar, hitting its lowest level since 2002. The exchange rate hit a low of 0.98 in October and closed the year on average at \$ 1.05 per € 1, down significantly from the 2021 level of 1.18 (-11%). The cost in euro of imported crude oil therefore increased significantly, in line with the trend of the dollar-denominated price. Compared to 2021, there is an increase of 61% to € 96.4/bbl.



## International gas market

In 2022, the European natural gas system experienced a crisis of historic proportions, both in terms of security of supply and prices, with the latter reaching unprecedented levels. In the aftermath of the Russian invasion of Ukraine (24 February 2022), the gradual reduction of European imports from Russia and the impossibility of being able to replace them in the short term produced severe tensions in the markets, exacerbating the bullish factors already in place since autumn 2021.

**FIG. 1.4** International comparison of gas and Brent oil prices



Source: Platts e World Gas Intelligence.

After a record rebound in 2021 driven by the post-lockdown global economic recovery and weather conditions (cold winter in several areas, followed by a very hot summer), 2022 saw a contraction of around 1.5% in global gas consumption, which fell from 4,109 to around 4,046 billion cubic metres according to the latest available estimates. Even the usually fastest-growing areas, such as Asia Pacific and China, experienced a decrease in demand, of -1.6% and -0.8% respectively. The decline is due to increased use of coal as a result of high LNG prices and, in China, also to the lockdown imposed by the authorities as an anti-Covid measure, as well as mild temperatures. Europe, for the reasons mentioned above, experienced the largest percentage decline at -14%, while the United States saw an increase of 5.4%, driven mainly by thermoelectric use as a result of the lower use of coal due to its higher price compared to that of US gas.

In Italy, the decrease came to 7.6 billion cubic metres, of which a good 59% was attributable to lower withdrawals from urban distribution networks (mainly related to consumption for civil use), 28% to lower consumption by large industries connected to the transport network, and just under 12% to a decrease in thermoelectric consumption (the remainder being attributable to system consumption and other residual items). In the civil sector alone, a lower demand in the last quarter of the year can be estimated at 1.9 billion cubic metres, due to the milder weather, compared to a drop for other effects of just over 1 billion cubic metres<sup>1</sup>.

Worldwide, electricity generation is the largest gas-consuming sector, with a 44% share, followed by residential and tertiary demand with 22% and industrial uses with approximately 18%<sup>2</sup>.

In 2022, global gas production remained more or less constant (-0.3%) due mainly to falling demand and geopolitical tensions, but also to an increase in extraction costs. The share of unconventional gas continues to grow, reaching 31% of total production last year (25% in 2021). In Europe, production grew by 3.6%, driven by Norway and the UK, with volumes for the two countries reaching 127 billion cubic metres (+7.3%) and 38 billion cubic metres (+16%) respectively. By contrast, the EU-27 showed a decrease of 7.7%.

US production saw a rise of 3.7% to meet increased demand from liquefaction plants. Chinese production also grew (+6.3%), while the Middle East recorded a positive change of 2.7%. The reduction of almost 12% in Russian production was significant, weighing on the overall contraction in the Eurasian region (-9.2%).

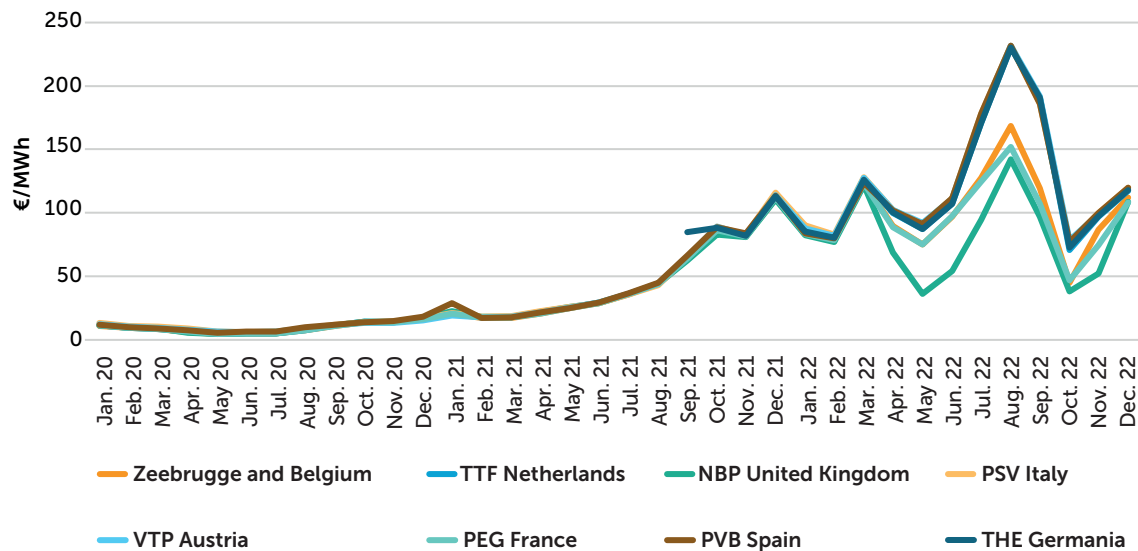
In 2022, imports from OECD Europe decreased by 5.5% as a result of falling demand: while imports from Russia plummeted (-34%), there was an increase in flows from other European countries (+1.5%) and Asia (+52%). Overall, 45% of imports in 2021 will come from European countries, 14% from Russia, 3% from Asia and the remaining 37% from other countries.

On the price front, already in the second half of 2021, the European and Asian markets had risen sharply with rapidly and radically changing market fundamentals; by the end of the year, the main European hubs had reached € 115/MWh, only to decline moderately in early 2022 to € 80-90/MWh. The outbreak of the war thus came amidst an already critical market context and exacerbated its effects on European prices, which began to set the first records in March at € 120-130/MWh, with peaks of around € 200/MWh, and then reached levels never reached before: in August, spot prices recorded a monthly average of € 230/MWh with daily peaks close to € 320/MWh, a value equal to almost fifteen times the average price over the decade 2011-2021.

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<sup>1</sup> Source: SNAM

<sup>2</sup> Source: Gas Exporting Countries Forum

**FIG. 1.5** Price of natural gas at European hubs

Source: Platts.

The PSV ended the year with an average value of € 124.8/MWh, +167% compared to 2021 (€ 47.2/MWh) and almost 8 times the 2019 average (€ 16.4/MWh).

## International LNG market

According to available data, international LNG trade in 2022 increased by approximately 6% year-on-year, approaching 400 Mt. This is a slightly higher growth rate than in 2021 (4.5%), but lower than the annual average of 8% over the period 2015-2019 (+0.4% in 2020). The increase was driven by European demand, whose need for LNG to compensate for the shortfall of Russian pipeline gas weakened import flows from other areas: the major reconfiguration of international LNG trade flows led to a diversion of volumes from the Asian area and, secondarily, from Latin American markets to Europe.

## International coal market

After the record growth enjoyed in 2021 (+6%), coal demand increased again in 2022, albeit at a lower rate than the previous year, +1.2%. The volumes consumed are thus expected to exceed 8,000 million tonnes, the highest level ever.

The run-up in gas prices was also reflected in the development of the prices of the main reference coals, which, albeit with regional specificities, experienced significant year-on-year growth again in 2022. The most striking increase of +140% was recorded for API 2, the European benchmark, which averaged \$ 287/tonne, almost \$ 170 more than the previous year's average.

### European Emissions Trading Scheme (EU-ETS)

In 2022, the total emissions of ETS operators showed a slight increase of 0.5%. This is, however, 15% lower than the pre-pandemic figure of 2019 and well below the overall limit for 2022 in the system. Regarding the price of permits, after a year of almost continuous rises, the carbon price followed a much less linear trend in 2022. Overall, the year nevertheless saw a strong average growth of 52%, to € 80.9/tonne (+€ 28/tonne over 2021), the result, however, of extensive price volatility that alternated between prevalent upward phases and some periods of contraction.

## Electricity and natural gas prices in the European Union

The outbreak of the conflict between Russia and Ukraine and the ensuing tensions in the markets, culminating also in disruptions of gas flows, exacerbated the effects on prices, also raising fears of a physical scarcity of the resource. In order to ensure the availability of supplies and, above all, to mitigate the impact of prices on final customers and the economy more generally, public intervention policies in the electricity and gas markets have been adopted in many European countries. Therefore, the comparison of the price data of the various countries must take into account the public interventions carried out, which are wide-ranging, as well as the more general context, which is particularly complex, especially due to the ongoing conflict in Ukraine, and thus the many variables at play.

### Electricity prices for households

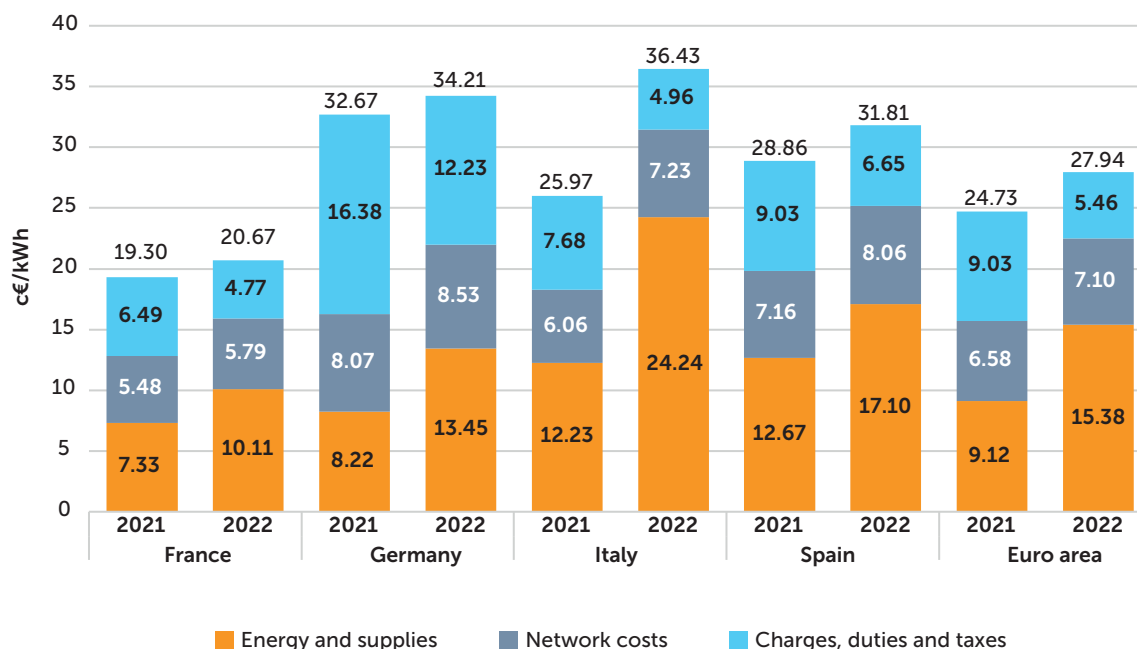
Classi di consumo dei clienti domestici	
FROm	<1,000 kWh/year
DB	1,000 kWh/year - 2,500 kWh/year
DC	2,500 kWh/year - 5,000 kWh/year
DD	5,000 kWh/year - 15,000 kWh/year
DE	>15,000 kWh/year

In an extraordinary context of generalised growth, the weighted average of the gross electricity prices of the five domestic consumption classes considered by Eurostat grew by +40.3% in Italy in 2022 (from 25.97 c€/kWh to 36.43 c€/kWh) and by +13% in the Euro area (from 24.73 c€/kWh to 27.94 c€/kWh). In 2021, the increases in Italy and the Euro area were around +5%. In both cases, the increase in gross prices is due to the significant changes in net prices (energy and sales prices and network costs), which are higher in Italy (+72%) than in the Euro area (+43%) and are partly offset by the effects of the albeit significant measures adopted to reduce the charges and taxes component (-35% in Italy and -40% in the Euro area).

The gross price differential with respect to the Euro area, which had remained below +6.5% in 2020 and 2021, in 2022 reaches an average of +30% and is positive for all classes: there is therefore a reversal of the trend, in particular, in the DB and DC classes (in which the highest consumption is concentrated in our country), where the differential for gross prices had remained weakly negative in the previous two years. In relation to net prices, the differentials are close to +30% in all classes except the last one, where they are +43%.

The tax component also has a weakly progressive structure in 2022, starting with the second consumption class; however, while in 2021 the non-degressivity of taxes was still a peculiarity compared to the rest of Europe, in 2022 also in the Euro area the amounts are increasing with consumption class. The support measures adopted both in Italy and in the other European countries affected the incidence of the taxes and charges component, which for Italy went from +29.6% to +13.6% (-54%) and for the Euro area from +36.5% to +19.5% (-46.5%).

**FIG. 1.12** Household electricity price components in the main euro countries



Source: ARERA, processing of Eurostat data.

Turning to the comparison between Italian prices and those of the main European countries<sup>3</sup>, for the first time since 2019, Germany is not the country with the highest electricity prices for the household sector (the average price is 34.21 c€/kWh) and it is surpassed by Italy in all consumption classes except in the first one, where the highest prices are in Spain.

## Electricity prices for industrial customers

In 2022, the unfavourable economic trend in electricity prices leads to the loss, for Italian industrial customers, of the results achieved through the slow, but gradual, process of the previous years of narrowing the gap between the gross average prices of our country and those of the Euro area, with a marked confirmation of the signs of reversal already evident in 2021.

<sup>3</sup> France, Germany and Spain, i.e. the Euro area countries whose markets are most similar in size to Italy.

## Consumption brackets for industrial customers

IA	< 20 MWh/year
IB	20 - 500 MWh/year
IC	500 - 2,000 MWh/year
ID	2,000 - 20,000 MWh/year
IE	20,000 - 70,000 MWh/year
IF	70,000 - 150,000 MWh/year

In particular, with average gross prices (weighted with respect to the consumption of the different classes) of 34.8 c€/kWh in Italy and 24.39 c€/kWh in the Euro area, the spread, which had been around +20% in the years 2020 and 2021 after having reached +32% in 2019, rose to +43%.

In terms of net prices, the spread between Italian and European prices, which had contracted significantly in 2020 and had returned to growth in 2021, increased again for all classes, averaging +52%; on the other hand, the drop in the positive spread with the Euro area for the charges and taxes component stopped between 2022 and 2021, rising to +11% (it was +8%).

As in 2021, the growth in Italian industrial prices is entirely due to net price increases (+124%), partly offset by the albeit significant reductions in charges and taxes (-15%), as a result of the support measures adopted. In the Euro area, on the other hand, the net price increase did not reach 100% (+92%) and the reduction in charges and taxes was only slightly higher than in Italy (-17%).

A comparison with the main European countries shows that Italian prices are on average 38% higher for all customer classes than German prices.

## Gas prices for households

In 2022 too, the prices of natural gas for Italian households, including taxes and duties, were higher than the average prices of the Euro area, with a slight worsening of position. In fact, the difference between Italy and the Euro area in the consumption-weighted average gross price of the various classes<sup>4</sup> rises from 8% in 2021 to 13%. The difference is less than 10% in the first two consumption classes (respectively +6% in the first and +9% in the second) and highest in the last, where it reaches +29%. As far as net prices are concerned, the difference compared to the Euro area ranges on average from +7% to +25%.

Looking at the comparison with the main European countries, the price paid by Italian households (11.1 c€/kWh) is on average the highest, with negligible positive differences (+1%) compared to Spain (11.02 c€/kWh), higher (+16%) compared to France (9.59 c€/kWh) and highest (+30%) compared to Germany (8.53 c€/kWh).

<sup>4</sup> Eurostat consumption classes are expressed in GJ; the limits of the ranges given in the text have been translated into cubic metres on the basis of a standard heat content for greater readability, are rounded to the nearest integer value and are broken down as follows: < 520 m<sup>3</sup>/year (mainly cooking and hot water); between 520 and 5,200 m<sup>3</sup>/year (this class has the largest share in total household consumption at about 72%); over 5,200 m<sup>3</sup>/year (mostly central heating).



## Gas prices for industrial customers

In 2022, the difference between the volume-weighted average price of the different consumption classes<sup>5</sup> paid by Italian non-households and the average price paid in the Euro area is +12%. The most significant increase is in the third and fourth classes, which together comprise 52.6% of non-domestic consumption and were the most advantageous in 2021 and is +17% and +14% respectively.

The incidence of charges and taxes in Italy, which in 2021 was already seven percentage points lower than that of the Euro area (21% versus 28%), declined further, to less than 10% and a difference of about 13 percentage points compared to the Euro area (9% versus 22%). The tax incidence decreases inversely with consumption, with the largest decrease in the first consumption class (-21%), where it becomes 13% (28% in the Euro area) and the smallest decrease in the last class (-5%), where it becomes 7% (17% in the Euro area).

Italian price differentials are on average +20% and +24% compared to France and Germany but negative and equal to -3% compared to Spain.

## Economic and climate trends in 2022

The Italian economy grew strongly in 2022, although less than after the end of the lockdowns in 2021. Despite the gradual slowdown during the year, GDP increased by 3.7% (+6.7% in 2021), thus plentifully recovering pre-pandemic levels. Less positive was the growth in industrial production (+0.5%), which was penalised mainly in the second half of the year by rising energy prices and interest rates, especially the production of the most energy-intensive intermediate goods.

As far as climate trends and their influence on energy consumption are concerned, the demand for electricity and natural gas in 2022 was very much influenced by the extreme price rises and the climate situation. According to ENEA, "2022 was the fifth hottest year ever, with the highest summer temperatures ever recorded in Europe since the pre-industrial age. Italy has been warmer than average for almost all months of the year, with all-time highs in May, October and December"<sup>6</sup>.

## Energy supply and demand in Italy

In 2022, demand for energy in Italy was strongly influenced by very high gas and electricity prices, weather conditions characterised by very mild winter temperatures, and the consumption containment measures taken by the government to tackle the gas crisis. Thus, despite GDP growth of 3.7%, gross domestic energy consumption fell by 4.6% to 146.6 MTOE (153.7 MTOE in 2021) and final energy consumption fell by 3.7% to 109.3 MTOE (113.5 in 2021). As a result, energy intensity, after several years of substantial stability, marked a significant drop from 91 to 84 TOE/M€ of GDP in 2022.

<sup>5</sup> Again, the Eurostat consumption classes (see footnote 6) were converted as follows: less than 26 thousand m<sup>3</sup>/year; between 26 and 260 thousand m<sup>3</sup>/year; between 260 thousand and 2.6 million m<sup>3</sup>/year; between 2.6 and 26 million m<sup>3</sup>/year; between 26 and 104 million m<sup>3</sup>/year.

<sup>6</sup> ENEA, Quarterly analysis of the Italian energy system, no. 1/2023.

An analysis of final consumption by sector shows a reduction in industrial use of 7.8% (gas -15.5% and electricity -3.9%), in the residential sector (-10.3%) and in services (-3%). On the other hand, transport consumption increased (+5.3%), especially petroleum products (+6.5%), recovering after the drop caused by the pandemic. Electricity consumption decreased by 1.1%, but the share of electricity in final consumption rose again to +22.7%.

## Water systems in Europe

The demand for fresh water in the 27 EU Member States (EU-27) is largely met by extraction from surface water (rivers, reservoirs and lakes) and groundwater. Between 2000 and 2019, total water abstraction per year in the EU-27 decreased by about 24%, from about 235,000.00 million m<sup>3</sup> in 2000 to about 177,000.00 million m<sup>3</sup> in 2019.

As far as domestic water use is concerned, the percentage of households connected to at least secondary wastewater treatment plants varies from one European country to another: in central-western Europe, for example, the connection rate is 97%, whereas in southern, south-eastern and eastern European countries, it is generally lower, although it has increased over the last 10 years to approximately 70%<sup>7</sup>. Despite these significant improvements in recent years, some 30 million people are still not connected to wastewater treatment plants in Europe.

## Municipal and similar or related waste in Europe

In the EU panorama of legal and regulatory developments relating to the municipal waste industry, 2022 is characterised by the launch of a rethinking of the overall approach to waste management, promoted by the European Commission, with the aim, on the one hand, of improving the framework of the so-called "Circular Economy package" adopted in 2018 (with reference to sorting criteria and targets and extended producer responsibility schemes) and, on the other hand, to prefigure a paradigm shift, with a proposal for a regulation aimed at promoting, as a priority, the reduction in the production of waste itself, without renouncing even very ambitious progress in recycling and preparation for reuse rates, as well as the promotion of a market for materials from recycling.

In 2021, the 27 countries of the European Union produced a total of 236 million tonnes of municipal waste (+1.2% compared to 2020) or 530 kg on average per inhabitant (+1.9% compared to 2020). The increase in absolute and *per capita* waste generation appears fairly evenly distributed among the Member States, confirming its significance as a recovery from the pandemic-induced crisis. In Italy, in particular, the generation of municipal waste increased in absolute terms by 2.3% to 29.6 million tonnes, which translates into an increase in per capita production of 3%, or an average of 502 kg per inhabitant.

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<sup>7</sup> Source: European Environmental Agency, 2017.





In 2021, 157 kg of municipal waste *per capita*<sup>8</sup> was recovered through recycling, the figure for composting was 100 kg in 2021, while 121 kg was disposed of in landfills. Finally, the figure for thermal treatment (typically, though not exclusively, with energy recovery) stands at 141 kg *per capita*.

Looking at the evolution of the last two-year period for which consolidated data is available (to be considered with the caution due to the pandemic period), the detail of the dynamics of the different technologies shows that, between 2019 and 2021, the use of landfill decreased by just 2.4% (from 124 to 121 kg per capita), thermal treatment grew by 3% (from 137 to 141 kg per capita), material recovery through recycling by 4.6% (from 150 to 157 kg *per capita*), and recovery through composting alone saw a marked increase (15%, from 87 to 100 kg per capita).

## *Appendix 1:* REGULATORY FRAMEWORK, INSTITUTIONAL RELATIONS AND ACCOUNTABILITY

### Evolution of Italian legislation

In order to cope with the concerning increases in energy prices, also due to the continuing war conflict in Ukraine, numerous legislative measures were enacted during 2022 of immediate and direct interest to ARERA.

To cope with the exceptional instability of the national natural gas system and the incredible rise in energy prices as a result of the conflict in Ukraine, a series of measures were issued to, among other things, facilitate the filling of storages for the 2022-2023 thermal year, diversify the Italian power generation production and substitute supply sources to the Russian gas route, and alleviate the burden of rising bills on households. The measures introduced include: the zeroing of general system charges to domestic and non-domestic low voltage users, for other uses, with available power up to 16.5 kW and to users with available power equal to or greater than 16.5 kW, also connected to medium and high/very high voltage or for public lighting or electric vehicle recharging in places accessible to the public; the strengthening of social bonuses for physical and economic hardship and the broadening of the number of beneficiaries of the latter (raising the ISEE threshold). Also in 2022, the legislator<sup>9</sup> defined vulnerable customers as part of the transition process that will lead to the end of protection services for all customers and, in the same ruling, suspended unilateral changes to electricity and natural gas supply contracts by the electricity and natural gas supply company.

<sup>8</sup> ARERA processing of Eurostat and Ispra data.

<sup>9</sup> By Decree Law no. 115 of 09 August 2022, converted into Law no. 142 of 21 September 2022.

With regard to the environmental sectors, we would like to point out Law No. 127 of 4 August 2022, "Delegation to the Government for the transposition of European directives and the implementation of other regulatory acts of the European Union - European Delegation Law 2021", which, in Article 21, identifies the principles and guiding criteria for the transposition of Directive 2020/2184/EU, concerning the quality of water intended for human consumption. Finally, it should be noted that the Council of Ministers, on 21 December 2022, definitively approved Legislative Decree No. 201 of 23 December 2022, on the "Reorganisation of the regulation of local public services of economic importance"<sup>10</sup>.

## Institutional relations

In 2022, the cooperation with the Italian Competition Authority (ACGM) continued, which had already been formalised for some time in the 2012 Framework Agreement Protocol, which regulates the coordination between the two authorities with regard to institutional interventions in areas of common interest, envisaging, among other things, joint initiatives in the area of market enforcement, supervision and control. In addition to this Protocol, there is also the 2014 supplementary understanding on consumer protection, under which the two authorities continued to cooperate fruitfully also through the Permanent Working Party. Joint activities include the communication campaign "Difenditi così" (Defend yourself this way) organised with the aim of providing customers with advice and information to defend themselves against the insistence or unfairness of some call centres and to curb aggressive actions by suppliers<sup>11</sup>.

In order to conduct an in-depth investigation into the issues concerning local public services in relation to the objectives set out in the National Recovery and Resilience Plan, a special working party was set up at the Presidency of the Council of Ministers in which ARERA was also invited to participate.

In 2022, the **Ministry of the Environment and Energy Security** (formerly the Ministry of Ecological Transition), in implementation of the Ministerial Decree of 27 September 2021, promoted the "Ho rispetto per l'acqua" (I respect water) tour. ARERA helped to define the content of the tour and was present on all scheduled dates.

ARERA avails itself of the cooperation of **the Special Goods and Services Unit, attached to the Special Units of the Tax Police** for its inspection and control activities, on the basis of a preliminary agreement signed between the two institutions in 2001 and renewed in 2005<sup>12</sup>.

Lastly, in 2022, a preliminary agreement was signed on cooperation relations between ARERA and the **Carabinieri military police** aimed at extending supervision and control activities in the sectors regulated by ARERA, the areas of cooperation of which concern both the carrying out of controls and inspections at regulated entities, and the organisation of educational, training and dissemination initiatives to foster the sharing of experiences and the exchange of best practices between the two institutions. Operationally, the agreement rules that ARERA may request the support of the military police, which, through the competent territorial departments, ensures the assistance of ARERA's personnel in the performance of the above-mentioned activities.

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<sup>10</sup> For more details, see Chapter 1, Volume 2 of the Annual Report.

<sup>11</sup> For more information on the campaign, see Chapter 12, Volume 2 of the Annual Report.

<sup>12</sup> For a detailed description of the activities carried out, see Chapter 11, Volume 2 of the Annual Report.

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## Accountability

In January 2022, the 2022-2025 Strategic Framework<sup>13</sup> was published, setting out the priorities and objectives of its regulatory activity. Finally, in line with the accountability and transparency commitments contained in the Strategic Framework for the three-year period 2019-2021, ARERA approved the reporting on the activities carried out in the period 1 January-31 December 2021.

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<sup>13</sup> Resolution of 13 January 2022, 02/2022/A.

# ENERGY SECTORS

## ELECTRICITY

### State of services

#### Electricity supply and demand in Italy. Market and competition

In 2022, electricity demand decreased by 1% to approximately 297.9 TWh. The decline affected all sectors except the tertiary sector, which increased by 4%. National demand was met just over 86% by net domestic production (minus energy for pumping) and the remaining 13.6% by the balance from abroad<sup>14</sup>. Domestic production decreased by 1% year-on-year (it was 286.1 TWh the previous year), while imports increased by 1.8% and energy for exports by 16.4%. In general, a 7.9% increase in thermoelectric production was observed against a 13.9% decrease in the production of energy from renewable sources and, in particular, hydroelectric generation fell by 37.8% due to the water emergency during the year.

**TAB. 2.1** The Electricity Transmission Grid Operator's electricity balance in 2021 and 2022 (in GWh)

AVAILABILITY AND USE	2021	2022 <sup>(A)</sup>	VARIATION
Gross production	289,070	286,096	-1.0%
Auxiliary services	9,024	9,601	6.4%
Net production	280,045	276,495	-1.3%
Received from foreign suppliers	46,572	47,391	1.8%
Sold to foreign customers	3,782	4,404	16.4%
Intended for pumping	2,916	2,533	-13.1%
Availability for consumption	319,919	316,949	-0.9%
Network leakages	19,032	19,051	0.1%
Consumption net of leakage	300,887	297,898	-1.0%
Agriculture	6,714	6,600	-1.7%
Industry	135,746	131,063	-3.4%
Services	91,375	95,030	4.0%
Household	67,052	65,205	-2.8%

(A) Provisional data.

Source: ARERA, processing of the Electricity Transmission Grid Operator's data.

<sup>14</sup> Source: Electricity Transmission Grid Operator, provisional data.



In 2022, Enel once again returned to being the leading operator in thermoelectric generation, covering 18.3% of gross national production, while Eni, the second operator, had a share of 13.9% (last year it stood at 15.8%).

For 2022, all in all, the costs of incentivising renewable energy sources amounted to approximately € 6.4 billion, which is significantly lower than in previous years<sup>15</sup>, due to high electricity market prices.

In 2022, imports increased by about 800 GWh over the previous year, from 46.6 to 47.4 TWh (+1.8%). Since, at the same time, exports grew at a higher rate (+16.8%, from 3.8 to 4.4 TWh), the increase in the external balance was partially mitigated. Compared to 2021, in 2022 we imported approximately 800 GWh more from Switzerland, about 750 GWh more from Slovenia and around 250 GWh more from Austria. This was to compensate for the drop in volumes from France (from which, due to the reduced availability of nuclear production, about 750 GWh less arrived) and those from Greece and Montenegro (from each of which we purchased about 100 GWh less).

## Electrical facilities

Slight changes in **transmission lines** were recorded during 2022: + 33km for 380 kV lines, +19km for 220 kV lines, -128km for lines with a voltage below 150 kV; in the case of DC lines, only 95 km of 320 kV lines were added. Compared to 2021, the number of stations has also increased: + 1 at 380 kV, - 1 at 220 kV and +3 at < 150 kV. As far as **interconnection capacity with foreign countries** is concerned, last year again 26 lines were in operation, some of which are *merchant lines*. In particular, the new direct-current line with France (Piosasco - Grand Île) has increased the overall nominal value of the interconnection capacity: when fully operational, the link will increase the interconnection capacity between Italy and France by 1,200 MW, from approximately 3 GW today to over 4 GW.

As 31 December 2022, 123 **electricity distributors** were registered in ARERA's Registry of Operators. The first 1016 served 98.3% of the total number of customers, delivering a similar proportion (98.5%) of the electricity drawn from the distribution networks. E-distribuzione (Enel Group) remains by far the largest operator, with an 85.3% share of the total volumes distributed. A total of 257.2 TWh was delivered in 2022, down 6.4 TWh compared to 2021. 37 million users were served: 29.9 million household points (+0.5% compared to 2021) and 7.1 million non-household points (-0.3%), which withdrew 58 TWh (61 TWh in 2021) and 199.1 TWh (202.7 TWh) respectively. Most households (79.8%) were found to be resident and consumed 87.8% of all the electricity distributed to families. The majority of household withdrawal points have a contract with a committed power between 1.5 and 3 kW: they account for 85.8% of all households and take 76.1% of all distributed electricity.

With regard to active **connections** to the transmission grid<sup>17</sup>, in 2022, there were 2,956 connection requests for power generation plants with a total capacity of 253.6 GW. As far as the connections of passive users are concerned, the data collected show that 256,143 connections were made to the distribution networks in 2022, almost all of them in low voltage.

<sup>15</sup> € 10.5 billion in 2021 and € 11.5 billion in 2020.

<sup>16</sup> With more than 100,000 users.

<sup>17</sup> Source: Terna.

## Wholesale market

In 2022, the quantity of electricity traded directly on the power swap exchange amounted to 210.9 TWh (-4.7% compared to 2021), while the average energy purchase price (PUN) reached an all-time high of € 303.95/MWh (+142%). At the zonal level, price increases are characterised by rises ranging from +129% in Sicily (295.0 €/MWh) to +146% in the North (307.8 €/MWh). The Northern zone, for the first time in 10 years, replaces Sicily as the zone with the highest sales price, reversing the differential with the latter (+12.7 €/MWh).

On the electricity power exchanges of other European countries, prices also reached unprecedented levels, averaging eight times those of the pre-crisis 2020s, with peaks of € 450-550/MWh in August. In particular, the most important increases concerned French, Swiss and Austrian (145-153%) and German (143%) quotations, while Spain's spot price showed a much smaller increase (50%) due to the cap that was imposed on the price offered by gas-fired production units.

## End sales market

There were 807 entities present in the sale of electricity in 2022: 109 in the standard offer service, 4 in the gradual standard offer service, 3 in the safeguard service and 758 in the free market<sup>18</sup>.

The provisional ranking<sup>19</sup> of the top twenty groups in terms of total sales to the end market in 2022 does not show any striking changes in position, with Enel remaining the dominant operator in the entire Italian electricity market with a share increasing to 36.2% (it was 34.4% in 2021), followed by A2A (7.1%) and Edison (5.3%).

According to data from the Annual Survey of the Regulated Electricity and Gas Sectors, just over 252 TWh were sold to the end market last year to 37 million customers (-0.3% compared to 2021).

The reduction was entirely due to the household sector, which purchased a total of 58.3 TWh (60.7 TWh in 2021, -4%), while non-households increased from 192.3 to 193.9 TWh (+0.9%).

In 2022, the number of households was 30.1 million: 10.6 in the standard offer and 19.5 in the free market. The overtaking of the free market continued, growing both in terms of points served (64.8%, it was 58.5% in 2021) and in terms of volumes purchased (68.5%, 61% in 2021).

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: 1,733 kWh/year versus 2,046 kWh/year. In 2022, the gap widened slightly by 126 kWh compared to 2021. Also considering non-household points for which price protection is still permitted<sup>20</sup>, the share of electricity sold in the standard offer service is, however, very small, amounting to only 8.7% of the volumes of the entire Italian electricity market (corresponding to 32.7% of the total withdrawal points).

<sup>18</sup> The total of 807 is not equal to the sum of the companies present in the individual segments, because there are companies operating in more than one market.

<sup>19</sup> The data collected is preliminary.

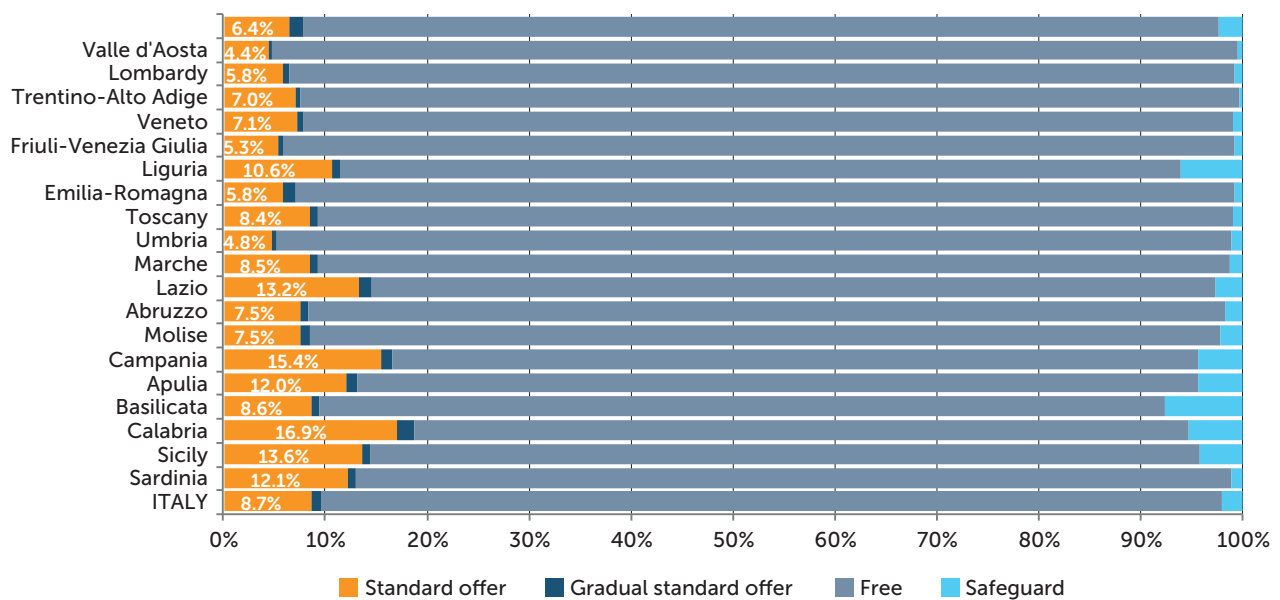
<sup>20</sup> For the electricity supply of small enterprises and micro-enterprises with a committed capacity of more than 15 kW, price protection ended on 1 January 2021.

The other micro-enterprises (those with a committed capacity of less than 15 kW) and all non-households (including some apartment blocks) can no longer be supplied permanently in the standard offer service from 1 April 2023.

In 2022, the gradual standard offer service<sup>21</sup> served 136,000 withdrawal points, or 0.4% of all customers in the electricity market, to which it supplied 2.3 TWh, or 0.9% of the energy sold in the total market. As was to be expected, the service was relatively abandoned by 2022.

Geographically, the share of the free market is now predominant almost everywhere, but the usual regional gaps remain, which are, however, gradually narrowing: the portion of energy purchased on the free market is usually larger in the central and northern regions. In 2022, the share of households purchasing electricity on the free market exceeded 50% in all regions (Sardinia was missing in 2021), while there are eight regions in which more than 65% of household consumption points are served in the free market.

**FIG. 2.15** Percentage breakdown of electricity sales by region and market type in 2022



Source: ARERA, Annual survey on regulated sectors.

<sup>21</sup> As of January 2021, small and micro-companies forced to leave the standard offer market (with committed power >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 tender.

Household switching<sup>22</sup> has grown again, both in terms of withdrawal points and volumes, approaching that of non-households. 17.9% of households (approximately 5.3 million withdrawal points, accounting for 23% of the energy acquired by the household sector) changed supplier at least once during the year. While for non-households, just under 1.4 million non-household withdrawal points changed supplier in 2022 (around 48 TWh, corresponding to 25.5% of the volumes purchased by non-households). Undoubtedly, the exclusion of certain categories of customers from the standard offer service under the law has had an impact on switching activity, which has seen an increase of 20.3% for these customers.

## Sales contracts in the free market

In 2022, the average number of commercial offers that each sales company was able to propose to its potential customers was 22.5 for households (11.7 online-only) and 31.6 for non-households (24.3 online-only), up compared to 2021 when it was 16.9 and 25.5 respectively.

76.7% of households signed a fixed-price contract in the free market, while 23.3% chose a variable-price contract (the most common type amongst non-household customers). The data collected showed that fixed-price contracts valid in 2022<sup>23</sup> still partially protected customers from significant price increases due to the international price crisis, since the price paid for the procurement component in fixed-price contracts was at least 80% cheaper than that paid in variable-price contracts. Index-linking to the trend in the average PUN (in various forms) is the most common mode in both contracts for household and non-household customers (see the table below).

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<sup>22</sup> Switching.

<sup>23</sup> All of the information requested from suppliers relates to contracts in force during the year reported on, regardless of when 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).



**TAB. 2.54** Variable price contracts for the supply of electricity in the free market in 2022 by type of average price indexing (percentage of customers having signed the indicated contracts)

TYPE OF CONTRACT INDEXING SALE	HOUSEHOLDS		NON-HOUSEHOLDS	
	SHARE	PRICE <sup>(A)</sup> €/MWh	SHARE	PRICE <sup>(A)</sup> €/MWh
With a discount on one of the components established by ARERA for the standard offer service	16.74%	338.75	1.45%	361.90
Index-linked to the development of the average PUN	80.78%	382.56	50.19%	296.49
Index-linked to the hourly wholesale price (dynamic electricity price contract)	2.29%	411.43	4.54%	315.97
With a discount on the price set in a Consip or other public tender	0.01%	403.62	0.42%	322.04
Otherwise index-linked (e.g: ITEC, ITEC 12, consumer price index, Brent, etc.)	0.13%	248.45	1.66%	267.03
With limited indexing	0.03%	237.17	0.06%	282.63
By other means not otherwise specified	0.02%	387.78	2.83%	177.32
<b>TOTAL</b>	<b>100%</b>	<b>375,77</b>	<b>100%</b>	<b>307,99</b>

(A) Supply cost component.

Source: ARERA, Annual survey on regulated sectors.

28% 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 addition, the results collected revealed a clear propensity, as in the past, for fixed-price households to purchase energy with a contract that includes an additional service; "favourites" include contracts with a guarantee to purchase electricity produced from renewable energy resources (48.1%) and for participation in a points collection programme (33.2%). This is followed by the provision of ancillary energy services (3.6%) or other products or services together with electricity (2.9%), benefits on the purchase of other goods or services (2.3%) and receiving a free gift (1.3%).

## Safeguard service

According to the data received from the three operators, after last year's recovery, the service expanded in 2022 by 16% in terms of withdrawal points (88,900) and by 47% in terms of energy consumed (4,843 GWh).

## Prices and tariffs

At the end of 2022, as usual, ARERA updated the tariffs for the provision of electricity transmission, distribution and metering services for households and non-households to be applied in 2023.

The national average tariff covering transmission, distribution and metering costs for 2023 is 2.933 c€/kWh (2.753 c€/kWh for 2022).

On the price front, last year saw a 46% increase in the final price and a 99% increase in the supply component for all households together. This is reflected in the comparison with the previous year, from which very strong increases emerge, particularly in the supply component, the greater the size of customers: from +73% for the smallest customers (up to 1,000 kWh/year) to +121% for the largest customers (over 15,000 kWh/year), the value of which is thus more than doubled compared to 2021.

Naturally, in the total price, which also includes the other components (except taxes), there are smaller increases of between 10% for smaller customers and 72% for larger ones. This differentiation depends not only on what has been seen for the main component (supply), but also on the rulings given by the Government and ARERA to contain increases in final prices, from which customers with smaller consumption have benefited in particular.

For the first time ever, the free market presented significantly lower price values for all consumption classes than the standard offer, as a result of the predominance of locked-price contracts in the free market, which limited or delayed, at least in the immediate future, the effects on final customers of the huge price rises in the wholesale markets highlighted above.

As of 1 January 2023, the price of electricity for a household residing in standard offer, with annual consumption of 2,700 kWh and 3 kW power, is 47.48 c€/kWh after tax and 53.11 c€/kWh before tax. The fees covering electricity procurement and marketing costs in Q1 2023 have an incidence of 82%, almost doubled compared to the beginning of the three-year period under consideration, while the items covering transmission and metering costs represent 7.5% of the total gross price, an incidence more than halved compared to the start of 2020 (20%).

Finally, it is recalled that on 1 January 2023, as in the previous 15 months, the general system charges (which at the start of the quarter had accounted for about 21% of the total price) were reduced to zero by virtue of the measures adopted by the Government and by ARERA to partly neutralise the sharp increases in the commodity component and thus contain the increase in the final price.

## Quality of service

The trend of improvement in the continuity of the transmission service continues, recording a value of 1,589 MWh/a (1,481 in 2021)<sup>24</sup>, and in the average number of interruptions lasting more than one second per user due to all causes, including those outside Electricity Transmission Grid Operator's responsibility, including major accidents, which is decreasing with respect to 2019-2020 and substantially in line with the average for the previous two years.

As regards quality and continuity of distribution service, there was a slight worsening compared to 2021 both for the average duration of outages per user (65 minutes) and for the average number of outages per user (4.21). At a geographical level, the gap between the Centre-North and the South of the country is confirmed for the various detailed indicators (the latter with slightly improved but still lower performance levels and, in particular, a number of long interruptions for which distributors are responsible that is almost 35% higher than the average in Italy and almost 30% longer).

<sup>24</sup> The reliability of the transmission service is mainly measured by the energy not supplied (ENS) indicator, which is expressed in MWh/a.



With regard to the automatic compensation, distribution companies paid out to low- and medium-voltage users for exceeding the standards on the maximum duration of interruptions, regardless of what caused them: € 28.5 million were paid out to about 502,000 low-voltage users (on average about € 57 per user) and about € 3.8 million to about 5,100 medium-voltage users (on average € 74.0 per user).

## Commercial quality

Regarding the **commercial quality of distribution and metering services**, the number of services<sup>25</sup> requested by final customers last year remained the same as in 2021, but both the number of cases of non-compliance with standards subject to automatic compensation and the number of indemnifications paid and the total amount of such indemnifications increased. The increase in the number of connection requests received from manufacturers resulted in increased workload for both technical and sales staff, which delayed the execution of the required commercial quality services.

Analysing data on the **commercial quality of the sales service**, the average lead times for commercial services<sup>26</sup> reported by suppliers for 2022 are below the respective standards for all services except for double billing adjustments. In particular, with regard to complaints (+16.9% compared to 2021): 69.94% of complaints came from free market customers, 22.76% from customers of the market with a reference price; 69.62% came from households, 22% from non-households, 7.3% from multi-site customers and 1.08% from medium voltage customers.

In line with last year, again in 2022, the main complaints were related to 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 (36.6%); topics relating to the market, such as 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 (17.8%); the events of the contract, such as withdrawal, change of header, transfer and taking over (16.1%).

In 2022, automatic compensations of just under € 1.1 million (in line with last year) were paid to electricity customers on their bills, most of which went to households in the free market.

<sup>25</sup> Connections, activations, deactivations, estimates, technical verifications, responses to complaints for distribution and metering activities, etc.

<sup>26</sup> Responding to complaints, responding to requests for information, performing billing adjustments and double billing.

**TAB. 2.98** Automatic compensation paid in the electricity sector in 2022 (in euros)

TYPE OF CUSTOMER	RESPONSE TO COMPLAINTS	CORRECTIONS OF BILLING	CORRECTIONS OF DOUBLE BILLING	TOTAL
Low-voltage households served with standard offer	140,000	575	1,300	141,875
Low-voltage non-households served with standard offer	41,050	150	100	41,300
Low-voltage households served in the free market	563,055	15,672	5,830	584,557
Low-voltage non-households served in the free market	218,660	4,875	1,400	224,935
Medium voltage customers served in the free market	15,175	170	150	15,495
Multisite customers	85,225	3,325	625	89,175
<b>TOTAL</b>	<b>1,063,165</b>	<b>24,767</b>	<b>9,405</b>	<b>1,097,337</b>

Source: ARERA, processing of data declared by operators.

## Activity carried out

### Regulation of networks and the electricity system

With regard to the regulation of data exchange between Electricity Transmission Grid Operator (Transmission System Operator - TSO), Distribution System Operator (DSO) companies and Significant Grid Users (SGU, users considered significant for the security of the National Electricity System) for the purposes of safe operation of the national electricity system, ARERA, taking up the recommendations of some electricity producer associations, modified the timetable envisaged for the CCI<sup>27</sup> installation obligation.

Last year, moreover, ARERA finalised proposals to modify the modalities for making available the measurements of the inputs functional to the regulation of the physical and economic items of the electricity dispatching service regulated in the **Integrated Settlement Text** (IST).

On the transmission side, several resolutions were passed approving amendments to the Electricity Transmission Grid Operator's Transmission, Dispatching, Development and Grid Security Code<sup>28</sup>.

<sup>27</sup> Resolution of 27 December 2022, 730/2022/R/eel.

<sup>28</sup> Resolutions of 29 March 2022, 134/2022/R/eel and of 28 June 2022, 287/2022/R/eel.



On the distribution side, among the texts updated during the year is the one on **Simple production and consumption systems** revised to take into account the provisions of Article 16 of Legislative Decree No. 210/2021, which introduced, among other things, the new definition of SSPC<sup>29</sup>. Regarding **Other Closed Distribution Systems** ARERA supplemented the IST by introducing an automatic mechanism for the recovery of amounts due and not paid by CDS operators as a result of the delayed application of the regulation in force concerning SDC<sup>30</sup>, while in the Consultation Document 390/2022/R/eel it set out its guidelines in relation to the updating of the TISDC to take account of the possibility of implementing new CDSs. Finally, the territorial scope of further **Internal User Networks** (IUNs) were defined.

In 2022 and as part of the configurations for **diffuse fuel gas** after extensive consultation, the new Integrated Text for Diffuse Fuel Gas (ITDFG)<sup>31</sup> was approved. The text will apply as of the latest date between 1 March 2023 and the date of entry into force of the decree of the Minister of the Environment and Energy Security, which is to define the provisions on incentives for electricity sharing. The resolution approving the text, confirming the approaches of the previous consultation documents: outlined the criteria on the basis of which the grid operators identify, in a conventional manner, the areas underlying each primary substation starting from the actual configuration of the electricity grids, introducing geographical correctives; proposed the use of a virtual regulatory model<sup>32</sup> that would allow for the efficient optimisation of widespread fuel gas, ensuring that all final customers and producers maintain their currently safeguarded rights and duties; gave directions to the GSE for the application of the virtual regulatory model with respect of the configurations in question and their referents (including the optimisation of electricity for fuel gas and the determination of any incentive due).

Concerning **capacity adequacy and system security**, ARERA issued an opinion to the Ministry for the Environment and Energy Security on Electricity Transmission Grid Operator's proposed regulation for the procurement, through a competitive procedure, of an electricity consumption reduction service provided by final customers through industrial loads offered for the electricity interruptibility service. In the same context, ARERA urgently amended and supplemented the method for determining the strike price of the **Capacity Market** applied in 2022 and 2023 so that said price is in a position to better reflect the variable cost of the peak technology, regardless of the declaration of the level of emergency of the gas system in application of the Emergency Plan provided for in Article 8, paragraph 1, of the Legislative Decree No. 93 of 1 June 2011. Further changes to the method for setting the strike price became necessary as a result of the change in the method for determining the economic conditions for the supply of natural gas for the standard offer service, as of 1 October 2022. It should be noted, inter alia, that the Capacity Market's parent auction for the 2024 delivery period took place in February last year.

Also in the course of 2022, ARERA outlined its guidelines on the aspects of competence pertaining to the **new system of forward procurement of electricity storage resources**<sup>33</sup>, as provided for in Article 18 of Legislative Decree No. 210 of 8 November 2021, addressing the following topics: criteria and conditions for the forward procurement of electricity storage capacity; criteria and conditions for the use of storage capacity in energy markets; criteria and conditions for Electricity Transmission Grid Operator's development of electricity storage

29 Resolution of 15 November 2022, 573/2022/R/eel.

30 Resolution of 27 September 2022, 450/2022/R/eel.

31 Resolution of 27 December 2022, 727/2022/R/eel.

32 Similar to that already provided for in Resolution 318/2020/R/eel. 33 Consultation document of 02 August 2022, 393/2022/R/eel.

33 Consultation document of 02 August 2022, 393/2022/R/eel

capacity; consideration to cover the costs of the procurement system and methods for monitoring the effects of the same. Finally, during the course of the year, work continued on installations that are essential for the security of the electricity system (both for the ordinary and the alternative regime).

The Integrated Text on Output-Based Regulation of the Electricity Transmission Service for the 2020-2023 regulatory half-period provides for an incentive mechanism for the construction of additional transmission capacity. Following an enquiry into the results presented by Electricity Transmission Grid Operator, it determined the following for 2020: the € 103.6 million bonus for additional transmission capacity and the € 40 million bonus for investment cost efficiency<sup>34</sup>. With the output-based regulation of transmission, ARERA has introduced an incentive mechanism to promote the unification of the national transmission network as of 2020, the effects of which ended on 31 December 2022.

On the subject of **general system charges for the electricity sector**, ARERA's activities focused on the transposition and implementation of the manoeuvres adopted by the Government to support electricity users in the face of the strongly upward trend in wholesale energy commodity prices, both nationally and internationally. In this context, ARERA also presented a General Charges Report (Report 16 May 2022, 212/2022/1/com).

During the year 2022, the regulatory framework of the **nuclear charges** for the third regulatory period (2021-2026) was completed, with the updating of the accounting unbundling criteria for Sogin. In addition, the preliminary investigation conducted in cooperation with the Special Goods and Services Unit of the Tax Police was concluded for the purpose of recognising the costs incurred by Sogin, up to 31 December 2020, for the National Repository and Technology Park (DN-PT), which resulted in the recognition of past costs (2010-2020 years) for activities aimed at locating the DN-PT in the amount of € 30.8 million, against reported costs of € 42.9 million (net of revenues). Finally, ARERA also defined the criteria for the recognition of costs for DN-PT location and authorisation activities for the years after 2020.

Throughout the year 2022, the **charges of the A<sub>sos</sub> account** have been financed by the resources allocated by the Government within the framework of the aforementioned manoeuvres: in total, € 6,126 million have been allocated for 2022. Consistent with the resolutions adopted that provided for the cancellation for all electricity users of the ASOS and ARIM tariff components, ARERA instructed CSEA to proceed, on an exceptional basis for 2022, to make the appropriate changes to the "energy-intensive procedures": in particular, for each quarter in which the general charges were cancelled, ARERA progressively reduced the instalments of payment of the minimum level of contribution provided for these energy-intensive companies. Since the cancellation of general charges was applied in all four quarters of 2022, the benefits for energy-intensive enterprises are effectively cancelled and the minimum contribution to be paid is zero.

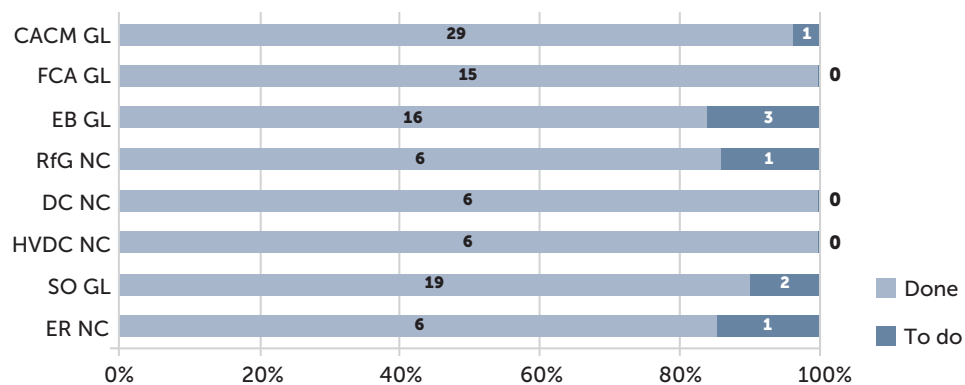
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<sup>34</sup> Resolution of 25 January 2022, 23/2022/R/eel.

## EU Regulations and Plans for Network Development

The regulations are technical regulatory decisions for the completion of the internal energy market. Informally, they can be grouped into three large families: market, connection and network management.

**FIG. 3.1** Status of implementation of European regulations as at 31 December 2022



Source: ARERA.

In 2022, the implementation of the market codes focused on maintaining and improving the methodologies adopted in previous years: Forward capacity allocation (FCA GL), Capacity allocation and congestion management (CACM), Regulation Balancing (EB GL).

ARERA is also directly involved in the implementation of Regulation 2019/943, part of the more comprehensive Clean Energy Package, which significantly revised the main principles of the electricity market: this activity is carried out both through the participation in working parties within ACER in which the various issues are discussed and through the adoption of specific rulings at national level.

With the opinion of 19 July 2022, 335/2022/II/eel, ARERA forwarded to the Minister for Ecological Transition (now "MASE") the results of its assessment of the outline of the ten-year plan for the development of the national transmission network 2021 (the 2021 Plan), with clearance given for the proposed interventions, with the exception of a few specific projects. In addition, in a subsequent consultation, it outlined its guidelines regarding the updating of the provisions and minimum requirements for the consultation and preparation of the Ten-Year National Transmission Grid Development Plan.

## Environmental protection and innovation

Initiatives in support of energy transition to which ARERA has contributed include: the two-way countertrade mechanism for electricity fed in by renewable energy plants; incentive systems for production plants powered by renewable energy sources with innovative characteristics or high generation costs; the proposal to the Minister for Ecological Transition in relation to the implementation of art. 46 of Legislative Decree 199/21 on guarantees of origin; procedural simplifications for the connection of production plants (in 2022, two amendments and additions were made to the Integrated Active Connections Text - TICA, based on as many regulatory provisions). Following the publication of Legislative Decrees No. 199/21 transposing Directive (EU) 2018/2001 (the "RED II")

and No. 210/21 transposing Directive (EU) 2019/944, ARERA initiated a package of four proceedings functional to the implementation of the provisions contained in these decrees. These include the one on tariff measures for electric vehicle charging facilities in publicly accessible locations, as well as on the technical rules necessary to facilitate the connection of charging points (both public and private access).

Staying on the subject of electric mobility, finally, mention should be made of the Experiment for recharging electric vehicles in places not accessible to the public that started on 1 July 2021 and ended in 2023<sup>35</sup>. During the twelve months of 2022, the second year of the trial's operation, GSE<sup>36</sup> received 1,013 requests to join the trial, bringing to almost 1,900 the number of requests received since the start of the initiative: 68% of these could actually be accepted, as they met all the requirements set out in the resolution and were complete with all the technical documentation. The geographical distribution of the applications submitted shows a strong concentration in the North (over 59%, compared to about 23% in the Centre and 18% in the South).

It is interesting to highlight some of the data extracted from the trial applications: the average cost of purchasing a smart wallbox is just over € 1,300 and around 80% of the installed devices are produced by only five of the 43 accredited manufacturers.

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<sup>35</sup> Resolution 541/2020/R/eel.

<sup>36</sup> The company that operationally managed the initiative.





# NATURAL GAS

## State of services

### Supply and demand of natural gas

In 2022, **net natural gas consumption decreased** by 7.5 billion cubic metres from the previous year (-10%) to 67.3 billion cubic metres. The general decline affected all sectors: industrial (-15.5%), thermoelectric generation (-4.1%), trade and services (-15%), transport (-18%) and residential (-13.5%). **Domestic natural gas production** dropped by 2.7%, far less than the much larger drops of the last three years, when it fell at an average rate of -14%. The import difficulties due to the Russian gas blockade rulings, as well as the extreme upward trend in international gas prices, have probably made it more convenient to exploit domestic gas fields more intensively.

In detail, in 2022, a total of 3,405 million cubic metres of natural gas was extracted: 1,757 billion m<sup>3</sup> from the sea and 1,648 million m<sup>3</sup> from the land-based fields<sup>37</sup>. At the average extraction rate of the last five years and relying only on proven reserves, natural gas production would be depleted in just over ten years, although some of the reserves now considered only probable or possible could turn into proven reserves if new technologies and/or investments were to be made. The share of total gas availability covered by domestic gas is 5%. The ENI Group controls 66.3% of production (69.5% in 2021).

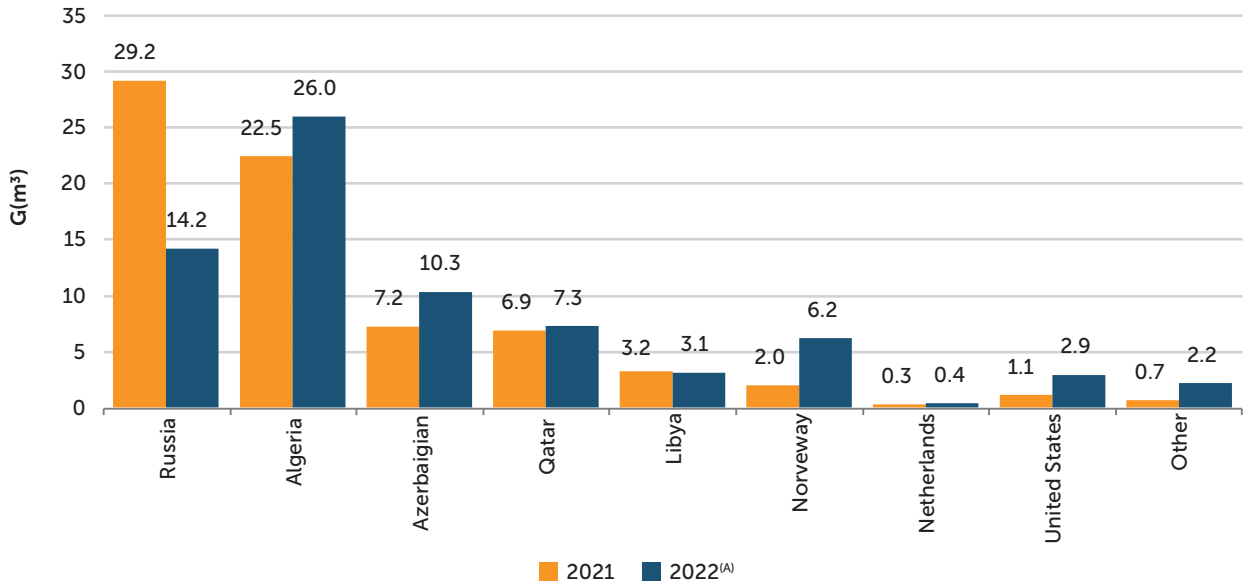
Faced with a significant decline in consumption, in 2022, Italy imported 400 million cubic metres less natural gas than in 2021 (-0.6%). Gross imports fell to 72.6 billion cubic metres, while exports increased significantly, from 1.5 to 4.6 billion cubic metres, and due to government measures taken to ensure a high level of stockpile filling, the volumes stored at the end of the year were approximately 2.6 billion cubic metres higher than at the beginning of the year. The result, in terms of net imports, is a decrease of 4.9% to a total value of 68 billion m<sup>3</sup>, almost 3.5 billion m<sup>3</sup> less. The level of foreign dependency<sup>38</sup> rose again to 99%.

The main change in 2022 is the halving of imports from Russia due to the sanctions imposed by the European Union, which dropped to 14.2 billion m<sup>3</sup> (29 billion m<sup>3</sup> in 2021). The decrease was almost entirely offset by the increase in imports from Norway (+4.2 billion m<sup>3</sup>), Algeria (+3.5 billion m<sup>3</sup>), Azerbaijan (+3.1 billion m<sup>3</sup>), the United States (+1.8 billion m<sup>3</sup>) and other territories (+2 billion m<sup>3</sup>). One-fifth of the imports, amounting to 14.5 billion m<sup>3</sup>, came by ship mainly from Qatar, Algeria and the United States, which accounted for 88% of the total.

<sup>37</sup> Source: MASE, Directorate General for Environmental and General Safety of Mining and Energy Activities.

<sup>38</sup> The value is measured as the ratio of net imports to the gross value of national consumption.

**FIG. 3.5** Gross gas imports in the last two years by origin

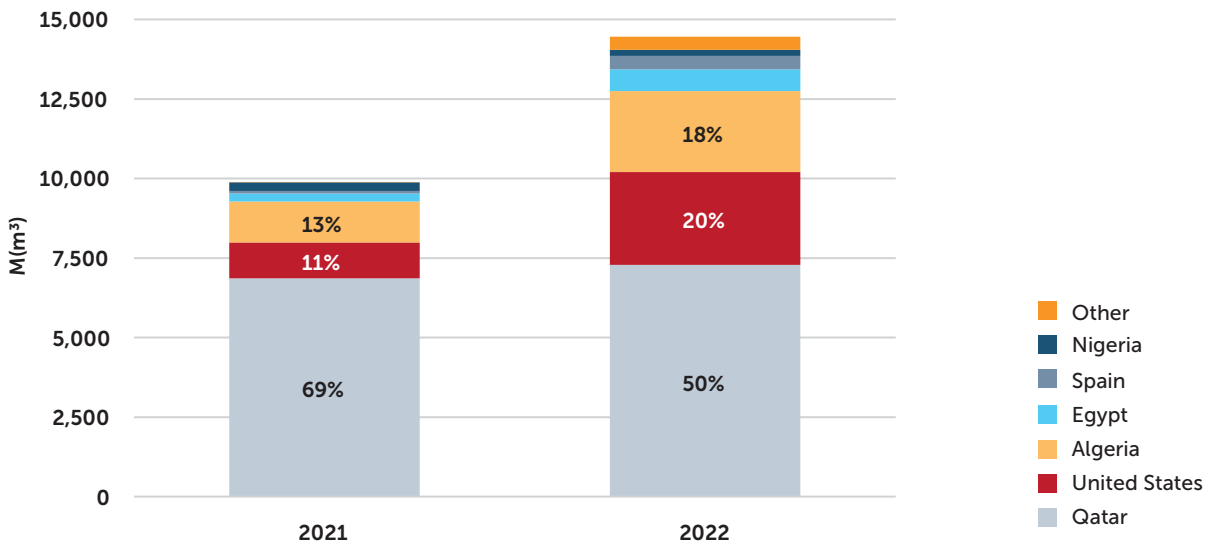


(A) Preliminary data.

Source: Ministry of the Environment and Energy Security.

The portions of gas origin, therefore, have very much changed compared with 2021: the weight of Russia amongst the countries exporting to Italy reduced by 19.5% (previously 40%), while Algeria’s share rose from 30.8% to 35.8%. In third place is Azerbaijan with a share of 14.2% (it was previously at 9.9%). Qatar accounted for 10% of the total gas imported to Italy (9.9% in 2021) and Norway’s share rose to 8.6% from 2.7% in 2021. With 4%, the United States almost matched Libya’s share (4.3%), which instead is unchanged in respect of 2021.

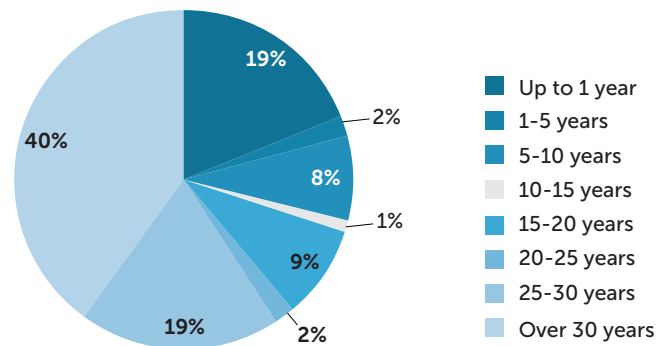
**FIG. 3.6** Countries of origin of LNG imports



Source: Ministry of Ecological Transition.

The structure of import contracts (annual and multi-year) active in 2022 according to full term has shortened compared to 2021: the share of long-term contracts, i.e. those with a full term of more than 20 years, was 61.1%, whereas last year it was 66.2%. By contrast, those with a duration of less than five years increased 20.5% from 14.3% in 2021.

**FIG. 3.7** Structure of active import contracts in 2022, according to full term



Source: ARERA, Annual survey on energy sectors.

In terms of **residual life**, 31.4% of import contracts in place in 2022 will expire within the next five years (the same share was 24.5% in 2021) and 52.2% will expire within the next ten years. 15% of the contracts in force today have a residual life of more than 15 years (it was 39.3% in 2021) and cover a total quantity of approximately 13 billion m<sup>3</sup>.

## Gas facilities

The reduction in natural gas consumption is, of course, also reflected in the **transmission** data: in 2022, the volumes redelivered to the networks dropped by 3.9% (3.7 billion m<sup>3</sup> less than in 2021) from 95.6 to 91.9 billion m<sup>3</sup> 2021. The minus sign appears in all production sectors: industry (-15%), thermoelectric (-3.4%) and distribution plants (-14%). Snam rete gas controls 92.8% of the 35,426 km that make up the Italian gas transmission system.

In the thermal year 2022-2023, the **storage** system offered a total working gas space availability of 13.1 billion m<sup>3</sup> in addition to 4.6 billion m<sup>3</sup> for strategic storage, as in the previous year. The space offered at auction was 95% (90% in the previous year). As of 31 October 2022, the filling of the storage was 12.3 billion m<sup>3</sup>.

The nominal peak delivery achieved during the year was 259.1 million m<sup>3</sup>/day: 247 million m<sup>3</sup>/day in Stogit storage, 9 million m<sup>3</sup>/day in Edison storage and 3.1 million m<sup>3</sup>/day in Ital Gas Storage storage.

In total, active operators in 2022 **distributed 28.3 billion m<sup>3</sup>**, the lowest value in 20 years, a decrease of 3.9 billion m<sup>3</sup> compared to the previous year. The number of final customers also decreased to 21.8 million (-0.5%). The service was operated through 6,512 concessions in 7,314 Municipalities.

The length of the networks increased by a further 1,111 km compared to 2021 (2,181 km in 2021).

In terms of uses, 54% of customers use gas for both heating and cooking and/or for the production of domestic hot water; this category, which takes almost half (44.8%) of the total gas distributed in Italy, has a unit consumption of 1,039 m<sup>3</sup>/year, 12.6% below that recorded for 2021 (1,189 m<sup>3</sup>). The second most common type of customer (42.3%) is the use of gas for cooking and/or hot water production, to which 6.5% of the total is distributed, with a unit consumption of 204 m<sup>3</sup> (226 m<sup>3</sup> in 2021). Finally, the quantity distributed to gas users for heating purposes only (mostly centralised heating systems, equal to about 2%) also decreased, absorbing as much as one fifth of the gas distributed, with a unit consumption of 17,566 m<sup>3</sup>, a decrease (-12.4%) compared to the previous year (20,053 m<sup>3</sup>) almost identical to that of individual heating systems.

In 2022, there were 20.4 million households in the sector, who withdrew 13.3 billion m<sup>3</sup> or 47% of all gas distributed. If the volumes of the domestic sector in the strict sense are added to those of domestic condominiums, the consumption of the "extended domestic" sector reaches the significant share of 54.7% of all gas distributed in Italy and 94.3% of total customers.

## Wholesale market

Overall, gas traded in the total sales market (wholesale and end market) in 2021 amounted to 267.2 billion m<sup>3</sup> (-2% compared to 2021): 46.4% supplied by wholesalers, 5.2% by pure suppliers and 48.4% by mixed operators. Total deliveries to the PSV increased by 6.4% compared to 2021, from 108.2 to 115 billion m<sup>3</sup>. In gas markets managed by the GME, total volumes of 177.2 TWh were traded (+35% compared to 2021). The prices recorded on the various platforms can all be traced back to an annual average of around € 124/MWh, in line with the annual average price of the PSV (€ 124/MWh; +165%).

## End retail market

The provisional data of the Annual Survey of energy sectors showed that just under 51 billion m<sup>3</sup> were sold in the retail market in 2022, in addition to 675 million m<sup>3</sup> supplied through last resort and default services. Overall, therefore, the value of final sales was 51.6 billion m<sup>3</sup>, a decrease of 6.1 billion m<sup>3</sup> over 2021.

The level of concentration in the gas end-sale market in 2022 remains low, although it increased slightly compared to the previous year: the top three groups control 44.3%, whereas in 2021 the share was 43.1%. No variations emerged in the top four positions of the end market, in which Eni (15.9% from 17% in 2021), Edison (15.4%), Enel (13%) and Hera (6.1%), remain firm.

The average price charged to final customers by suppliers in the retail market was 112.21 c€/m<sup>3</sup> (+112.6% compared to 2021), while the price charged by these suppliers to other resellers was 101.83 c€/m<sup>3</sup>, 3 cents higher than that offered by wholesalers as a whole (+196.3%).



Looking at the market as a whole, in 2022 the domestic sector acquired 13.2 billion m<sup>3</sup>, i.e. one fifth of all gas consumed (sold or used for fuel gas); condominiums with domestic use acquired 3.2%, i.e. 2.1 billion m<sup>3</sup>; commerce used 10.7%, corresponding to just under 7 billion m<sup>3</sup>; industry consumed 25.3%, or 16.5 billion m<sup>3</sup>; electricity generation absorbed 39.6%, or 25.7 billion m<sup>3</sup>; and public service activities consumed 0.9%, or 0.6 billion m<sup>3</sup>.

Considering only the household sector, it can be seen that the share of volumes purchased on the free market in 2022 reached 68.1% for households and 86.8% for condominiums (both values net of fuel gas). In terms of withdrawal points, in 2022, the share of households that acquired gas in the standard service dropped to 33.2%; in 2021, it was 36.6%.

In 2021, the overall switching rate<sup>39</sup> was 13.7%, accounting for 12.5% of volumes. In the domestic sector, almost 3 million customers switched at least once. Far greater, at 24.1%, was the fraction of condo households that turned to a different supplier, for volumes corresponding to 14.9% of the relevant consumer sector.

The average number of commercial offers that each gas supplier proposes to its potential customers is 15.1 for households (of which 4 can only be subscribed online), 6.6 for condominiums with domestic use (1.5 online only) and 13.7 for non-households (5.1 online only). 16.6% of suppliers only submit their households one offer, 30.7% make up to three offers available and the remaining 52.7% of suppliers submit their customers a range of four offers or more. In 2022, the interest in online offers by households (10.1% of customers used this mode) and non-households - other uses (15.1%) grew, while the interest shown by apartment blocks (1.8%) declined.

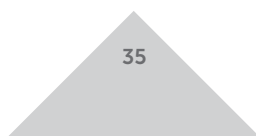
67.3% of households signed a fixed-price contract in the free market<sup>40</sup>, while 32.7% chose a variable-price contract. The percentages are reversed in the case of condominiums, among which variable-price contracts are by far the most popular ones, while just under a fifth of customers chose fixed-price contracts. Non-households, on the other hand, are divided between those who prefer variable-price contracts (62.8%), and those who, on the other hand, have signed a fixed-price contract (37.2%). Last year, variable-price contracts were less cheap for all types of customers, with the differential to fixed-price contracts very large for households and apartment blocks and smaller for non-households.

For all types of customers, the most frequent way of price indexing in variable-price contracts was linked to one of the components established by ARERA for the economic conditions of supply of the standard offer service; the other most common way of indexing was linked to the trend in the price of gas at TTF or PSV. The first proved to be cheaper than the other two in the case of households, while for condominiums and non-households the link with the components set by ARERA produces an intermediate price between the other two forms of indexation.

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<sup>39</sup> Change of supplier.

<sup>40</sup> In which the price does not change for at least one year from the time of subscription.



37.5% 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 more detail, it appears that on average, the discount is applied to 45% of customers who chose a fixed-price contract and to 22% of customers who chose a variable price. Lower percentages are to be found for other customers: 14% of condominiums have signed a contract with a discount (39% with fixed price and 8% with variable price), while in the case of non-households, those with a contract with a discount in any form are 14% of the total (26% with fixed price and 7% with variable price).

## Prices and tariffs<sup>41</sup>

Last year, the average gas price net of taxes (weighted by quantities sold), charged **by supply companies to final customers** was a good 116.2 c€/m<sup>3</sup>, a level never previously seen. This price more than doubled (+112%) compared to the previous year (52.3 c€/m<sup>3</sup>). Unlike in previous years, there are no large differences between consumption classes and between different types of customers, which tend to converge towards the average much more than in the past.

Over the last year, the free market instead showed a far lower price than the protection service (-17.6%) due to the major diffusion of locked-price contractual formulas that have contained or delayed, at least in the immediate future, the transfer to final customers of the strong growth in raw material gas prices that occurred in the wholesale markets. In 2022, therefore, the price in the standard service increased by 85.6%, the free one by 40.4%. This lower growth of the free market, found for all consumption classes, has not, however, shifted the convenience between the two markets in consumption classes above 5,000 m<sup>3</sup>, where the free market is more expensive than the standard service.

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<sup>41</sup> Refer to chapter 3 (paragraph 3.1) of Volume 1 "State of Services" for the valuation of facilities use tariffs.

**TAB. 3.54** Average end prices to household customers, by consumption class and market type (in c€/m<sup>3</sup>; annual consumption classes expressed in m<sup>3</sup>)

ANNUAL CONSUMPTION CLASS AND MARKET	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
<b>Less than 5,000 m<sup>3</sup></b>											
Standard offer service	60.1	60.2	56.8	52.8	47.7	48.2	55.8	60.4	51.0	62.3	115.7
Free market	61.3	63.7	62.4	60.1	56.8	56.1	60.3	65.5	62.0	67.9	95.3
Differential	2.1%	5.8%	10.0%	13.9%	19.2%	16.5%	8.1%	8.3%	21.8%	8.9%	-17.6%
<b>Between 5,000 and 50,000 m<sup>3</sup></b>											
Standard offer service	48.2	52.2	44.1	44.7	37.8	39.2	46.4	48.9	39.6	49.3	115.8
Free market	51.5	50.9	47.6	46.1	42.8	43.5	48.6	50.9	44.1	58.0	124.7
Differential	6.7%	-2.4%	8.0%	3.1%	13.1%	11.1%	4.9%	4.1%	11.1%	17.7%	7.7%
<b>Between 50,000 and 200,000 m<sup>3</sup></b>											
Standard offer service	48.1	50.5	41.9	40.9	36.1	36.1	45.2	44.9	36.7	43.9	117.2
Free market	48.4	43.9	41.4	41.0	37.0	36.3	43.7	44.7	37.3	56.5	122.2
Differential	0.6%	-13.0%	-1.1%	0.2%	2.6%	0.5%	-3.4%	-0.5%	1.6%	28.7%	4.3%

Source: ARERA, Annual survey on energy sectors.

As far as **LPG** is concerned<sup>42</sup>, on the same date the price for an Italian household consuming 200 m<sup>3</sup> of LPG is 407.6 c€/m<sup>3</sup> (419c€/m<sup>3</sup> in 2021) and is made up of 72.7% cost-covering components and the remaining 27.3% taxes. The cost of the commodity accounts for 28.1% of the total price, retail marketing for 4.4%, distribution on the local network for 20.3%, and transport costs upstream of the distribution plant for 19.9%.

## Quality of service

In the field of **distribution**, the average value for the arrival time at the place of call (by telephone) is approximately 37 minutes (36 minutes in 2021), while both the number of localised dispersions as a result of planned network inspections and those reported by third parties have decreased. 2022 saw a decrease compared to 2021, both in the number of cases of non-compliance with the standards set by ARERA and in the automatic indemnities actually paid: against 19,206 cases of non-compliance with specific standards, 18,038 automatic indemnities were paid to final customers in 2022, for a total amount paid of approximately € 920,000 (€ 1.36 million in 2021). The most numerous services in terms of requests are confirmed, in order, the punctuality band for customised appointments followed by the activation of the supply.

As far as the **supply** sector is concerned, on the other hand, the data communicated by the 370 suppliers shows an overall compliance with the minimum standards set by ARERA with regard to the actual average times for services requested by customers, responses to complaints and bill adjustments, the average times for double bill adjustments and, finally, the average times for responses to requests for information. Compared to 2021, there was an increase in information requests of 6.8% and in written complaints of 7.2%.

<sup>42</sup> Liquefied petroleum gas.

The main issues of complaints were: problems relating to billing and everything related to billed consumption and fees, self-reading, billing periodicity, including the closing bill, making payments and refunds (46.7%); contracted issues, such as withdrawal, change of header, transfer and taking over (16%); 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 (14.6%); non-payment of bills and disconnection (8.3%). The total compensation paid out amounted to more than € 698 thousand (-11% compared to 2021).

## Activity carried out

### Regulation of networks and the gas system

In 2022, ARERA approved two resolutions on gas **settlement**<sup>43</sup>, the first one approved a series of interventions aimed at mitigating the effects due to anomalous allocations that could occur in some particular cases of unavailability of correct measurement data, with consequences on transportation balances; the second one concerned the management of guarantees for the balancing service.

Regarding **access to the transmission service** in light of the critical issues that emerged in connection with the start of the thermal year, ARERA approved urgent provisions on *default* transmission with the aim of guaranteeing the security of the system and the allocation of transmission capacity, also providing for the extension, at the request of users, of the capacities allocated for the month of September of the thermal year 2021-2022, until 31 October 2022<sup>44</sup>. Other rulings approved include the approval by ARERA, jointly with the regulators of Greece (RAE) and Albania (ERE), of the "Project Proposal" regulating the binding phase of the Market Test for the company TAP AG, essentially describing the capacity levels offered, the general rules for the conduct of the procedure, the indications for future contracts, the guarantees to be provided by the parties and the economic parameters.

Following extensive consultation on technical aspects of the completion of the **discipline of capacity booking** at transmission network output points interconnected with distribution networks (*city gate*) ARERA - accepting the reports received to this effect - postponed the reform of the discipline to 1 October 2023.

In issuing the provisions for thermal year 2022-2023 **storage**, the MITE (now MASE) introduced a number of provisions to take into account the Russian-Ukrainian crisis and the possible repercussions on the security of national energy supplies by referring their implementation to ARERA. Subsequently, the continuation of the conflict between Russia and Ukraine, the increasing volatility of prices, and the average level of injection recorded in the first ten days of June 2022 led to the issuance by the Ministry of new provisions on the security of the national gas system, entrusting Snam Rete Gas and the Energy Services Manager (GSE) with the task of accelerating the filling of national storages through the "storage filling service of last resort"<sup>45</sup>. Also as part of the urgent measures aimed at increasing the availability of gas in the system, ARERA intervened by providing for, among other things, the extension to the thermal year 2023-2024 of the potential benefits associated with import projects under the TIRG (Guarantees of Free Access to the LNG Regasification Service).

<sup>43</sup> Resolutions of 08 November 2022, 555/2022/R/gas and of 13 December 2022, 688/2022/R/gas.

<sup>44</sup> Resolution of 23 September 2022, 440/2022/R/gas.

<sup>45</sup> Resolution of 24 June 2022, 274/2022/R/gas as subsequently amended and supplemented.





During 2022, several **codes for transmission, storage and regasification services** were updated, in order to incorporate new regulatory provisions, provisions of ARERA or management methods aimed at improving service provision.

The Russian-Ukrainian crisis led to a change in gas supply flows to Europe associated with a tense situation on the energy markets, characterised by high prices and extreme price volatility. In order to address the possible repercussions on the security of national energy supplies, also in application of specific regulatory provisions, ARERA adopted - between March and December 2022 - measures aimed at facilitating the coverage of gas demand for the winter of 2022-2023 (in particular with regard to storage and regasification) and measures to regulate technical interruptibility and withdrawals from the transportation networks of industrial customers.

As part of last year's activity, the final costs incurred by the largest transmission company in 2021 for the **monitoring of the natural gas wholesale market**, the Activity Plan and the corresponding cost estimate submitted by the largest transmission company in connection with the wholesale gas market monitoring activity for 2023.

Following the Russian-Ukrainian crisis and the consequent abnormal increase in gas prices, the Government established that, for monitoring purposes, the holders of contracts for the supply of gas volumes for the Italian market are required to transmit, the first time within fifteen days from the date of entry into force of the decree, to the MITE (now the MASE) and to ARERA the same contracts and the new contracts that will be signed, as well as any amendments thereto, also within the fifteen-day period; and that the information transmitted is processed in compliance with the requirements of confidentiality of commercially sensitive data. ARERA has therefore defined the modalities for the transmission of gas volume supply contracts for the Italian market<sup>46</sup>.

During the year, ARERA also proceeded with the implementation of the **regulation of bonuses-penalties for the security of the distribution service** in force for the period 2014-2019, providing, *inter alia*, for an advance in the amount of 80% on account of the total net amount of bonuses for the year 2019 due (algebraic balance of bonuses and penalties).

In May, as a result of its control of the **tariff recommendations** submitted by the transmission companies pursuant to the RTTG 5PRT, ARERA approved the reference revenues and determined the tariff fees for the natural gas transmission and metering service for 2023. During the year, guidelines on the determination of revenues and reference prices of the natural gas transmission and metering service for the sixth period (6PRT, 2024-2027) and also on the criteria for the incentive and efficiency of the operation and development of the natural gas transmission network for the 6PRT<sup>47</sup> were put out for consultation.

ARERA has initiated proceedings to define the regulatory framework applicable to the facilities identified by the Prime Ministerial Decree of 29 March 2022 concerning works and facilities necessary for the phase-out of the use of coal in Sardinia, with particular reference to the services of the so-called *virtual pipeline*. The proceedings are expected to be concluded in the course of 2023.

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<sup>46</sup> Resolution No. 143/2022/r/gas of 30 March 2022 implementing Decree-Law No. 21 of 21 March 2022.

<sup>47</sup> Consultation Documents 213/2022/R/gas and 502/2022/R/gas, 616/2021/R/gas and 336/2022/R/gas 48 Resolution of 28 June 2022, 278/2022/R/gas.

Still on the subject of tariffs, ARERA approved the reference revenues and determined the tariff fees for the **LNG regasification service** for 2023<sup>48</sup> and initiated proceedings for the adoption of measures regarding the criteria for tariff regulation of the LNG regasification service for the sixth regulatory period (6PR LNG, 2024-2027), which starts on 1 January 2024. The proceedings are expected to be concluded in the course of 2023<sup>49</sup>. In August, as a result of its review of the tariff recommendations submitted by the storage companies pursuant to the RTSG 5PRS, the company revenues for the storage service for 2023, were approved<sup>50</sup>. Finally, in 2022, ARERA carried out the infra-period update of the regulation of tariffs for **gas distribution and metering services** for the regulatory period 2020-2025 (RTDG) with reference to the three-year period 2023-2025.

## Ten-year network development plans

On 29 March 2022, ARERA launched the public consultation of the Plans for the Development of Natural Gas Transmission Network for 2022. As part of this consultation, which ended on 31 May 2022, an online public session was organised by the largest transmission operator company, on behalf of ARERA, to present and discuss specific aspects of the Plans and to answer questions submitted by stakeholders, which took place on 04 May 2022. ARERA finally issued its assessments on the Ten-Year Plans for the 2022 Development of Natural Gas Transmission Networks, together with its assessments on the Ten-Year Plans for the 2021 Development of Natural Gas Transmission Networks<sup>51</sup>.

## Tenders per distribution service concession area

The main measures adopted in the course of 2022 in the field of tenders by concession scope concerned the analysis activities carried out by ARERA pursuant to Legislative Decree No. 164/2000 and Interministerial Decree No. 226/2011, concerning the deviations between reimbursement value and RAB and the tender documentation submitted by the contracting stations<sup>52</sup>.

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48 Resolution of 28 June 2022, 278/2022/R/gas.

49 Resolution of 27 July 2022, 356/2022/R/gas.

50 Resolution of 02 August 2022, 384/2022/R/gas.

51 Resolution of 20 December 2022, 696/2022/R/gas.

52 For a detailed description of the activity, see chapter 4 (paragraph 3) of Volume 2.

## Appendix 2: COMMON ASPECTS OF FACILITIES REGULATION<sup>53</sup>

ARERA's 2022-2025 Strategic Framework<sup>54</sup> envisages as a strategic objective the development of an integrated approach of "Regulation by Cost and Service Objectives" (ROSS), to be applied to all regulated facilities services of the electricity and gas sectors both with regard to the general criteria for determining the recognised cost (ROSS-base), and - for the main operators - with regard to the planning of activities, the cost *baseline* and expected *outputs* (ROSS-base).

Parallel to this procedure, ARERA initiated another one dedicated to the development of the ROSS-integral<sup>55</sup>, aimed at defining the framework of general rules for the application of this model to individual regulated services and, in first application, to larger operators<sup>56</sup>.

Other measures relating to facilities regulation were: the determination and updating of the rate of return on invested capital in the second regulatory period (II PWACC) and the preliminary certification of Snam Rete Gas and Infrastrutture Trasporto Gas as gas transmission grid operators (as part of the regulation on *unbundling*).

## Appendix 3: RETAIL MONITORING

Acknowledging EU indications, national legislation<sup>57</sup> established that ARERA should monitor the retail markets, with reference to the electricity and natural gas sectors. This activity was initiated by ARERA, for both sectors, with reference to the mass sales market, with the Integrated Text of the Electricity and Natural Gas Retail Market Monitoring System (TIMR).

All the contents of the retail monitoring data and analyses, together with new indicators being developed, are published on the retail monitoring web page on ARERA's website<sup>58</sup>.

<sup>53</sup> For more details, see Chapter 5, Volume 2 of the Annual Report.

<sup>54</sup> ARERA Resolution 13 January 2022, 2/2022/A.

<sup>55</sup> Resolution of 25 October 2022, 527/2022/R/com.

<sup>56</sup> The procedure has two different deadlines: 31 December 2023 for the framework resolution containing the general criteria for ROSS-integral regulation; 31 December 2024 for sector-specific measures for the various regulated services.

<sup>57</sup> Legislative Decree No. 93 of 1 June 2011, implementing Directives 2009/72/EC and 2009/73/EC.

<sup>58</sup> [https://www.arera.it/it/dati/monitoraggio\\_retail.htm](https://www.arera.it/it/dati/monitoraggio_retail.htm).

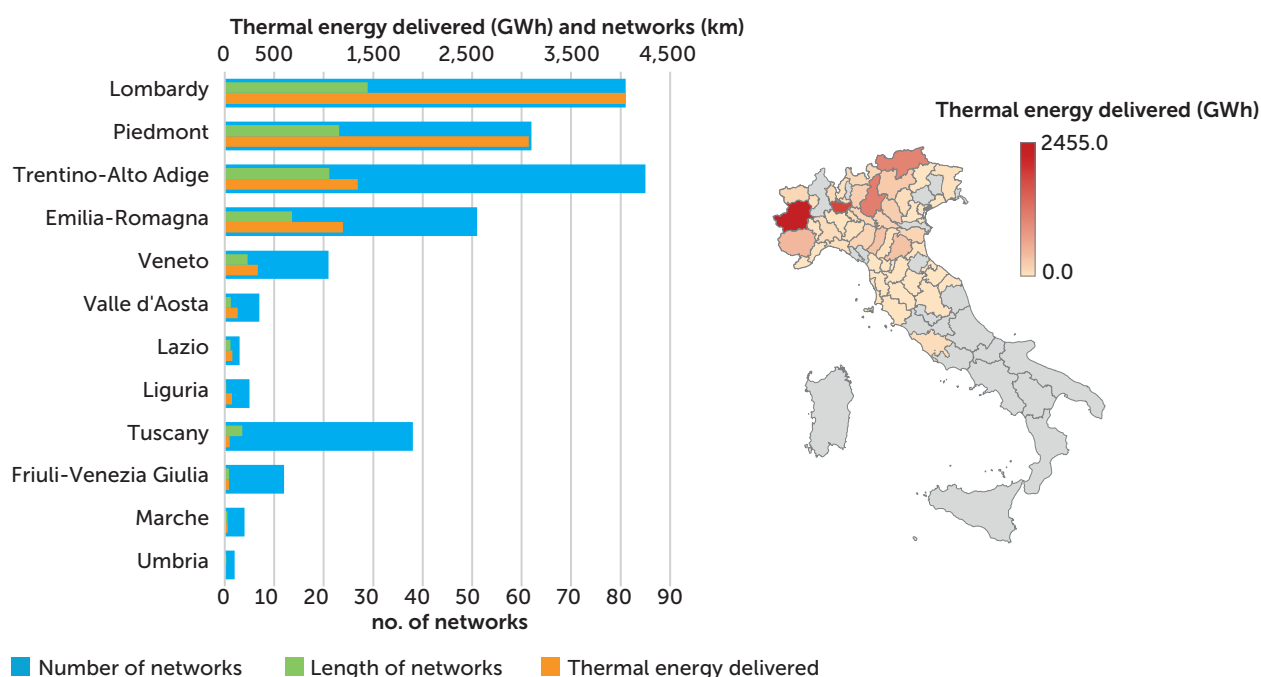
# ENVIRONMENTAL SEGMENTS

## DISTRICT HEATING

### State of services

Although they are very common in some North-Eastern European countries, in Italy the spread of district heating systems is limited<sup>59</sup> but with a historically growing trend: the increase in the extension of the networks recorded in 2021 was 138 km while the connected volume grew by about 1.8% (in both cases, there was a slowdown in growth compared to previous years).

**FIG. 4.2** Geographical distribution of district heating networks in 2021 (number of networks, extension and thermal energy delivered in GWh)



Source: ARERA.

In 2021, thermal power stations serving district heating networks produced 12,331 thermal GWh, 7,185 electric GWh and 129 refrigeration GWh. Compared to the previous year, the following were on the rise: heat supplied to users (+9%), the supply of cooling energy (+4.2%), and the quantities of electricity produced by power plants serving district heating networks and fed into the national grid (+15.9%). Natural gas remains the clearly predominant energy source with 72.1% of total energy consumption, while renewables almost completely cover the remaining share with the main contribution coming from waste (15.4%) and bioenergy (biomass, biogas and bioliquids, at 9.5%).

<sup>59</sup> The 5 regions of the North in which they are most widespread (Lombardy, Piedmont, Trentino-Alto Adige, Emilia Romagna and Veneto), alone represent more than 96% of the thermal energy dispensed by district heating systems.



The energy distributed by the district heating networks is mainly used for environmental climate control (heating and cooling) and for the production of hot water for sanitary use, while use in industrial processes is only marginal. A significant share of the market consists of residential (64.9%) and tertiary (32.2%) users, while the demand of the industrial sector remains marginal (2.8%). 69% of users have a contracted power of 50 kW or less, while 24% have a capacity of more than 50 and up to 350 kW and only 7% have a capacity of more than 350 kW. Larger users, despite being relatively few in number, account for a large share of total consumption (over 50%)<sup>60</sup>.

The number of companies operating on district heating networks was 258: of these, 86% generally deal with activities that are strictly linked to the operation of networks and the supply of thermal energy to users (distribution and/or metering and/or sale), while the remaining share only deals with the production of thermal energy<sup>61</sup>.

The supply price of the district heating service is freely defined by each operator on the basis of the features of its district heating system, its users and the territory served. The two main ways of determining the price are based on the costs incurred (the objective of ensuring the operator's economic and financial balance and guaranteeing an adequate return on the invested capital) or on the avoided cost (the objective of providing the user with an affordable price for the service compared to the cost he/she would have incurred by using an alternative air-conditioning technology).

Starting in the last quarter of 2021, there was a significant increase in the prices of district heating service: the median value of prices rose from a low of € 81/MWh in the third quarter of 2020 to a high of € 191/MWh in the first quarter of 2022. For this reason, ARERA initiated a fact-finding investigation into price and cost developments for the period between 1 January 2020 and 31 March 2022, through specific data collection that covered the largest operators in the sector to which more than 80% of market volumes correspond.

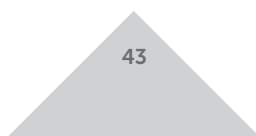
The fact-finding investigation revealed potential critical issues in relation to both market dynamics and, limited to some contexts, the fairness of the prices charged. In particular, with reference to market dynamics, the prices charged by district heating service operators were generally higher than the cost of providing an equivalent service through a gas boiler. Regarding the fairness of the prices charged, on the other hand, in some networks, characterised by a significant use of waste-to-energy plants for the production of thermal energy, there has been a progressive misalignment between service costs and revenues. The growth in revenues, resulting from the use of the avoided cost method for pricing, was not followed by a corresponding growth in variable production costs.

In light of the findings yielded by the fact-finding investigation, ARERA brought to the attention of the Parliament and the Government<sup>62</sup> the advisability of introducing a cost-reflective regulation of district heating service prices, so as to simultaneously overcome the critical issues encountered in the functioning of the market and ensure fairness in service prices. In district heating systems with lower thermal energy production costs, it would also be possible to pass on part of the benefits to the users, with positive social and economic effects. The guarantee for operators to recover their costs and to obtain an adequate rate of return on their invested capital could, moreover, ensure a favourable environment for further development of the sector, even where there is a reduction in the service prices.

<sup>60</sup> Source: AIRU.

<sup>61</sup> The number of district heating operators offering a district heating service is still small, approximately 12% of the total, and for some the service covers only limited portions of the area served by district heating networks.

<sup>62</sup> Report 568/2022/I/tr.



As far as the price of providing the district cooling service is concerned, this is in all cases determined on the basis of the avoided cost method. The reference technology is generally a cooling system powered by electricity, although there are also cases where the alternative technology taken as a reference is powered by natural gas.

With similar dynamics as in the case of district heating, in the formula for pricing with the avoided cost method, the most relevant variables are the performance of the alternative reference plant and the assumptions for pricing electricity (or gas), in relation to which there are considerable differences between the different operators. As far as the price of electricity is concerned, most operators refer to the prices of the protection service published by ARERA; alternatively, average energy prices as shown in the bills of individual users are used.

## Quality of service

As part of the technical quality regulation (RQTT<sup>63</sup>), ARERA has imposed a number of information obligations on operators in the sector that are relevant for security and continuity of service. Last year, data from 176 operators was analysed, covering 325 networks and the year of operation 2021.

As far as the regulation of commercial quality is concerned, ARERA has laid down specific disclosure obligations for operators in order to monitor the quality of service and compliance with minimum standards. Last year, data referring to 2021 of 175 operators (30 larger, 88 medium-sized and 57 micro-merchants) was analysed.

Finally, in 2022, operators were asked to report certain information about the characteristics of the fleet of meters installed at users' premises and on the commercial quality services performed on the meters. This is pending full implementation of the relevant regulatory framework (TIMT<sup>64</sup> reporting obligations apply from 2023). The data collected refers to a sample of 84 operators with a total of 179 networks and over 112,000 meters supplying thermal energy to users.

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<sup>63</sup> The RQTT is the regulation governing the technical quality of district heating and cooling services for the regulatory period 1 January 2021 - 31 December 2023, Annex A to Resolution 548/2019/R/tlr. of 17 December 2019.

<sup>64</sup> The TIMT is the Integrated Text for the regulation of metering in district heating and cooling services for the regulatory period 1 January 2022-31 December 2024, Annex A to Resolution 478/2020/R/tlr of 17 November 2020.

## Activity carried out

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In the course of 2022, ARERA defined **simplified withdrawal rules** to facilitate the disconnection from inefficient district heating systems, if the user's energy needs can be met with systems that guarantee greater savings of non-renewable primary energy<sup>65</sup>.

The regulatory and control powers in the field of district heating conferred on ARERA by law<sup>66</sup> also include the task of defining the **minimum requirements**, in terms of characteristics and performance, of **heat supply meters**. Following the consultation<sup>67</sup> in which ARERA presented its guidelines, to which the operators responded with a request for a cost-benefit analysis to verify the technical-economic feasibility of each of the proposed requirements, a measure was drawn up with the first provisions on the minimum requirements for meters, postponing the completion of the regulation until 2023.

During the year 2022, ARERA continued its activity of **evaluating the exclusion requests** submitted by operators in the sector<sup>68</sup>: as at 31 December 2022, 118 heat distribution networks were excluded from regulation.

Finally, with the aim of monitoring the state of the sector and verifying compliance with the regulation introduced by ARERA, two Data Collection sessions<sup>69</sup> were launched in May and September on commercial and technical quality respectively.

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<sup>65</sup> Resolution of 04 October 2022, 477/2022/R/tr.

<sup>66</sup> Legislative Decree no. 102 of 4 July 2014.

<sup>67</sup> Consultation document of 31 May 2022, 244/2022/R/tr.

<sup>68</sup> In accordance with the terms of Resolution 574/2018/R/tr of 13 November 2018.

<sup>69</sup> "Integrated district heating data collection - Reference year 2021" and "District heating technical quality data collection - Reference year 2021".

# INTEGRATED WATER SERVICE

## State of services

### Technical quality

Starting from the year 2018, ARERA introduced a specific regulation on the technical quality of the integrated water service (SII)<sup>70</sup>, based on a mechanism of “bonuses-penalties” associated with the achievement of objectives set by “macro-indicators”, with the intention of promoting a continuous improvement in the quality of the service provided to the users of the integrated water service.

Since the start of the technical quality regulation, two specific surveys have been carried out to collect the main data on the facilities aspects and the technical quality of the integrated water service. The most recent one was completed on 30 April 2022 and concerned the collection of final technical data for the years 2020 and 2021<sup>71</sup>.

MACRO-INDICATORS DEFINED BY THE RQTI	
M1	Limitation of water leakage in water supply networks and plants
M2	Maintaining continuity of the drinking water service, based on the measure of frequency of service interruptions
M3	Adequacy of supplied water quality
M4	Minimisation of the environmental impact of wastewater conveyance, measured by the degree of adequacy of the sewerage system
M5	Minimisation of the environmental impact related to wastewater treatment
M6	Minimisation of the environmental impact associated with high effluent disposal from water treatment

As already noted in the last version of the Annual Report, there would appear to be progress made in the process of comprehensive improvement in the technical quality indicators identified by ARERA and a slight but stable growth in the number of operators for which facility and quality data is periodically surveyed by the governing Bodies, also with reference to the localised management teams in the geographical area of the South and islands.

Specifically, at the national level, the value of **water leakage (M1)** averages 41.8% or 17.9 m<sup>3</sup>/km/day, with lower values in the North and higher average values in the Centre and the South and Islands. The technical quality regulation stipulates that the reliability and trustworthiness of the data used for the determination of this macro-indicator shall be verified, for each management, through the adoption of a specific prerequisite which requires that at least 70% of the total process volumes are subject to measurement and that at least 90% of the total user volumes are derived from the reading of a meter installed at the user’s premises. In 2021, high volume

<sup>70</sup> Resolution 917/2017/R/ldr on the “Regulation of the technical quality of the Integrated Water Service or of each of the individual services comprising it (RQTI)”.

<sup>71</sup> Resolution of 15 March 2022, 107/2022/R/ldr.





measurement rates were recorded at national level, with reference to both the process measure (91.9%) and the user measure (95.4%)<sup>72</sup>. About **service interruptions (M2)**, 71% of the population is served by operators that have ensured a good continuity of service delivery, placing them in class A (corresponding to a duration of interruptions of less than 6 hours/year per user), 16% of the population is served by operators ranking in class B (interruptions of less than 12 hours/year/user), 13% of the population is served by operators ranking in class C (average duration of interruptions of service per user of at least 12 hours/year).

The greatest difficulties in maintaining adequate levels of service continuity are to be found in the South and Insular area, where an average value of interruptions per user per year of 204 hours was recorded, while values were on average lower in the North West and North East (both below one hour) and in the Centre (31.55 hours/year). The analysis of data on the indicator of the **quality of water supplied (M3)**<sup>73</sup> shows, overall, good improvements in relation to the quality of water delivered compared to the initial situation in 2016. The average value of the incidence of non-potability orders is 0.088% with rates of non-compliant samples and parameters of 3.95% and 0.23% respectively. 29% of the population is in an optimal situation and 45% is in an intermediate situation. For the remainder of the sample, 10% of the cases show a limited number of non-potability orders combined with a high rate of non-compliant samples and parameters, while the remaining 17% are served by operators for whom significant impacts in terms of the number and/or duration of non-potability orders during the year were recorded. In this respect, the application rate of Water Safety Plans<sup>74</sup> (WSPs) was also assessed.

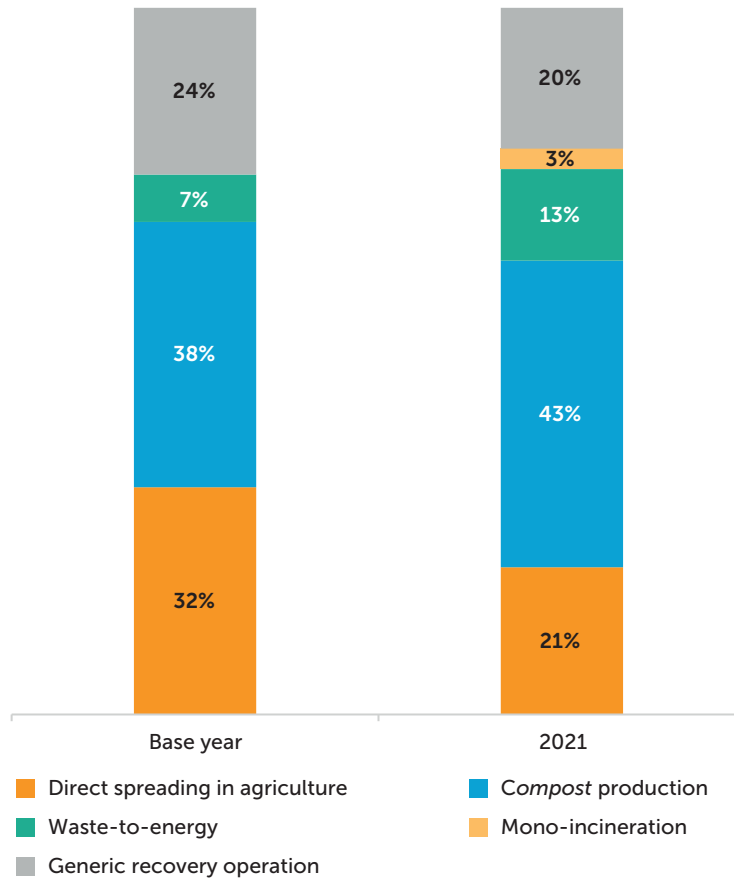
The number of operators that have adopted, even partially and/or only on a limited portion of the served territory, the Water Safety Plan model, is increasing, having risen from 27 operators surveyed for the year 2019 to 42 operators, corresponding to 61% of the total population served. A trend of improved performance was also noted for the **sewerage service (M4)**, with a significant increase in the number of operators that are in the best class (from 8% of the population served in 2016 to 22% in 2021) and a similar reduction in operators that are in the worst class. The average figure for the frequency of flooding and sewerage spills is 4.6 per 100 km of sewerage network (with a peak of 10 per 100 km in the South and Islands), 20% of the flood drains are still to be adapted to current regulations (indicator M4b) and 14% of the flood drains are not controlled. In 2021, at the national level, the **production of sludge from sewage plants (M5)**<sup>75</sup> amounted to 432,684 tonnes of dry matter: the rate of landfilling of the same was 8.7% of the total sludge produced, although with very different levels between the different geographical areas (in the North-West it was 1.6%, in the North-East and the Centre the values were close to 14%, and the figure was 9.2% for the South and Insular area). Compared to the base year survey, in addition to an increase in the sludge recovery rate against a decrease in landfilling, there is a change in the allocation among the final destinations of recovered sludge over time.

72 On the subject of metering, a specific regulation introduced with Resolution 218/2016/R/ldr, entitled "Regulation of the metering service within the integrated water service at national level" (TIMSII), has been in force since 2016.

73 For the assessment of this macro-indicator, the presence and magnitude of non-potability ordinances and the rate of non-compliance are considered.

74 Introduced in Italy by the Decree of the Ministry of Health of 14 June 2017 and now reinforced in Legislative Decree no. 18/2023. The innovation associated with these plans is the introduction of a preventive approach - based on risk analysis - in the management of water supply network systems, replacing the current reactive management method. 75 The macro-indicator M5 is defined as the percentage ratio between the quantities of sewage sludge destined for final disposal in landfills and the total quantities recorded at the output of the managed sewage treatment plants. e tra i quantitativi di fango da depurazione destinati allo smaltimento finale in discarica e le quantità complessive registrate in uscita dagli impianti di depurazione gestiti.

**FIG. 5.33** Breakdown of sewage sludge recovery operations



Source: ARERA, processing of data related to the Collection "Technical quality - monitoring (RQTI 2022)" (Resolution 107/2022/R/ldr).

Regarding the environmental impact related to the **discharge of purified wastewater (M6)**, compared to the regulation start-up phase, an improvement in the results achieved can be noted: the national average value assumed by the macro-indicator is 8.8%. A detailed analysis of the data for 2021 shows that 15% of the population is served by operators with optimal conditions of purified water quality (class A)<sup>76</sup> compared to 7% in the base year; 35% and 15% of the sample are in classes B and C respectively, while 22% of the population is served by operators with a rate of exceeding the limits of more than 10% (class D). Finally, 13% of the inhabitants were found not to have met the prerequisite.

<sup>76</sup> Class A is characterised by an exceedance rate in wastewater samples of less than 1%, Class B between 1% and 5%, Class C between 5% and 10%, Class D more than 10%.



From a plant engineering point of view, the use by an increasing share of operators of advanced wastewater treatment technologies also has positive repercussions in relation to the reuse of purified wastewater. On the basis of 2021 data, it can be seen that the volumes that can potentially be used for reuse make up approximately 21% of the total purified volume, while the volumes that are actually reused (mainly for irrigation use) stand at values close to 4% of the total purified volume. Finally, with regard to energy consumption, about 30% of the total electricity consumption for the integrated water service is attributable to the purification service<sup>77</sup>, a share that is substantially stable despite the improvement achieved in relation to the macro-indicators of the purification service.

## Investments and tariffs

During 2022, an additional **loan facility** of the Next Generation EU package on “Reducing leakage in water distribution networks, including digitisation and monitoring of networks” for the entire country<sup>78</sup> was finalised. This measure made it possible to allocate, in two different timeframes in the second half of 2022, an additional € 900 million for specific projects in the sector, thus contributing to investment spending in the integrated water service for a total of € 2.4 billion over a period of time between 2021 and 2026, while waiting for the completion of the preparatory activities for the release of a further 600 million euro of resources to support interventions for the modernisation of sewerage and purification facilities (also for the purpose of overcoming EU infringement procedures), the subject of M2C4-I4.4 of the PNRR. At the national level, the disbursement of resources for the first part of the “water supply networks” section of the National Plan of Interventions in the Water Sector<sup>79</sup> necessary to mitigate the damage caused by water scarcity phenomena, through the upgrading and adaptation of water facilities, continued in 2022.

Last year, ARERA started the investigations for the two-year update (2022-2023) of the regulatory schemes submitted by the competent sphere governing bodies for the third regulatory period 2020-2023 (MTI-3). The investigations concerned the verification, among the acts constituting the regulatory scheme of each management, of the **Programme of Interventions (PoI)** and of the **Strategic Works Plan (SOP)** introduced by the MTI-3 in order to take into account the long-term effects of any works of strategic importance characterised by significant technical complexity, whose multi-year implementation time-frames go beyond the current regulatory period.

The analysis of **investment needs**<sup>80</sup> for the period 2022-2023 at the national level confirms the concentration of the operators’ efforts on containing the level of water leakage, which exceed 27% of the planned investments (up from 22% in last year’s analysis). This was followed by investments to improve the quality of purified water at 16.1% (they were at 18.1%), investments to reduce water shortages 15.3% (13.5%), and investments to upgrade the sewerage system at 13.5% (13.9%). The share of investments in integrated water service infrastructure that cannot be directly attributed to specific technical quality objectives set by ARERA stands at 10.5%.

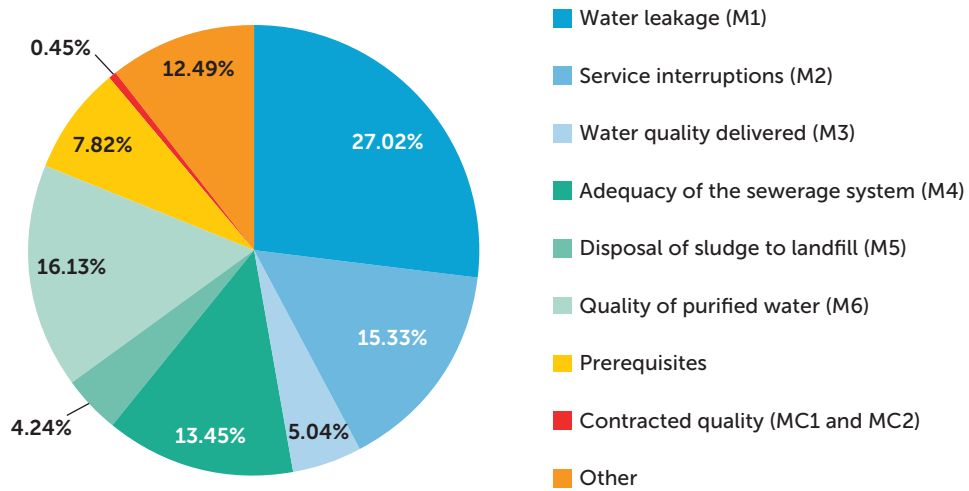
<sup>77</sup> This amounts to approximately 0.36 kWh per cubic metre of purified volume and to 35 kWh per inhabitant equivalent treated.

<sup>78</sup> The resources are in addition to those of line M2C4-I4.1 of the National Recovery and Resilience Plan for interventions in primary water facilities for the security of water supply also for irrigation services (more than 1 billion euros compared to a total allocated resources value of 2 billion) and Axis IV of the National Operational Programme “Facilities and Networks” 2014-2020 (PON IeR) for the reduction of leakage and the development of the digitalisation and monitoring of networks destined to a group of Regions located in Southern Italy and the Islands (Molise, Campania, Apulia, Calabria, Sicily) worth more than € 476 million.

<sup>79</sup> Adopted by Prime Ministerial Decree of 1 August 2019.

<sup>80</sup> The reference sample consists of 120 operators serving a total of 46,142,604 inhabitants.

**FIG. 5.43** Distribution of planned investments for 2022-2023

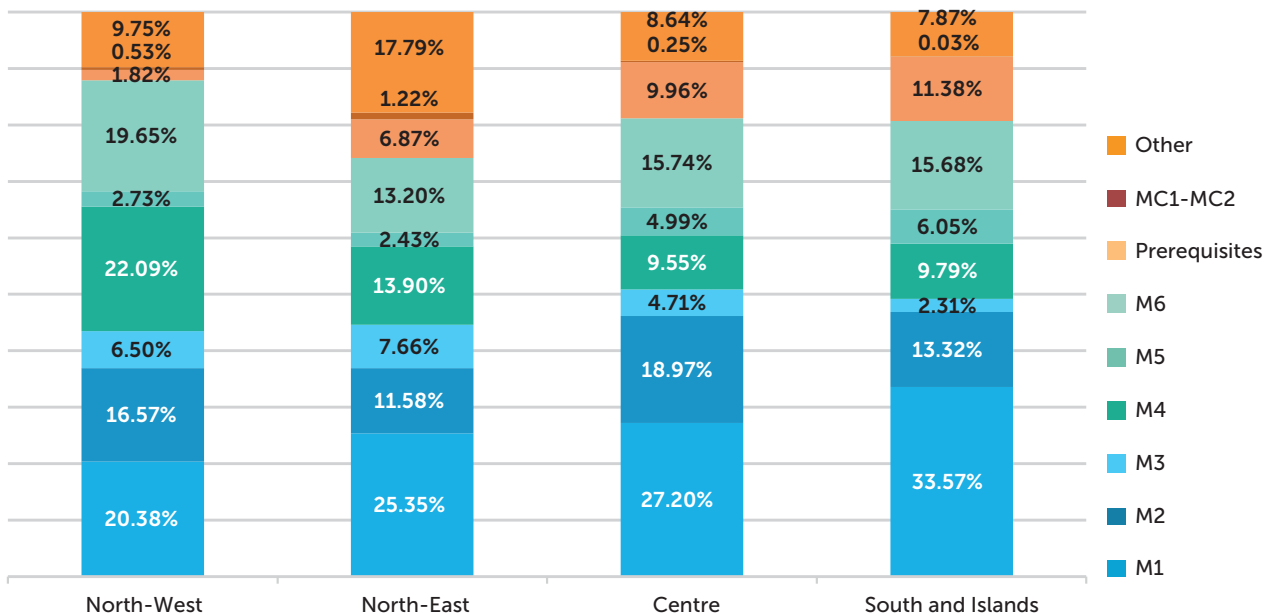


Source: ARERA, processing of data relating to the update of the third regulatory period (resolution 639/2021/R/idr).

There is a slight reduction in the weight of interventions aimed at overcoming critical situations in agglomerations condemned by the European Court of Justice for non-compliance with Directive 91/271/EEC as a result, among other things, of the progress (and relative conclusion) of some of the interventions aimed at resolving critical situations.

In general service terms, the national framework for the two-year period, also for the reasons explained previously, is more oriented towards planned investments in water supply network facilities (45.6%) than in sewerage networks and purification plants (overall 40.66%), although differences remain between individual geographical areas: in the North-West there is a greater need for sewerage and water treatment facilities, while in Central Italy the gap between the two phases increases in favour of water supply network facilities.

**FIG. 5.44** Distribution of planned investments for 2022-2023 by geographical area (in percent)

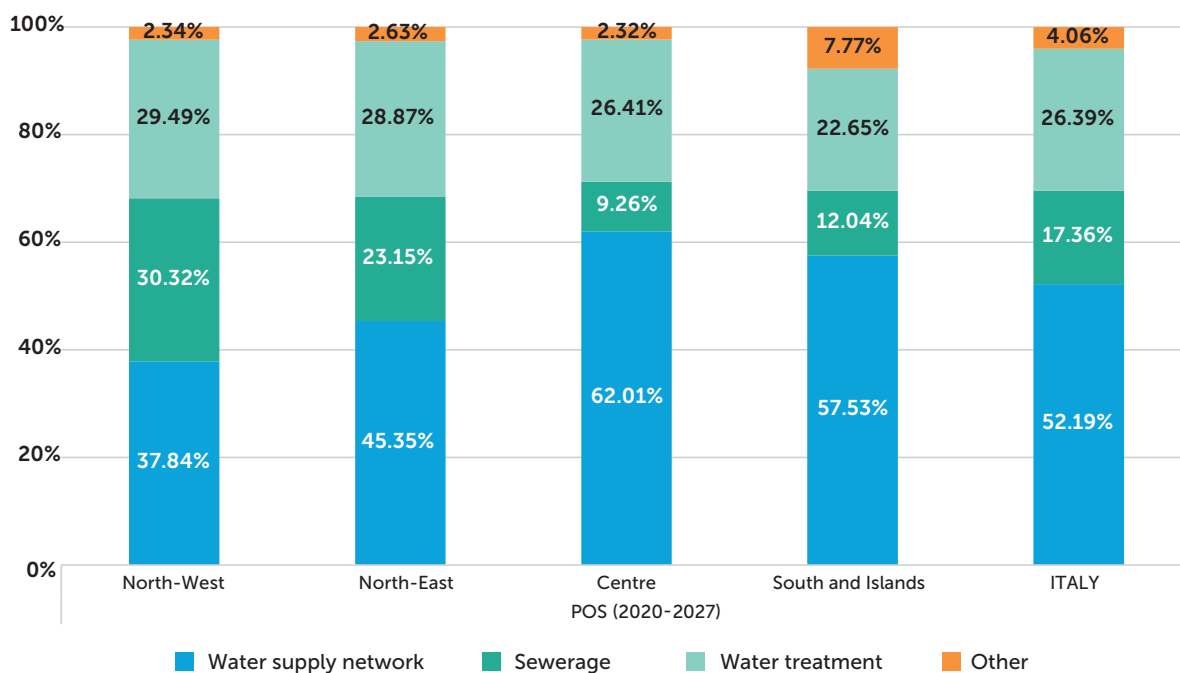


Source: ARERA, processing of data relating to the update of the third regulatory period (resolution 639/2021/R/idr).

From the survey carried out on the submitted Pols, it was possible to quantify at almost € 700 million (€ 690.1 million) the resources clearly attributable by the ambit government bodies to interventions financed by the Next Generation EU package in the two-year period 2022-2023, mainly allocated in the second year of the two-year period. This sum includes the share of resources co-financed by the operator's tariff, while the planned share of the public contribution over the same period amounts to just over € 478 million (approximately 16% of the budget for the integrated water service).

The **requirement for strategic works** comprehensively expressed by the sample of Strategic Works Plans, analysed within the framework of the tariff update for the two-year period 2022-2023, amounts to approximately € 11.4 billion, equivalent to € 246.74/inhabitant, an increase compared to the survey carried out in the previous Annual Report for the same period (€ 10.3 billion, equivalent to € 205.7/inhabitant), a sign of greater recourse to medium-long term planning by EGAs and operators. The works contained in the Plans are mainly concentrated in the supply and distribution phase (52.19% of the total requirement at national level) but with marked differences at geographical level, as shown in the following figure.

**FIG. 5.47** Investment needs expressed in the strategic works plan by service and geographical



Source: ARERA, processing of data relating to the update of the third regulatory period (resolution 639/2021/R/idr).

ince July 2022, ARERA has been conducting investigations for the approval of the two-yearly (2022-2023) update of the tariff arrangements<sup>81</sup> of 48 operators (covering 26,890,209 inhabitants)<sup>82</sup>.

Compared to 2021, the average change in user fees was +4.97%<sup>83</sup> with a certain degree of geographic heterogeneity: +3.32% in the South and Islands, +4.42% in the North-East, +5.36% in the Centre and +6.26% in the North-West. On the basis of the Pols transmitted to ARERA, the planned investments (net of public contributions) stand at € 208/inhabitant at a national level (corresponding to € 52/inhabitant/year), with values of € 286/inhabitant in the

<sup>81</sup> In some cases, checks were also concluded on the preparations for the years 2020 and 2021, referring to contexts characterised by certain complexities in the proposals for the third regulatory period 2020-2023.

<sup>82</sup> The figure is updated to May 2023.

<sup>83</sup> In this case, the reference sample consists of 118 operators serving 45,964,838 inhabitants.

Centre and € 232/inhabitant in the North-East, € 195/inhabitant in the North-West, while in the South and Islands the value stops at € 132/inhabitant<sup>84</sup>.

The verifications carried out with reference to the cost of fixed assets calculated in the tariff have confirmed the general improvements in the capacity to make the investments planned, with a progress rate of approximately 104%. Taking into account the forecasts for the availability of public funds, the investment expenditure totals € 13.5 billion for the four-year period, going from € 2.5 billion in 2020 to € 3.2 billion in 2021 and 2022 and to € 4.5 billion in 2023.

In 2022, the average expenditure incurred by a typical resident household<sup>85</sup>, including 10% VAT, is € 326/year (€ 2.17 per cubic metre consumed) at national level, with a lower average value in the North-West (€ 232/year) and higher in the Centre (€ 390/year). Considering the various items making up the price paid by households, for annual consumption of 150 m<sup>3</sup>, it is seen that around 39.2% of spending is for the water supply network service, for which, at national level, € 127.7/year are spent. Average national spending for sewerage and water treatment services comes respectively to Euro 39.4/year (12.1% of the total) and Euro 95.3/year (29.2%).

**TAB. 5.18** Average annual expenditure for the integrated water service in 2022 (average expenditure, including VAT, for annual consumption of 150 m<sup>3</sup>; annual expenditure in euro/year, unit expenditure in euro/m<sup>3</sup>)

GEOGRAPHICAL AREA		ANNUAL EXPENDITURE (euro/year)	UNIT EXPENDITURE (euro/m <sup>3</sup> )
North-West	Population-weighted average	231.9	1.55
	Max	509.5	3.40
	Min	118.5	0.79
North-East	Population-weighted average	328.9	2.19
	Max	433.5	2.89
	Min	243.2	1.62
Centre	Population-weighted average	390.4	2.60
	Max	608.9	4.06
	Min	285.8	1.91
South and Islands	Population-weighted average	352.5	2.35
	Max	389.2	2.59
	Min	229.0	1.53
ITALY	Population-weighted average	325.9	2.17
	Max	608.9	4.06
	Min	118.5	0.79

Source: ARERA, processing of data from operators.

<sup>84</sup> The sample consists of 135 management teams serving 48,851,824 inhabitants.

<sup>85</sup> Household of 3 persons, with annual consumption of 150 m<sup>3</sup>

## Contractual quality

In May 2023, the seventh edition of the “contractual quality of the integrated water service”<sup>86</sup> data collection was closed, aimed at allowing ARERA, as part of its regulatory and control functions, to acquire information on the services rendered during 2022. The analysis of the information transmitted confirmed the lack of homogeneity at a geographical level in the fulfilment of the contractual quality data reporting obligations by operators, mainly due to the different features of the organisational structure of the utilities operating in the South and the Islands<sup>87</sup>. An analysis of the data on the specific standards set by the RQSII<sup>88</sup> shows, in 2022, a high level of contractual quality with an average standard non-compliance rate of 3.5% (3.3% in 2021).

As 31 December 2022, compensation payments amounted to approximately € 1.77 million, but a more complete assessment in this regard can be made in the next Annual Report, since, due to the physiological lag time in the disbursement of indemnities, a large part of these will actually be credited in the course of 2023.

Compliance with the general standards set by the RQSII - or with the improvement standards set out in the Service Chart - while showing slightly lower levels than for the specific standards, reveals a good level of compliance with the standard of at least 90% recorded in 2022 for more than half of the indicators considered.

In the aforementioned Data Collection, the IWS operators were also requested to provide a summary of the services performed in 2022 in order to be able to ensure the homogeneous application of the incentive mechanism of bonuses and penalties<sup>89</sup> based on the performance of individual operators with reference to two macro-indicators: “Initiation and termination of the contracted relationship” (MC1) and “Management of the contracted relationship and accessibility of the service” (MC2). For both macro-indicators, against high national average values (96.3% MC1 and 95.3% MC2) the existence of a Water Service Divide emerges once again, indicated by lower average values in the South and Islands area. An analysis of the performance of the two macro-indicators over the period 2018-2022 shows considerable growth (around +25%) for MC1 while MC2 shows substantial stability over the years.

Against the improvement in the performance attributable to the start-up, management and termination phases of the contracted relationship, there are, however, limited tariff impacts: on average, the additional charges connected to the adjustment to the contractual quality standards set by the Authority are, for the 2020-2023 four-year period, equal to about 1 €/inhabitant/year.

<sup>86</sup> The Contract Quality Regulation was introduced by Resolution 655/2015/R/idr of 23 December 2015 and its Annex A and came into force on 1 July 2016.

<sup>87</sup> The panel consists of 262 operations, equal to 51.5 million inhabitants.

<sup>88</sup> The standards “Periodicity of billing” and “Time to issue a bill” were excluded from the analysis because, with approximately 97% of the services performed (70.5 million services in 2022), they would not allow an adequate representation of the other indicators.

<sup>89</sup> The mechanism was introduced in resolution 547/2019/R/idr

## Activity carried out

Since 2015, ARERA has been preparing specific Reports submitted to the Parliament on compliance with the requirements set out in Legislative Decree No. 152/2006, in particular in respect:

- of the regions, for the establishment of the ambit governing bodies (EGAs);
- of the area governing bodies, for the entrusting of the integrated water service (SII);
- of local authorities, in relation to participation in the ambit governance bodies and in relation to the concession of free use of integrated water service facilities to the operators entrusted with the service.

The Reports prepared in 2022<sup>90</sup> highlighted, on the one hand, the improvements that have come to light in the reorganisation of the sector's governance, and on the other, the critical issues still encountered with regard to the correct drafting and updating of the documents necessary for the adoption of the planning and management choices for the integrated water service.

Collaborations with other institutions include the working party set up at the Presidency of the Council of Ministers, whose activities between May and September 2022 provided a contribution to the definition of the reorganisation guidelines for local public services<sup>91</sup>. Within the framework of the activities planned in relation to the Fund for the Promotion of the Conscious Use of Water Resources<sup>92</sup>, ARERA also contributed to the definition of the contents and took part in the information tour organised by the Ministry of the Environment "Ho rispetto per l'acqua", which visited 12 Italian cities in May and June 2022. Also in this context, at the end of July, the Ministry submitted to ARERA an outline of a ministerial decree aimed at defining the modalities of use for the year 2022 of the 'Fund for the promotion of the conscious use of water resources' to which ARERA gave its assent with its observations in its opinion of 2 August 2022, 402/2022/I/idr.

In 2022, ARERA also took part in several inter-institutional working parties for the transposition of European Union legislation and, in particular, for the transposition of the new European Drinking Water Directive, for the transposition of the European Regulation on the reuse of purified wastewater into national law and for the revision of the European wastewater Directive. Again through its participation in groups composed of various institutional actors, but this time at national level, ARERA provided its contribution to the implementation of the "Climate Act"<sup>93</sup> and for updating under the NIS Directive<sup>94</sup>.

Last year also saw the continuation of institutional support for European or international surveys on the water sector, including WHO's GLASS survey<sup>95</sup> and the five-yearly update of the OECD's Product Market Regulation (PMR) indicators. Within WAREG (Association of European Water Regulators), ARERA participated in a TAIEX mission aimed at transferring expertise in the governance and regulation of water services to the government of Turkey.

90 Reports of 19 July 2022, 347/2022/I/idr and of 31 January 2023, 34/2023/I/idr. Article 172, paragraph 3-bis, of Legislative Decree No 152 of 3 April 2006 provides that, by 30 June and 31 December of each year, ARERA shall submit these documents to the Parliament and the Senate.

91 Adopted by Legislative Decree No. 201 of 23 December 2022, after agreement at the Unified Conference, having heard, for the profiles of competence, ARERA (which expressed its opinion on 29 November 2022, 647/2022/I/com) and having acquired the opinion of the parliamentary commissions competent for the subject matter.

92 Established by Article 1, Paragraph 752 of Law No. 178 of 30 December 2020, entitled "State Budget for FY 2021 and multiannual budget for the period 2021-2023"

93 Law No. 141 of 12 December 2019, which converted Decree-Law No. 111 of 14 October 2019 on urgent measures for the definition of a national strategic policy to combat climate change and improve air quality.

94 Network and Information Security Directive, Directive 2016/1148/EU of the European Parliament and of the Council of 6 July 2016 transposed in Italy by Legislative Decree No. 65 of 18 May 2018.

95 "Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS) 2021-2022".





With regard to the activity of updating tariff preparations for the two-year period 2022-2023, ARERA has introduced specific extraordinary measures linked to the extraordinary and documented extent of the increases in energy costs, providing the possibility of requesting from CSEA the activation of forms of financial advance to meet part of the expenses incurred for the purchase of electricity<sup>96</sup>; submitting a justified request for the recognition of additional costs within the quantification of the adjustment component, where the actual cost for the purchase of electricity referred to 2021 is higher than that recognised by the MTI-3 rules. For the purposes of the update, ARERA asked the EGAs or other competent entities identified by regional law, responsible for preparing the tariff, to update the Programme of Interventions (PoI), the Economic and Financial Plan (EFP) and the management agreement. With regard to those entities that did not comply with the obligations to submit the relevant data and information by the deadline of 30 April 2022, ARERA initiated proceedings for the *ex officio* determination of tariffs as well as for the acquisition of further information concerning the cases of exclusion from tariff updating. In the last months of the year, notices ordering compliance with tariff preparation were sent to defaulting operators. Finally, as part of the two-yearly update process, ARERA reviewed the regulatory schemes.

In the course of 2022, ARERA continued to provide its support activity to central administrations aimed at implementing the investment and reform lines of the PNRR that concerned the integrated water service Mission M2 "Green Revolution and Ecological Transition", Component C4 "Protection of the Territory and Water Resources", translated into a series of lines of action:

- M2C4 - I4.1 "Investments in primary water facilities for security of supply", for which a total of € 2 billion has been earmarked
- M2C4 - R4.1 "Regulatory simplification and strengthening of governance for the implementation of investments in PNRR water supply facilities";;
- M2C4 - I4.2 "Reduction of leakage in water distribution networks, including digitisation and monitoring of networks", for which € 900 million has been earmarked;;
- M2C4 - I4.4 "Investments in sewage and sanitation", to which resources of € 600 million are allocated

With reference to the first part of the National Plan of Interventions in the Water Sector, "water supply networks"<sup>97</sup> section, last year the monitoring and disbursement of the financing quotas requested by the competent reference bodies for the interventions covered by the Plan continued.

In 2022, following up on the regulatory provisions concerning the "Guarantee Fund for interventions aimed at strengthening water facilities, including sewerage and purification networks"<sup>98</sup>, ARERA set up a Risk Assessment Committee at CSEA, chaired by a representative of the Ministry of the Economy and Finance and composed of experts in financial risk assessment representing respectively the Ministry of facilities and Transport, the Ministry of the Environment and Energy Security, the Ministry of Economic Development and an independent expert.

96 By the first deadline (30 June 2022), applications from 9 operators were submitted to CSEA by the relevant EGAs, six of which were accepted resulting in disbursement of the financial advance totalling € 7,466,217. During the next window (1 November 2022 to 30 November 2022), 45 applications were accepted (out of a total of 54 submitted) for a total value of € 134,611,505.

97 The first draft of the Plan is made up of a list of 26 interventions/projects (selected by ARERA in its report of 20 June 2019 (252/2019/R/idr), attributable to facilities of the integrated water service, the coverage of which has been ensured in the amount of € 40 million for FY 2019 and the same amount for FY 2020.

98 Established by Article 58 of Law 221 of 28 December 2015.

The Committee is called upon to express its opinion on the Fund's operating modalities and on the proposals for interventions to be admitted as a credit repayment guarantee, verifying the compliance of the requests with the provisions of the law.

With regard to the Regulation of the Technical Quality of the Integrated Water Service (RQTI), the first award and penalty procedure was completed in 2022, based on the performance achieved by each operator in the years 2018 and 2019, and in parallel, a specific procedure was started for the application of the incentive mechanism for the years 2020 and 2021.

With regard to Contractual Quality, on the other hand, in February last year, the Data Collection for the year 2021 was launched and a measure (to be completed in 2023) was initiated for the application of the incentive mechanism of bonuses/penalties to be quantified starting in 2022 on the basis of the performance achieved in the two previous years, identifying the terms and procedures for the allocation of bonuses and penalties for all the evaluation stages envisaged for the years 2020 and 2021, as well as for the definition of the ranking for the stage of excellence established by the RQSII.

In order to strengthen users' awareness of the services offered by their operator, ARERA also published the technical quality data collected within the framework of the aforementioned proceedings. More specifically, an infographic portal was developed, interactive and with a map structure, freely accessible from ARERA's website ([www.arera.it/it/dati/QTSII.htm](http://www.arera.it/it/dati/QTSII.htm)) and searchable by reference to one's operator or municipality.

In relation to the activities carried out, ARERA was awarded the title of "Best Category Practice" in the "Good Regulatory Practices" contest promoted by the LUMSA University, in collaboration with the AIR Observatory, under the patronage of the Minister for Public Administration and the OECD, on the grounds of having been able to best and cumulatively meet the criteria of innovation, robustness of results and reproducibility.

## WASTE CYCLE

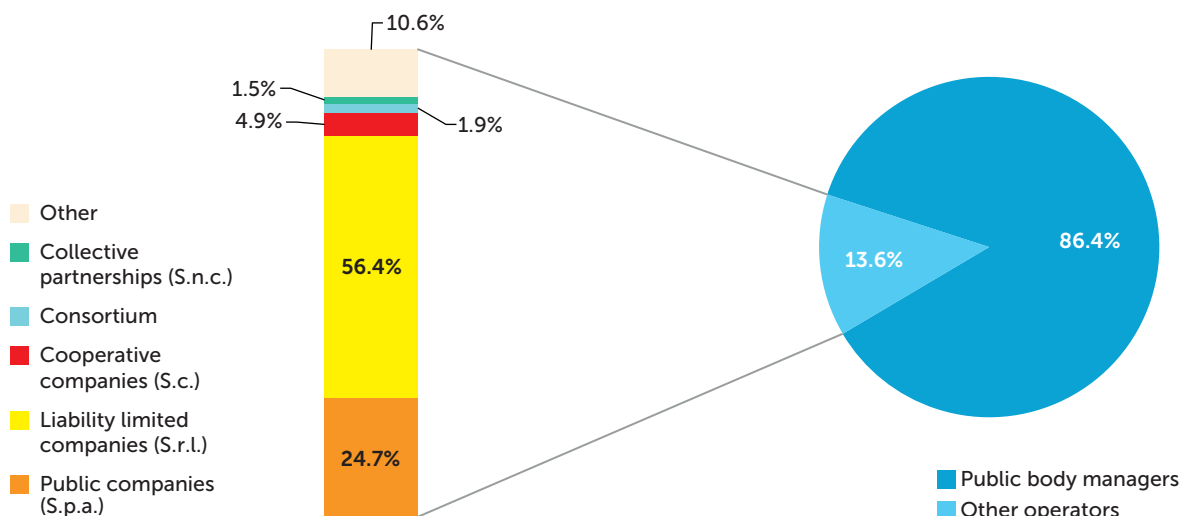
### State of services

In 2022, with the approval of the new MTR-2 tariff method<sup>99</sup>, the second period of tariff regulation for the integrated municipal waste management service began, characterised by the economic-financial planning of the service over a multi-year horizon. ARERA's preliminary investigation and tariff approval activities have, therefore, extended to the period 2022-2025, continuing to involve a very large number of competent bodies and tariff areas. With MTR-2, ARERA also introduced asymmetrical tariff regulation for municipal waste treatment services with a view to strengthening the facilities profile of the sector and promoting system capacity. Consistent with the provisions for the integrated service, the operators and competent bodies concerned were called upon to transmit the first tariff arrangements for recovery and disposal services, subject to evaluation and approval by ARERA.

### Sector structure

As of May 2023, **8,101** subjects were registered in ARERA's Registry of Operators, an increase of 258 new registrations compared to last year. Confirming that the process of territorial organisation of the service is still incomplete, the number of entities registered as territorially competent bodies remains high (at 3,550), albeit gradually decreasing<sup>100</sup>.

**FIG. 6.1** Legal nature of operators registered with the Database

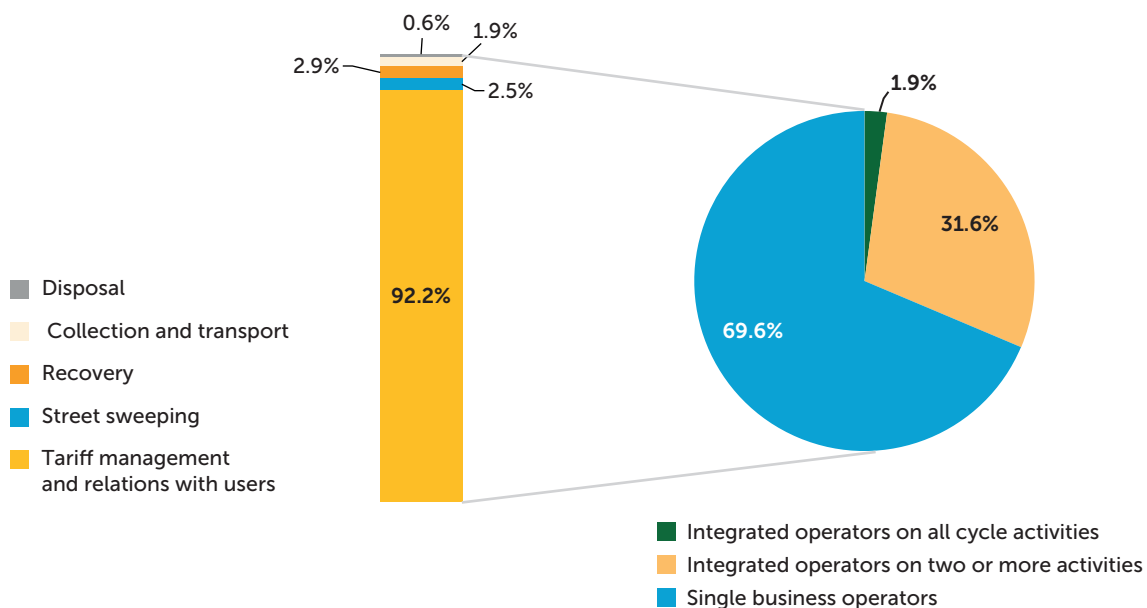


Fonte: ARERA, Anagrafica operatori.

<sup>99</sup> Annex A to resolution 363/2021/R/RF of 03 August 2021 (MTR-2).

<sup>100</sup> For the monitoring of local institutional arrangements, see paragraph 6.1 in Volume 1.

**FIG. 6.2** Operators who have declared in the Register that they carry out only one activity



Source: ARERA, Registry of operators.

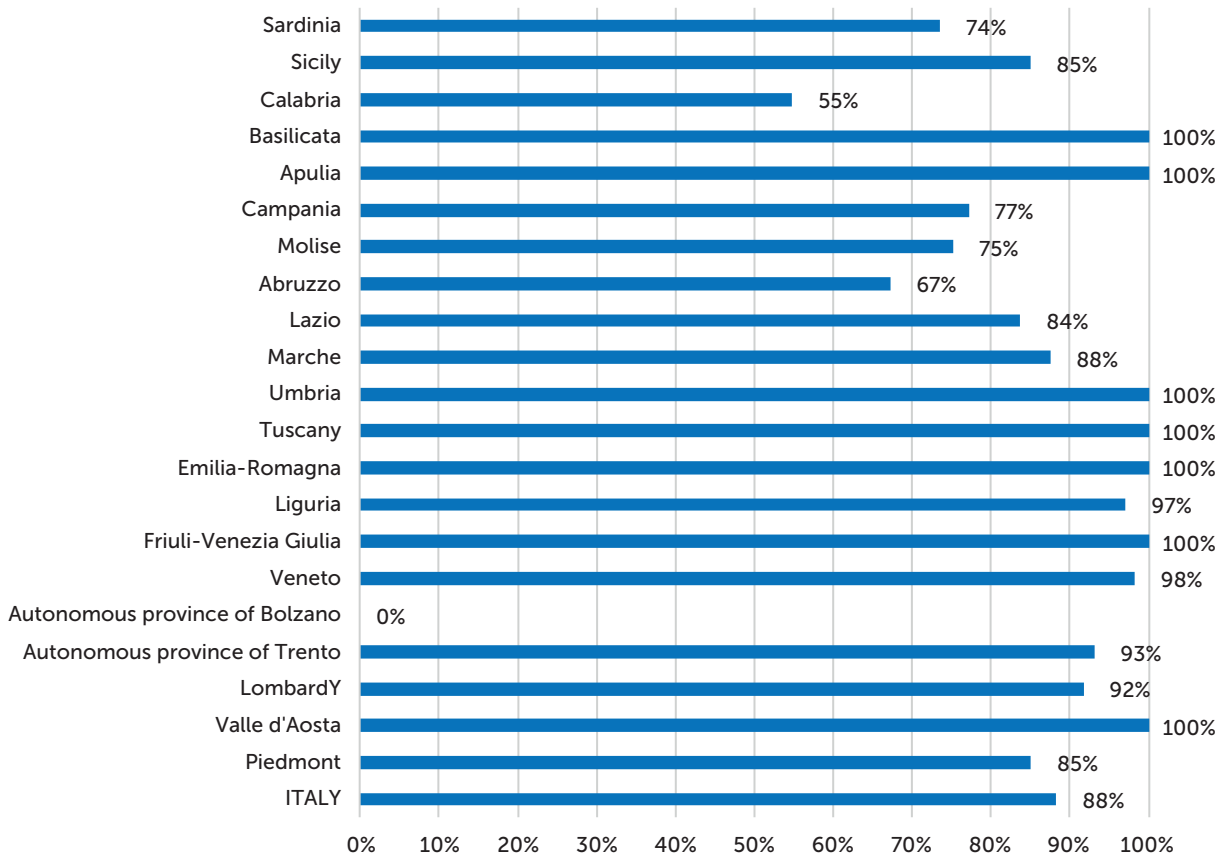
## Waste production and collection

In 2021, national municipal waste production came to approximately 29.6 million tonnes, up 2.3% on 2020. A figure that reflects the post-pandemic economic recovery of the national economy, albeit to a lesser extent than the socio-economic indicators, GDP and household expenditure, which recorded increases of 6.7% and 5.3% respectively. On the other hand, the upward trend in separate waste collection is confirmed (+1% compared to 2020), which in 2021 will be 64% of the national production of sorted waste (19 million tonnes). At the territorial level, the 65% target for 2012<sup>101</sup> is observed in the North-East (73.3%) and North-West (69.6%) regions, while the Centre, South and Islands stand at 60.4%, 56.5% and 54% separate collection respectively. Compared to 2020, the geographical area with the highest increase in separate collection is the Islands (+3.7%) followed by the South (+1.4%).

## State of tariff approvals for the first and second regulatory period

With reference to the 2022-2025 Economic and Financial Plan, ARERA has received the tariff arrangements for 5,987 tariff areas, of which 5,961 are municipal and 26 multi-municipal, with a total of about 52.3 million inhabitants served (corresponding to about 90% of the national population).

101 Legislative Decree No. 152/06

**FIG. 6.12** Tariffs submitted to arera for the period 2022-2025, by region (% population served)

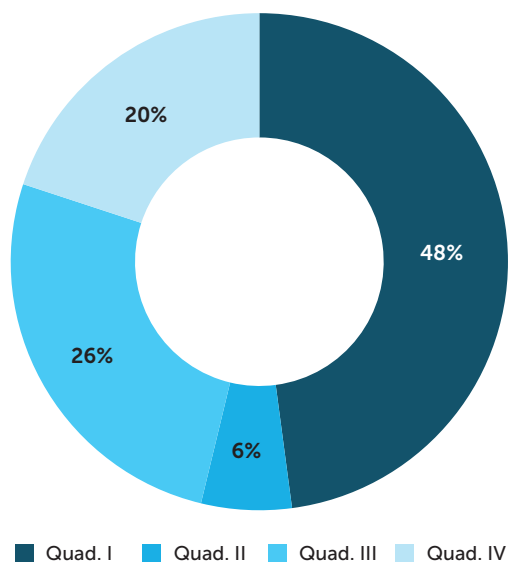
Source: ARERA, processing of tariff preparations for the period 2022-2025.

The transmission was carried out by 2,554 Competent Territorial Authorities, of which 2,485 (97% of the total) work for a single municipality, while the remaining 69 carry out the relevant functions for several municipalities; of these, the largest 20 submitted proposals for 2,294 tariff areas, corresponding to approximately 38.5% of the total number of preparations received. The share of the population affected by the above-mentioned proposals coincides with or is close to 100% for Basilicata, Emilia-Romagna, Friuli-Venezia Giulia, Liguria, Apulia, Tuscany, Umbria, Valle d'Aosta and Veneto, it is around 90% for Lombardy, Marche and the Province of Trento, and above 80% for Lazio, Piedmont and Sicily, while the corresponding figure for Campania is just below this threshold. For all remaining regions, the share of the affected population is around 70%, except for Calabria, where it is around 55%. Finally, the Autonomous Province of Bolzano is in default.

The analysis of the Economic and Financial Plans available to ARERA reveals, first of all, increases in tariff revenues that vary between 2.4% in 2022 and 0.9% in 2025, these variations are realised against an average value of the limit to growth that varies between 3.5% in 2022 and 3.1% in 2025. Geographically, the largest variations are observed in the Islands (+5.6% over the two-year period), while the smallest are in the Centre and in the North-West macro-area (just over 3%).

The distribution of the 2022 tariff arrangements for each of the regulatory schemes<sup>102</sup> shows the use of specific quality improvement and/or scope increase targets for 52% of the areas (placement in quadrants II, III and IV), while for about 20% of the areas both targets of the first type and of the second type are envisaged (placement in quadrant IV).

**FIG. 6.18** Placement of the 2022 tariff proposals in the schedules of paragraph 4.3 of mtr-2 (%)



Source: ARERA, processing of tariff preparations for the period 2022-2025.

All the tariff arrangements submitted to ARERA correspond to operating costs of approximately € 10.7 billion for 2022<sup>103</sup>. Operating and common costs weigh about 80% of total costs, while capital costs are worth almost 10%<sup>104</sup>. The remainder consists mainly of non-deductible VAT charged to end users.

**TAB. 6.5** Population, areas and subjects affected by the tariff approval measures adopted by ARERA

EFP REFERENCE YEAR	NUMBER OF TERRITORIAL AUTHORITIES	NUMBER OF TARIFF AREAS	NUMBER OF OPERATORS	POPULATION SERVED (MILLIONS OF INHABITANTS)	NUMBER OF MUNICIPALITIES SERVED	AVERAGE CHANGE IN TARIFF REVENUE COMPARED TO THE PREVIOUS YEAR
2020	65	381	440	12,666,404	481	0.75%
2021	41	307	340	10,775,793	408	1.67%
2022	23	93	108	6,863,006	193	0.89%
2023	23	93	106	6,863,006	193	1.40%
2024	23	93	105	6,863,006	193	0.77%
2025	23	93	105	6,863,006	193	1.02%

Source: ARERA, processing of tariff preparations for the years running from 2020 to 2025.

<sup>102</sup> Paragraph 4.3 of MTR-2

<sup>103</sup> These are the costs determined on a historical basis (from the compulsory accounting records) in accordance with Article 7 of the MTR-2, to which are added the costs determined on a forecast basis for the specific purposes and objectives set out in the MTR-2, validated by the ETCs.

<sup>104</sup> The quotas are determined as the average, weighted for the resident population, of the weights of the same cost categories in each tariff area.

## 2022-2025 preparations for treatment services

ARERA asked the Regions and Autonomous Provinces for the information used to identify the “minimum” and “intermediate” cycle closure plants from which flows indicated as entering “minimum” cycle closure plants originate, as well as the related waste flows subject to tariff regulation and their classification into neighbourhood and non-neighbourhood flows. It was also requested that the Competent Body for the validation and transmission of tariff preparations be the Region itself, or another body identified by it. As of 12 May 2023, 61 proposals had been received from 13 Competent Bodies, mainly referring to plants operating in the North and Centre of the country. The arrangements concern 39 “minimum” and 22 “intermediate” cycle closure facilities.

Finally, with reference to the guarantee mechanisms inherent in the 2022 tariff approval procedures<sup>105</sup>, ARERA received a total of 68 reports of inertia (116 last year), 62 of which concerned situations of inertia on the part of municipal waste management service operators, while the remaining 6 concerned the inertia of operators of minimum or intermediate facilities.

## Quality of service: positioning of management in the matrix of regulatory schemes

As of 1 January, a set of minimum service obligations came into force for all operators concerning the main contractual and technical quality profiles<sup>106</sup>, flanked by the provision of general quality standards, differentiated for four regulatory schemes, identified by the territorially competent authority in relation to the actual starting level of quality guaranteed to users in the various operators.

**TAB. 6.11** Matrix of regulatory schemes

		PROVISIONS OF OBLIGATIONS AND INSTRUMENTS OF TECHNICAL QUALITY CONTROL (CONTINUITY, REGULARITY AND SECURITY OF SERVICE)	
		Technical quality = no	Technical quality = yes
PROVISIONS FOR OBLIGATIONS IN MATTERS RELATING TO CONTRACTUAL QUALITY	Contractual quality = no	Scheme I MINIMUM OBLIGATIONS	Scheme III INTERMEDIATE LEVEL
	Contractual quality = yes	Scheme II I INTERMEDIATE LEVEL	Scheme IV ADVANCED LEVEL

Source: ARERA.

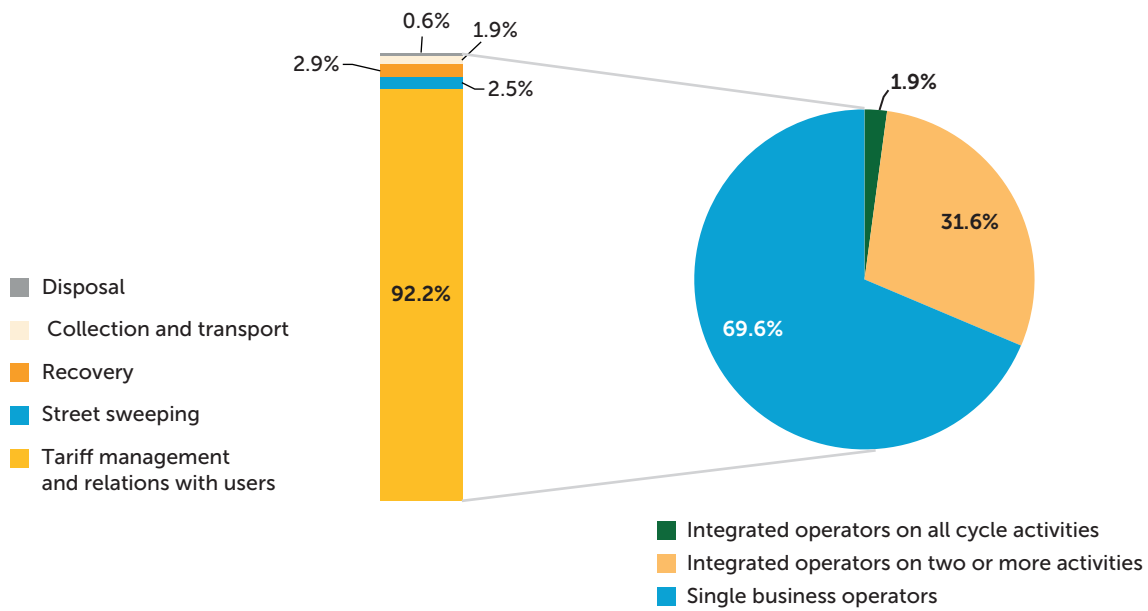
As part of the transmission of the tariff arrangements for the period 2022-2025 set out in the MTR-2, the competent territorial authorities indicated the regulatory scheme identified for each utility. The analysis of this information shows that the majority of the tariff areas (more than 5,000 utilities, corresponding to 70.3% of the national population) were placed in the first quadrant of the matrix.

<sup>105</sup> Article 9 MTR-2.

<sup>106</sup> With Resolution 15/2022/R/RIF, ARERA adopted the Consolidated text for the regulation of the quality of the municipal waste management service (TQRIF). For more details on the contents of the resolution, refer to Chapter 7 of Volume II on the activities carried out of the previous Annual Report.

With regard to the geographic distribution of the four regulatory schemes, Central Italy is the most virtuous macro-area, given that the operators positioned in Scheme III - which, as anticipated, provides for additional obligations and more stringent general standards on technical quality compared to Schemes I and II - account for about 13.3% of the operators in the sample located in this geographic macro-area and those in Scheme IV for over 9%. By contrast, Scheme II - characterised by a strengthening of contract quality measures - is more widespread in the islands.

**FIG. 6.2** Operators who have declared in the Register that they carry out only one activity



Source: ARERA, Registry of operators.

## Activity carried out out

In 2022, ARERA continued the process of constructing the regulatory framework, through an innovative, gradual and asymmetrical approach consistent with a multi-level institutional set-up and capable of taking into account the most significant elements found in different contexts. Among other things, the year witnessed a progressive expansion of ARERA’s competences in the municipal waste sector, as a result of the new powers assigned by the national legislator on the definition of the equalisation component to cover the management costs of accidental waste<sup>107</sup>, on technical and quality standards for disposal and recovery activities<sup>108</sup>, and on standard models for calls for tenders<sup>109</sup>.

107 Law no. 60 of 17 May 2022.

108 Law no. 118 of 05 August 2022.

109 Legislative Decree no. 201 of 23 December 2022.





In order to develop and complete the regulatory framework of the sector, also in the light of its recent new powers, ARERA:

- presented the first guidelines for the preparation of a model service contract<sup>110</sup>, as well as for the introduction of equalisation systems in the municipal waste sector, with particular reference to the mechanism for the management of accidental waste and the promotion of compliance with the waste hierarchy;
- on tariff regulation, started the procedure for the definition of the rules and procedures for the biennial update for the redetermination of the tariffs of the municipal waste management service for the years 2024 and 2025<sup>111</sup>;
- initiated proceedings for the definition of technical and quality standards for disposal and recovery activities, as well as model outlines for calls for tenders to entrust the integrated municipal waste management service.

In addition, the preliminary activity on the tariff preparations proposed by the ETCs continued, with reference to the second regulatory period 2022-2025 and the years 2020 and 2021. In this context, requests for intervention to overcome cases of inertia on the part of operators were also handled, offering support and clarification to the parties involved.

Collaborations with other institutions include participation in the Institutional Technical Table for the National Waste Management Programme<sup>112</sup>. This is an institutional Technical Table set up by the MITE (now MASE) in 2020, whose work was attended not only by ARERA but also by ISPRA, the autonomous regions and provinces, ANCI and the then Ministry of Economic Development, with meetings convened periodically to analyse and discuss specific aspects.

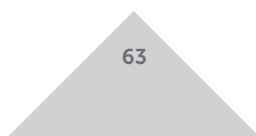
Finally, in 2022, ARERA was called upon to take part in the two Commissions<sup>113</sup> for the admission and evaluation of project proposals for the allocation of the financial resources provided for the implementation of the interventions of the National Recovery and Resilience Plan (PNRR) in relation to Mission 2, "Green Revolution and Ecological Transition", Component 1, "Circular Economy and Sustainable Agriculture", functional to *"bridging the facilities gap in the urban and special waste management sector that, at present, hinders the development of circular supply chains"*.

110 The scheme is compulsory for all utilities, hinged on the integrated management model and structured according to a modular approach that makes it applicable, with appropriate adaptations, also to the awarding of individual service phases.

111 Approval of the waste tariff method (MTR-2) for the second regulatory period 2022-2025, Resolution 363/2021/R/ref.

112 Article 2, paragraph 1 of Legislative Decree no. 116 of 3 September 2020 introduced, to part four of legislative decree No. 152 of 3 April 2006, Article 198-bis, which provides for the preparation and approval, by the Ministry of Ecological Transition - MITE (now the Ministry of Environment and Energy Security - MASE), of the National Waste Management Programme (PNGR), in accordance with the provisions of Directive 2018/851/EU.









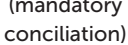

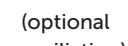

113 The other institutions involved were MITE (now MASE), ISPRA, ENEA, and the Conference of the Regions and Autonomous Provinces.



## CONSUMER PROTECTION

The system of safeguards for the handling of complaints and out-of-court settlement of disputes of customers and end users of the regulated sectors (hereafter simply the safeguard system) is implemented by means of nationwide tools and consists of two macro-areas and three levels. The first macro-area relates to information and assistance to customers and end users interacting with operators and managers in the areas of competence of the Italian Regulatory Authority for Energy, Networks and Environment (basic level); the second macro-area (first and second level) concerns the resolution of problems and disputes that may arise within the supply relationship.

**TAB. 10.1** Protection system: input volumes to the help-desk and conciliation service for the electricity, gas, water, district heating and waste sectors (2022)

Activities and sectors			2022
Basic level	Calls to the call centre 800166654 (received during working hours)		1,203,877
			50,441
	Written requests for information		55,422
			2,288
	Requests for activation of special information procedures		41,958
	Second-level complaints redirected with information on conciliation		2,278
		277	
Second level	Questions to the conciliation service	 (mandatory conciliation)	21,102
		 (optional conciliation)	3,237
	Requests for the activation of special settlement procedures		22,583
	Second-level complaints		7,390
Transient management of communications in the waste sector, including sorted, municipal and similar or related waste			212

Source: ARERA, processing of data from the Energy and Environment Customer Help-Desk and from the Conciliation Service.

### Complaints and commercial quality performance

In order to monitor performance, all electricity and gas suppliers are obliged to fulfil data reporting obligations. This makes it possible to check how the Integrated Text on the regulation of the quality of electricity and natural gas sales services (TIQV)<sup>114</sup> is being applied, the degree to which quality indicators and standards are being met, and the average time taken to perform the various services. The data submitted by the vendors include information on the number of cases in which standards were not met due to causes attributable to the vendor, third parties or *force majeure*, and the correct payment of compensation to customers. Commercial sales quality data for 2022 were submitted by 565 operators, representing over 53.7 million electricity and gas customers.

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



Of the main topics of complaint by customers in the electricity and gas sectors, 40.4% concerned billing, 16.7% the market, 16.1% contracts, 8.3% arrears and supply suspension. The number of indemnities paid to customers during the year for various services amounted to 45,842 (96.2% were due to delayed responses to complaints), totalling more than € 1.8 million.

In addition to analysing the data submitted by vendors, every year ARERA carries out a survey of *customer satisfaction* on the quality of responses to written complaints and enquiries by interviewing customers who have been answered in writing. The aim of the survey is to acquire, directly from the customers to whom a written response from the supplier is addressed, a satisfaction rating on the various quality factors. Twenty-one companies were involved in the survey, representing approximately 45.14 million customers (counting electricity and gas customers together), or 83.83% of all customers: 60.1% of the interviewed customers said they were overall satisfied with the answer they received, while 39.9% were dissatisfied and, of the latter, 17.1% said they were seriously dissatisfied. The surveys were also an opportunity to verify customers' knowledge of certain features of the service. 19.8% of the complainants were aware of the existence of a specific standard and thus of compensation associated with a late response; 38.5% of the complainants were not aware of the existence of specific and general standards; 39.2% had heard of them but were not able to describe them; 22.3%, on the other hand, stated that they were aware of standards and were able to mention those associated with the timeliness of response to complaints.

## Energy and Environment Consumer Help Desk<sup>115</sup>

In 2022, the call centre received 1,254,318 calls during working hours (+ 99% compared to 2021). Net of those abandoned, those actually managed amounted to 1,014,308 (almost twice as many as in 2021). The average talk time is 238 seconds, down slightly from 241 seconds in 2021. 96% of the calls received by the call centre during working hours concerned the electricity and gas sectors. See the table below<sup>116</sup> for details of the topics.

**TAB. 10.5** *Main topics of calls handled by the help desk call centre by service selected by the caller (2022)*

SERVICE	2022					
	ELECTRICITY AND GAS		WATER		TOTAL	
Social bonus	653,315	67%	37,653	90%	690,968	68%
Alternate dispute settlement	132,975	14%	2,063	5%	135,038	13%
Rights and regulation	49,652	5%	417	1%	50,069	5%
Files at the Help Desk	64,030	7%	1,520	3%	65,550	7%
Portale Offerte, Portale Consumi and Accredited purchasing groups	40,411	4%	-	-	40,411	4%
Gradual standard offer service	32,019	3%	-	-	32,019	3%
<b>% TOTAL BONUS</b>		<b>67%</b>		<b>90%</b>		<b>68%</b>
<b>% TOTAL OTHER TOPICS</b>		<b>33%</b>		<b>10%</b>		<b>32%</b>

Source: processing by the Energy and Environment customer Help-Desk of Nextip and CContact data. .

<sup>115</sup> Due to the hacker attack that affected the GSE group's IT systems, the telematic portal of the Help Desk was not reachable in September; without prejudice to the operation of the call centre, the Desk continued to operate regularly through certified email and email during the aforementioned period, and the pending loads, once the aforesaid systems were restored, were disposed of by the end of 2022, thus minimising the impact on the specific protection needs of customers and end users.

<sup>116</sup> The 204 calls handled for the waste sector and 49 calls handled for the district heating sector, all related to the item "rights and regulation", complete the detailed picture.

**Written requests for information** totalled 57,710 (almost three times as many as in 2021) and largely concerned the energy sectors (55,422), compared to 2,139 requests for the water sector and 149 requests for district heating. The top five topics covered were: social bonus (58%), billing (11%), market (10%), contracts (10%) and non-payment of bills and suspension (5%). Requests for the activation of **special information procedures for the energy sectors** amounted to 41,958 in 2022, slightly down from 2021 (-4%).

## The Authority's conciliation service

In 2022, the Conciliation Service received 24,339 questions (Fig. 10.5), for an average of 108.3 questions about working days<sup>117</sup>. 53% of questions (12,831) involved the electricity sector (+5% compared to 2021), 22% gas, equating to 5,383 questions (-3.5%) and, with 3,184 questions, 13% the water sector (-5%). Finally, applications from dual fuel customers and prosumers accounted for 11% and 1% respectively. **73% of the requests received involved households.**

Net of waived and pending procedures (718) at the time the Annual Report was drawn up, the settlement rate stood at 69% (-1% compared to 2021) with an average completion time of 54 days (4 less than the previous year). Looking at the three main sectors by number of applications, it is water that has the highest rate of agreement (75%) on completed procedures in this sector, followed by gas with 72% and electricity with 65%.

In 2022, approximately € 19.8 million were given in compensation, namely payment obtained by final users or customers through the conciliation agreement (in the form of value recovered also with respect to the value of the dispute or reimbursement, indemnities, recalculation of incorrect bills, waiver of expenses and late payment interest, etc.).

## Social bonuses

In the course of 2022, 3,766,105 electricity bonuses and 2,441,158 gas bonuses were recognised to direct customers, i.e. holders of individual natural gas supplies: the estimated amount corresponding to the bonuses recognised is approximately € 1,313 million for the former and approximately € 849 million for the latter<sup>118</sup>. As of 31 December 2022, there were 52,176 households with an active hardship bonus, a sharp increase over the previous year<sup>119</sup> (+24.33%).

<sup>117</sup> In the energy sectors, the mandatory attempt at conciliation is a condition for proceeding with legal proceedings

<sup>118</sup> Annual amount corresponding to the bonuses recognised for 2022 based on the number of bonuses activated for the different bonus types. Bonuses have a benefit period of 12 months, the start of which depends on the date on which the DSU is submitted and certified. The actual disbursement date for bonuses awarded to direct supplies depends on the billing cycle. The actual amount disbursed is reported by the relevant operators to the IWS on a bimonthly basis, within 60 days of the end of each two-month period.

<sup>119</sup> With Resolution No. 257/2021/R/com of 22 June 2021, ARERA defined the amount of the bonus to be applied to customers in conditions of physical hardship by introducing two additional power levels of the supply (equal to 3.5 kW and 4 kW), alongside the previous 3 kW and 4.5kW already in force, and provided for their application to all beneficiaries as of 1 January 2022

2022, the second year of implementation of the new scheme of automatic recognition of social bonuses for electricity, gas and water for economic hardship<sup>120</sup>, was characterised by several government measures that affected the quantification of the bonus and the number of recipients. As of 1 October 2021, in fact, a series of legislative provisions<sup>121</sup> provided for the strengthening of the social bonus for electricity and gas on a quarterly basis, which ARERA implemented by introducing a supplementary compensatory component (CCI), additional to the 'ordinary' bonus and updated every quarter on the occasion of the resolutions for the periodical update of the general system charges. The reinforcement was financed with funds from the state budget transferred to the Energy and Environmental Services Fund (CSEA).

Moreover, again with a view to strengthening measures in favour of customers in economic distress, the Government adopted urgent measures<sup>122</sup> to counter the economic and humanitarian effects of the Ukrainian crisis by raising the ISEE threshold for access to the social electricity and gas bonus to € 12,000 for the period 1 April-31 December 2022. In order to ensure the effective and timely provision by INPS to the IWS operator of the information and data required for the automatic recognition of bonuses to eligible new ISEE households, ARERA intervened by preliminarily defining the technical modalities by which this information exchange between the two entities was to take place<sup>123</sup>.

**TAB. 10.17** Customers receiving electricity and gas bonuses for economic hardship (2017-2022)

	HOUSEHOLD "ON DEMAND" ACCESS SCHEME			
	ELECTRICAL BONUS		GAS BONUS	TOTAL BONUSES DISBURSED
	ECONOMIC HARDSHIP	SPURCHASING CARD HOLDERS	ECONOMIC HARDSHIP	
<b>2018</b>	771,566	23,589	519,375	1,314,530
<b>2019</b>	829,209	8,389	558,514	1,396,112
<b>2020</b>	805,303	8,551	543,963	1,357,817
<i>Automatic recognition scheme (Decree-Law No. 124/2019 and ARERA implementing resolutions)</i>				
<b>2021</b>	2,487,599	(*)	1,537,884	4,025,483
<b>2022 (**)</b>	3,766,105	(*)	2,441,158	6,207,263
<b>2022/2021 % variation</b>	<b>51,4%</b>		<b>58,7%</b>	<b>54,2%</b>

(\*) The beneficiaries of the electricity bonus for economic hardship include the recipients of the Purchasing Card (Law No. 190 of 4 December 2008) who, since the first introduction of the rule, have had access to the facility automatically, through the exchange of information between the Purchasing Card Management Information System (SICA-INPS) and the SGAtE system. These beneficiaries are now included in the new automatic economic hardship bonus scheme.

(\*\*) In 2022, the total bonuses relate to facility classes a), b), c), and d) (the latter temporarily in force until 31 December 2022).

Source: IWS.

120 Decree-Law No 124 of 26 October 2019, converted with amendments by Law No 157 of 19 December 2019. 121 For more details, see Chapter 10 , paragraph 2 of Volume 2 of the Annual Report.

122 Decree Law no. 21 of 21 March 2022, converted into Law no. 51 of 20 May 2022.

123 Resolution of 26 April 2022, 188/2022/R/com.

With regard to the social water bonus, taking into account the status of the fulfilment of privacy requirements preparatory to the process of recognising the bonus to those entitled to it, ARERA approved a simplified set of rules providing for the recognition of the bonus pertaining to the year 2021 to all households that were beneficiaries of the social electricity bonus for economic hardship in the same year, thus considering the so-called “uniqueness constraint” of the IWS<sup>124</sup> benefit as automatically verified by the SII Operator. At the end of 2022, as the critical issues relating to the activation of the ordinary bonus disbursement procedure persisted, and taking into account the time-frames for the application of the simplified discipline for bonuses pertaining to 2022, which differed among the various water operators, ARERA has introduced simplified rules also for the recognition of the social water bonus pertaining to the year 2022, for all the integrated water service operators who on the date of publication of the measure (6 December 2022) had not yet received the data relating to the DSUs pertaining to the years 2021 and 2022<sup>125</sup> from the SII Operator.

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124 Resolution of 15 March 2022, 106/2022/R/com.

125 Resolution of 06 December 2022, 651/2022/R/com.

