

# 2021—Driving innovation for energy transition

TCFD report



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# About this report



## PURPOSE

Pioneers by passion and builders by vocation, we put all our energy into accelerating genuine ecological transition.  
We do it for us.  
We do it for everyone.

## MISSION

We have provided energy services to the community with efficiency, safety and excellence for over 180 years. Advancing the energy transition by creating the networks of the future and promoting innovative and sustainable solutions.  
We care for local communities. We nurture positive and generative relationships with everyone we meet: individuals, companies, suppliers and shareholders.  
We are open to new markets where we can apply our distinctive skills.  
We promote people's growth and develop talent by building inclusive and stimulating working environments.

## VISION

To be a leading player in the energy world, driving its evolution with continuous and sustainable innovation to improve people's quality of life.

## About this report

This report is based on the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD), a set of voluntary, consistent disclosure recommendations for use by companies in providing information to investors, lenders and insurance underwriters about the Group's overall strategy and governance, its climate-related financial risks and opportunities, and relevant metrics and targets.

Italgas, deepening the information already provided in its Integrated Annual Report<sup>1</sup> and in the Strategic Plan 2022-28 and taking inspiration from the recommendations of the TCFD by the Financial Stability Board, intends to disclose, to its investors and other users/stakeholders, clear and comparable information not only on the climate-related impacts on the Group, but also its impact on the climate.

*We have provided energy services to the community with efficiency, safety and excellence for over 180 years.*



<sup>1</sup> <https://www.italgas.it/wp-content/uploads/sites/2/2022/04/2021-Integrated-Annual-Report-format-PDF.pdf>

# Stakeholder letter

In a few years' time, the worldwide health emergency, the energy crisis and the outbreak of war on Europe's doorstep have reshuffled priorities at global level, and continue to do so, requiring extraordinary measures to contain the economic and social effects on communities. The war, in particular, has forced the European Union and the individual member states to question the assumptions of the ecological transition, at least as it was conceived until 24 February.

The change in perspective, however, did not result in a departure from decarbonisation targets. On the contrary, the "REPowerEU" plan, approved shortly after the outbreak of the conflict, outlined a path of emancipation from Russian gas that, going beyond the goals set by the 'Fit For 55 Plan', aims to strengthen the resilience of the European energy system and, at the same time, accelerate the ecological transition process.

The Plan, which will extend to 2030, outlines a very clear path to replace the quantity of natural gas the EU imports from Russia (it was 155 billion cubic metres, or bcm, in 2021). This is to be achieved by relying on incremental shares from other sources and, in particular: +50 bcm from LNG imports, +10 bcm of natural gas imported via pipelines from alternative sources, +35 bcm from biomethane production, +20 million tons of hydrogen (imported and/or generated), with the addition of the increasingly decisive contribution of energy efficiency measures. To what extent the "REPowerEU" plan can speed up the decarbonisation of

consumption can be gathered in particular from the contribution expected from renewable gases, which accounts for nearly half the amount of Russian gas to be replaced. It comes, in fact, to approx. 70 billion cubic metres, equally divided between the biomethane target, doubled compared to the 'Fit for 55' forecast, and an almost three times as high hydrogen target.

Within this context the gas distribution network takes on the role of primary enabler and driver of renewable gas production, on account of its being more widely spread than the transport network and the possibility of reaching farming and peripheral areas, where biomethane production facilities are mostly located. Based on a well-established technology, this source has the potential to become available in huge quantities.

The role of gas distribution system operators (DSOs) is exceedingly strategic, in that, with about two million kilometres of pipelines in Europe they will have to stand ready to quickly accommodate the incremental quantities of renewable gas by promoting the widespread development of production facilities. How? Through a digital transformation that enables the network to contain and distribute biomethane, hydrogen and synthetic methane – which is precisely what we have been doing in Italgas since 2017.

In this connection our Company is a benchmark to all intents and purposes: the Company's digitization process involved assets, people and methods through an overall investment of over 2 billion euros,

which in 2023 will make it the world's No. 1 one gas distribution company operating a full digital network. Besides making it possible to manage the service effectively and to know at all times the composition of the energy mix that is delivered to the customers, a full digital network can also collect and transmit data in real time, receive instructions and be controlled remotely.

Thus, as was the case with the digital transformation during the pandemic, the crisis affecting the energy markets and the war over Ukraine may very well prove a catalyst for the energy transition. The crisis can turn into an opportunity, provided that concrete action is taken to quickly deploy investments promoting the development and modernisation of European infrastructure, while continually monitoring the evolution determined by climate change-related risks.

In Italy, the 75 thousand kilometres of networks managed by Italgas are already well on their way towards completing their digital transformation and modernisation; and this process will soon be extended to the Greek infrastructure.

As of September 2022, in fact, Italgas has

resumed its activities beyond the national borders through the acquisition of DEPA Infrastructure, the main gas distribution operator in Greece. With this acquisition the Group has secured an opportunity to apply the technological know-how developed in accordance with sustainability best practices, constructing digital and smart digital distribution networks that can accommodate renewable gases: a pivotal element for the carbon and lignite phase-out process and hence for the decarbonization of the Greek economy. Pursuant to the recommendations of the Task Force on Climate-Related Financial Disclosure (TCFD), in this document ("2021- Driving innovation for energy transition"), Italgas decided to expand on the communication of its climate strategy – as already expressed in the 2021 Integrated Annual Report and the 2022-2028 Strategic Plan –, which see the Company strongly committed both to the decarbonisation of its own activities, with a commitment to Net-Zero carbon emissions by 2050, and to the contexts where it operates, by managing most effectively the risks and opportunities arising from climate change for its business.



**Benedetta Navarra,**  
Chairwoman & Non-Executive Independent Director



**Paolo Gallo,**  
Chief Executive Officer and General Manager



# About Italgas

## 1. ABOUT ITALGAS

Italgas S.p.A (Italgas, the Company or the Group) is the leading gas distribution operator in Italy and the third largest in Europe: in Italy it manages a distribution network that extends for a total of approximately 75,000 kilometres, through which it distributes approximately 9 billion cubic metres of gas to 7.76 million end customers every year.

In Italy, the Group and its affiliates hold 1,898 distribution concessions, with a historical presence in the Country's main cities, and a market share of over 35%. Italgas was founded in 1837 and with 185 years of history, it is unanimously recognised as the Company that brought gas into Italian homes. In Greece, since September 2022, Italgas owns the three distribution companies Eda Thess, Eda Attikis and DEDA through the holding DEPA Infrastructure, with an approximately 7,500 kilometres distribution network and 0.65 billion cubic metres of gas distributed to 0.57 million end customers every year.

Italgas' core business is focused on gas distribution, which it carries out as part of the wider national system, involving the distribution of gas to end users on behalf of authorised suppliers. In addition to the distribution of gas, carried out using the local pipeline network from the city-gates (reduction and metering stations interconnected with the transmission networks),

Italgas is also in charge of metering, which include the collection, processing, validation and provision of consumption data to regulate commercial transactions between operators and users.

Italgas is constantly looking to the future, with clear growth and development objectives and a major investment plan aiming at making its network smarter and capable to distribute green gases and sustaining the energy transition, with the adoption of digital technologies that make network management day by day increasingly efficient. Italgas is strongly committed to reduce methane emissions, contributing to the achievement of European climate goals<sup>2</sup>.

The Group operates in a sustainable manner, through processes and technologies that are inspired by the highest standards of environmental protection, safety and efficiency. Italgas keeps driving the evolution of the gas distribution industry, being acknowledged as a global benchmark for the capacity to innovate, thus playing a leading role in achieving European decarbonization targets.

Italgas has adopted advanced practices and technologies that can pave the way for a more sustainable future. These competences and solutions can also be useful for other infrastructure and energy operators or operators of other sectors, in fixing more ambitious,

concrete objectives (Bludigit, the Italgas Group digital services company, with the capacities developed in the Digital Factory in the proprietary digital applications and through the partnerships with technological suppliers globally, offers innovative solutions to third parties in support of the energy transition process).

Italgas' gas distribution networks<sup>3</sup> are managed by:

- Italgas Reti S.p.A.<sup>4</sup> – which operates nationwide, 100% owned by Italgas, fully consolidated;
- Toscana Energia S.p.A.<sup>5</sup> – operating in the Tuscany region, 50.66% owned by Italgas and fully consolidated starting from October 2019;
- Medea S.p.A.<sup>6</sup> – operating in Sardinia, 51.85% owned by Italgas, fully consolidated;
- DEPA Infrastructure<sup>7</sup>, acquired on the 1<sup>st</sup> of September 2022 – operating in Greece, 100% owned by Italgas, holding 51% of Thessaloniki – Thessalia Gas Distribution S.A. (EDA Thess)<sup>8</sup>, 100% of Attiki Natural Gas Distribution Single Member Company S.A. (EDA Attikis)<sup>9</sup>

and 100% of Public Gas Distribution Networks S.A. (DEDA)<sup>10</sup>.

Italgas is also active in the following businesses:

- energy efficiency, with Geoside S.p.A.,<sup>11</sup> an Energy Service Company (ESCO) providing consulting services and technological and financing solutions in the sector;
- water distribution in five municipalities of the Campania region (province of Caserta), with Italgas Acqua S.p.A.<sup>12</sup>
- IT services, with Bludigit S.p.A.,<sup>13</sup> which is both managing the Group's business and assets in the IT area, also offering its services to the market.

<sup>2</sup> [https://ec.europa.eu/clima/eu-action/climate-strategies-targets\\_en](https://ec.europa.eu/clima/eu-action/climate-strategies-targets_en)

<sup>3</sup> The distribution business accounted for more than 94% of total adjusted revenues in 2021.

<sup>4</sup> <https://www.italgas.it/en/group/companies/italgas-reti/>

<sup>5</sup> <https://www.toscanaenergia.eu>

<sup>6</sup> <https://www.italgas.it/en/group/companies/medea/>

<sup>7</sup> <https://depanetworks.gr/>

<sup>8</sup> <https://www.edathess.gr/>

<sup>9</sup> <https://edaattikis.gr/>

<sup>10</sup> <https://deda.gr/>

<sup>11</sup> <https://www.geoside.com/>

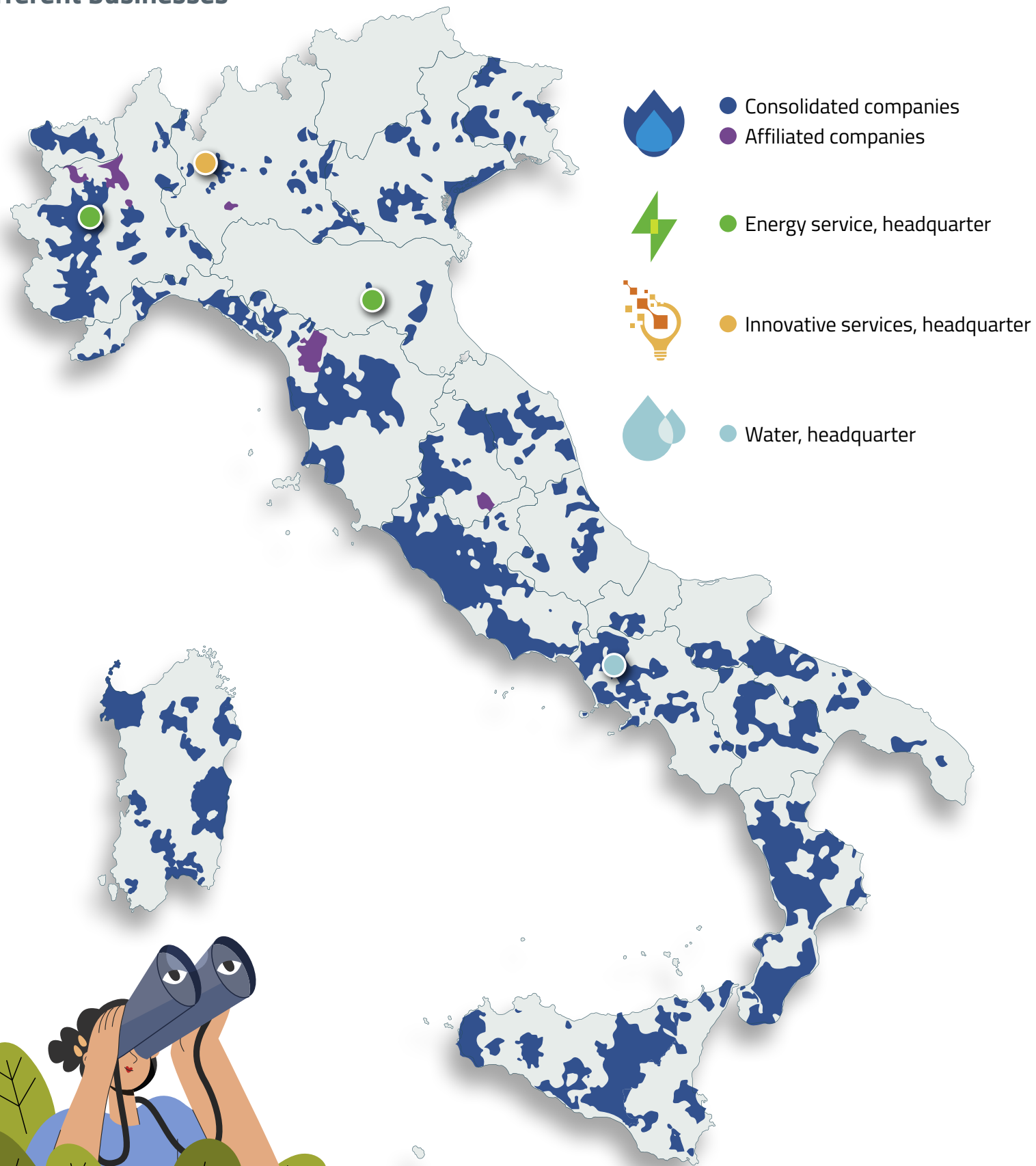
<sup>12</sup> <https://www.italgasacqua.it/>

<sup>13</sup> <https://www.italgas.it/en/group/companies/bludigit/>



# Geographical map

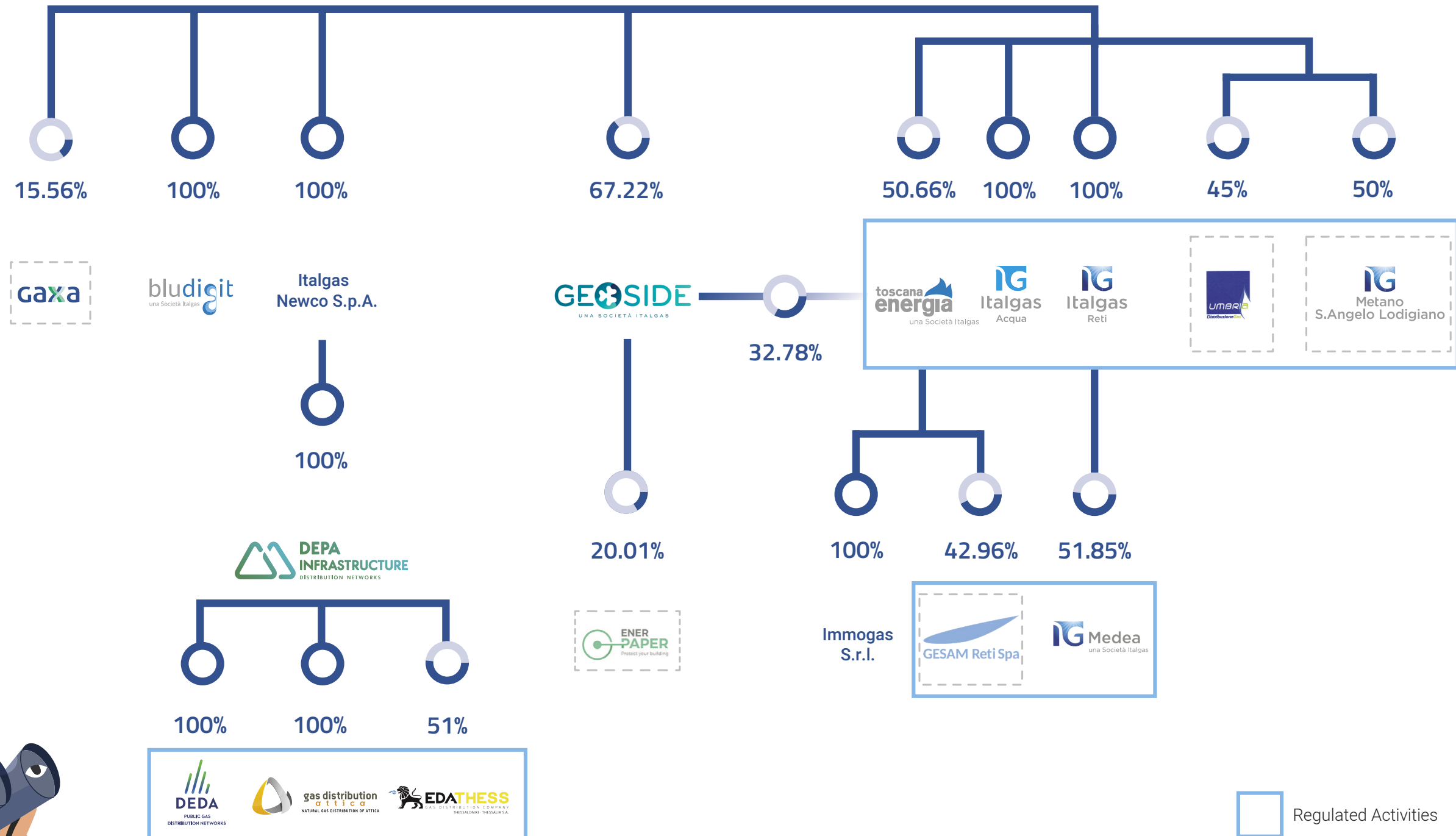
Geographical map with  
different businesses



# Group structure



Italgas Group  
structure



Regulated Activities

Equity Method  
Data and targets included in this report do not refer to consolidated companies with the equity method

# Business model



## Business model

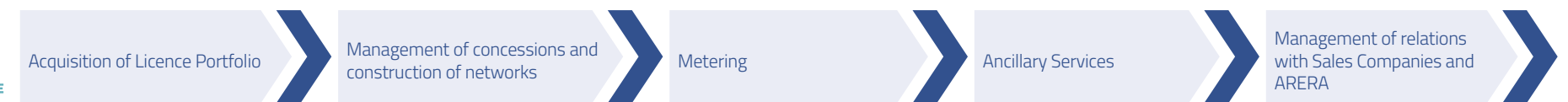
To implement a real economic, financial, environmental and social sustainability and be able to create shared value in response to the expectations of all stakeholders - from investors and shareholders to the territorial context and employees - the Group has adopted an integrated business model that can use all its input capitals to achieve strategic objectives and create value in the short, medium and long-term.

The operations of the Italgas Group are also included in the business model below.

## Value chain model



### Business process - Gas distribution and metering



### Business Process - Integrated Water Service



### Business Process - Energy efficiency



### Business Process - IT Services





# Climate resilience

## 2. CLIMATE RESILIENCE INTO OUR BUSINESS STRATEGY

Italgas supports the European energy transition and decarbonization efforts through its actions of repurposing and retrofitting its distribution network, enabling the gradual substitution of fossil gas with renewable gases (biomethane, hydrogen and syn-gases) and fostering the development of energy efficiency services.

The strategic choices made in recent years by the Group have anticipated the approach of national and EU institutions towards the decarbonization and the containment of Greenhouse Gases (GHG) emissions. In fact, the 2050 Net-Zero target, set by the European Union as part of the Green Deal, and the further boosts to the fight against climate change, the

reduction of greenhouse gas emissions and the differentiation of energy sources - brought about by the European Commission's REPowerEU plan and, prior to this, the Fit-for-55 package of economic and social reforms and regulations – are nowadays confronting individual Member States with the urgency to act in this direction.

### 2.1 Global warming, decarbonization and role of the energy sector

In the "Special Report on the impacts of Global Warming of 1.5°C" of 2018 the Intergovernmental Panel on Climate Change (IPCC) estimates that since the pre-industrial period human activities have increased Earth's global average temperature by approximately 1°C and that the global average temperature is currently increasing by 0.2°C per decade. Further, the study recognises that

extreme weather events such as storms, floods and wildfires are intensifying their impacts and frequency around the world. Widespread and severe consequences on people and nature are expected if global warming reaches 2°C. To secure decarbonization and global Net-Zero emissions by 2050, effective and timely adaptation and mitigation plans are therefore key.

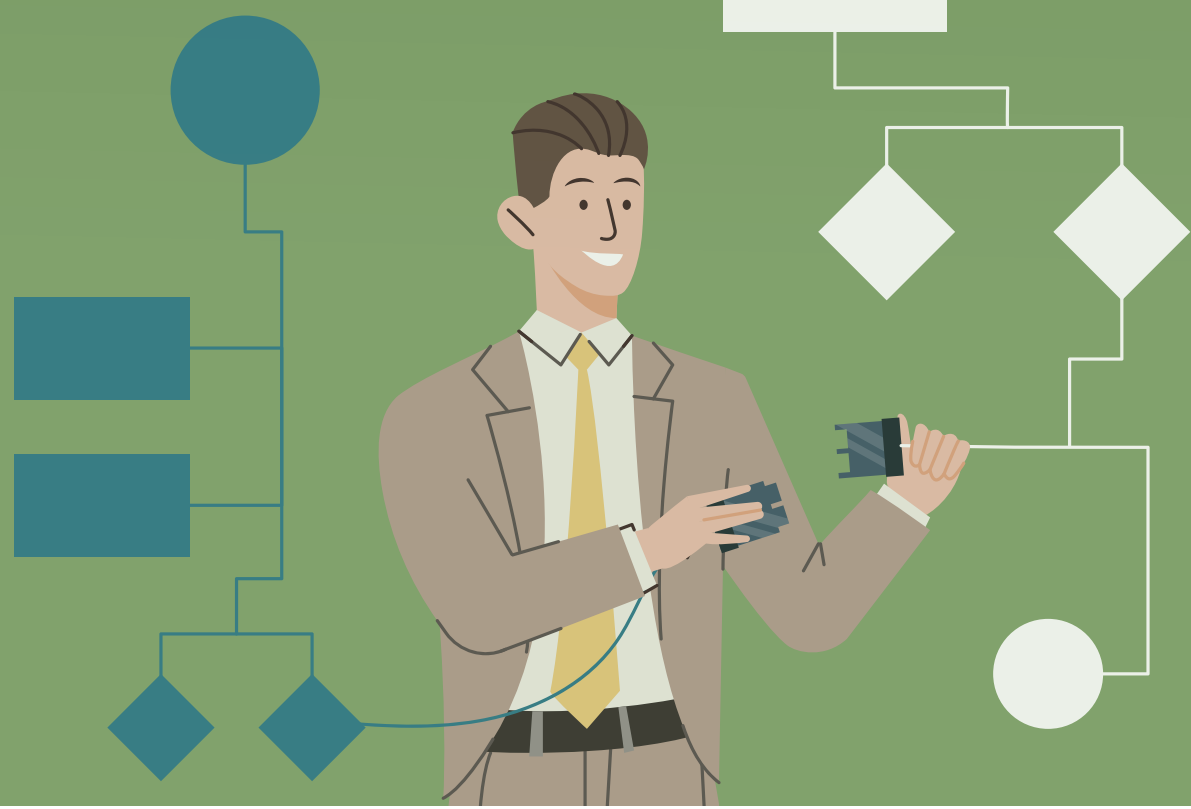
In 1996 the Kyoto Protocol (then ratified in 2005) represented the first world's binding tool for cutting GHG, targeting 18% reduction by 2020 from 1990 levels. But it covered only 12% of global GHG due to abstention of world's largest emitters. Then, the Paris Agreement (COP21) saw the commitment of all UNFCCC Parties to embrace more incisive actions to reduce climate change (limiting global warming well below 2°C to 2050). 159 countries covering 90% of global GHG emissions were put around the table. With the European Green Deal in 2019, and the following "Fit for 55" package (2021), the European Union accelerated its path towards Net-Zero by 2050, with an interim target of 55% emission reduction by 2030 from 1990 levels, enhancing all the previously set targets.

The ongoing Russian – Ukraine conflict is accelerating the energy transition, as the need to reduce dependence on Russian fossil fuels is pushing the European

Union to define urgent measures for security of supplies, diversification of sources, the use of renewables and on energy efficiency. The RepowerEU<sup>14</sup> Plan upgraded the previously set targets on renewables gases. The new target is 35 bcm of biomethane and 20 Mtons of hydrogen in energy supplies by 2030, respectively a double and four times more relative to the target set in the "Fit for 55" Plan.

In 2019, the energy sector represented ~67% of global emissions<sup>15</sup>. Power generation (electricity and heat) was the largest emissions generator representing ~40% of global emissions on final energy uses, followed by transport and buildings sector.

Decarbonization of the energy sector requires a fast switch from high pollutant fuels to cleaner energy sources. In 2020 the European primary energy mix was represented for ~45% by oil and coal, ~24% by Natural Gas and 17% by renewable energy sources<sup>16</sup>. Gas infrastructures, due to their low carbon footprint, well spread capillarity and flexibility, will maintain a key role in decarbonization supporting in the mid-term the switch from oil and coal and in the long term the progressive substitution of fossil gas with renewables gases (biomethane, hydrogen and syn-gases).

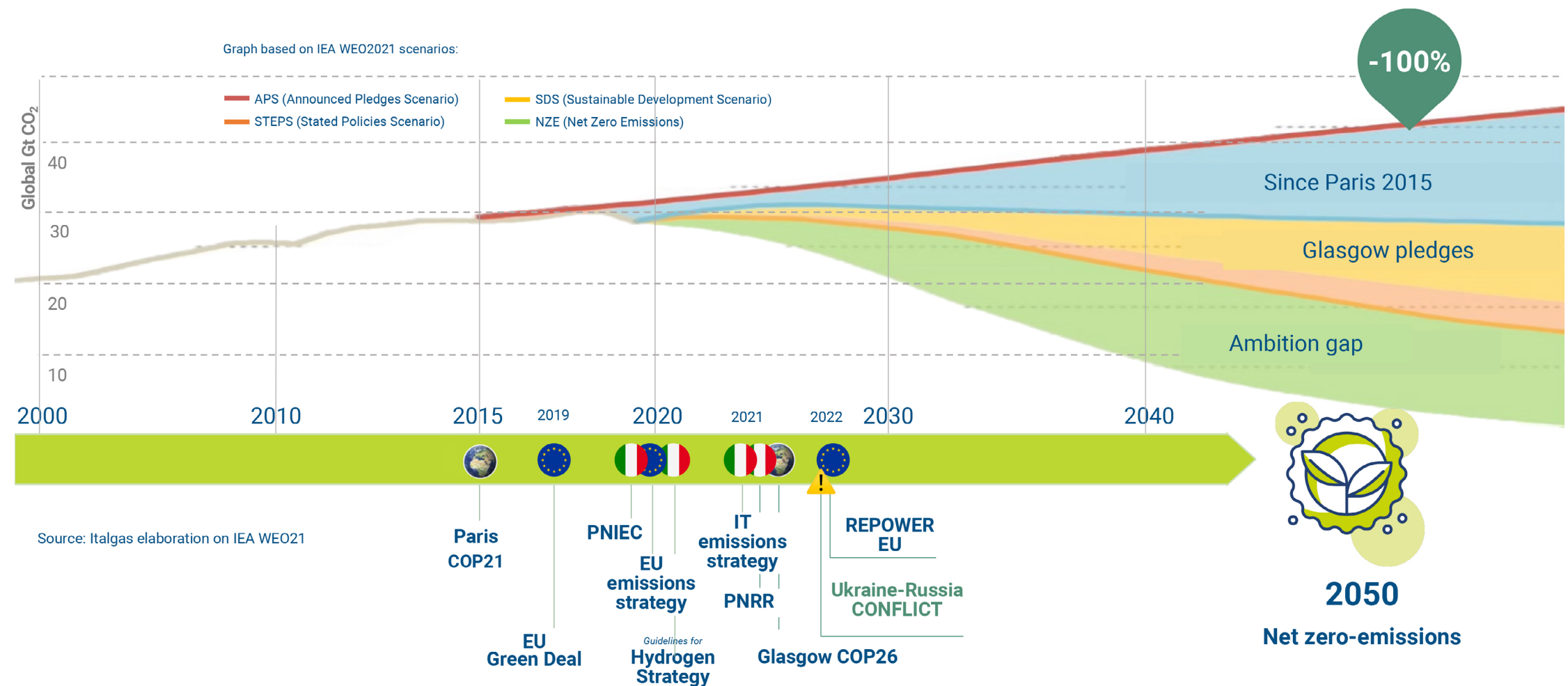


<sup>14</sup> [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_22\\_3131](https://ec.europa.eu/commission/presscorner/detail/en/IP_22_3131)  
<sup>15</sup> IEA WEO2021 <https://www.iea.org/topics/climate-change> <https://www.iea.org/reports/greenhouse-gas-emissions-from-energy-overview>  
<sup>16</sup> Eurostat 2021. Other sources represent 14%.

To achieve full decarbonization the contribution of all energy sources and collaboration among energy players is paramount. Gas and electricity will need to interoperate to provide the most efficient and sustainable energy economies (i.e., “sector coupling”). This will also ensure security of supply.

While impacts of climate change might be severe, advances in tackling it are leading to cleaner air, creating good jobs, restoring nature and, at the same time, unleashing economic growth. From transitional and physical risks, lots of opportunities arise, among those, digitization of gas network and energy efficiency business. Italgas is pursuing the decarbonization of gas sector, through the conversion of its network into digital infrastructure to enable the distribution of gas other than methane, such as biomethane, hydrogen, and syn-gas. Digitization enables the remote control with sensors, electrovalves and actuators, improving the resilience of gas network to climate changes.

Furthermore, energy efficiency is at the core of EU and Italian policies to fight climate change: Italgas Group has diversified its business, entering into the sector with the acquisition of the Energy Services Company Seaside in 2018, then merged with Toscana Energia Green (2021) and Ceresa (2022), to finally create Geoside in 2022.



*75,000 kilometres of network into digital infrastructure to enable the distribution of gas other than methane, such as biomethane, hydrogen, and syn-gas.*



## 2.2 Climate and energy scenarios' analysis

Policies, climate-related and energy scenarios' analysis is a key step for the development and update of the Group Strategy, supporting the organizations' critical strategic thinking and understanding how related risks and opportunities affect its business today and will affect it in the future. Through the comprehension of the energy context and outlook, Italgas at least once a year, addresses and adapts the Group strategy to fit to the environment in which it operates.

The Strategic Planning process leads to the seven years' Strategic Plan, which includes the financial planning for the same horizon. The Plan is developed through a comprehensive company-wide approach, involving deep collaboration between top, mid and lower management. And it is approved by the Italgas Board of Directors in June of each year. Scenarios analysis is run to support the identification of risk and opportunities (both physical and transitional) arising from the context.

The analysis helps to identify and evaluate potential business impacts and define the responses and actions necessary to manage such risks and opportunities. The Group can then drive a more consistent value creation for its business and for the community it

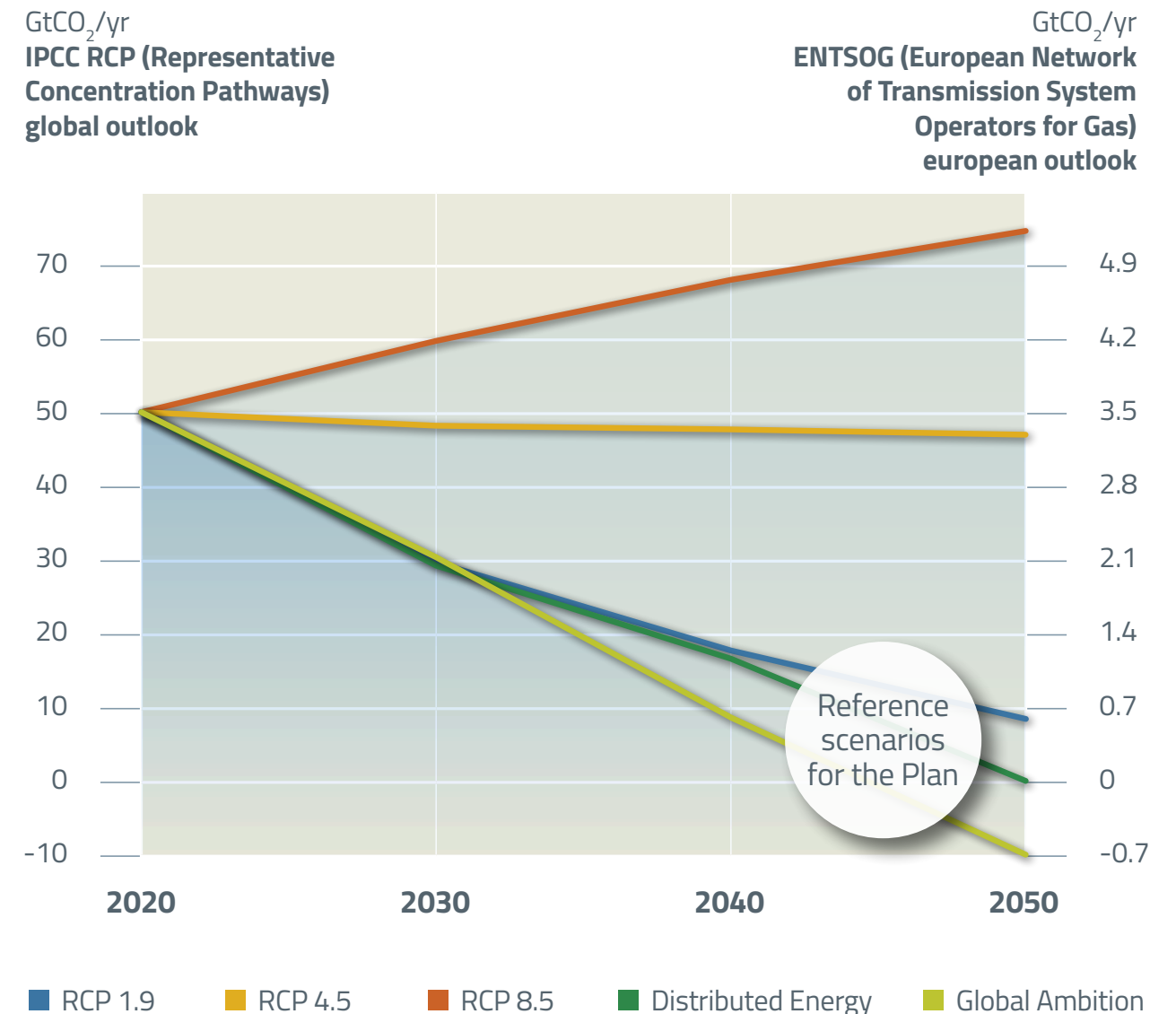
operates in, tackling at the same time the relevant energy and climate change challenges (risks and opportunities related to climate change are summarized in Paragraph 3.2). The analysis is based on publicly available qualitative and quantitative transition and physical scenarios. Transition scenarios on decarbonization and energy transition support critical thinking on the future role of the gas in the energy mix ensuring consistency with international and European objectives.

The scenarios considered in the setting of the 2022-2028 Strategic Plan are elaborated by major institutions, special reference is made to the European Commission forecasts, the World Energy Outlook of the International Energy Agency (IEA), ENTSOG and ENTSO-E, IRENA and National Contributions (PNIEC, PNRR). In particular, the IEA scenarios STEPS, APS and NZE have been analyzed with a focus on emission reduction and the mitigation actions needed to achieve Net-Zero by 2050.

The ENTSOs scenarios have been analyzed to focus on CO<sub>2</sub> European trends, gas demand and supply in Group's reference perimeter (Europe, Italy, Greece), perspective evolution of the gas mix (fossil fuels, biomethane, hydrogen and other renewable sources) and energy efficiency.

All scenarios are compliant with Paris Agreement and European ambitions to achieve climate neutrality by 2050, provide forecasts over mid (2030) and long term (2040-2050) and envisage an accelerated energy transition in line with IPCC RCP 1.9 to keep global warming below 1.5°C. This climate scenario requires a challenging but feasible CO<sub>2</sub> abatement resulting from profound

change of current economy. IPCC scenarios provide global outlook for CO<sub>2</sub> emissions. The figure below compares the IPCC global outlook with ENTSOs European view. The trends have been normalized on 2020 base to clearly show that both the Distributed Energy and Global Ambition ENTSOG scenarios are aligned with RCP 1.9 outlook<sup>17</sup> and reach even better results in 2050.



<sup>17</sup> The trend of emissions has been normalized on 2020 base to compare the RCPs global outlook (left axis) with European EntsoG scenarios for Europe (right axis).



Starting from 2021, two different quantitative scenario analysis were carried out by Italgas to evaluate physical risks, in the case mitigation and transition initiatives are not sufficient to limit the temperature below 1.5°C. The scenarios selected by Italgas are Representative Concentration Pathways (called RCPs in the AR5 and SSPs in the AR6), i.e., quantitative scenarios that are based on the physics of the climate and are defined by the concentration of greenhouse gases in the atmosphere.

The first scenario selected by Italgas is the RCP 8.5 which represents the worst IPCC scenario in which there would be extreme and potentially irreversible consequences on the meteorological-climatic variables considering that no action would be taken to reduce emissions. In fact, the growth of emissions at current rates will lead to high levels of greenhouse gas concentrations and represent the inability to curb warming.

This scenario assumes that, by 2100, atmospheric CO<sub>2</sub> concentrations tripled or quadrupled (840-1,120 ppm) compared to pre-industrial levels (280 ppm). This scenario is energy-intensive with a total consumption that continues to grow over the course of the century reaching well over three times the current levels<sup>18</sup>. Secondly, Italgas decided to assess its risks and opportunities

through the RCP 4.5 scenario, which does not consider further mitigation commitments by states with respect to those already adopted apart the implementation of certain initiatives, such as the use of new technologies and strategies to reduce greenhouse gas emissions. Because of this, moderate transitional interventions and significant physical risks are expected. It is considered a stabilization scenario because it expects the CO<sub>2</sub> emissions to reach the peak around the middle of the century, and by 2070 they drop below current levels. The atmospheric concentration stabilizes, by the end of the century, at about double (520 ppm) pre-industrial levels.

### 2.3 Strategy to deal with climate change

Italgas strategy shows that a cost-effective energy transition requires the collaboration of all energy sources to reach the ambitious climate-related targets of the European Union. Gas networks, given their widespread presence and capillarity, the potential to foster the development of green gases and their strategic role in ensuring security of supply (over time and space, with significantly lower losses than electric infrastructure) support the achievement of EU climate change 2030 targets and 2050 Net-Zero. In a context of energy transition and decarbonization, Italgas faces significant risk and

opportunities related to the need for decarbonization of gas sources and operations, increasing network resilience to climate change and improving end users' consumption.

#### 2.3.1 The Strategy Map

Italgas Strategy Map is based on two main pillars:

- the **consolidation and upgrade of the gas infrastructure** to maintain the

*Italgas strategy shows that a cost-effective energy transition requires the collaboration of all energy sources to reach the ambitious climate-related targets of the European Union.*



<sup>18</sup> IPCC, "Climate Change - The Physical Science Basis - Annex II: Glossary", 2014.

highest safety and efficiency standards in satisfying end users' future energy needs and to accelerate injection and distribution of renewable gases;

- the **diversification of business** on contiguous sectors presenting synergies and opportunities linked to climate risk/opportunities of the gas distribution,

with particular attention on energy efficiency, water management and distribution and digital services sectors.

The aim of Italgas, as presented both in the 2022-2028 Strategic Plan<sup>19</sup> and the Sustainable Value Creation Plan<sup>20</sup>, is to ensure that its business model not only creates economic value but also

allows to preserve and regenerate the capitals employed in it. The actions put in place are coherent with the objectives of mitigating climate change and adapting the Group's operations to it, in line with Paris Agreement targets to strengthen resilience of the infrastructure and reduce vulnerability on climate related physical risks.



<sup>19</sup> <https://www.italgas.it/wp-content/uploads/sites/2/2022/06/2022-2028-Italgas-Strategic-Plan.pdf>  
<sup>20</sup> <https://www.italgas.it/wp-content/uploads/sites/2/2022/10/Sustainable-Value-Creation-Plan-2022-2028.pdf>



## 2.4 Contribution to sustainable development and energy transition

On the path to energy transition, gas distribution networks play a key role due to their widespread nature, provided they are digital, smart and flexible. In this scenario, infrastructure digitization is the enabler that allows the entire distribution network to receive and manage different, renewable gases, such as biomethane, green hydrogen and synthetic natural gases.

### 2.4.1 Digital transformation and network upgrade

Italgas sees its digitization effort as a crucial step to accelerate the distribution

and dispatching of renewables gases and at the time, reduce its carbon footprint. As well, the digitization makes the network more reliable and capable to adapt to climate change impacts, unlocking for example remote controls in case of occurrence of extreme climate events, mitigating impacts and/or reducing time of intervention (e.g., remotely securing network portions in case of floods, fires, earthquakes). Comparisons within national and international trade associations find that Italgas will be by 2024 the first gas distribution company in the world with an entirely digitized network. Since 2017 the Group has pursued a massive digitization and technological upgrade of networks and processes and ~€4 billion of investments for repurposing and digitization are now

targeted over the Plan period 2022-2028. The repurposing of the network sees, among other things, the full replacement of grey cast iron and other obsolete materials pipes with new ones to prepare the network to handle different types and blends of gases and be more effective in coupling with the consequences of climate change.

The ongoing digitization (~€1 billion capex spent over 2017-2021 and €1.5 billion planned over the Plan period 22-28), aims at collecting the largest number of information, enable remote control, handle renewable gases and develop predictive maintenance programs. The replacement of all traditional district governors is ongoing; at the same time, the setting up of electrovalves, sensors, actuators, digital gas chromatographs, is going on as well as the progressive substitution of current GPRS technology based smart meters with NB-IOT ones.

Italgas is developing a proprietary smart meter designed to be able to handle different types of gas (fossil and renewables). The new smart meter will combine state-of-the art technologies in communication, eco-sustainable design and operational optimization. A first prototype, made entirely with recycled and recyclable materials, is expected by the end of 2023 for testing on the ground in the following year.

Thanks to the ongoing digitization effort, portions of Italgas' network are already fully digitized and monitored and managed remotely (remote set of parameters such as flows, pressures, odorization levels, pre-heating). In 2021 the Group launched its centralized command and control system (DANA - Digital Advanced Network Automation). It is a practical example of Italgas' adaptation on climate risks. Leveraging on deployed asset digitization, DANA allows automatic remote monitoring and control 24/7, records and analyses data (e.g., measurements of gas pressure, volumes and odorization, signals and alarms). Information collected are processed with algorithms to predict and anticipate potential network malfunctioning. DANA is already fully implemented on 14 distribution plants of the Italgas network and will cover the entire network (>700 plants) by 2028.

### Smart and predictive maintenance

Digitization increases efficiency, improves safety, network management and the quality of the service, enables predictive maintenance, for more effective control of the operating parameters, and helps to guarantee operation under any conditions. In 2021, the development of a Geographic Information System (GIS) was started in collaboration with Picarro, of a GIS model for asset management used to design smart maintenance for the Italgas

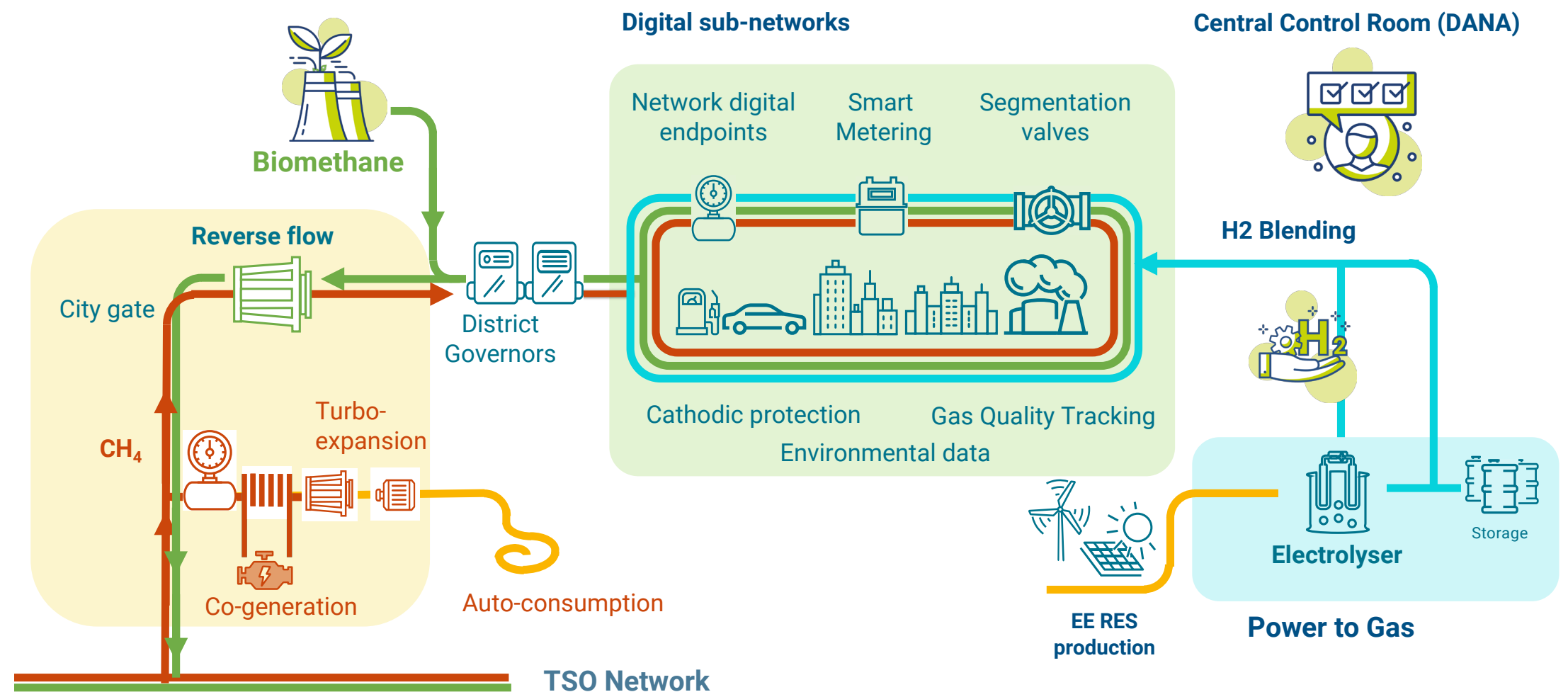


networks, with a view to extension to Group level thereafter.

Continuing with the enabling of smart maintenance, new solutions have been introduced based on machine learning and AI for predictive analysis and the optimisation of the function of critical components of the network, such as smart meters and the odourisation stations.

#### Radio Frequency Identification (Rfid) Markers

Since 2019, Italgas has equipped new sections of the network with multi-ducts and related accessories prepared for the insertion of optic fibre cables for the mass transmission of data recorded by the Digital Reduction Units, by the network equipment and smart meters installed at the re-delivery points to users and by the sensors installed at the terminal points of the network. The multi-ducts are positioned at the same time as the pipes are installed and within the same excavation. The new distribution networks are also equipped with Rfid markers, positioned on average every 50 meters inside the excavation. This allows for the traceability and localisation of the pipes directly from the road level without the need for invasive interventions in the subsoil and consequent interference with traffic, hence with a positive impact on pollution. In case of adverse meteorological phenomena impacting the network, this represents an effective



adaptation tool allowing to intervene quickly.

The digitization program tackles also our processes. In 2018, Italgas set up an internal Digital Factory which has led to the development of continuous innovative outputs, being the first accelerator of digital transformation. An example is ClickToGas, an application that allows the end user to share information and photographs with Italgas or even to activate video-

collaboration sessions in augmented reality, eliminating the need for physical site inspections at the end user's premises and drastically reducing the time necessary to provide a quotation for a new connection to the gas network and the travel time for Italgas employees.

#### Supporting the development of renewable gases and decarbonization of sources

Digitization and network upgrade are key to enable distribution of renewable

gases (biomethane, hydrogen and syn-gases) and support the fight to climate change.

Biomethane is the more viable carbon neutral option today. The technology is mature and it can even become carbon negative if its production is integrated with CCS-CCUS systems. Digitization can support biomethane injections in the distribution grid. Italgas and biomethane producers are working to define the best technical solution to reduce cost and improve efficiency of plants-network

connections. Italgas is developing two pilot reverse flow projects to enable re-injection of surplus biomethane into the transport network. Furthermore, biomethane is a flexible and programmable resource. Producers can plan the production and use the network as a storage. Biomethane already accounts for 5% of EU gas demand, but there's a high potential of development, as foreseen by REPowerEU plan. Between 100 and 200 biomethane plants are expected to connect to the Italgas network by 2028. Over the plan period 2022-2028, approximately €100 million of investment are dedicated to new biomethane connections.

In the longer term, hydrogen can unlock the full potential of renewable electricity sources due to its programmability, storage potential and existing compatible infrastructure. Italgas' pilot Power to Gas project in Sardinia, near Cagliari, is the very first application in the EU aimed at verifying the whole green hydrogen value chain, from the production of hydrogen from electricity produced by photovoltaic panels to the distribution in the networks and the end uses, such as mobility, industrial applications, and residential uses. Italgas believes that Power to Gas technology is another way in which gas and electricity sectors are coupling works, offering a reliable solution to the problem of the reduced programmability of renewable

resources and use of surplus production. The plant will be connected to the new "native digital" network that Italgas is developing in Sardinia. The region, which was once the only one in Italy not reached by natural gas, can today boast the country's most modern infrastructure; a network that already guarantees greater efficiency and quality of gas distribution service, and in a not-too-distant future, will be able to collect and distribute renewable gases to end users, making the achievement of decarbonization targets ever more tangible. Beside the Italgas Power to gas plant, there will be a laboratory to test boilers/water heaters, gas metering and odorization, gas quality check equipment, piping and gas meters aging. The site will take on the role of centre of excellence of analysis and tests of new gases.

In line with the expertise being developed, Italgas has signed an agreement with Buzzi Unicem during the early months of 2022, to carry out a feasibility study to develop a Power to Gas plant combined with a carbon capture system at Buzzi Unicem's cement factories. The development of these technologies will help ensure the decarbonization of the production processes of cements and concretes, thereby guaranteeing greater environmental sustainability and support to the energy transition.

In 2021 the Group performed a study with a technical advisor to assess the level of readiness of its network for hydrogen. Preliminary results have showed high levels of compatibility with hydrogen blending up to 10%, a consistent level considering that EU scenarios envisage ~5% hydrogen in the network by 2030. The next step is the identification of a sample network where to carry out tests on materials and equipment, also with the support of laboratory experience.

#### **Network for H2 distribution**

With a view to guide the ecological transition using hydrogen, from the second quarter of 2021 Italgas

has started an assessment of the compatibility of its network. During the first phase of the project, checks were carried out on a documentary basis to assess the type and variety of materials present. Starting from October 2022, stress tests are planned to be carried out at the RINA Consulting - Materials Development Center, specialized on the hydrogen value chain analysis: during this phase, to test, to qualify and characterize materials and equipment for the transport of hydrogen. As a result, Italgas expects to gather useful information to prioritize and the define the interventions required on the infrastructure to make it completely "hydrogen ready".





#### 2.4.2 GHG reduction strategy

The initiatives and investments envisaged in the plan for decarbonization represent a significant part of the investments included in the Strategic Plan, such as:

- digitization of the network, for the improvement of real-time monitoring systems and predictive maintenance on gas pipelines, based on the results of the planned inspections with CRDS (Cavity Ring- Down Spectroscopy) technology in previous years (a sophisticated sensing technology that, as compared with traditional technologies, offers important advantages in terms of extent of areas surveyed, sensitivity to methane concentration and speed of leak survey);

- replacement of cast-iron networks (high fugitive emissions pipes with low fugitive emissions ones);
- reduction of civil and industrial energy consumption and emissions leveraging also on Geoside's expertise, including energy efficiency interventions and the renewal of the Group's real estate and industrial assets, technological innovations to optimise industrial consumption, such as digitization of monitoring and control systems, on-site renewable energy production and auto-consumption, an example is energy efficiency on preheating systems of our plants with cogeneration, heat pump and thermal storage to reduce gas industrial consumption for gas pre-heating in the distribution;
- reduction of Group's vehicles' fleet consumption and emissions: optimization and renewal of the car fleet, with the acquisition of bi-fuel, tri-fuel, hybrid vehicles and also with high-tech solutions to minimize the travelling time of the operation developed by the Group Digital Factory (e.g. WorkOnSite, an automated/remote system to supervise

construction sites that significantly reduced the presence of technicians on-site; ClickToGas to enable remote video-collaboration with end users to issue quotations for new gas connections, without the need of having personnel traveling back-and-forth end users's premise).

#### *Scheduled gas leakage detection*

An important pillar of Italgas strategy is the progressive decarbonization of the managed infrastructure, mainly reducing fugitive methane emissions through a frequent, granular control of the network and all possible emission points, in line with the guidelines provided by the European Commission.

The Group is very committed on minimizing the fugitive methane emissions, using and promoting the adoption of the most advanced leak detection solutions. Already in 2018, Italgas introduced Picarro Surveyor, the most cutting-edge technology available in the field of network monitoring and the identification of gas leaks based on CRDS (Cavity Ring- Down Spectroscopy) technology, a sophisticated sensing technology that, as compared with traditional technologies, offers important advantages in terms of speed of action, sensitivity in detection and scope of the areas under control. Since 1 January 2020, Picarro Surveyor fully replaced other traditional systems on 100% of the natural gas network managed by Italgas.

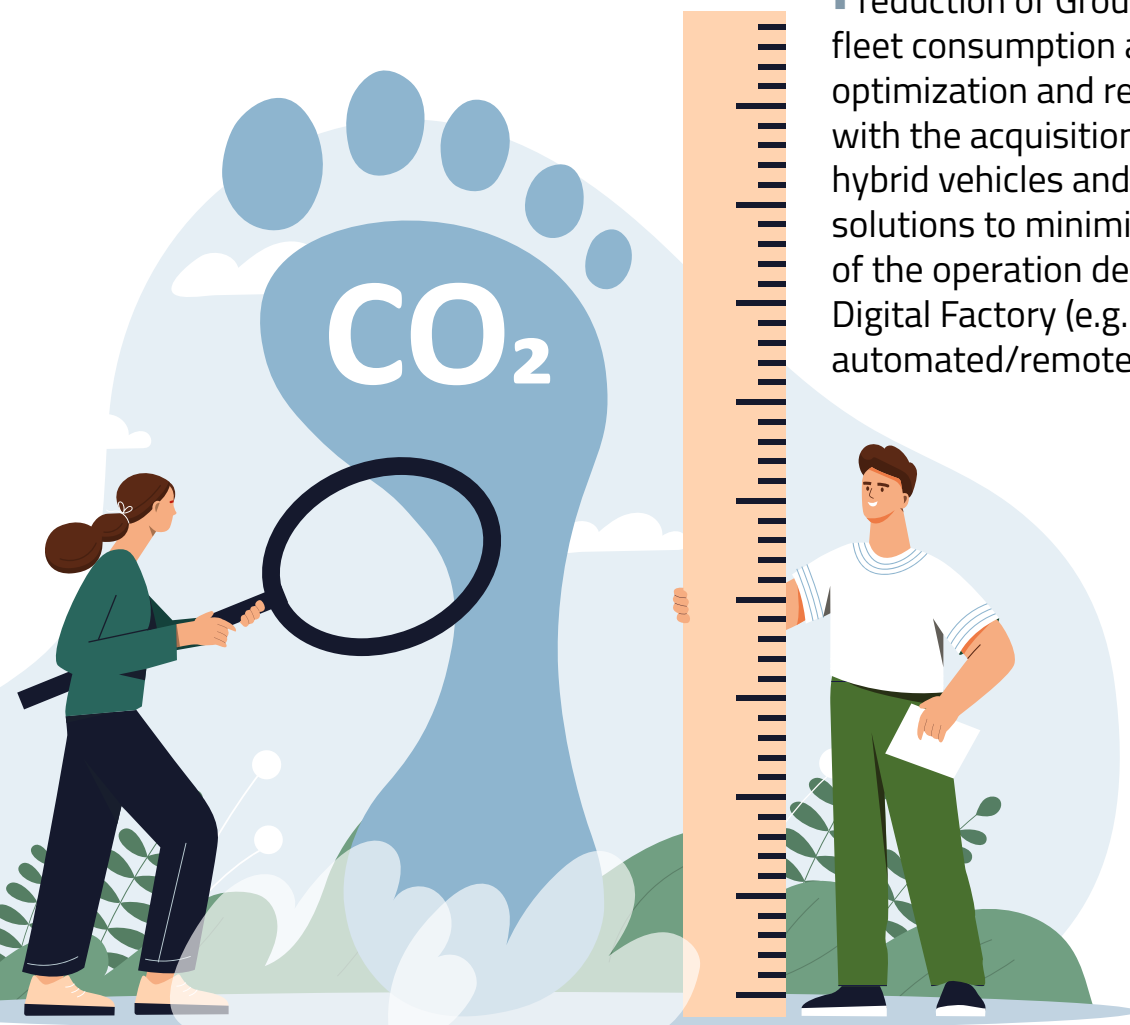
Moreover, last year Italgas launched a trial based on the use of drones and satellite images to monitor the above-ground portion of difficult-to-access pipelines. The Group also continues its worldwide scouting work to identify new technologies and solutions aimed at making the detection of fugitive emissions increasingly more accurate and effective.

Italgas, as a company member reporting under the OGMP 2.0 Reporting Framework (see details at Par. 2.6.2), submits annually the required information and, in 2021 and 2022, achieved the "Gold Standard".

To achieve such recognition, Italgas had to demonstrate an explicit and credible path to reach the required reporting levels for operated and non-operated assets. Italgas faced this challenge by setting a target for the reduction of fugitive emissions by 2027, starting from 2020: this specific target is also taken into consideration in the Group's target for Scope 1 and 2 GHG emissions' reduction.

#### *Foster our energy efficiency*

The scenario analysis conducted for the Strategic Plan also revealed the need for Italgas to mitigate, transfer and adapt its assets to the risks deriving from climate change. Innovation is at the core of the actions to improve asset energy efficiency. Italgas has set itself challenging targets to reduce net



energy consumption and it is carrying many efficiency measures to improve industrial consumption (e.g., additional optimization systems, digitization of monitoring and control systems and the mass use of Savemixer and Savegas solutions - energy intelligence solutions by the Group's ESCo Geoside, on-site renewable energy production and auto-consumption). An example is energy efficiency on preheating system of Italgas' IPRM (withdrawal, reduction, and metering plant) with cogeneration, heat pump and PCM thermal storage to reduce gas industrial consumption. To optimize electricity industrial consumption, Italgas Strategic Plan 2022-2028 provides for green self-consumption initiatives. The ambition is to reduce the electricity consumption, with respect to the current year, favoring self-consumption of the renewable power.

Italgas is also carrying on building renovation projects in its operation offices around Italy, pointing at reducing energy consumptions and mitigating (and adapting to) the impact of an increase of annual average temperature (that would otherwise result in an increase of energy consumption). Further, to reduce the energy consumption of its vehicles, Italgas is pursuing the optimization and renewal of the car fleet, with the acquisition of bi-fuel, tri-fuel, hybrid vehicles and high-tech solutions to minimize the travelling

time of the operations. Two examples are the applications developed by the Group Digital Factory: WorkOnSite, an automated/remote system to supervise construction sites that significantly reduced the presence of Italgas technicians on-site, and consequently both Italgas' and external contractors' needs to travel back-and-forth to the construction sites; ClickToGas to enable remote video-collaboration with end users to issue quotations for new gas connections, without the need of having Italgas personnel traveling back-and-forth end users' premise (see details at Par. 2.4.1 Digital transformation and network upgrade).

In addition to the above-mentioned changes to the fleet, Italgas is implementing / seeking to implement a fleet management software for monitoring consumption and vehicle status and training activities for safe and sustainable driving.

#### 2.4.3 Empower management of water resource

To tackle and mitigate climate risk, Italgas strategy foresees a growth in the water segment, taking advantage of the competences developed for the innovation and digitization of the natural gas distribution infrastructure. There's a high demand for investments in the water sector. In Italy about the 42% of distributed water is leaked along the network, according to market

estimates<sup>21</sup>. Water is a limited resource, it is important to renew the old Italian infrastructure and digitize the metering as soon as possible, to detect and stop the leakages along the entire network. From 2018 Italgas has launched a digitization program of its 279 kilometres water network, leveraging on its experience on the gas infrastructure and the partnership with Takadu, a global software provider of Central Event Management solutions, to improve the overall efficiency. 100% of Italgas Acqua network is currently remotely controlled and there's a plan for the massive installation of smart meter NB-IoT to substitute the traditional ones. The digitization of water sector allows identifying anomalies, detect water leaks, and reduce them, improving water business sustainability.

*Water is a limited resource, it is important to renew the old Italian infrastructure and digitize the metering as soon as possible, to detect and stop the leakages along the entire network.*



<sup>21</sup> Report Istat of 22 March 2021. <https://www.istat.it/it/files/2021/03/Report-Giornata-mondiale-acqua.pdf>



## 2.5 Energy transition as a business opportunity

Energy transition constitutes a relevant climate related opportunity for the Italgas. The growth in energy efficiency business is a tangible goal for the Group, which doubled its investments in this area, in comparison with Strategic Plan 2021-2027.

In addition to this, Italgas engagement in mitigating climate related risks is proved also by the partnerships with Picarro, different European and Italian associations, the involvement of its suppliers in the fight against climate change and the initiatives to promote open innovation.

### 2.5.1 Development of energy efficiency business

In 2018, Italgas' decision to enter the ESCo market was influenced also by the awareness of the need of energy efficiency services to support the achievement of climate related objectives. The strategy of the Group impacted the products and services offered by Italgas.

The Group acquired two Energy Saving Companies (ESCo): Seaside (in 2018) and Toscana Energia GREEN (in 2019), then incorporated into Seaside in 2021. The strategic path followed has seen more recently merger of Seaside with the ESCo CERESA (acquired in 2022) and the creation of Geoside in September 2022. Thanks to these transactions, the Group has been enriched with specific skills

that enabled it to offer the market a wide portfolio of services. The creation of Geoside confirms Italgas's role as a consolidator in the energy efficiency sector, that remains very fragmented but of great importance for the achievement of the climate goals set by the European Union.

In the residential sector, Geoside follows different projects of building renovation leading to higher efficiency (under *Superbonus 110*, *Ecobonus*, etc. incentive framework). The offer is enriched by the internal development of different digital products to monitor and manage domestic consumption (*Savegas*, *Savetermo*, *Savecharge*). In the industrial and tertiary sectors, Geoside offers a wide range of digital energy management services to large, mid and small industrials. Thanks to the adoption of AI and big data analysis (*Savemixer*), it can monitor and better manage client's energy consumption. *Savemixer* is Geoside's proprietary software of Predictive Energy Analytics which, starting from predictive consumption models, can prevent waste and reduce energy costs, provide cost forecasts, set replacements or maintenance activities before having a breakdown. It is also used to verify and report the savings obtained with EPC contracts; for these particular contract type, ESCo's remuneration depends on guaranteeing pre-established levels of energy savings to the client.

Geoside is also active in the energy efficiency for Public Administration buildings, for which it provides installation and O&M of PV plants for ~0.7GW power, relamping LED for public lighting, project financing and manage more than 150 heating plants.

Geoside offers innovative services both to the market and internally, to support Italgas energy transition (with a mutual benefit). The result is an increase in revenues through demand for lower emissions products and services. Moreover, Geoside allows Italgas to be more competitive in gas tenders, offering local communities the implementation of energy efficiency initiatives as a "value added service" in addition to gas network management and development in the concession area. Strategic Plan envisages further expansion in the sector to become a tier 1 player, with € 340 million investments over the plan period 2022-2028, with proactive role in promotion of Energy Efficiency among all segments of our society.

### 2.5.2 Partnership with Picarro to fight fugitive emissions

From 2021 Italgas, in partnership with Picarro, supports gas DSOs in the adoption of Picarro technology to effectively tackle fugitive emissions. Leveraging its experience with the innovative CRDS technology, achieved in setting up the operational model,



the Italgas technological hub, Bludigit, provides innovative gas leaks detection services and consultancy services to the market, to best address the reduction of network leaks and fugitive emissions through Picarro solution. Thus, by combining its business and environmental goals, Italgas confirms its strong commitment in accelerating the reduction of GHG emissions and promoting the diffusion of cutting-edge technologies.

## 2.6 Main partnership on climate change

### 2.6.1 Supply chain engagement

The Group also intends to achieve an important objective: aware of the relevance of including its supply chain in the fight against climate change, Italgas intends to develop an approach inspired by “Partnerships for the goals” (SDG 17), by promoting the best techniques/technologies available or, where possible, by identifying new solutions with its suppliers. Based on this journey, the Group will determine, in the Strategic Plan, a specific target for the reduction of Scope 3 emissions. Value chain engagement plays a significant role in realizing a climate transition plan and organizations with significant emissions in their supply chain, can leverage their buyer power and engage their suppliers towards a 1.5°C aligned transition.

The plan for achieving the targets for the supply chain emissions includes the following main activities:

- a continuous supply chain engagement with awareness and training campaigns, also considering the relevance of small and medium enterprises;
- the inclusion of rewarding criteria in tenders for suppliers, for example according to the level of adoption of good/best practices in the reduction of own GHG emissions;
- the promotion of the best available techniques/technologies for circular economy or, where possible, the identification of new solutions together with the suppliers.

### 2.6.2 Other partnership

The vocation for energy transition has also led the Group to actively participate in several important international initiatives and partnerships, focused on the sector and on the fight against climate change.

Some of the most important associations which Italgas collaborate with:

- **GD4S**: Italgas is among the founding members of GD4S<sup>22</sup>, a non-profit association that unites the seven major operators in the natural gas distribution sector in Europe. Italgas’ active role in the association is witnessed by the Presidency of the CEO, Paolo Gallo from 2020 to 2022.

The association’s mission is to promote the energy transition through the adoption of most innovative and sustainable technologies in gas sector, facilitating the transition towards a low carbon economy.

On March 15th, 2022, GD4S has been presented its Sustainability Charter entitled “Decarbonizing the gas grid as a key enabler for a climate neutral society”, which defines the collective approach and commitments of the association’s members across the three sustainability pillars of Environmental, Social, and Governance, contributing to the European objective of carbon neutrality by 2050.

- **OGMP**: Moreover, Italgas has taken a leadership role in the gas DSO industry by joining in November 2020 the second edition of the Oil and Gas Methane Partnership Initiative (OGMP<sup>23</sup> 2.0), as soon as it was extended to sectors midstream and downstream of the O&G chain. OGMP 2.0 is a voluntary initiative created by the Climate and Clean Air Coalition (CCAC) and the United Nations Environmental Program (UNEP), originally launched during the United Nations (UN) Secretary-General’s Climate Summit in 2014. It aims at encouraging the participating companies of the Oil and Gas (O&G) sector to report methane emissions from operated and not operated assets

and to declare a reduction target of such emissions to be achieved within 2025 (base year 2015). Companies fully and reliably reporting methane emissions data and showing progress toward the declared target via a credible implementation plan are annually awarded the “Gold Standard” Badge in the IMEO - International Methane Emissions Observatory - annual report.

- **Proxigas**: Italgas is also a member of Proxigas<sup>24</sup>, which is also very proactive and strongly supports European ambitions towards climate change, by supporting the use of gas infrastructures to effectively achieve the energy transition towards decarbonization, through an increase in the production and use of biomethane, renewable syn-gas and green or decarbonized hydrogen.

- **Ready4H2**: in 2021, Italgas adhered to “Ready4H2<sup>25</sup>” (Ready for Hydrogen) to promote access to hydrogen by end users and the development of the entire value chain. The project aims at sharing knowledge and competences and establish how a solid European hydrogen market can be crafted, making information available to European and national decision-makers to define public policies supporting a hydrogen economy.

- **GEODE, CEDEC, EUROGAS**: Italgas is also member of GEODE<sup>26</sup>, CEDEC<sup>27</sup>,

<sup>22</sup> <https://gd4s.eu/>

<sup>23</sup> <https://www.ogmpartnership.com/>

<sup>24</sup> <https://www.anigas.it/>

<sup>25</sup> <https://www.ready4h2.com/>

<sup>26</sup> <https://www.geode-eu.org/>

<sup>27</sup> <http://www.cedec.com/>

EUROGAS<sup>28</sup>, the European trade associations that group together different gas DSOs. The main topics covered in the working groups of these Associations were energy transition and the role of infrastructure in the decarbonization process and in the fight against climate change.

### 2.6.3 Climate change innovation platforms

Innovation is a key enabler of Italgas energy transition, and it is pursued through a combination of internal R&D, open innovation and venture funds.

#### Open innovation

In November 2020 Italgas launched its first open innovation call, aiming at selecting the very best national and international start-ups and SMEs supporting the transformation and sustainability of the gas distribution network.

The initiative was called “Ideas4Italgas: Gas grid of the future”. Specifically, the selection regards contexts developing products and services with innovative, sustainable, original business models in line with Italgas’ strategy, such as the management and monitoring of the infrastructure, improving energy efficiency and supporting the energy transition.

The start-ups that are approved by the Group’s Innovation Committee access

the co-design phase with the aim of defining a proof-of-concept for the validation of strategic partnerships. A new open innovation challenge has been launched in collaboration between the Group’s ESCo and Lazio Region and it has been called “Start your energy revolution”. The objective of this new call is to find solutions for the smart management of the heating systems in residential buildings.

#### Venture investing

Open innovation continues to be a formidable lever to get in touch with the best innovative companies and to bring cutting-edge technologies within the Group. Italgas joined the new initiative of CDP Venture Capital SGR<sup>29</sup>, being part of the Energy Tech sector. The objective is to seize every useful opportunity to expand the perimeter of innovation and continue to play a pivotal role in energy transition.

#### Polytechnic University of Turin

The partnership between Italgas and the Polytechnic University of Turin was signed in July 2020, aiming at developing joint research, innovation and training activities favoring the energy transition, a sustainable mobility and circular economy. The collaboration includes research projects on different topics, such as digital innovation, optimization of energy consumption, improvement of network efficiency and

recovery of resources. These actions have the objective to develop innovative technologies for feeding renewable gases into existing networks, like “power to gas” systems to recover surplus energy production, and to create an advanced gas smart meter especially for “smart” networks.

The Polytechnic and Italgas will also be working on several educational fronts, with joint projects aimed at developing university Master’s courses, courses for recent graduates, events and dissemination activities through national and international networks. Italgas has also provided professors and researchers with the spaces and expertise of its Digital Factory, the driving force behind the digital transformation of the Group.

#### Innovation Antenna in Silicon Valley

In September 2022 Italgas opened an Innovation Antenna in Silicon Valley, as part of the “Mind the Bridge Innovation Center” in San Francisco.

The initiative is part of the “Ideas 4 Italgas” program, launched in 2020, which aims to find the best US startups. Its goal is enhancing research activities and strengthening the innovation efforts, to contribute towards continuous improvement of the Group’s performance.

The goal of this collaboration with Mind the Bridge, an international platform that advises and supports companies and government organizations in the field of open innovation, is to create the ideal conditions for Italgas to get in touch with the most interesting startups and scaleups in the United States, strengthening the scouting capabilities and spotting and intercepting upcoming technological trends.



<sup>28</sup> <https://www.eurogas.org/>

<sup>29</sup> [https://www.cdpventurecapital.it/cdp-venture-capital/it/dettaglio\\_comunicato.page?contentId=COM2455](https://www.cdpventurecapital.it/cdp-venture-capital/it/dettaglio_comunicato.page?contentId=COM2455)



# ERM Model

## and climate-related risks and opportunities

### 3. ERM MODEL AND CLIMATE-RELATED RISKS AND OPPORTUNITIES

#### 3.1 Enterprise Risk Management Model

In line with best practices and risk management standards (e.g. the COSO framework and ISO 31000), Italgas ERM process ensures the identification, evaluation, prioritization, treatment, monitoring and reporting of risks related to Group processes. ESG related risk, including physical and transitional risks related to climate change, are integrated in the process.

The ERM process is performed quarterly depending on severity as well as in case of changes of internal/external context. All risks are assessed at least yearly.

ERM process covers all controlled entities, all relevant parts of value chain and all the potential applicable events. Italgas also use its influence, as appropriate under the circumstances, to ensure that the entities in which it has a non-controlling interest meet its standards.

Italgas adopts a central organizational model for managing the ERM process: the ERM Function provides methodological and operative support across the Group,

to ensure a proper risk management system, cataloguing, consolidating and homogenizing all corporate risks, including climate change related risks.

Risk Identification involves Process Owners across the Organization: each risk is described in terms of business sector, process, root causes and consequences. For each risk, a Risk Ownership is identified. The ERM Function supports risk identification analyzing the context to incorporate updates on the description, significance and management of the risks already existing in the portfolio, and the detection of new emerging risks.

To ease climate change risks identification, the ERM Function also performs a specific analysis based on physical and transition scenarios to identify the main drivers of climate change that could impact Italgas' businesses in the short (1 year), medium (from 2 to 7 years) and long-term time horizon (beyond 7 years), and, for each of these drivers, a predefined risk/opportunity events list applicable to Italgas. The list is then fine-tuned and



better depicted with Strategy Function, Sustainability Function as well as with the Risk Owners. Climate change risk and opportunities are reported to Control and Risk Committee, Sustainability Committee and Board of Directors.

Risk measurement consists in rating risk likelihood and impacts concerning both quantitative and qualitative aspects: financials, HSE (including also specific assessment of impact in terms of GHG emission, energy or water consumption, waste), Operation, HR, compliance, market and reputation impacts. To support the evaluation, the Group has defined "risk scoring scales", in which a specific "scoring grid" is defined for risk probability and risk impact measurement.

Climate change risk/opportunities measurement, given the long timeframe of the impact, are evaluated in terms of likelihood and impacts, both over Strategic Plan timeframe (2022-2028) and beyond it (2028-2050 timeframe). Their quantification has been performed based on Italgas Strategic Plan assumptions and evaluating the possible alternative evolution of physical parameters and energy market variables that could impact Italgas Businesses. Such parameters and their values came from Physical RCP 1.9, 4.5, 8.5 scenario analysis as well as energy scenario analysis (e.g. ENTSG-ENTSO-E TYNDP 2022 scenario, ...). Risk/opportunity quantification outcomes have been performed with Strategy Function, Sustainability Function as well as with the Risk Owners.

Risk prioritization consists in prioritizing each risk assigning a "risk rating", based on risk measurement outcomes. The ERM function consolidates the assessments results assigning the risk rating (critical, high, medium and low) to each risk and sharing it with the Risk Owner. Risks scored as critical are also considered to have a substantial strategic impact – such score depends on the combination of high level of probability and maximum impact on at least one of the identified scales. Regarding climate change risk/opportunities, given the long timeframe of the impact, risks are prioritized based on likelihood, Impact over 2022-2050 timeframe and the expected time horizon.

Risk strategy and treatment: for all identified risks, based on their nature and related information collected, as well as risk evaluation performed, a risk strategy (monitor, mitigate) is defined. Risk strategy is then "listed" (at an operational level) into "risk treatment actions", distinguishing between "actions in place" and "planned risk treatment actions" with related deadlines. Risk treatment plans for the main risks are presented to all the subjects involved in the process (Risk Owner, Top Management, Control and Risk Committee). Risk reporting is shared/discussed with Top Management, Control and Risk Committee, Board of Statutory Auditors, Supervisory Body to enable the assessments on the effectiveness of the Internal Control and Risk management System.

Risk report is addressed to other functions with specific duties regarding internal control and risk management (e.g. Compliance, Head of Audit Dept.). Finally, the Sustainability Committee examines and assesses the integration of ESG aspects into the ERM matrix (including Climate Change topics). Italgas' strategy is deeply influenced by climate change: climate scenario analysis and related risks and opportunities, in fact, are constantly considered while drafting the Strategic Plan.

Physical and transitions scenarios have been compared in terms of GHG emission in 2020-2050 timeframe to identify comparable scenarios and to set the reference scenario upon which Strategic plan is based. In drafting the Strategic Plan, the ERM function, in coordination with all relevant departments and functions, carries out specific in-depth analysis of risks, opportunities and uncertainties related to the Strategic Plan including those arising from climate change. What If analysis and Montecarlo simulation allows to estimate the overall volatility of the Plan economic and financial targets and to evaluate the level of resilience of the Strategic Plan. Finally, the Risk Analysis section of the Strategic Plan document is approved by the Board of Directors.

**Climate Risk Assessment – Physical and transitional risks**  
Given the long timeframe that must be considered to fully take into the account of occurrence and/or impact of climate

risks and opportunities, such events are measured both over the Strategic Plan 7-years' timeframe and beyond it. Regarding Physical risks and opportunities of Climate Change, our climate scenario analysis is based on a third-party climate model that allows to obtain the evolution of main physical parameters up to 2050, under RCP 1.9, 4.5, 8.5 scenarios in all the local areas (up to municipal level) already served by Italgas or in those areas the Group plans to serve in the future. Physical parameters considered by the model include, for example, heating degree days and days with heavy rainfalls. Their potential impacts are then assessed on key business variables (e.g. active redelivery points), as well as considering potential damages to overall gas infrastructure (upstream and downstream relative to distribution). Regarding Transition risks and opportunities of Climate Change, they are analyzed based on several third parties' climate and energy scenarios up to 2050 and involving key Process Owners to deepen key transition drivers (e.g. regulation, technology) and the embedded risks and opportunities. Considerations of impacts include the overall gas infrastructure (upstream and downstream related to distribution).

**3.2 Climate change risks and opportunities**  
Climate change risk/opportunity assessment (described above) enabled to identify the main drivers of climate change

that could impact Italgas' businesses. For each driver, both risks and opportunities were identified and analyzed over 2022-2050 timeframe. Some of the opportunities identified -

embedded in our seven years Strategic Plan - also bring a contribution in terms of risk mitigation, i.e. decreasing the likelihood of risk events and/or risk impact in case of occurrence.

CATEGORY	DRIVER	RISK	OPPORTUNITY
PHYSICAL - Chronical	Increase of average temperatures	(A) Increase of Cooling Degree Days and decrease of Heating Degree Days in the areas in which Italgas operates	(F) Business Diversification: growth in Energy Efficiency Business
PHYSICAL - acute	Increase of frequency/intensity of extreme natural events	(B) Increase of severity and frequency of extreme natural events, causing damages to Italgas assets	(H) Demand growth for gas leakage detection services (G) Business Diversification: growth in Water sector
TRANSITION Regulation	Legal and regulatory environment related to greenhouse gas emissions	(C) Regulatory review to Increase of penalties and/or to reduce incentives related to natural gas leakages	(H) Demand growth for gas leakage detection services (I) Regulatory review to promote network upgrade enabling the distribution of gas other than methane (biomethane, hydrogen, e-gases)
TRANSITION Technology and markets	Energy Transition (technology and markets)	Weakening of gas weight in residential energy mix related to: (D) Cooking / water heating (E) Space heating	(J) Assets repurposing and digitization, in order to enable the use of renewable gases to satisfy residential demand (F) Business Diversification: growth in Energy Efficiency Business (K) Entrance into new markets (geographies) to support and to accelerate energy transition (L) Reduction of internal energy consumption



# Climate change risks matrix



Area	Risk	Time horizon <sup>30</sup>	Likelihood	Financial Impact	Main Management Methods
Physical - Chronic	<b>(A)</b> Increase of average temperatures in the areas in which Italgas operates, driving to an increase of Cooling Degree Days and a decrease of Heating Degree Days	Long Term	Likely	Low	<ul style="list-style-type: none"><li>- Commitment in reducing greenhouse gas emissions Scope 1 and 2 by 34% by 2028 and by 42% by 2030 (Net-Zero goal by 2050), decrease in energy consumption by 27% by 2028 and by 33% by 2030 (baseline 2020).</li><li>- Group presence in energy efficiency business through the subsidiary Geoside, with growth perspectives (see OPPORTUNITY F)</li><li>- Group presence in Water business through the subsidiary Italgas Acqua with growth perspectives (see OPPORTUNITY G)</li><li>- Specific actions to reduce civil and industrial energy consumption and emissions (natural gas and electricity): energy efficiency interventions and the renewal of the Group's real estate assets, technological innovations to optimise industrial consumption, such as the mass use (or deployment) of Savemixer and Savegas solutions - energy intelligence solutions by the EScO, Geoside</li><li>- on the distribution network plants equipped with pre-heating.</li></ul>
Physical - Acute	<b>(B)</b> Increase of severity and frequency of extreme natural events causing damages to Italgas assets	Medium Term	Likely	Low	<ul style="list-style-type: none"><li>- Commitment in reducing greenhouse gas emissions Scope 1 and 2 by 34% by 2028 and by 42% by 2030 (Net-Zero goal by 2050), decrease in energy consumption by 27% by 2028 and by 33% by 2030 (baseline 2020).</li><li>- Third Party Liability Insurance and Asset Protection coverage.</li><li>- Integrated Centre for Supervision (ICS) active 24/7 which makes it possible to monitor the status of the network remotely using remote monitoring systems, manage requests for prompt intervention, identify the places that require intervention and monitor the progress of making conditions safe.</li><li>- Procedures and systems for emergency management, emergency plans with measures defined to make plants safe and guarantee service continuity.</li><li>- Health and safety procedures, communication campaigns, training and meetings to raise awareness of and analyse the prevention of accidents, initiatives that also involve suppliers/contractors.</li><li>- Actions mitigating impacts and/or reducing time of intervention in case of occurrence of extreme natural events:<ul style="list-style-type: none"><li>i) continuously invest in network maintenance, replacement of cast iron pipes with mechanical joints, replacement the grey cast iron pipes with hemp and lead joints</li><li>ii) Introducing DANA - Digital Advanced Network Automation - the command-and-control system of the network of the future: the command-and-control system unlocks 3 major benefits: a) Ensure the monitoring of a distributed system in which physical variables are interdependent; b) Enable remote management with commands on main processes of network and plants and increase the efficiency of the governed processes and the flexibility of the network; c) Enable management of renewable gases (e.g., biomethane, hydrogen).</li><li>iii) Smart Maintenance Initiative: development, jointly with Picarro, of a GIS model for asset management used to design smart maintenance for the Italgas networks, with a view to extension to Group level thereafter. From 2022, these innovative tools will be implemented as a basis for the development of the network maintenance CAPEX plan, in order to focus on interventions on the most emissions-heavy networks</li><li>iv) Radio Frequency Indicator Markers in new distribution network: new distribution networks are equipped with Rfid markers, again positioned inside the excavation at an average step of 1 every 50 metres, which allow for the traceability and localisation of the pipes directly from the road level without any need for invasive interventions in the subsoil and consequent interference with traffic.</li></ul></li></ul>

<sup>30</sup> A "time horizon" less than or equal to 1 year is considered short-term, between 2 and 7 years is considered medium-term, longer than 7 years is considered long-term. The classification of Likelihood and Magnitude of financial impact categories refers to CDP classification (<https://www.cdp.net/en/guidance/guidance-for-companies>). The magnitude of financial impact is assessed based on the impact on the Group Net Profit.

# Climate change risks matrix



Area	Risk	Time horizon <sup>30</sup>	Likelihood	Financial Impact	Main Management Methods
Regulatory	<b>(C)</b> Regulatory review to increase penalties and/or to reduce incentives related to natural gas leakages	Medium Term	Unlikely	Medium-low	<ul style="list-style-type: none"> <li>- Planned search for gas leakages using the best systems and technologies (Picarro Surveyor) and with higher levels of coverage of the network inspected on an annual basis than the standards defined by ARERA.</li> <li>- Adoption of more stringent gas leakage repair service levels with respect to those defined by ARERA</li> <li>- Italgas joined the second edition of the Oil and Gas Methane Partnership Initiative (OGMP 2.0), the voluntary initiative aimed at helping companies cut methane emissions in the Oil&amp;Gas sector, created by the Climate and Clean Air Coalition (CCAC) and by the United Nations Environmental Programme (UNEP). In the UNEP publication "An Eye on Methane International Methane Emissions Observatory 2021 Report", Italgas was recognised as a Gold Standard company, thanks to a quality of data considered "excellent" for operated assets and "very good" for non-operated assets. In addition, the same report certifies that the Company has presented a good implementation plan, assisted by credible scheduling, objectives and technological developments. It is also declares that it has already begun making an important effort to also involve companies in which it holds an investment but not operative control, in the reporting programme and to extend the adhesion of other subjects to the OGMP 2.0 initiative.</li> <li>- Active participation in consultations called by the Italian government or by European community organisations on relevant topics.</li> </ul>
Energy Transition (technology and markets)	<b>(D)</b> Weakening of gas weight in residential energy mix related to: Cooking / water heating	Medium Term	About as likely as not	Medium-low	<ul style="list-style-type: none"> <li>- Promotion of responsible business practices, by joining the UN Global Compact and the OGMP 2.0 of the UNEP.</li> <li>- Guidance aimed at defining unified trade positions in Italy and abroad.</li> <li>- Active participation in consultations called by the Italian government or by European community organisations on relevant topics.</li> <li>- Active participation in the activities of European sector associations to oversee technological changes</li> <li>- Network and facility analysis initiatives for the evaluation of their adequacy and of interventions intended to enable the distribution of gas other than methane, such as hydrogen, biomethane and e-gas.</li> <li>- Process of converting the approximately 75,000 kilometres of network into digital infrastructure in order to enable the distribution of gas other than methane, such as hydrogen, biomethane and e-gas.</li> <li>- Development of a new latest generation smart meter, a cutting-edge tool, equipped with remote control devices and safety sensors, and compatible with blends of methane, biomethane, hydrogen and synthetic gases. The development of the first prototype, made entirely with recycled and recyclable materials, is scheduled for 2022; later, in 2023, there will be the launch on the mass market</li> <li>- Development of power-to-gas technology powered by renewable energy in order to produce renewable gas that can be used in the existing networks: the pilot Power to Gas project in Sardinia, near Cagliari, the very first application in the EU, aimed at verifying the whole green hydrogen chain, from the production of hydrogen from electricity produced by photovoltaic panels, to the distribution in the networks and the end uses. Italgas believes that Power-to-Gas technology is another way in which gas and electricity sectors are merging, able to offer a reliable solution to the problem of the reduced programmability of renewable resources.</li> <li>- agreement with Buzzi Unicem (during the early months of 2022), to carry out a feasibility study to develop Power to Gas plants combined with carbon capture systems (CO<sub>2</sub> capture) at the production plants of Buzzi Unicem. The development of these technologies will help ensure the decarbonisation of the production processes of cements and concretes, thereby guaranteeing greater environmental sustainability and support to the energy transition;</li> <li>- Carrying out energy efficiency projects through the subsidiary Geoside.</li> <li>- Investments intended to increase the Group's presence in the water and energy efficiency sectors.</li> </ul>
Energy Transition (technology and markets)	<b>(E)</b> Weakening of gas weight in residential energy mix related to: Space heating	Long Term	About as likely as not	Medium-high	

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# Climate change opportunities matrix



Area	Opportunity	Time horizon <sup>30</sup>	Likelihood	Financial Impact	Main Actions to reach the opportunity
Energy Transition (technology and markets)	<b>(F)</b> Business Diversification: growth in Energy Efficiency Business	Medium Term	Likely	Medium-high	<ul style="list-style-type: none"><li>- Strategic Plan Target for creating one of the main national players in the energy efficiency sector: 340 million euros to the development of the Group's ESCOs, both to carry out targeted M&amp;A operations and to strengthen the business areas and the customer portfolio in the residential, public, industrial and tertiary sectors. Investment commitment has almost double compared to the previous plan, to create one of the main players at national level, with a focus on innovation and digitization, contributing to the consolidation of a still very fragmented sector. Initiatives aimed at consolidating in the energy efficiency sector that will enable the Italgas Group to continue to play a leading role in achieving the EU climate targets.</li></ul>
Energy Transition (technology and markets)	<b>(G)</b> Business Diversification: growth in Water sector to enable the digital transformation of water distribution networks, reducing leakages also to increase water availability in case of prolonged water scarcity	Medium Term	More likely than not	Medium-low	<ul style="list-style-type: none"><li>-Strategic Plan Target of 160 million euros allocated to the water sector for selected M&amp;A operations and to continue applying best practices and technologies developed in the field of gas distribution to the networks</li><li>- Systematic analysis on the balance of water consumption on all municipalities served and preventive identification of any hidden leaks.</li><li>- digital transformation of its water grids: actions to enable the real time monitoring of all operational parameters of the infrastructures and the prompt and increasingly accurate detection of any faults and fast intervention in the event of leaks: i) installing "water smart meters" to replace traditional meters for the 30,000 users served; ii) widespread installation of sensors along the networks.</li></ul>
Energy Transition (technology and markets)	<b>(H)</b> Gas leakage detection services to other gas DSOs, both on regular basis and "spot" in case of occurrence of natural event, to promptly identify gas leakages and to assess network resilience	Short Term	Very likely	Low	<ul style="list-style-type: none"><li>- Dedicated digital company of Italgas Group: Bludigit, the competence centre, unlocking value of proprietary solutions in the market with the objectives to: ensure the constant update of technologies while optimizing costs, develop digital services available to the business, improving resiliency and scalability, open sales channels and new partnerships, offer proprietary solutions as license to energy and infrastructure operators</li><li>- Partnership with Picarro Inc., strengthened through the acquisition of a minority share of the US company, a leading technology start-up in the field of sensors applied to the monitoring of gas distribution networks, as well as in technologies designed for those sectors requiring extremely sensitive measurements, such as environmental measurements of the concentration of Hazardous Air Pollutants and the electronics industry for the detection of impurities in semiconductor foundries.</li></ul>
Regulatory	<b>(I)</b> Regulatory review to promote network upgrade enabling the distribution of gas other than methane (biomethane, hydrogen, e-gases)	Medium Term	Unlikely	Medium	<ul style="list-style-type: none"><li>- Promotion of responsible business practices, by joining the UN Global Compact and the OGMP 2.0 of the UNEP.</li><li>- Italgas is part of the GD4S (Gas Distributors for Sustainability), the non-profit association of European gas distributors that seeks to represent the position of the gas distribution sector at European institutions, specifically concerning the role that such infrastructures can play in the energy transition process towards a low carbon economy. In July 2021, the GD4S presented a "White Paper" setting out its strategic vision and all the policy recommendations for the development of renewable gases and the limitation of methane emissions, essential tools for the fight against climate change.</li><li>- Italgas adhered to the "Ready4H2", an international-reach initiative that brings together the experience and expertise of the most important DSOs of 13 European countries to promote access to hydrogen by consumers and the development of the entire value chain, including through the entrance onto the market of new producers.</li><li>- Active participation in consultations called by the Italian government or by European community organisations on relevant topics.</li><li>- Active participation in the activities of European sector associations to oversee technological changes.</li></ul>

<sup>30</sup> A "time horizon" less than or equal to 1 year is considered short-term, between 2 and 7 years is considered medium-term, longer than 7 years is considered long-term. The classification of Likelihood and Magnitude of financial impact categories refers to CDP classification (<https://www.cdp.net/en/guidance/guidance-for-companies>). The magnitude of financial impact is assessed based on the impact on the Group Net Profit.

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# Climate change opportunities matrix



Area	Opportunity	Time horizon <sup>30</sup>	Likelihood	Financial Impact	Main Actions to reach the opportunity
Energy Transition (technology and markets)	<b>(J)</b> Assets repurposing and digitization, in order to enable the use of renewable gases to satisfy residential demand	Medium Term	Likely	Medium-high	<ul style="list-style-type: none"> <li>- Development of power-to-gas technology powered by renewable energy in order to produce renewable gas that can be used in the existing networks.</li> <li>- Network and facility analysis initiatives for the evaluation of their adequacy and of interventions intended to enable the distribution of gas other than methane, such as hydrogen, biomethane and e-gas.</li> <li>- Process of converting the approximately 75,000 kilometres of network into digital infrastructure in order to enable the distribution of gas other than methane, such as hydrogen, biomethane and e-gas.</li> <li>- Development of a new latest generation smart meter, a cutting-edge tool, equipped with remote control devices and safety sensors, and compatible with blends of methane, biomethane, hydrogen and synthetic gases. The development of the first prototype, made entirely with recycled and recyclable materials, is scheduled for 2022; later, in 2023, there will be the launch on the mass market.</li> </ul>
Energy Transition (technology and markets)	<b>(K)</b> Entrance into new markets to support and to accelerate energy transition	Short Term	Very likely	High	<ul style="list-style-type: none"> <li>- Acquisition of 100% of DEPA Infrastructure S.A. (completed on sept 2022) to deliver Italgas technical and technological leadership in the Greek market, effectively tackling the process of phase-out from coal and lignite for the decarbonization of the Greek economy, and building smart and flexible distribution network which will be ready to accept renewable gases such as biomethane and green hydrogen.</li> <li>- Completion of methanization process of Sardinia with the construction of the “digital native” networks and the conversion to natural gas of the networks currently powered by propane air. Through its subsidiary Medea, the Italgas Group is the main operator in Sardinia with a presence in about half of the Basins into which the island is divided (18 out of 38), 2,200 kilometres of networks under management (of which 1,400 digitalized). These results have also given a new strong boost to the development of the island’s energy infrastructures, attracting new operators.</li> </ul>
Energy Transition (technology and markets)	<b>(L)</b> Reduction of internal energy consumption	Short Term	Very likely	Medium	<p>To foster the ecological transition process, the Group extended to 2028 the target for reducing net energy consumption compared to 2020, bringing it to -27% and setting a new target of -33% by 2030. The achievement of these objectives includes energy efficiency initiatives and the digitization and optimization of the control and management system of all operational assets, also thanks to the expertise of the Group’s ESCos, as well as the renewal of the Group’s fleet of service vehicles.</p> <ul style="list-style-type: none"> <li>- actions aimed at reducing civil and industrial energy consumption and emissions (natural gas and electricity): energy efficiency interventions and the renewal of the Group’s real estate assets, technological innovations to optimise industrial consumption, such as the mass use (or deployment) of Savemixer and Savegas solutions - energy intelligence solutions by the ESCo, Geoside - on the distribution network plants equipped with pre-heating.</li> <li>- actions aimed at reducing electricity consumption for industrial use: design, implementation, and commissioning, at the main city gates, of turbo-expanders for energy recovery and cogeneration plants.</li> <li>- actions aimed at reducing consumption and emissions of the Group’s fleet of service vehicles: modernisation of the operations fleet, removal of cars powered exclusively by petrol and diesel from the car list, of the Managers class, introduction of hybrid vehicles (electric-petrol), among the cars for mixed personal/business use as well as operations vehicles, with the consequent installation of charging points at the Group’s offices. In addition to changes to the fleet, the following is envisaged: the implementation of a fleet management software for monitoring consumption and vehicle status and training activities for safe and sustainable driving.</li> </ul>

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# Governance

## 4. GOVERNANCE

Italgas is committed to maintaining and consolidating an effective governance system, aligned with international best practices and regulation.

The Group set up a specific governance model on sustainability topics to best manage the business complexities, to face sustainable development challenges towards a low carbon economy, and to monitor and manage the impacts of climate change on Group's strategy and operations. Matters relating to climate change are considered when defining the Group's Strategic Plan and Sustainable Value Creation Plan, the risk management process, the Group's performance goals and related monitoring process.

The Board of Directors, the Sustainability Committee and the Control, Risk and

Related Party Transactions Committee are periodically informed as to aspects relating to climate change (strategy, initiatives and performances). The Appointments and Compensation Committee is involved in the provisions of incentives for the management of climate-related issues and sustainability-linked targets. Finally, at least once a quarter, the Board of Directors is informed about GHG emissions and net energy consumption performance and on the level of achievement of the related targets, in occasion of the quarterly results approval, then communicated to all relevant stakeholders.

### 4.1 Role of Management

The Chief Executive Officer is responsible for the administration of the Group and of the ultimate internal approval of the main strategic targets and initiatives, also climate related, that are then

submitted to the Board of Directors for approval.

As examples of climate related decisions, the CEO proposes annually the Strategic Plan (see details of the Strategic Plan at Par 2.3 "Strategy to deal with climate change"), to be submitted to the Sustainability Committee for its exam and after to the Board of Directors for its approval, which:

- includes climate related targets, e.g. relating to net energy and emissions reduction;
- states Italgas vision on energy transition starting from the capex plan and the infrastructure digitization effort, to allow the entire distribution network to be smart, flexible and able to accommodate and manage different gases, such as biomethane, green hydrogen and synthetic natural gases;
- aims at boosting circular economy, in particular by providing a stimulus to the biomethane sector, and at testing and implementing technologies that will make new renewable gases available in the distribution networks (ready for hydrogen);
- aims at the diversification of the assets portfolio, extending digital management of the infrastructure to the water sector and accelerating energy efficiency measures in the civil sector;
- includes the investments related and the expected financial impacts of such initiatives as well as the risk opportunity analysis on the overall plan including that related to climate change.

The CEO is regularly informed on climate change issues. In particular:

- chairs the monthly Sustainability Business Review (established in 2021) in which a detailed assessment of key environmental and climate change KPI and progress of relevant initiatives are monitored and discussed (see details in the "Box: Sustainability Business Review" in the Par. 5.1).
- chairs the monthly Innovation Committee to evaluate and sponsor initiatives that allow the improvement of the efficiency of Italgas' operations including those with a focus on emissions reduction/increased energy efficiency/network technological improvements to make it ready to distribute green gases hence abating emissions;
- examines the Non-financial Statement, which is approved by the Board of Directors. The Non-financial Statement contains information related to environmental, governance and social issues and is part of the Integrated Annual Report of the Group. Starting the first half of 2021, Italgas discloses the main climate change KPIs quarterly;
- in addition to proposing the Strategic Plan annually, the CEO proposes the Sustainable Value Creation Plan to be submitted to the Sustainability Committee for its exam and after to the Board of Directors for its approval. The Sustainable Value Creation Plan contains our actions, commitments and measurable climate related goals (see





details in the Par. 5.2 “Other relevant targets for the contribution to the energy transition”).

In its tasks, the CEO is supported primarily by the executive team which, at Italgas, includes the Chief Financial Officer (CFO), the Chief Corporate Strategy Officer (CCSO), the Procurement and Material Management Executive Vice President, the Executive Vice President External Relations & Sustainability and the Heads of Institutional and Regulatory Affairs, Security, Internal Audit, Legal, Corporate and Compliance Affairs and Human Resources functions.

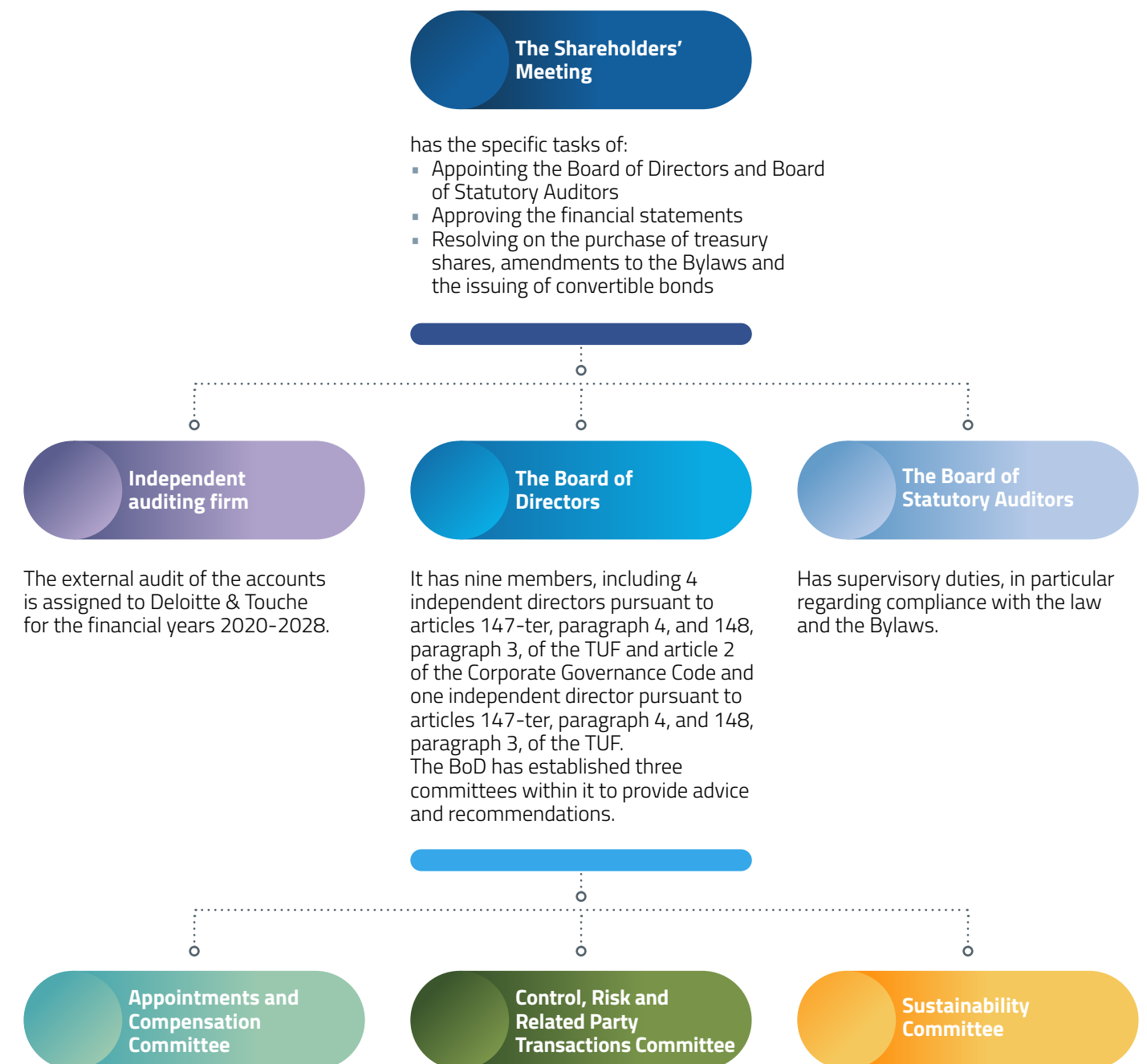
These executives, as members of the Executive Committee, hold responsibilities for all the climate related actions that fall in their areas of competence and are allocated specific targets. The main executives with climate change related roles are CFO, CCSO, Procurement and Material Management Executive Vice President and Executive Vice President External Relations & Sustainability. The Sustainability Function and Executive Vice President External Relations & Sustainability operate alongside the Sustainability Committee, monitor sustainability processes, interface constantly on relevant topics with each Group’s function (like Energy manager, Environmental, Health, and Safety manager, Procurement, ERM).

They coordinate the drafting and implementation of the Sustainable Value Creation Plan, are responsible for monitoring the progress of actions, guide the collection of non-financial data, including those climate-related, and all the works in preparation of the monthly Sustainability Business Review, guide the definition of climate related targets included in the Strategic Plan and the coherence of such targets with the planned initiatives. With the Sustainability team the Executive Vice President External Relations & Sustainability is also in charge of climate-change and ESG internal training.

The CFO and the CCSO support and guide the strategic planning process of the Company and the economic assessment of the investments plan actions, also in relation to climate change related initiatives. They are, at different levels, also in charge of M&A initiatives in relations to energy efficiency and, in the case of the CFO, of sustainable finance initiatives and budgeting. The CFO also supports and revises the evaluation of financial impacts of climate related risks and opportunities carried out by the Risk Owners under the coordination of ERM function and presented quarterly to the Risk Committee by the head of ERM and to the board by the CEO. The CCSO is responsible for both assessing and managing climate-related risks leading the definition of the strategic

plan considering the impact of climate change on the business and its assets and evaluating potential opportunities in terms of strategic development like energy efficiency businesses. The Procurement and Material

Management Executive Vice President and Executive is committed to integrating climate-related issues into the operational and procurement process to achieve strategic goals, also relating to climate change.



<https://www.italgas.it/en/governance/>

The commitment of value chain partners depends mainly on her and her team's efforts. She works with the Sustainability team to define strategies to reduce Scope 3 emissions and achieve stated targets.

Energy Managers, among others, have specific responsibilities on the planning and implementation of energy reduction initiatives, given their knowledge on the matter.

Such structure of responsibilities and reporting ensures that both the executive structure and the Board have ability to oversight climate related issues in line with their role and the internal corporate governance.

#### 4.2 Role of the Board and the Committees

The **Board of Directors** (BoD or Board) is in charge of the ordinary and extraordinary management of the Group and has the faculty to carry out all the acts deemed appropriate for the implementation and achievement of the corporate purpose, including sustainability and climate related objectives. The BoD is responsible of defining the strategic guidelines and objectives for the Italgas Group, also in relation to climate change related actions, at the recommendation of the CEO.

Annually the Board is called to approve Italgas' seven years Strategic Plan

and the updates of the Sustainable Value Creation Plan. The Strategic Plan approval process includes meetings, dedicated both to the presentation and approval of the scenarios (including climate related scenarios), of the ESG targets including environmental and climate-change targets on emissions reductions and energy efficiency and related initiatives and to the approval of the financials of the plan including investments. The meetings' agenda also includes the discussion and approval of the specific section of the Strategic Plan dedicated to risk and opportunities, included those referring to climate change.

The BoD is regularly informed on climate change issues. In particular:

- reviews quarterly the implementation of the plan and approves annual budgets and their updates, including capex initiatives related to climate change risks and opportunities;
- approves the quarterly results and the annual report contains information related to environmental, governance and social issues (this then presented to the Annual General Meeting);
- in case of relevant M&A initiatives, the Board exercise its role of oversight also on relevant issues including climate-related ones;
- is responsible of evaluating, on an annual basis, the adequacy of the organisational, administrative and accounting structure of Italgas and its

subsidiaries with strategic relevance, with particular reference to the internal control and risk management system, also in terms of climate change;

- reviews periodically sustainability policies aimed at ensuring the creation of value in the medium/long-term for all shareholders and stakeholders as to the principles of sustainable development and sustainability guidelines, objectives and processes;
- examines and approves the disclosure of non-financial information, including climate change related information submitted by the Sustainability Committee (SC) and the sustainability reporting submitted quarterly by the SC. During the 2021 financial year, the Board of Directors met fifteen times and the rate of Director participation in the meetings was 97%. Given the relevance of sustainability topics for the Group, the Board of

Directors examined ESG topics in approximately 38% of the meetings held in 2021.

#### The Sustainability Committee

(SC) promotes proposals and has a consultation function to the BoD on matters of sustainability and climate change. Examples are the processes, initiatives and activities aimed at the sustainable development of the Group along its whole value chain. It:

- examines and evaluates periodically sustainability policies aimed at ensuring the creation of value in the medium/long-term for all shareholders and stakeholders as to the principles of sustainable development and sustainability guidelines, objectives and processes;
- examines and evaluates the sustainability reporting submitted quarterly to the BoD;



- monitors the positioning of the Group in the financial markets on the topic of sustainability and climate change, including ratings, and in the sustainability indices and ratings;
- monitors sustainability initiatives and the participation of the Group in them, aimed at consolidating corporate branding internationally;
- examines any sustainability initiative in agreements submitted to the BoD, also as to the subject of climate change; the profit and non-profit strategy, and the gas advocacy of the Group;
- examines the content of periodic

- non-financial reporting relevant to the internal control and risk management system;
- examines, assesses the integration of ESG aspects into the Enterprise Risk Management (ERM) matrix;
  - examines, evaluates the disclosure of non-financial information, including climate change related information, to be submitted to the BoD, in coordination with the Control, Risk and Related Party Transactions Committee in relation to the assessment of the suitability of the periodical financial and non-financial information; on request of the Board,

expresses an opinion on other matters regarding sustainability.

The Committee examines the Strategic Plan and the Sustainable Value Creation Plan, both containing climate related targets like emissions and energy reductions and reports about it to the BoD. The SC reports to the BoD:

- at the first meeting of the BoD after each of its own meetings, with regard to subjects dealt with and the observations, recommendations and opinions formulated;
- at least every six months and before the deadline for approval of the annual and half-year financial report, at the meeting indicated by the Chairman of the BoD, on the activities carried out. In 2021 the SC met 13 times.

While the main responsibility on the topic of climate change lies with the Sustainability Committee, the **Control and Risks and Related-Party Transactions Committee** has been carrying out, given its role, proposals on the topic of climate change in regards, for example, to the risks management initiatives it oversees. The Committee constantly agrees, supervises and assesses the integration of ESG aspects in the ERM risk mapping. The Control and Risks and Related-Party Transactions Committee poses significant attention on the topics with implications on climate change and

monitors the presence of activities aimed at the identification, evaluation, prioritization, treatment, monitoring and reporting of risks and opportunities related to climate change.

#### 4.2.1 Remuneration policy

The **Appointments and Compensation Committee** (ACC) is involved in

the provision of incentives for the management of climate-related issues and sustainability-linked targets. Both short term and long-term variable remuneration of core managers include climate related targets.

The ACC submits annually a remuneration report approved by the AGM and applied to apply to the CEO, and all executives with strategic responsibilities, including those on climate change.

The Long-term Monetary Incentive depends also on the level of achievement of Sustainability targets (15% weight). For the 2020-22 and 2021-23 the LTI performance conditions is related to emission reductions and the inclusion in sustainability indexes/ ratings in the three years.

In 2021, 10% of short-term incentive was linked to the Gas Leakage Rate (the percentage of gas leaks into the atmosphere out of the total gas transported during the year). In 2022, 7.5% of short-term incentive is linked to gas leakage rate and 7.5% to reduction of the energy intensity.





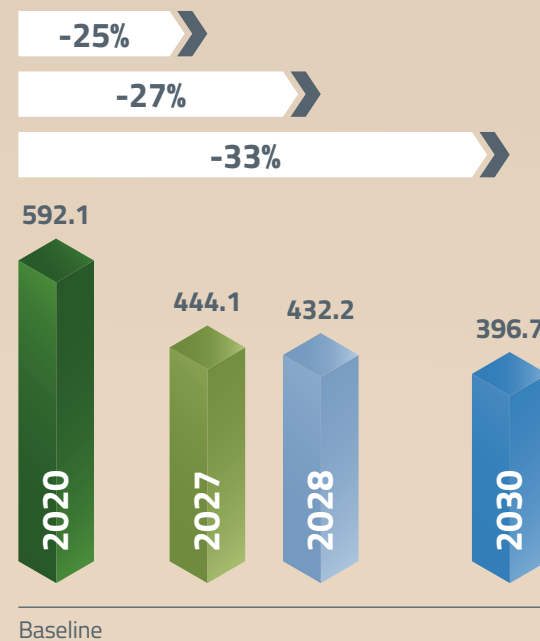
# Metrics &

## 5.1 Decarbonization targets

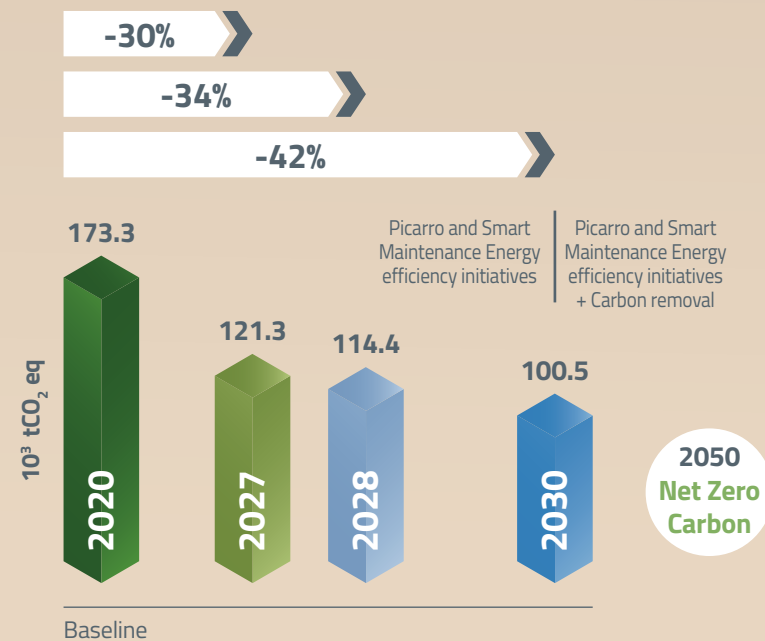
The Strategic Plan 2022-2028 pivots on ESG factors and responds to the challenges of sustainability by setting objectives for 2028 and 2030, in line with the Net-Zero carbon target for 2050, and further raising those defined in 2021 in terms of emissions reduction, energy efficiency, competences, and people development to make the change effective. The same targets are also included in the Group's Sustainable Value Creation Plan<sup>31</sup>.

The sustainability targets set for 2028 aim to reduce CO<sub>2</sub> emissions in line with the EU ambition for 2030<sup>32</sup>: thanks to the digital transformation of the network and innovative technologies, from CRDS, a cutting-edge technology in the gas network monitoring field, designed and developed by Picarro, of which Italgas has recently become a shareholder, to the implementation of the know-how of its subsidiary Geoside, Italgas estimates that, by 2028, it will have reduced its GHG emissions (Scope 1 and Scope 2 Market based<sup>33</sup>) by 34%, compared to 2020 levels<sup>34, 35</sup>.

### Reduction of Net energy consumption



### Reduction of scope 1 and 2 GHG emissions



<sup>31</sup> <https://www.italgas.it/wp-content/uploads/sites/2/2022/10/Sustainable-Value-Creation-Plan-2022-2028.pdf>

<sup>32</sup> [https://ec.europa.eu/clima/eu-action/european-green-deal/2030-climate-target-plan\\_en](https://ec.europa.eu/clima/eu-action/european-green-deal/2030-climate-target-plan_en)

<sup>33</sup> The market-based emissions data has been selected to reflect the Group choice of purchase and consumption of electricity produced from certified renewable sources, as attested by the Management System of Guarantees of Origin (GO). Both Scope 2 market-based and location-based data is available in the Integrated Annual Report.

<sup>34</sup> 2020 was considered the baseline as it was the first year with fugitive emissions from Toscana Energia consolidated for a full year after its acquisition and with the full application of the CRDS Picarro, which is considered a state-of-the-art methodology for fugitive emissions detection and calculation.

<sup>35</sup> The perimeter of reporting is the same as the scope of consolidation for financial data as of 31/12/2021. Reported data cover as of such date every consolidated subsidiary, regardless of legal form, host country or size, and refer for the future to an unchanged perimeter – i.e. excluding any changes following M&As, Depa Infrastructure's acquisition and ATEM (Minimum Territorial Area) tenders of gas distribution concessions in Italy.

<sup>36</sup> It refers to the overall energy consumption, including the total electricity consumption minus the total self-produced and consumed electricity without the use of any fossil fuel.

<sup>37</sup> [https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporting-Standard\\_041613\\_2.pdf](https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporting-Standard_041613_2.pdf)

# Targets

This commitment is primary linked to the initiatives designed to reduce fugitive methane emissions from the gas distribution infrastructure, given their relevance (see Par 5.3.2) and, in the second instance, also to reduce the Group energy consumption. In line with the main timelines defined by the EU Green Deal, Italgas also planned a 42% reduction in GHG emissions by 2030 based on the above-mentioned initiatives. Italgas also set a "Net-Zero carbon target" by 2050, also considering the implementation of carbon removal and offsets initiatives beyond 2030.

Furthermore, the Italgas Group has also set other specific operating targets, fully aligned with the GHG emissions reduction targets in terms of perimeter, related to reduction of its net energy consumption<sup>36</sup> by 27% by 2028 and by 33% by 2030 with the baseline year

2020. This commitment is focused on several initiatives for the reduction of consumption of fuel energy for civil and industrial use, net electricity for civil and industrial use, fuel energy for vehicles and thermal energy for civil use.

Finally, the Group also defined a target for Scope 3 GHG emissions from supply chain, planning a 30% reduction by 2028 and a 33% reduction by 2030 compared to 2020 (same perimeter of above), through an increased engagement with its suppliers.

Scope 3 GHG emissions from supply chain considered are in the following categories<sup>37</sup>, included for their relevance for a DSO:

- Purchased goods and services;
- Capital goods;
- Upstream transportation and distribution;
- Waste generated in operations;
- Upstream leased assets.





Also for Scope 3 GHG emissions from supply chain, the Group set itself a “Net-Zero carbon target” by 2050, also considering the implementation of carbon removal and offsets initiatives beyond 2030<sup>38</sup>.

The plan for achieving the target for the reduction Scope 3 GHG emissions from supply chain includes the:

- supply chain engagement - awareness, training and commitment, to obtain a greater commitment from suppliers;
- inclusion of reward criteria in tenders for suppliers, according to the level of adoption of good/best practices with reference to the reduction of own GHG emissions;
- promotion of the best available techniques/technologies for circular economy or, where possible, the identification of new solutions together with the suppliers.

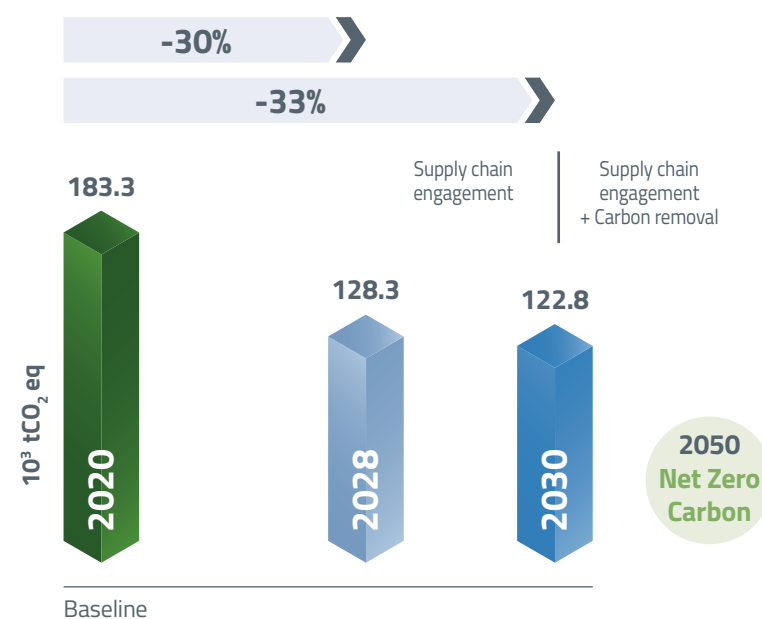
The targets on GHG emissions reduction have been designed to meet the EU objective over the same timeframe and in compliance with long-term objective to limit climate change and avoid the increase in temperatures above 1.5°C.

In fact, the Group’s commitment has been defined duly following the Science Based Targets initiative (SBTi) guidelines which set a pathway setting methodology requiring a 4.2% emissions linear annual reduction for Scope 1 and 2 GHG and a 2.5% emissions linear annual

reduction for Scope 3 GHG emissions, as indicated in their “Net-Zero Getting Started Guide”.<sup>39</sup> Italgas has tested its Scope 1, 2 and 3 from supply chain GHG emissions targets on the SBTi general methodology tool, which resulted as being in line with the commitments defined in the Paris Agreement to limit the rise in global temperature to no more than 1.5°C.

To date, the specific SBTi methodology for the O&G sector is not available to be applied to gas distribution, thus it is not yet possible for the targets to be formally validated by the SBTi.<sup>40</sup> Setting its target in alignment with SBTi’s public cross sectorial approach for alignment with a 1.5°C scenario is therefore, as of today, the most relevant approach

Reduction of Scope 3 supply chain GHG emissions



Italgas could take with regards to SBTi. Nevertheless Italgas is willing to obtain such validation of the targets as soon as the SBTi guidelines will be published.

## 5.2 Other relevant targets for the contribution to the energy transition

In addition to the decarbonization targets included in the Strategic Plan (see Par. 5.1), Italgas has defined other specific goals contained in the Sustainable Value Creation Plan, closely related to its strategy to manage climate-related risks and opportunities.

In fact, in accordance with the Strategic Plan and with the commitment to preserve and develop the capitals used in its business model, Italgas’ Sustainable Value Creation Plan is composed by three pillars: the planet, the people, the partnerships.

Through these pillars, the Group is called to preserve the capital connected to the risks and opportunities related to climate change (e.g. natural, manufactured, intellectual...). For this reason, with the view of becoming an enabler of the energy transition, Italgas confirms its strong commitment to the repurposing and digitization of its infrastructures, promoting the integration of renewable gases and hydrogen in the network, the methanisation of the areas that currently use sources of higher emissions and contributing to the diversification of energy supplies.

The above-mentioned pillars provide the path for Italgas’ actions, commitments and measurable targets. These actions will produce medium-long-term impacts that will contribute to mitigation and adaptation of climate change at Italian level.

Italgas, builders of our future		
For the future of the planet	For the future of the people	For a sustainable future together
Digitization to enable energy transition and decarbonization	Improving quality of life and ensuring safety of employees, citizens and national energy system	Promoting innovation and dialogue through partnerships
Fighting against climate change	Developing and disseminating equal opportunities and inclusion	Promoting principles of sustainability in the supply chain
Protecting ecosystems and encourage the circular economy	Giving value to diversity and supporting equal opportunities and inclusion	Taking care of our territories

<sup>38</sup> Starting from 2030 carbon removal actions and offsets will be implemented.

<sup>39</sup> <https://sciencebasedtargets.org/resources/files/Net-Zero-Getting-Started-Guide.pdf>

<sup>40</sup> <https://sciencebasedtargets.org/sectors/oil-and-gas/what-is-the-sb-ti-policy-on-fossil-fuel-companies>



Actions	2022-2028 targets <sup>41</sup>	Long-term impacts
<b>Repurposing the network to increase its flexibility and ensure the necessary connections for the distribution of biomethane and hydrogen</b>	<ul style="list-style-type: none"> <li>100% network ready to accommodate hydrogen by 2028</li> <li>100% digitised network by 2024</li> </ul>	<ul style="list-style-type: none"> <li>Economic development of the Country</li> <li>Decarbonisation of the Country in accordance with EU goals</li> <li>Digitization, innovation, efficiency, safety and Sustainability of gas distribution infrastructure</li> </ul>
<b>Extending the network to non-methanised territories</b>	<ul style="list-style-type: none"> <li>100,000 new users connected to the extension of Group's natural gas distribution networks by 2028, in areas currently not methanized, thus replacing more polluting sources, allowing sector coupling and reducing costs for customers</li> </ul>	<ul style="list-style-type: none"> <li>Economic development of the Country</li> <li>Decarbonisation of the Country in accordance with EU goals</li> <li>Digitization, innovation, efficiency, safety and Sustainability of gas distribution infrastructure</li> <li>Safe and efficient access to energy for all</li> </ul>
<b>Enhancing the activities of ESCo Geoside</b>	<ul style="list-style-type: none"> <li>280,000 MWh saved by ESCo customers, corresponding to about 62,000 tons of CO<sub>2</sub>, thanks to energy efficiency interventions implemented between 2022 and 2028</li> </ul>	<ul style="list-style-type: none"> <li>Decarbonisation of the Country in accordance with EU goals</li> </ul>
<b>Reducing the Group's energy consumption and greenhouse gas emissions</b>	<ul style="list-style-type: none"> <li>-25% gas leakage rate<sup>42</sup> by 2028 (baseline 2020)</li> </ul>	<ul style="list-style-type: none"> <li>Digitization, innovation, efficiency, safety and Sustainability of gas distribution infrastructure</li> <li>Decarbonisation of the Country in accordance with EU goals</li> <li>Energy security for the Country</li> </ul>
<b>Promote the diversification of national energy supply</b>	<ul style="list-style-type: none"> <li>400 biomethane production plants, built by third parties, connected to the distribution network by 2028</li> <li>200 tons of green hydrogen produced and distributed in the Group's P2G pilot plant in Sardinia by 2028, demonstrating the validity of the solution for industrial and residential transport and use</li> </ul>	<ul style="list-style-type: none"> <li>Energy security for the Country</li> <li>Decarbonisation of the Country in accordance with EU goals</li> </ul>

<sup>41</sup> The perimeter of reporting is the same as the scope of consolidation for financial data as of 31/12/2021. Reported data cover as of such date every consolidated subsidiary, regardless of legal form, host country or size, and refer for the future to an unchanged perimeter – i.e. excluding any changes following M&As, Depa Infrastructure's acquisition and ATEM (Minimum Territorial Area) tenders of gas distribution concessions in Italy.

<sup>42</sup> Volume of fugitive emissions of natural gas/volume of gas distributed.

<sup>43</sup> <https://www.italgas.it/wp-content/uploads/sites/2/2022/04/2021-Integrated-Annual-Report-format-PDF.pdf>

## 5.3 Metrics

The following metrics, regarding Scope 1, Scope 2, Scope 3 GHG emissions, energy consumption and the carbon intensity metrics, are reported both in the 2021 Integrated Annual Report<sup>43</sup> (and have been verified by the independent auditing firm appointed), and in the half-year financial report and 1<sup>st</sup> and 3<sup>rd</sup> quarter consolidated reports. Furthermore the new metrics, referring to the "Other relevant targets for the contribution to the energy transition" for the 2022-2028 period, presented in the previous paragraph, will be included since the next Integrated Annual Report.

### 5.3.1 Energy consumption

Natural gas is the energy source mostly used in the Group's activities for both civil and industrial uses, and for vehicles. Since 2016, Italgas has monitored its consumption with the aim of reducing its environmental impact over time according to a continuous improvement process.



Net Energy Consumption	U.o.m.	2019	2020	2021
<b>Fuel energy consumption for industrial use</b>	(TJ)	322.3	322.5	319.3
<b>Fuel energy consumption for civil use</b>		45.4	45.5	46.7
<b>Fuel energy consumption for vehicles</b>		122.0	123.0	137.2
<b>Net electricity consumption for industrial use</b>		55.4	56.8	56.6
<b>Net electricity consumption for civil use</b>		44.7	44.0	37.1
<b>Thermal energy consumption for civil use</b>		-	0.3	0.3
<b>Total</b>		<b>589.8</b>	<b>592.1</b>	<b>597.2</b>

*The perimeter of reporting is the same as the scope of consolidation for financial data as of 31/12/2021.*

Since Toscana Energia has been acquired on the 1st of October 2019, its energy consumption data referring only to the last 3 months of that year were consolidated, whilst the same data have been fully consolidated for the whole of 2020. For this reason it was considered more indicative to provide, below, a comparative analysis of the data for the last two years available (2020 and 2021).

Total energy has increased slightly since 2020 (corresponding to +0.9%). Thanks to energy optimization and efficiency measures, fuel energy consumption for industrial use decreased between 2020 and 2021 (-1.0%), despite an increase in the volume of gas injected into the network and distributed (+4.8%). That result was achieved due to the continuing efficiency measures, such as the replacement of boilers and the installation of optimization systems at the reduction and measurement collection plants with preheating, as well as optimized regulation of the plants, also thanks to the digitization of the monitoring and regulation processes, which allowed for operations under conditions of greater efficiency.

In relation to fuel energy consumption for civil use, the trend in 2021 was in line with the previous financial year (+2.6%), thanks to an even more careful management based on the continuous monitoring of the main parameters

of the offices and their consumption (also by digitizing the monitoring and regulation processes), with the resulting improvement in energy performance. It is indeed important to note how the consumption of methane gas for civil use is substantially aligned with 2020, despite the increase in the available surfaces and the contextual functioning, albeit limited over time, of the buildings that were then decommissioned.

Indeed, the Group activated a renewal and reorganization plan for the real estate assets, which comprises the development and rationalization of the properties in line with the evolution of the business and the operating models.

Moreover, though fuel energy consumption for vehicles recorded an increase (+11.5% compared to 2020), in 2021 as a whole, 13.1% more kilometres were travelled than the previous financial year, equal to around 42.8 million kilometres. Those changes are mainly the result of the optimization of the car fleet and the introduction of high-tech solutions, such as online quotations, which resulted in a reduction in travel by operating personnel.

With reference to electricity consumption for civil use (-15.7% compared to 2020), the sharp decrease recorded is attributable to improved efficiency in the use of the Group's offices, including the reorganization

of their management. Similar to civil consumption, the Group's industrial electricity consumption also decreased in 2021 (-0.4% compared to 2020), a reduction mainly attributable to various efficiency measures, achieved despite the installation of new Final Digitized Reduction Groups, which generated additional consumption of 132 MWh.

### 5.3.2 Scope 1 and Scope 2 GHG emissions and carbon intensity metrics

In line with what done in relation to consumption, Italgas has been also monitoring over the years its GHG emissions, with the objective of reducing its carbon footprint.

The Group monitors and reports the

following emissions:

- direct emissions (Scope 1): deriving from the civil consumption and industrial consumption of gas<sup>44</sup>, from fuel consumptions for vehicles and grid losses ("fugitive emissions");
- indirect emissions (Scope 2): deriving from the consumption of electricity and district heating purchased, provided by a third party.

Fugitive emissions of natural gas from distribution networks, gas preheating processes in the decompression systems for gas distribution (industrial use) and the use of cars in the corporate fleet are the Group's main GHG emissions contributors.

Scope 1 and Scope 2 GHG emissions	U.o.m.	2019	2020	2021
<b>Fugitive gas emissions</b>	10 <sup>3</sup> tCO <sub>2</sub> eq	128.0	146.6	133.4
<b>Emissions from gas consumption for industrial use</b>		18.1	18.2	18.1
<b>Emissions from gas consumption for civil use</b>		2.5	2.6	2.6
<b>Emissions from fuel consumption for vehicles</b>		7.6	5.7	6.4
<b>Emissions from thermal energy for civil use</b>		-	0.0	0.0
<b>Emissions from electricity consumption for industrial use</b>		12.9	0.2	0.0
<b>Emissions from electricity consumption for civil use</b>				0.2
<b>Total</b>		<b>169.2</b>	<b>173.3</b>	<b>160.7</b>

<sup>44</sup> The emissions from air conditioning units are considered not to be relevant as they refer to a very small amount of HFC gases refilled during the reporting year (e.g. for 2021 the estimate is approximately 124 tCO<sub>2</sub>eq the 0.08% of overall Scope 1 and 2 emissions). SF6 emissions are not relevant as such gas is present at just a few sites and the gas is contained in hermetically sealed systems (e.g. for 2021 the estimate is approximately 235 tCO<sub>2</sub>eq the 0.1% of overall Scope 1 and 2 emissions).

Scope 1 and Scope 2 GHG emissions	U.o.m.	2019	2020	2021
Scope 1	10 <sup>3</sup> tCO <sub>2</sub> eq	156.3	173.1	160.5
Scope 2 market-based		12.9	0.2 <sup>45</sup>	0.2
Total		169.2	173.3	160.7

Carbon intensity	U.o.m.	2019	2020	2021
Gas distributed	10 <sup>6</sup> Sm <sup>3</sup>	8,001	8,477	8,887
Physical carbon intensity <sup>46</sup>	10 <sup>3</sup> tCO <sub>2</sub> eq/10 <sup>9</sup> Sm <sup>3</sup>	21.2	20.4	18.1
Total revenue	Million €	1,257.9	1,333.8	1,370.8
Economic carbon intensity <sup>47</sup>	10 <sup>3</sup> tCO <sub>2</sub> eq/10 <sup>6</sup> €	0.134	0.130	0.117

Since Toscana Energia has been acquired on the 1<sup>st</sup> of October 2019, its GHG emissions data referring only to the last 3 months of that year were consolidated, whilst the same data have been fully consolidated for the whole of 2020. For this reason it was considered more indicative to provide, below, a comparative analysis of the data for the last two years available (2020 and 2021).

2021 saw a drop in total Scope 1 and Scope 2 emissions of 7.3% lower than the 2020. The main components that contributed to this decrease are fugitive emissions and emissions from gas consumption for industrial use, which, in total, make up for over 94% of the total Scope 1 and Scope 2 emissions. It is important to note how this reduction is even more significant against an increase in Group operations, in that

timeframe in terms of increase of network consistency (+1.9% compared to 2020) and gas distributed (+4.8% compared to 2020).

Emissions from gas for civil and industrial use and from fuel consumption for vehicles are in line with the consumption trend described in Paragraph 5.3.1 Energy consumption, while those from electricity consumption are decreasing as a result of reduced consumption and the near total supply of electricity from certified renewable sources (certified by the guarantee of origin management system).

#### Fugitive emissions

Italgas's 2021 fugitive emissions decreased by -9.0% compared to 2020. By analysing the characteristic KPIs of the process in more depth, a 13.0% decrease was recorded in the ratio between emissions and gas distributed and 10.3% decrease for the ratio between emissions and kilometres of network inspected. The prompt inspection, localisation and repair of leaks resulted in significant savings of fugitive emissions leaked into the atmosphere. In 2021, thanks to the operational effort in the prompt elimination of leaks, fugitive emissions avoided were equivalent to around 34% of total emissions.

Other carbon intensity (fugitive emissions)	U.o.m.	2019	2020	2021
Natural gas fugitive emissions	10 <sup>6</sup> Sm <sup>3</sup>	7.4	8.5	7.7
CO <sub>2</sub> fugitive emissions	10 <sup>3</sup> tCO <sub>2</sub> eq	128.0	146.6	133.4
Natural gas distributed	10 <sup>6</sup> Sm <sup>3</sup>	8,001.0	8,477.0	8,886.7
Gas Leakage Rate <sup>48</sup>	%	0.092	0.100	0.087
Network consistency <sup>49</sup>	km	70,484.3	71,184.5	72,145.2
Fugitive emissions of natural gas / network consistency	Sm <sup>3</sup> / km	104.9	118.9	106.7

<sup>45</sup> Indirect emissions of Scope 2 Market-based decreased in 2020 and 2021 by 97% compared to 2019 following the purchase of electricity produced from certified renewable sources, as attested by the Management System of Guarantees of Origin (GO). The location-based method based on the average Italian emission factor, provided by ISPRA, was used to evaluate the emissions due to the consumption of electricity in 2019. For the same type of emissions, in 2020 and 2021 the market-based method was used, whose calculation provides that the emission quota relating to renewable sources is zero and that the residual mix emission factor is used for the portion not covered by such contracts.

<sup>46</sup> Calculated as Scope 1 and Scope 2 emissions/gas distributed.

<sup>47</sup> Calculated as Scope 1 and Scope 2 emissions/total revenue.

<sup>48</sup> Natural gas fugitive emissions/gas distributed.

<sup>49</sup> Note that the kilometres of network used for the 2021 KPIs are related to the ARERA consistency declared in 2020 (i.e. as at 31/12/2020). For the other gas network consistency of Medea, an average consistency for 2021 was considered, given the variability due to multiple conversions of the networks to natural gas during the year.



### Sustainability Business Review

The Strategic Plan and the Sustainable Value Creation Plan are also influenced by the internal monthly collection and reporting of current and forecasted energy consumptions and GHG emissions data. Such data are and the underlying trends are analysed, using specific KPIs during monthly Sustainability Business Reviews, to evaluate the effectiveness of the initiatives put in place by the Group's companies in terms of energy efficiency and reduction of GHG emissions and to constantly verify the progress against the targets.

### Carbon Disclosure Project

In December 2021 Italgas was recognised by CDP (formerly the Carbon Disclosure Project)<sup>50</sup> in the Climate Change Questionnaire for its efforts in the fight to climate change for the fifth year in a row. The Group was included in the "Leadership band" thanks to the improvement of its score to "A-" from "B" last year, in the "Climate change 2021" questionnaire. This score ranked Italgas above the European regional average and the Energy Utilities Networks sector, both ranked "B".

### 5.3.3 Scope 3 GHG emissions from supply chain

Scope 3 GHG emissions from supply chain<sup>51</sup>, outside the direct control of the Group from the following emissions categories<sup>52</sup>, applicable to DSO:

- Purchased goods and services;
- Capital goods;
- Upstream transportation and distribution;
- Waste generated in operations;
- Upstream leased assets.

Scope 3 emissions linked to the supply chain and included in this kpi cover between 95.6% and 97.6% of the Italgas's total applicable Scope 3 emissions (2019-2021 data<sup>53</sup>).

Scope 3 GHG emissions increased slightly from 2019 to 2020, mainly as a result of an increase in the spending of outsourced activities by around 7%: in particular, the emissions category "Capital goods" and "Upstream transportation and distribution" increased, while all the other emissions categories decreased. During 2021, emissions decreased compared to 2020 (-19,7%) thanks to the effectiveness of the first suppliers'

engagement activities implemented in the late 2020 and, more broadly in 2021, in which suppliers adopted some initiatives impacting since 2021 (for example the purchase of electricity from renewable energy).

Following this approach, the Italgas intends to develop an approach inspired

by "Partnerships for the goals" (SDG 17), by promoting the best techniques and technologies available or, where possible, by identifying new solutions with its suppliers in the fight to climate change.

Scope 3 GHG emissions from supply chain	U.o.m.	2019	2020	2021
Total	10 <sup>3</sup> tCO <sub>2</sub> eq	173.1	183.3	147.2



<sup>50</sup> CDP is a not-for-profit charity that runs the global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts - <https://www.cdp.net/en/info/about-us>

<sup>51</sup> Scope 3 emissions from supply chain data reported in the Integrated Annual Report 2021 on page 157 - "Scope 3 emissions" table - "Supply chain" (and in previous Reports) have been calculated with a different methodology, which took into consideration the same Scope 3 supply chain categories, associating specific CO<sub>2</sub> emission factors to the expenses for the outsourced activities, depending on the activity sector of each supplier.

<sup>52</sup> [https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporting-Standard\\_041613\\_2.pdf](https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporting-Standard_041613_2.pdf)

<sup>53</sup> Considering Scope 3 emissions from "energy" and "Business travel"; <https://www.italgas.it/wp-content/uploads/sites/2/2022/04/2021-Integrated-Annual-Report-format-PDF.pdf>

5.4 Carbon pricing

Despite none of Italgas operations is subject to a carbon pricing, the Group has integrated the definition of internal carbon price (CP) as an element of its strategic planning to address business strategy & decision process for strategic investments. The internal CP definition helps Italgas to address climate change related issues and quantify potential risks emerging from, as an example, changes in regulation on emissions. The use of a CP for strategic planning enforces the whole organization strategy.

The internal CP is also used by Italgas to put an economic value to carbon reduction initiatives across the organization (impacting Scope 1 and 2 emissions, also via reduction of energy consumption) and to evaluate their impact not just in terms of tons of CO<sub>2</sub> avoided but also in terms of economic value generated (assuming the CO<sub>2</sub> cost equals to the avoided cost of the carbon emissions avoided), relative to the capex and the cost of the initiative itself.

The internal and external targets are built via a granular analysis of CO<sub>2</sub> emissions by activity. The result of the mentioned analysis is a CO<sub>2</sub> “P&L”, which is converted into an economic P&L using the trading price for CO<sub>2</sub> from external resources referring to EU ETS Carbon Pricing (about 81 €/CO<sub>2</sub> ton for 2022 in the 2022/2028 Strategic Plan projections), applying

throughout the Group, to all facilities and different activities.

As a result of this assessment, Italgas Group can identify and seize opportunities to reduce CO<sub>2</sub> emissions (and improve the CO<sub>2</sub> P&L) over the 7 years strategic plan horizon.

CP helps to assign a value to the CO<sub>2</sub> avoided and make an economic value comparison, with considerations that go beyond the simple evaluation their cost in terms of capex.

The use of the internal CP has supported the decision-making process (e.g. purchasing electricity produced from certified renewable sources, as certified by the Guarantees of Origin management system, or the design, implementation and commissioning, at the main city gates, of turbo-expanders for energy recovery and cogeneration plants) but has not yet resulted in a significant shift in approach about planning.

*Italgas Group can identify and seize opportunities to reduce CO<sub>2</sub> emissions (and improve the CO<sub>2</sub> P&L) over the 7 years strategic plan horizon.*

TCFD Recommendations		Disclosure
<b>GOVERNANCE</b>		
Disclose the organization's governance around climate-related risks and opportunities.		
a)	Describe the board's oversight of climate-related risks and opportunities.	4.1 Role of Management
b)	Describe management's role in assessing and managing climate-related risks and opportunities.	4.2 Role of the Board and the Committees
<b>STRATEGY</b>		
Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.		
a)	Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	2.2 Climate and energy scenarios' analysis 2.3 Strategy to deal with climate change 2.4 Contribution to sustainable development and energy transition 2.5 Energy transition as a business opportunity 2.6 Main partnership on climate change 3.1 Enterprise Risk Management Model 3.2 Climate change risks and opportunities
b)	Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	2.2 Climate and energy scenarios' analysis 2.3 Strategy to deal with climate change 2.4 Contribution to sustainable development and energy transition 2.5 Energy transition as a business opportunity 2.6 Main partnership on climate change 3.1 Enterprise Risk Management Model 3.2 Climate change risks and opportunities
c)	Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	2.2 Climate and energy scenarios' analysis 2.3 Strategy to deal with climate change 3.1 Enterprise Risk Management Model 3.2 Climate change risks and opportunities
<b>RISK MANAGEMENT</b>		
Disclose how the organization identifies, assesses, and manages climate-related risks.		
a)	Describe the organization's processes for identifying and assessing climate related risk	3.1 Enterprise Risk Management Model
b)	Describe the organization's processes for managing climate-related risks.	3.1 Enterprise Risk Management Model 3.2 Climate change risks and opportunities
c)	Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	3.1 Enterprise Risk Management Model 3.2 Climate change risks and opportunities
<b>METRICS AND TARGETS</b>		
Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.		
a)	Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	5.3 Metrics 5.4 Carbon pricing
b)	Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	5.3 Metrics 5.4 Carbon pricing
c)	Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	5.1 Decarbonization targets 5.2 Other relevant targets for the contribution to the energy transition

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