ARERA: THE FIGURES FOR PUBLIC UTILITIES

The volumes of the Authority's Annual Report are now on-line. 2021 data for electricity, gas, water and waste.

Rome, 15 July 2022

With the **presentation** by the Board to Parliament and the Government of the **2022 Annual Report**, **the two volumes of the Annual Report by ARERA** – the Italian Regulatory Authority for Energy, Networks and Environment – on the state of services and regulatory activities in 2021 have also been **published and are available for downloading from the website www.arera.it**.

The information given in the two volumes (summarised here) **regard the calendar year of 2021**. **The situation is clearly impacted by the post-pandemic recovery, which then evolved towards the end of the year with the Government rulings and again early 2022 following the Russian invasion of Ukraine.**

ARERA SERVICES FOR CONSUMERS

SOCIAL BONUSES: WITH AUTOMATISM IN THE BILL, MORE THAN 4 MILLION BONUSES HAVE BEEN ACKNOWLEDGED AND THE NUMBER OF FAMILIES OBTAINING A DISCOUNT HAS TRIPLED

2021 was the first year during which the new system of **automatic recognition of** social electricity, gas and water **bonuses**, to help address the economic difficulties, came into effect (introduced with the 2020 Tax Decree). The automatism became operative starting 1 July for supplies of gas and electricity (including for customers served by condominium supplies), while the automatic social water bonus will be granted to those entitled in 2022.

The introduction of the **automatism has tripled the number of families benefiting from an automatic discount** directly on the gas and electricity bills. Following the valuation of 4,281,855 DSU in the period January-December 2021 sent by the National Social Security Institute (INPS) to the Integrated Information System, the new system **has granted 4,025,483 bonuses for economic difficulties**: 2,487,599 for electricity supplies and 1,537,884 for gas, **for a total value of Euro 696.8 million** (Euro 488.1 million for electricity bonuses and approximately Euro 208.7 million for direct gas bonuses). The bonus for physical difficulties, which was granted to 41,967 families in 2021, remains "on demand" through the SGAte system (*Sistema di Gestione delle Agevolazioni sulle Tariffe Elettriche*).

In implementation of the Government rulings aiming to limit the effects of the increase in energy bills, starting from the fourth quarter of 2021, supplementary countertrades of social gas and electricity bonuses were introduced, over and above the amount envisaged by the "ordinary" bonuses. The total provision made in the State budget, was Euro 450 million for the period 1 October-31 December 2021 alone.

SPORTELLO PER IL CONSUMATORE ENERGIA E AMBIENTE (ENERGY AND ENVIRONMENT CONSUMER HELP DESK): EURO 11 MILLION RECOVERED IN FAVOUR OF FINAL USERS AND CUSTOMERS THROUGH CONCILIATION

In 2021, the Consumer Help Desk call centre received 630,083 calls during service hours, showing a clear rise compared to 2020 (**+ 31%)** with average waiting time of 229 seconds and an average conversation time of 241 seconds (both up compared to 2020, when they had respectively come in at 174 and 227 seconds). **Almost all calls** handled by the Help Desk call centre in 2021 involved **the gas**

and electricity segments (96%). In line with the previous two-year period, the three main subjects of the calls were: social bonuses (50%), dispute resolution procedures (22%) and open cases at the Help Desk (11%).

With these procedures, the Help Desk provides customers of the energy segments with specific information encoded in centralised databases (Integrated Information System, Indemnity System), such as, for example, identification of the unknown supplier in the event of transfer, requests to know the commercial counterparty and switching date.

There were 20,041 written requests for "simple" information (14,822 in 2020), most of which relating to the energy segments and, in particular, the following topics: social bonus (25%), billing (19%), market (18%), contracts (11%) and non-payment of bills and disconnections (11%). Requests for the activation of special information procedures have increased considerably, rising to 43,756 (+36% on 2020).

In 2021, the Conciliation Service received 20,428 requests (+10% on 2020): the growth trend in volumes managed on an annual basis continues, albeit at a slower rate. 48% of requests involved the electricity segment (-6% on 2020), 25.5% gas (-0.5%) and 18% water (+5.5%). Starting 1 July 2021, the Service has also been extended to include district heating.

The agreement rate was 70% (-1% on 2020) but this varies depending on the segment: from 79% for water to 75% for gas and 63% for electricity. **Procedures took an average of 58 days to reach conclusion** (62 in 2020).

In 2021, more than Euro 11 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.).

LITIGATION: SINCE THE AUTHORITY START, 97.7% OF RESOLUTIONS APPROVED VALID, IN 2021 APPEALS REDUCE

Out of a total of 11,860 resolutions approved by the Authority since it was started (April 1997-31 December 2021), 1,276 (10.8%) have been challenged and 272 (21.3% of the total resolutions challenged and 2.3% of those adopted) have been fully or partly definitively cancelled (with final judgement). The rate of resistance of the Authority's resolutions to jurisdictional control stands at around 97.7%. More specifically, in 2021, there was a reduction in the litigations in terms of the number of appeals brought as compared with the previous year: 74 appeals (144 in 2020).

ELECTRICITY

ELECTRICITY: IN 2021, HOUSEHOLD PRICES ALIGNED WITH THE EURO AREA AVERAGE. GERMANY IS STILL THE HIGHEST

Average electricity prices for Italian households maintain a similar position to 2020 in 2021, in line and indeed slightly below the average of the Euro Area countries in terms of gross prices, with a worsening in terms of net prices, offset by the reduction of the weighting of taxes and duties.

In 2021, the difference in gross prices remains high for the first consumption band (< 1,000 kWh per year, +21% in 2021 as compared with +18% in 2020) and, albeit only slightly, is back to being positive for the last consumption band (>15,000 kWh per year, +1% in 2021 as compared with -6% in 2020); instead, **prices in the central brackets are virtually unchanged as compared with last year and slightly lower than the Euro Area**: the negative difference in the **three central consumption bands (between 1,000 and 2,500 kWh per year, between 2,500 and 5,000 kWh per year and between 5,000 and 15,000 kWh per year are respectively -3%, -4% and -2%**). **The first two central bands (therefore for consumption from 1,000 to 5,000 kWh) are those where the greatest consumption is recorded, respectively accounting for 38% and 42% of the total electricity billed for households in 2021.**

In terms of net prices, for the first time ever positive differences are seen with respect to the Euro Area for all consumption classes, above 10% for the first and last bands (last year, this latter showed a negative difference of -8%) and just below 10% for the three central consumption bands (which last year reported differences ranging between +1% and +3%).
As regards the main European countries, in 2021, Germany was once again confirmed as the country with the highest electricity prices in the domestic segment, with the exception of the first consumption class. **As compared with the German counterpart, Italian households continue to pay end prices that are significantly lower, with a gap that has remained essentially stable on 2020 for the 1,000-2,500 kWh and 5,000-15,000 kWh classes, equal to approximately -26%, and unchanged at -28% for the 2,500-5,000 kWh class**; for the last band >15,000 kWh, Italian prices lose some of the advantage gained the previous year, when they had gone from -11% to -28%, remaining significantly lower, but rising to -19%.
Turning to the intermediate consumption band (2,500-5,000 kWh/year) – representing households, insofar as in addition to having the greatest weight in terms of energy sold (42%), it also includes the average customers taken as reference for the Authority – the gross price has increased by 5.5%, in line with the average increase in the Euro Area (+ 5.8%) and despite larger increases in other countries, except France. Again, looking at values gross of tax, **Italian families with consumptions in this band paid a price of 23.10 c€/kWh, which makes for 28% less than the Germans and 10% less than the Spanish, but 16% more than the French.**

ELECTRICITY: IN 2021, HIGHER GROSS AVERAGE PRICES FOR ITALIAN COMPANIES THAN IN THE EURO AREA. STILL BETTER VALUE FOR MONEY THAN GERMANY.

The progressive reduction in the gap between average gross electricity prices for the industrial segment of our country and those better priced in the Euro Area, which, having started in 2017, had resumed in 2020 after the 2019 interruption, **is back to showing a reversal in 2021, with a worsening of the situation for all bands** except the first.
More specifically, **the differences with respect to the Euro Area for the last two bands (between 20,000 and 70,000 MWh annual consumption and between 70,000 and 150,000 MWh)**, which had even become negative in 2020, **are back to being positive (going respectively from -3% to +5% and from -16% to +6%)**; in any case, the differences do not return to the pre-2017 values, when Italian prices in these two bands averaged out +25% and +15% higher than those of the Euro Area.
In 2021, Italian prices for the first band (<20 MWh per year) are confirmed as the highest in respect of the Euro Area average, +21%, although improving on last year (when the figure was +27%) and declining constantly from the remarkable +41% recorded in 2019. **For the other three classes, the positive difference is accentuated** (from +5 to +13%, from +9% to + 14% and from +7% to +8%), without, however, returning to the levels of 2019 (+17%, +20% and +18%).
In terms of net prices, the difference between Italian prices and the European averages, which had reduced significantly in 2020, grows for all classes. The decline in the weight of taxes and duties instead continues between 2021 and 2020, even if it is still higher than the Euro Area.
In 2021, growth of Italian industrial prices is entirely due to the increase in net prices (which contribute for +25%) against a decline in the tax component (with an average decline in prices of -3%); the growth in the prices of the Euro Area, less than the Italian growth and averaging out at +13%, is instead due to a lesser increase in net prices and a substantial stability of tax components.
Moving onto a comparison with the main European countries, **average Italian prices gross of taxes and duties continue, as for years now, not to be amongst the highest in the major European countries. Industrial electricity consumers in our country in fact pay more convenient prices than their German counterparts. The negative difference averages out as -10% and goes from -7% of band 20-500 MWh** (with price in Italy of 22.97 c€/kWh and in Germany of 24.68 c€/kWh) **to -19% of band 70,000-150,000 MWh** (with price in Italy 13.46 c€/kWh and in Germany 16.58 c€/kWh).

ELECTRICITY: IN ITALY, CONSUMPTION IS 300 TWH (+6%), HALF THE PRODUCTION FROM GAS (49.5%). RENEWABLES AT 40%, WIND POWER +10.8%, PHOTOVOLTAIC STABLE (+0.5%).

In 2021, electricity consumption (300.6 TWh) is up around 6% on last year, recovering almost all the reduction of the previous year (in 2020, the drop had been -6%) due to the extraordinary pandemic situation that had slowed consumption. The increase was recorded in all consumption segments, including households, where, however, the increase was far more limited than in other segments (+1.5%, as compared with increases in excess of +6% in the other segments).

The national demand for electricity is back in line with the pre-Covid levels of 2019 (-0.6%) and was satisfied for 86.5% by net national production (which rose by 2.2%), while for the remaining 13.5% by imports. Exported energy has halved and imported energy has increased by 17%, recording a balance of import-export energy of 32.9%.

In 2021, gross national electricity production in Italy reached 286.9 TWh, from the 280.5 TWh in 2020, **thereby increasing 2.3%. Growth took place in particular in thermoelectric production, which went from around 161.7 TWh to 170 TWh (+5.2%)** thanks above all to the greater production from natural gas (142 TWh), which produced 8.4 TWh more than in 2020 and that from solid fuels (28 TWh), which generated 1.2 TWh more than last year.

Production from renewable energy resources (114.7 TWh) is instead down (-1.9%); production from bio energies, hydroelectric and geothermal is instead down respectively by 6.9%, 5.9% and 2.1%, while production from wind power has instead increased considerably (10.8%). Photovoltaic production has stayed almost unchanged (25 TWh), up 0.5%.

Gas therefore accounts for 49.5% of the total production (all thermoelectric represents 59.3%) and renewables 40%.

Eni is the top operator in thermoelectric generation, although Enel has only a slightly smaller share; the first group, in fact, holds 15.7% of total gross thermoelectric generation, while for the second, the share held is 15.3%. Enel, by contrast, is confirmed as the top operator in production from renewable energy resources, with 23.3% of gross generation, thanks to its significant share in hydroelectric (37.7%, up on the 34.8% of last year) and all geothermal production.

For 2021, it is estimated that ultimately, the costs deriving from the incentives for renewable energy resources come to approximately Euro 10.5 billion, down by approximately Euro 1 billion on 2020 and around Euro half a billion below the costs of 2018 and 2019. The quantity of electricity with incentives totals just over 63 TWh.

ELECTRICITY: 58.5% OF HOUSEHOLDS HAVE CHOSEN THE FREE MARKET. THE NUMBER OF SUPPLIERS IS UP FURTHER TO 804 (+65 UNITS ON 2020).

In 2021, the total number of withdrawal points remained essentially unchanged (-0.2%) at just under 37 million, of which 29.8 million domestic and 6.7 million non-domestic. In regard to households, **in December 2021, 12.4 million were served under the protection regime offer and 17.5 million on the free market**: the surpassing by the free market of the protection regime offer, which had begun in 2020, therefore continued. **The average percentage of domestic points served on the free market rose to 58.5% in 2021, as compared with 54.3% in 2020.**

If we then look at volumes, the surpassing of the free market is confirmed even more clearly: in 2021, in fact, energy purchased by the domestic segment on this market rose to 60.7%, while in 2020 it had been 57.1% and in 2019 it was just over half, at 51.7%.

In 2021, Sardinia was the only region in which the portion of families purchasing electricity on the free market did not reach 50%; in all the other 19 regions more than half of families purchase electricity on the free market.

Family switching has grown further, just like it did in 2020, whether measured in terms of withdrawal points or volumes, **with acceleration stimulated by expectations surrounding the removal of price protection, now expected for January 2024 for households and, in all likelihood, to look for more favourable economic conditions for the extraordinary growth of prices starting from the second half of 2021. More specifically, 15.7% of households – around 4.7 million**

withdrawal points – changed supplier at least once in 2021, in volumes, around 17.9% of the total energy acquired by the domestic segment.
In 2021, the number of companies supplying electricity on the free market, registered with the Authority Operators Registry[1] (804) went back to growing solidly (+65 units) after the 2020 slow-down (+16 units) but without reaching the levels of 2019 (+88 units). A growth trend is therefore confirmed, which has been uninterrupted since the 2007 liberalisation.
The Enel group remains the dominant operator of the entire Italian electricity market, albeit with a share that has been reducing slightly over the last few years: in 2021, it dropped to 34.5% of the total customers (low, medium and high voltage, households and non-domestic users) from 35.6% in 2020. The A2A group has risen to second place, with 6.3% of sales, while the Edison group, which traditionally held second place, has dropped to third, with a total share of 5.3 (5.9% in 2020).
The share of the top three operators (corporate groups) is 46.1% of all sales, whilst it had been 46.9% in 2020.
Enel controls 60.5% of energy consumed by families (63% in 2020 and 67.1% in 2019); the second group, with a share of 7.5%, is Eni. **Looking to the free market only, Enel has a 27% share, which is stable as compared with the previous years. A2A becomes the second operator, with around 6.3%, while Edison drops to third place with** approximately **6.1%** (it had held 7% in 2020).
In terms of final average price (component covering the costs of supply), in 2021, the values of the free market averaged out, albeit only slightly, cheaper than those of the market with a reference price, with a difference of close to 2% (-1.7%). Only the consumption bands between 1,000 and 2,500 kWh are still more onerous on the free market than on the market with a reference price, and in any case only to a limited extent (approximately +1%). **The reversal of the assessment of value for money with respect to the previous year is due to the contracts with blocked prices, which stemmed (at least in 2021) the major increases seen on the wholesale markets during the year**, in particular during the latter part. **In fact, whilst the cost of supply in the protection regime offer has increased by an average of 75% on the previous year, on the free market, the increase was only 9%.**

GAS

GAS: GLOBAL RECOVERY OF CONSUMPTIONS BEYOND PRE-COVID LEVELS. IMPORTS GROW IN EUROPE

2021 saw an important recovery of gas consumption worldwide (+4.5%) with levels exceeding pre-Covid levels and surpassing the threshold of 4,000 billion cubic metres. The increase in the demand is the consequence, above all during the first half of the year, of the **recovery of industry consumption and electricity production, as well as the weather conditions that gave rise to a greater demand for heating**. On an annual basis, **the increase was driven by Asian consumption** (+8.7% Eurasia and +6.4% Pacific Asia) and in particular **China** (+12%) due to the way its economy has bounced back and the growing use of methane in various ways, as well as climate factors. **Growth of demand in Russia** has also been very significant (+10.9%), while use in the United States of America has instead remained stable. **In the EU 27, after the reduction of almost 3% in 2020**, demand grew by 17 billion cubic metres, for a **rise of 4.3%, marking the highest level of consumption since 2011** (412 billion cubic metres).
The causes of these increases lie in the **recovery of economic activities and a greater use of methane in electricity production, in this case also due to the reduction of wind power production in Northern Europe and a lesser use of nuclear and coal in France and Germany. A late spring also prolonged consumption for heating in Europe too.**
As regards supply, **in 2021, world gas production rose by 4.5%, growing in all areas considered except in Europe (-3.3%) and in the European Union in particular (-9.1%).** Following the major

[1] These are companies that in the Authority Operators Registry have declared as suppliers, even if only for a certain period of the year. This number also includes those which are inactive.

recovery of consumption, the European Union recorded a **3% increase in imports**, going from 326.7 to 337.5 billion cubic metres. **Russia, with 45.3%** of the total imports (almost 155 billion cubic metres), is the **European Union's main supplier**, largely through natural gas pipelines; approximately 24%, on the other hand, comes to Europe through LNG. In 2021, the main **supplier of LNG to the EU is the United States of America** (22.3 billion cubic metres), followed by Qatar (16.3) and Russia (16).
The EU covered the 2021 need also through significant use of storage, which started autumn disbursement with a low filling level, of 77%, and closed the year at 54%, as compared respectively with 95% and 75% of 2020. Trade on the Dutch TTF hub has risen by 5% year on year, while the share of total European gas trade has risen from 70% in 2020 to 80% in 2021. The stock market share of the total volumes exchanged has gone from 38% in 2020 to just over 50% in 2021.

GAS: RISING PRICES IN THE MARKETS. TTF IS THE MOST IMPORTANT HUB. INTERNATIONAL COMPETITION FOR LNG, ASIA A MAJOR BUYER
2021 saw an extraordinary rise in European and Asian prices. In Europe, the historic records of spot and short-term prices have been repeatedly broken over the last few months of 2021. Thereafter, **they were further exceeded, after 24 February 2022, following the Russian invasion of Ukraine**. **In particular, in 2021, in Europe, spot wholesale prices at gas hubs averaged out over the year as more than four times those of 2020. At the Italian hub** PSV, prices went from Euro 19.8/MWh in January to 109.5 in December (Euro 44.6/MWh on average over the year). A similar trend has been seen in the other main European exchange points. **The TTF**, **the top European hub** in terms of the dimension of exchanges, liquidity and significance of values, rose from Euro 19.3/MWh at the start of the year to Euro 106.1/MWh at end 2021 (annual average Euro 44/MWh). The causes lie in a combination of factors: rapid recovery after the pandemic; interrelation between Asian and European markets, in competition to ensure the volumes of LNG not linked to long-term contracts; strong growth in Asian demand driven by China; volumes of LNG available on the global market falling below expectations (due to lesser liquefaction capacity and bottlenecks on the transport routes); failure to fill European storage; volumes of Russian exports are at contractual lows of the long-term agreements and almost ceased release by Gazprom of spot volumes on the European market; effects of a progressive reduction of global investments upstream. After the modest increase of 2020 (+0.4% vs 2019), **in 2021, international LNG trade recorded growth of 4.5%,** for a volume of 372.3 billion cubic metres. On the demand side, at a regional level, recovery was non-homogeneous and mainly involved Asia, which recorded +7%, absorbing a 73.2% share (+2 percentage points as compared with 2020) of international trade. The rise was driven above all by **China**, which with almost 80 billion cubic metres (+15% on 2020) has surpassed Japan as **top global importer**, which instead has recorded volumes that are stable on the previous year.

GAS: IN 2021, IN ITALY, CONSUMPTION CAME TO +8.1%, PRODUCTION AT AN ALL-TIME LOW WITH 3.3 BILLION CUBIC METRES. IMPORTS UP BY +9.9%, USE OF STORAGE. LESS GAS FROM RUSSIA BUT ALGERIA BECOMES TOP IMPORTER WITH AZERBAIJAN THIRD WITH THE NATURAL GAS PIPELINE TAP. +500% EXPORTS OF ITALIAN GAS ABROAD BECAUSE IT IS LESS EXPENSIVE
In 2021, **net consumption of natural gas grew by 5.6 billion cubic metres, coming in at 74.1 billion cubic metres (+8.1% on the record drop of 2020).** Consumption of the industrial sector grew by 9.7% and that of thermoelectric generation by 5.8%. "Trade and services", the segment that had most suffered for the restrictions applied during the pandemic, is back to the levels of 2019, recording +6.3%. The same occurred for gas consumption linked to transport, which is back to pre-Covid levels; in the domestic segment too, consumption rises by 10.9%.
In 2021, all-time low for national production too, which dropped by -16.7% compared to 2020, which had already reduced by a similar amount. In total, 3.3 billion cubic metres of natural gas have been extracted: 1.87 billion from the sea and 1.6 from the land-based fields. The **degree of Italy's dependency on foreign suppliers has risen to 93.5% (from 92.8% in 2020).** Eni controls less than 70% of production, from 71.6% in the previous year, a long way off the Royal Dutch Shell group, at

16%. In 2021, **Italy** imported 6.6 billion cubic metres of natural gas more than 2020: gross **imports** have in fact risen to 73 billion cubic metres, highlighting a **9.9% increase on 2020**. **Greater use** was made **of storage** and, at year end, **withdrawals came to 1,591 million cubic metres above releases** (1,076 million cubic metres in 2020). The **TAP natural gas pipeline** was commissioned during its first year of operation; it took 7.2 billion cubic metres to Italy, taking **Azerbaijan to the third place in the classification of countries from which we import gas, after Russia and Algeria.** In 2021, therefore, the weight of Russia amongst the countries exporting to Italy reduced by 40% (42.9% in 2020), while Algeria's share rose from 22.8% to 30.8%. In third place in terms of importance, as mentioned, comes Azerbaijan, with a 9.9% share. The classification then continues with: Qatar, from which 9.4% of all gas imported into Italy comes (10.5% in 2020), followed by Libya with 4.4% and Norway at 2.7% (10.4% in 2020). The incidence of imports from Northern Europe (i.e. from Norway and The Netherlands together) has therefore reduced considerably from 11.8% to 3.1% in 2021. Of the 73 billion cubic metres of gas imported into Italy, 9.9 billion cubic metres came via ship. Alongside the traditional – and majority – origins from **Qatar and Algeria**, which together account for 82**% of all LNG imported**, in imports via ship, recent years have seen other countries grow in importance: first and foremost, from the United States, which became very significant starting 2019, and Nigeria, whose quantities have been increasing for three years.

Eni remains first in importers, with a market share of 48.4% (47.3% in 2020). The increase in imports of Eni (+15.8%) is only slightly higher than that highlighted by the total of national imports. **Together, the top three importers supplied 72.4% of the gas that came into the Italian market (76.1% in 2020). Volumes of gas exported have multiplied five times as compared with 2020, rising from 316 million cubic metres to 1.5 billion cubic metres. The increase in exports, which was seen in particular in the last quarter of the year, was fostered by a situation that at the time saw an abundance of gas and made Italian gas better value for money than that available for purchase at the TTF.**

GAS: 485 COMPANIES OPERATIVE AND STILL GROWING. THE LEVEL OF MARKET CONCENTRATION IS ALMOST STABLE. MORE THAN 63% OF FAMILIES ARE ON THE FREE MARKET

In the sales segment, out of a total of 485 operative companies (+22 compared to 2019), just 30 (6.2%, as in 2020) sold more than 300 million cubic metres, covering 83.7% of all gas acquired on the retail market.

In 2021, the **level of concentration on the final sales market reduced slightly**. The top three groups control 43.4%, while in 2020 the share was 43.7%. Considering the top five groups, the market portion served remains practically stable at 53.9% (as compared with 53.8% in 2020). The share held by the Eni group, in fact, reduces by one percentage point on 2020, going from 18.4% to 17.1% because the group sales have dropped by almost half a billion cubic metres (-4.4%). By contrast, the shares of the Edison and Enel groups have grown slightly: from 13.5% to 13.9% for Edison and from 11.8% to 12.4% for Enel. This is thanks to a clearly positive result in the sales of both groups. **In 2021, the portion of families that acquired gas in the protection regime offer dropped to 36.8%; in 2020, it was 39.6%.**

Approximately 2.8 million customers changed supplier in calendar year 2021, with a switching percentage that totalled 11.6% (from 10.1% in 2020) and corresponding to a portion of volumes of 13.4% (it was 13.2% in 2020). The changes in supplier of households in 2021 grew by one percentage point, confirming, indeed increasing the already significant liveliness recorded in 2018, after several years during which it had somewhat attenuated.

GAS: FOR HOUSEHOLDS, PRICES ABOVE THE EU AVERAGE FOR ALL CONSUMPTION BRACKETS. GROSS PRICES HIGHER IN FRANCE (LOW

CONSUMPTION) AND SPAIN (AVERAGE CONSUMPTION). THE TAX IMPACT REDUCES

In 2021 too, the prices of natural gas for Italian households, including taxes and duties, were higher than the average prices of the Euro Area for all consumption classes. For the first consumption band (< 520 cubic metres/year), in particular, a slight increase in gross prices was recorded, +11% as compared with the Euro Area (it was +10% in 2020). **For the band in which the greatest portion of total domestic consumption occurs (class 520-5,200 cubic metres/year with 71.8% of consumption), the gap with the average gross prices of the Euro Area reduces slightly, going to +12% (from +13%). For the band of over 5,200 cubic metres/year (mainly centralised heating), the value instead came to +21%, up on last year's +15%.**

In terms of net prices, the difference with the Euro Area increased for all consumption classes. The taxes and duties component instead drops for all three classes, in particular being confirmed as lower than the Euro Area for the first class. The increases in net prices have consequently contributed considerably in Italy to those of the gross prices, whilst in the Euro Area both the increase in net prices and changes in taxes have gone towards increasing gross prices.

Turning to a comparison with the main European countries, the Italian price for the lowest consumption band (129.38 c€/cubic metre), including taxes, is, as in the past, only lower than the French price. In the second consumption class, the Italian price (90.30 c€/cubic metre) is not the highest as in 2020, as it is exceeded by the price applied in Spain. The Italian price (86.01 c€/cubic metre) is instead confirmed as the highest, as in the past, in the third consumption class. The best prices, in all classes, remain the German ones.

The component of taxes and duties is confirmed as highest in our country for the bands with the greatest consumption, albeit with a major decline in positive differences, above all with respect to Germany, which in the past was the country that in these bands applied the lowest tax and is instead in 2021 second only to Italy. In the first class, the Italian tax component, which in 2020 was only higher than the German one, drops to become the lowest.

GAS: FOR INDUSTRIAL CUSTOMERS, LOWER GROSS PRICES THAN THE EURO AREA IN ALL CLASSES, EXCEPT THAT WITH THE LEAST CONSUMPTION. DIFFERENCES WITH THE OTHER COUNTRIES IMPROVE

In 2021, Italian gas prices for industrial customers were below those of the Euro Area in all bands except the first (consumption below 26,000 cubic metres/year), where they continue to be the highest, with positive differences of +13%, as compared with +14% in 2020. In bands I3 and I4 (for consumption from 260,000 cubic metres to 26 million cubic metres per year) the differences instead come to -13% (respectively -9% and -8% in 2020). For consumption band I2 (from 26,000 to 260,000 cubic metres/year), the difference, which was null in 2020, became negative, albeit it only slightly, insofar as equal to -1%. The difference for the higher consumption band (i.e. with annual consumption ranging between 26 and 104 million cubic metres), after having taken on values of +2% on 2020, went back to being negative for -9%.

As regards net prices, the differences are instead all positive, with average values of 5% (6% in 2020). In the comparison with the main European countries, the situation continues to be varied: as compared with Germany, the prices of the first two bands are confirmed as higher, with positive differences but that are declining continuously (from +33% in 2020 to +25% in 2021 and from +13% to +8%), while for the other classes, the convenience of the Italian prices increases, with negative differences expanding and ranging between -11% and -17%.

WATER SERVICE

WATER: 15.6 BILLION IN INVESTMENTS LAUNCHED. APPROXIMATELY 97% OF SCHEDULED INTERVENTIONS CARRIED OUT

In 2021, the processes continued for the approval of the tariffs prepared for the third regulatory period. In this context, **approvals of the tariff recommendations for the four-year period 2020-2023 resolved by the Authority, at 30 April 2022, regarded a total of 91 cases, involving 34,533,179 inhabitants (60% of the national population)**. It is noted that **at a national level, the average change in prices applied to users, as compared with last year, is 2.79%** and, therefore, below the price limits set by the Authority, despite the start of the improvement process in the quality of the integrated water service.

With reference to the third regulatory period, the programmes of interventions sent to the Authority quantify, for the four-year period 2020-2023, **spending for investments to be financed through tariff, per capita, of approximately Euro 200/inhabitant at national level**, with higher values in the Centre, equal to Euro 278/inhabitant. **Also considering the forecasts on the availability of public finance** for the development of water facilities, **the investments planned for the four-year period 2020-2023 are, per capita, Euro 263/inhabitant** at national level (corresponding to annual spending on investments of Euro 65.8/inhabitant).

Extending the analysis on the basis of the population resident in the country, **spending on investments, in absolute terms, including the availability of public funds, comes to Euro 15.6 billion for the four years**. It should be considered that the need represented here does not yet take into account the potential boost that could derive from the policies for the planning and support of investments in facilities under the scope of the Italian National Recovery and Resilience Plan (PNRR).

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**, already highlighted in the previous edition of the Annual Report. **The development rate is in fact 97% for 2018 and 94.5% for 2019**.

WATER: EURO 322/YEAR AVERAGE SPENDING FOR A TYPICAL FAMILY MADE UP OF 3 PEOPLE. WATER SUPPLY NETWORK LEAKAGE IMPROVES TO 40.7%, AS DO INTERRUPTIONS (-31%). STILL TERRITORIAL DIFFERENCES BETWEEN NORTH AND CENTRAL-SOUTH.

With reference to a sample of 93 cases (serving approximately 39 million inhabitants), it is noted that **for 2021, the average annual spending by a typical residential household (family of 3 people, with annual consumption of 150 cubic metres), amounts to Euro 322/year at national level**, with a more limited value in the North-West (Euro 239/year) and higher in the Centre (Euro 397/year); in this latter area, the competent bodies have planned a greater spending per capita for 2020-2023 for investments to be financed through tariff.

Considering the various **items making up the bill** of households, for annual consumption of 150 cubic metres, **around 39.5% of spending is for the water supply network service, for which, at national level, Euro 127.3/year are spent.** Average national spending for **sewerage and water treatment services comes respectively to Euro 41.7/year (12.9% of the total) and Euro 95/year (29.5%). In addition, the fixed portion accounts for 9%, as do taxes (9%).**

As a general rule, the data analysis reveals progress in the process of **comprehensive improvement in the technical quality indicators identified by the Authority** and slight but stable growth in the number of operators for which facility and quality data is periodically surveyed by the Local Governing Bodies, also with reference to the operators localised in the geographic area of the South and Islands.

More specifically, the survey of the condition of facilities on the basis of the latest technical data available (referring to 2021) at national level showed: a **value of linear water leakage that averages out at 17.2 cubic metres/km/day, as well as an average value of percentage water leakage of 40.7% (41.2% in 2019)**. More limited leakage values are seen in the North and higher average values at the Centre and in the South and Islands, where just under half the water resources released into the water supply network systems are dispersed.

As regards **service interruptions** (activation of which for the application of the incentive mechanism is envisaged starting 2020), the value is strongly conditioned from critical situations at a territorial level (especially in the South and Islands). More specifically, low numbers are observed in the **North-West (0.71 hours/year) and North-East (0.64 hours/year), higher in the Centre (6.92 hours/year) and even higher in the South and Islands (171.41 hours/year)**; the most critical data refers to operators in the regions of Abruzzo and Sicily. As compared with previous data, **an average reduction of interruptions has in any case been recorded of 31%.**

The analysis of investment needs (gross of contributions) for the period 2020-2023 at national level confirms the concentration of the efforts of the operators to limit the level of water leakage, which is therefore a priority objective in the planning choices of the Local Governing Bodies. **In all, the resources allocated to interventions to improve leakage account for approximately 22% of the total needs of the sample for the four-year period 2020-2023**, value essentially in line with that recorded for the two-year period 2018-2019. Investments follow for the improvement of the quality of purified water and adjustments of the sewerage system (in particular, with a view to minimising flooding and spillage from the sewers), which come in respectively at 18.1% and 13.9%, whilst the incidence of the weight of interventions to reduce water interruptions drops slightly, coming to 13.5% of the total needs.

Analysing the distribution of investments by geographic area, the impact is seen in the South and Islands of the interventions aiming to overcome Community infractions in the sewerage and water treatment services. In general terms of service, in the North-West and South and Islands, a greater need has been expressed in sewerage and water treatment, while in the North-East and Centre, there is a clear prevalence of investments in the water supply network business. The area in which most of the investments are concentrated on reducing leakages is the South and Islands (approximately a quarter of the total needs), followed by the Centre, while in the North-West, the need for investments to adjust the sewerage system comes in well above average and, together with the improvement in the quality of the purified water, exceeds the resources allocated to macro indicator M1 (the reduction of leakage).

The existence is confirmed again in the country of a water service divided, with technical parameters that generally tend to represent situations of greatest criticality at the South and Islands.

WASTE

WASTE: OPERATORS GROW TO MORE THAN 7,800. MORE FRAGMENTED GOVERNANCE. THE TARIFF METHOD COVERS AROUND 50 MILLION INHABITANTS. MTR-2 APPROVED

In 2021, the Authority continued the construction of the industry regulatory framework with the definition of the Waste Tariff Method for the second regulatory period 2022-2025 (MTR-2). Again in 2021, the process of approval of the tariff preparations relative to 2020 and 2021 was impacted by the continued health emergency connected with the COVID-19 virus and the consequent deferral of the deadlines for approval of the TARI arranged by the legislator with various regulatory interventions. The deadline, ultimately set as 31 July 2021, meant that most of the tariff preparations relative to the 2021 economic-financial plan was mainly sent in July and August 2021 and in some cases also later. With reference to 2020, in all, just over **6,250 tariff recommendations** were transmitted by more than 3,000 ETCs, for a population of 51.5 million inhabitants (approximately 87% of the national population). As instead regards the 2021 economic-financial plan, the Authority has received approximately **5,700 preparations, which represent a total population of around 49.2 million inhabitants (approximately 83% of the national population)** from approximately 2,700 ETCs. In October, the approval process was started of the recommendations for 2021.

With reference to **2020**, the **preparations approved** by the Authority regard approximately 180 Tariff Areas, involving 8.7 million inhabitants (resident in 270 Municipalities), for which an **average increase of tariff income** has been approved, **which is very limited compared with 2019 and comes to 0.43%**. As regards 2021, the year in which approval followed the extensions of the terms for the approval of the tariffs determined by the continued health emergency, the preparations approved involved 33 Tariff Areas and a population of just over 4.3 million inhabitants (distributed in 124 Municipalities); **the average annual increase in tariffs, with reference to 2021 preparations approved to date by the Authority, was 1.3%. 7,843 subjects have been registered with the Authority Operators Registry (7,470 in 2020), with an increase of approximately 370 units** as compared with the previous year, of which 7,608 registered as operators, in 86.5% of cases Public Entities and in 13.5%, operators with a different legal nature. A slight increase of 7% in subjects registered as Locally Competent Bodies (ETCs). As confirmation of the complexity and fragmentary of the industry governance, a reduced number of Local Governing Bodies is recorded (just under 60), against a very large number of Locally Competent Bodies (3,762 as compared with the 3,523 of 2020), coinciding in 98% of cases with the Municipalities.

WASTE: PRICES AND ACTIVITIES VERY MUCH UNEVEN FOR PROCESSING, INCINERATION AND LANDFILL

Under the scope of the start of proceedings for the definition of the MTR-2 and criteria for the definition of tariffs to access the processing plants, a survey has been started aimed at acquiring data and information relating to urban waste processing plants – incinerators, landfills and mechanical-biological processing plants. Out of a panel of 29 **incineration** plants (out of 37 recorded by ISPRA – The Italian Institute for Environmental Protection and Research – in 2019 reference year), 4.9 million tonnes of waste have been incinerated, of which 13% special waste and 87% municipal waste. Only 5 plants received purely municipal origin waste; for most plants, the portion of special waste is residual with respect to that of municipal waste; on average, in larger plants, the portion of special waste conferred is more significant. **The first 5 plants of the panel processed 49% of the total waste incinerated.** The **conferral price** declared by the panel operators is **extremely variable** from plant to plant and ranges from a **minimum of Euro 84/tonne to a maximum of Euro 191/tonne**; at the macro area level, an average conferral price is instead recorded of Euro 105/tonne in the North and Euro 113/tonne in the Centre and South (average price of Euro 106/tonne). The **mechanical-biological processing (MBP)** plants (data collected on 68 plants out of 130 registered by ISPRA) receive 4.9 million tonnes of waste, of which **98% of municipal origin** and only 2% special waste. The greater contribution of waste is due to **unsorted waste** (79%). The **conferral price** varies from a **minimum of Euro 15/tonne to a maximum of Euro 189/tonne** (average price Euro 108/tonne). Finally, analysing the data of 55 **landfills** out of 131 (ISPRA), in 2019, they managed a total of 3.6 million tonnes of waste, of which 2.6 million tonnes of municipal waste worth **at least Euro 12/tonne in conferral value and up to Euro 190/tonne** (average price Euro 84/tonne).

DISTRICT HEATING

DISTRICT HEATING: GROWING TREND, STILL CONCENTRATED IN NORTHERN ITALY

The growth trend of district heating and district cooling is confirmed in terms of the volumes connected and network extension, which in 2020 reached 375.2 million cubic metres. **The extension of the networks has quadrupled, going from around 1,091 km in 2000 to 4,666 km in 2020**. **The dissemination of the service remains mainly concentrated in North and Central Italy**, where most of the demand for heat to heat the buildings and the high living density make it possible to justify the significant investments in facilities necessary to ensure use of the service for users. **The 5 regions of the North**, Lombardy, Piedmont, Trentino-Alto Adige, Emilia Romagna and Veneto, **alone represent more than 95% of the thermal energy dispensed**.

Natural gas is confirmed as the clearly prevalent energy source for the operation of district heating plants, accounting for 69.2% of total energy consumption, slightly down on last year. A significant contribution is also made by residual municipal waste (RMW), equal to 15.8% of the energy sources used, and by bio energies (biomass, biogas and bioliquids), which in representing 10.3% of the

total, guide growth of renewable energy resources. With reference to generation technologies, a clear prevalence of electricity and heat cogeneration plants, which produced 65.7% of the thermal energy released to the networks, is confirmed.
The number of companies operating in the district heating sector today registered with the Authority Operators Registry is 253 (259 last year). Of these, 86% generally deal in an integrated fashion with activities that are strictly linked to the operation of networks and supply of thermal energy to utilities (distribution or metering or sale), whilst the remaining portion only deal with the production of thermal energy.
The energy distributed by the district heating networks is mainly used for environmental climate control (heating and cooling) and the production of hot water for sanitary use, whilst use in industrial processes is only marginal. A significant portion of the market in fact consists of residential and service users (respectively 65.3% and 31.9% of the total), whilst the demand of the industrial sector remains marginal (2.8%).
An analysis of industry **prices** reveals an extensive heterogeneity of average prices applied by merchants. More specifically, 50% of the commercial offers are between Euro 73 and 107/MWh, with an **average value of Euro 91/MW.**