



GUIDELINES FOR AN ITALIAN STRATEGY ON METHANE EMISSIONS FROM THE NATURAL GAS SUPPLY CHAIN

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PICARRO



This document "Guidelines for an Italian Strategy on Methane Emissions from the Natural Gas supply chain" is the result of the activity, debate and in-depth analysis of a Working Table dedicated to this issue and of the contributions offered by the participants.

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1. Objectives for Italy

Foreword

In the framework of the OGMP 2.0 (Oil and Gas Methane Partnership) and IEA (International Energy Agency) initiatives at international level, and within the coming EU policies aimed at reducing methane emissions, the timely adoption of an Italian Strategy to this purpose would allow a proactive approach of our country, with the opportunity of seizing important opportunities in the energy transition process. Italy can make an important contribution to the decarbonization effort, since natural gas will be a key resource in the energy transition, especially in our country.

It should be remembered that methane is the second most important greenhouse gas after CO₂ and that its climate-changing power is very high. Available statistics show that it is 25 times more impacting in the medium-long term (100 years), but it is recognized that, in the short term (20 years), these emissions have an 80-times higher climate-changing impact.

The issue of methane emissions from the natural gas supply chain has definitely emerged with the EU Methane Strategy¹ envisaged by the EGD (European Green Deal), with the launch of the OGMP 2.0² initiative under the auspices of UNEP, the recent update of the IEA Methane Tracker³, was included in the official documents of the G20 Ministerial on Energy and Climate held in Naples⁴, and was finally mentioned in the very recent IPCC's Summary for Policy Makers, AR6 report⁵.

In this context, if natural gas is really to enhance and maximize its contribution to reducing emissions and achieve carbon neutrality, it is inevitably called upon to develop all the opportunities of decarbonisation.

¹ [Methane emissions | Energy \(europa.eu\)](#)

² [Oil and Gas Methane Partnership \(OGMP\) 2.0 Framework, Oil and Gas Methane Partnership \(OGMP\) 2.0 Framework | Climate & Clean Air Coalition \(ccacoalition.org\)](#)

³ <https://www.iea.org/reports/methane-tracker-2021>

⁴ G20 Communiqué, energy transition and climate sustainability working groups. Point 25: *We acknowledge that methane emissions represent a significant contribution to climate change and recognize, according to national circumstances, that its reduction can be one of the quickest, most feasible and most cost-effective ways to limit climate change and its impacts. We welcome the contribution of various institutions, in this regard, and take note of specific initiatives on methane, including the establishment of the International Methane Emissions Observatory (IMEO). We will further promote cooperation, to improve data collection, verification, and measurement in support of GHG inventories and to provide high quality scientific data.* <https://www.g20.org/the-g20-climate-and-energy-ministerial-meeting-adopts-a-joint-communicue.html>

⁵ Punto D.1: *"From a physical science perspective, limiting human-induced global warming to a specific level requires limiting cumulative CO₂ emissions, reaching at least net zero CO₂ emissions, along with strong reductions in other greenhouse gas emissions. Strong, rapid and sustained reductions in CH₄ emissions would also limit the warming effect resulting from declining aerosol pollution and would improve air quality".*

The rapid approval of an Italian strategy to reduce methane emissions can encourage a keen participation of Italy in the steps towards the EGD implementation process - starting from the legislative initiatives envisaged in the Methane Strategy - with a policy tool resulting from a debate between associations, operators and institutions, also in view of the impending international agenda.

The need for a quality leap in reducing methane emissions from the natural gas supply chain should also be framed within the Fit for 55 package, a series of measures recently proposed by the EU Commission to implement the objectives of the EGD and the new 2030 greenhouse gas emission reduction target of -55% compared to 1990.

Among the measures envisaged by the Fit for 55 package, the proposal to amend the ESR (Effort Sharing Regulation) - i.e., the current regulation on binding national targets for reducing greenhouse gas emissions not currently covered by the ETS (Emission Trading System), such as methane - encompasses specific initiatives already considered by the Commission as part of the Methane Strategy. This also envisages a specific regulation for reducing methane emissions in the energy sector, which has already been the subject of public consultation⁶.

This document is the result of direct participation of operators from several segments of the supply chain, technology providers, trade associations and environmental associations, who actively took part in the sessions of a *Working Table for an Italian strategy on methane emissions from the natural gas supply chain*⁷, and out of an exchange with relevant institutional players at different levels.

The speeches held, the documents provided, the reported voluntary activities underway, and the sessions' outcomes, have made it possible to identify and propose specific objectives for our country, with a view to also make an impact at European level through a more advanced common policy on the subject, taking into account the state of play of technologies and their availability.

⁶ *Climate Change - new rules to prevent methane leakage in the energy sector*

⁷ *A summary of the table's activities is provided in Annex 2.*

Objectives and tools for reducing methane emissions from the natural gas supply chain in Italy

- 2030 overall reduction target⁸ of 72%⁹, compared to 1990 levels, in methane emissions from the supply chain in Italy, which in 2019 already shown a 53% reduction;
- 2030 methane emissions reduction target of 65%¹⁰, compared to 1990 levels, for transmission activities, which in 2019 have already recorded a 34% reduction;
- 2030 methane emissions reduction target of 70%¹¹, compared to 1990 levels, for distribution activities, which in 2019 recorded a 51% reduction;
- a 0.2% methane intensity performance standard (methane intensity¹² is defined as the share of methane emitted into the atmosphere with respect to the volume of natural gas produced) for upstream operations in Italy;
- ISPRA's National Inventory (NIR) data quality upgrade to Tier 3 or minimum Tier 2 level;
- entrust ISPRA with the task and related resources for compiling a specific annual monitoring report on methane emissions from the natural gas sector; and delegate to them the task of representing Italy at the IMEO (International Methane Emissions Observatory);
- adoption of updated technical standards aimed at reducing methane emissions, in line with the best available MRV (Monitoring Revision and Validation) and LDAR (Leak Detection and Repair) technologies;
- adoption by ARERA of further incentive and support regulation elements for the dissemination of good MRV and LDAR practices in the transport, storage, regasification, and distribution sectors, aimed at achieving emission reduction objectives;
- adoption by ARERA of additional regulatory incentives and support for the dissemination of good MRV and LDAR practices in the transmission, storage, regasification and distribution sectors, aimed at achieving emission reduction objectives;
- promoting the best available technology approach;
- information and communication for external audiences;

⁸ The 2030 targets for percentage reductions in methane emissions, relative to 1990 and 2015 values, are based on the 1990-2019 time series of ISPRA's National Emissions Inventory (NIR).

⁹ The above 2030 overall reduction target compared to 1990 levels, corresponds to 48% reduction compared to that of 2015.

¹⁰ The above 2030 reduction target for transmission activities compared to 1990 levels, corresponds to 58% reduction from that recorded in 2015.

¹¹ The above 2030 reduction target for distribution activities compared to 1990 levels, corresponds to 47% reduction compared to 2015.

¹² At work" - A report from the Oil and Gas Climate Initiative (OGCI), September 2018.

- defining the strategy's governance tools;
- development of information standards enabling bilateral regulatory equivalency agreements aimed at promoting the adoption of a robust and shared MRV system for natural gas produced or imported into Italy, also in view of possible future implementation of economic tools taking into account the Methane Footprint of natural gas imports, in accordance with the provisions of the European Commission.

The Italian strategy for reducing methane emissions will be consistent with the provisions adopted by the EU Commission on this subject, avoiding any duplication of reporting obligations for operators in the supply chain.

2. Methane emissions from the natural gas supply chain in Italy

Direct methane emissions are all emissions – whether intentional or unintentional – originating from various segments in the natural gas chain, except for those resulting from combustion for energy uses, including unburned gas. They are made up of: a) Fugitive emissions, i.e., gradual leaks due to the imperfect sealing of infrastructure components; b) punctual or vented emissions, i.e., emissions from controlled venting (due to maintenance or "pneumatic emissions" from control systems) or uncontrolled venting (due to accidental breakdowns); and c) unburnt emissions, i.e., unburned methane emissions from the combustion of flaring equipment in the supply chain.

For data on methane emissions, Italy uses the information released by the National Inventory of Greenhouse Gas Emissions¹³ produced by ISPRA, currently available until the year 2019. Overall, methane emissions from the natural gas supply chain in Italy have declined by 53% since 1990, from 329 kt CH₄ (8,225 ktCO₂eq) to 154 kt CH₄ (about 3,860 ktCO₂eq) in 2019, namely around 1% of total GHG emissions in Italy, despite the development of transmission and distribution systems since 1990 till today, and the increase in gas volumes transported, distributed and injected into the networks. These reductions are the result of voluntary actions by operators in the sector.

For natural gas exploration activities in Italy, methane emissions show very low values, such that they can be considered insignificant.

For natural gas production activities, methane emissions between 1990 and 2019 have been reduced to less than one-sixth of the initial value, which in 1990 was 30 kt CH₄ (750 ktCO₂eq), and in 2019 was 4.5 kt CH₄ (112.5 ktCO₂eq).

In the considered period, fugitive methane emissions from processing activities showed an initial value of 13.4 kt CH₄ (325 ktCO₂eq), which decreased to 2 kt CH₄ (50 ktCO₂eq) in 2019.

Natural gas transmission and storage activities (which also include emissions from regasification terminals) show methane emission values in the considered period ranging from 38 Kt CH₄ (950 ktCO₂eq) in 1990 and 24.9 kt CH₄ (622.5 ktCO₂eq) in 2019.

Most significant are fugitive methane emissions from the operations of natural gas distribution networks, which have dropped by 51% from 1990 to 2019, going from an initial value of 249 kt CH₄ (6,225 ktCO₂eq) to a value of 123 kt CH₄ (3,075 ktCO₂eq) in 2019.

In 2019, the overview of methane emissions from the natural gas supply chain in Italy shows a prevailing role of those emitted by distribution networks, with a share of 80%; second in importance are those from transmission and storage activities (+ regasification terminals), which account for 16%. These are followed

¹³ ISPRA: *Inventario nazionale delle emissioni di gas serra National Inventory Report 2021 – Italiano (isprambiente.it)*

by emissions arising from natural gas production (3%) and those from natural gas processing activities (2%).

Natural gas in Italy is the first source of energy (around 60 Mtoe) and covers 37% of consumption. In recent years, over 90% of the natural gas consumed in Italy has been imported, mainly from non-EU countries. Imports occur through gas pipelines or regasification terminals, where natural gas is delivered in liquefied form, through LNG carriers.

As shown by the data, the commitment of the Italian gas industry over the years has certainly led to significant reductions in methane emissions and to values that are now significantly lower than in the past. However, the biggest unknown factor regarding Italian methane emissions is linked to that 93% share of imported gas, and right now it is difficult to distinguish which are due to production or transmission operations from Italy's main supplier countries (48% from Russia, 26% from Algeria and 10% from Qatar).

According to some estimates¹⁴, methane emissions related to natural gas imports are significant and, as also acknowledged in the EU Methane Strategy, it is important to reliably quantify the methane footprint of imported gas. reliable quantification of the methane footprint of imported gas.

¹⁴ "Value chain methane emissions from natural gas imports in Europe" [Methane_Value-Chain_Carbon-Limits.pdf](#) ([carbonlimits.no](#))

3. Technical standards and the role of C.I.G. (Italian Gas Committee)

Scenario of the Marcogaz/CEN initiatives at European level in developing technical standards for the reduction of methane emissions from the natural gas chain. The initiatives and the role of the Italian Gas Committee (CIG/UNI) in developing dedicated national technical standards with the aim of reducing emissions.

In recent years Marcogaz, the non-profit association of the European gas industry that deals with technical aspects of the supply chain in all its segments, has already carried out a significant pre-normative¹⁵ activity, aimed at the development of technical standards and guidelines for the reduction of methane emissions. Prominent published analyses include: "Leak Detection and Repair", "Recommendations on Venting and Flaring", "Methane Emissions target setting", "Methane Emissions in the European Natural Gas midstream sectors", "Survey Methane Emissions for Underground Gas Storage sectors", "Survey Methane Emissions for Underground Gas Storage (UGS) facilities in Europe", "Survey Methane Emissions for LNG Terminals in Europe", "Survey Methane Emissions for Gas Distribution in Europe", including the global report on "Potential ways the Gas Industry can contribute to the reduction of CH₄". All these documents are freely downloadable from the web site: <https://www.marcogaz.org/knowledgehub/#publications>.

Based on the documents developed by Marcogaz, the European Technical Committee CEN/TC 234 "Gas Infrastructures" activated, at the end of 2020, a working group to draft a European technical document aimed at a "Methodology for methane emissions quantification for gas transmission, distribution, storage systems and LNG terminals"¹⁶.

The "Methodology" being drafted can be used to meet the reporting standards envisaged by the OGMP 2.0 initiative.

the Italian Gas Committee (CIG)¹⁷ is a federated entity under UNI (Italian National Body for Unification), and takes part in the works of Marcogaz and CEN/TC 234.

At national level, CIG has already established a series of working groups aimed at the timely adaptation of technical standards in the natural gas sector. These will operate according to what is defined by the European Technical Committee CEN/TC 234 and by other authorities involved in the national and European regulatory process, with the aim of reducing methane emissions.

¹⁵ <https://www.marcogaz.org/knowledge-hub/#publications>

¹⁶ prCEN/TS, "Gas infrastructure - Methodology for methane emissions quantification for gas transmission and storage systems and LNG terminals".

¹⁷ www.cig.it

In this context, it is necessary that technical regulations recognize the specificities of the various segments in the supply chain. For example, the upstream sector is characterized by a relatively limited number of large, concentrated plants, while in the transmission and distribution sectors there are thousands of small facilities scattered throughout the territory: it is therefore appropriate that the implementation of technical regulations, such as LDAR takes into account these peculiarities.

Proposals: objectives and tools

Update of national technical standards relative to the different segments of the supply chain as a common basis for the regulator, the industrial sector (regulated and unregulated companies) as regards MRV and LDR technologies, and ISPRA for the production of environmental data.

4. Regulatory tools and the role of ARERA

Natural gas distribution, transmission, and storage systems, including LNG terminals, are regulated by national energy regulators, subject to EU guidelines. Energy regulators can play a relevant role in policies to reduce methane emissions from the natural gas supply chain in that they may incorporate investment and operators' costs into the tariff system.

ACER / CEER

The European Agency of Energy Regulators (ACER), together with the Association of European Energy Regulators (CEER) in their recent publication¹⁸ on EGD regulation, affirmed the need to introduce measurement and mitigation requirements with a robust methane emissions reporting scheme throughout the supply chain.

Measurement, verification, and reporting (MRV) obligations, as well as mitigation actions, must be focused, proportionate, and commensurate with the expected outcome of emission mitigation. It is also recommended that available emissions data from MRV requirements are made available to national regulators. Emissions tracking will have to cover the entire supply chain, possibly extending obligations also to importing/exporting companies into and from the EU. Methane emissions are a global problem with negative externalities across borders.

In this regard, a Methane Supply Index and/or a methane footprint tax should be introduced only when a robust and harmonized MRV system is in place, taking into account that for companies importing fossil energy into the EU, the data associated with methane emissions are still very limited.

In order to achieve reliable and consistent emissions data across Member States and system operators, guidance on minimum technical standards for detection and repair (LDAR) should be provided. MRV methodologies should be applied, based on best available technologies, to all types of fugitive, venting, and incomplete combustion emissions. The Marcogaz and OGMP 2.0 models can form the basis for harmonized data reporting. Methane emissions, where possible, should be quantified by measured emission factors or by engineering calculations, rather than estimated based on literature emission factors.

In addressing the role and responsibilities of National Regulatory Authorities, the European Commission's Methane Strategy of the European Commission focuses on the issue of recognizing the costs related to MRV, LDAR and other activities, through the tariff system, given that network operators do not own the gas. In this regard, European regulators believe that the recovery of costs for reducing methane emissions should be based on efficiency and effectiveness criteria, including through specific incentive mechanisms.

¹⁸ *Rules to Prevent Methane Leakage in the Energy Sector: "European Green Deal" Regulatory White Paper series (paper #3) relevant to the European Commission's Methane Strategy 22 July 2021*

Mandatory and harmonized requirements for cost recovery should be introduced at the European level, in order to establish a level playing field for all operators in the EU single gas market, and to prevent cost recovery from creating distortions in pricing and other business practices.

Finally, ACER/CEER have also recognized and begun to study the issue of Delta In-Outs¹⁹ in distribution networks, i.e., the difference in volumes between measured gas injected into distribution networks and the sum of values measured at delivery points to final consumers. This discrepancy is due not only to leaks, but also to other factors, including the accuracy and frequency of measurements, line pack modification, theft.

While reaffirming the importance of implementing emission reduction measures also by system operators, ACER/CEER recognize that only a limited fraction of losses can be attributed to this segment, and that the measures and actions implemented will need to cover the entire gas sector.

ARERA

The Italian regulatory authority ARERA, responsible for regulating natural gas systems in Italy, has for years been engaged in a regulatory process aimed at reducing methane emissions in the areas under its jurisdiction, and is probably ahead of other European regulators in considering the issue of methane emissions not only in terms of physical safety, but also in terms of environmental impact²⁰.

With regard to the **gas transmission sector**, since 2014, ARERA has adopted a mechanism recognizing costs for network losses based on standard criteria, in order to create an incentive system for limiting methane emissions. For each element of the transmission network, the Authority defines levels of efficient emission levels and transmission operators are recognized costs within the limits of these efficient levels.

Besides, as part of the regulation on transmission service quality, and with the purpose of monitoring all emission events, operators are held to notify ARERA: a) the number of localized leaks (including third-party reports), distinguished based on the type of activity and the network/plant outlet; b) the number of events involving the release of natural gas into the atmosphere, distinguished based on the cause (uncontrolled leakage of natural gas, controlled leakage of natural gas) and the network/plant spot; c) the total volume of natural gas released into the atmosphere, broken down according to the cause of the events.

With regard to the monitoring of gas emissions in the **distribution sector**, the regulation of service quality requires the operator to notify:

- CIG of possible gas emissions in the atmosphere from distribution networks within 15 days from their happening. The emissions need not to have caused accidents but, because of their relevance, have

¹⁹ CEER, *Paper on Regulatory Issues Related to the 'Delta In-Out' in Distribution Networks*, 15 July 2020.

²⁰ In accordance with the provisions of article 1 of Law no. 481/95 which states: "The tariff system must also harmonize the economic-financial objectives of the parties providing the service with the general objectives of a social nature, environmental protection and efficient use of resources".

required the intervention - besides the distribution company - of the Fire Brigade and/or public safety forces (Carabinieri, Police, etc.) for the possible closure of municipal roads to the local automobile traffic and/or for the possible closure of stretches of highway and/or state roads, regional roads, the interruption of transit on railway lines, etc;

- ARERA of the number of localized leaks, both on third party notification and as a result of scheduled surveys of the leaks, broken down by type of classification (A1, A2, B and C) and by plant spot (network, overhead shunt, underground shunt and measuring unit). The operator is also held to communicate the number of leaks cleared within or beyond the timescales envisaged by the technical standards in force.

As regards aspects relating to the reduction of gas emissions, it should be noted that the regulation of service quality in the distribution sector, also provides for an incentive mechanism with safety recoveries, based on two independent components (leakage component and odorization component). Notably, the leakage component provides incentives to reduce gas leakage reported by third parties with reference to the improvement objectives set for each plant by ARERA (trend levels).

In addition, ARERA is working to create incentive schemes to reduce the in-out delta described above. With consultation 357/2021/R/gas, the Authority proposes to introduce responsibility mechanisms for distribution companies regarding the volumes covering the delta in-out, basically the difference between the quantities injected at transmission exit points interconnected with the distribution network (city gates) and the volumes withdrawn by end customers hooked to the distribution network. Furthermore, the consultation document envisages an integration of the regulatory framework relating to fraudulent withdrawals and localized leaks (gas leaked in cases of service emergencies or for damage to pipelines and distribution network installations).

In order to support new and innovative solutions to reduce emissions, in 2019 ARERA, by consultation 170/2019/R/GAS on distribution service quality, has asked the operators to identify all possible sources of emissions, determine the most suitable and efficient methods for their reduction, and finally identify appropriate performance indicators. Subsequently, by consultation 39/2020/R/gas, the Authority launched a process to define mechanisms to support pilot projects of an experimental nature support for pilot projects of an experimental nature, to test solutions for optimizing management and for the innovative use of infrastructures along the entire regulated supply chain, also considering the digitalization of regulated systems. Projects can be proposed that aim at both increasing the possibility for re-introducing gas into the networks and at reducing leaks into the atmosphere. Projects for the recovery of evaporated gas following LNG storage and transport operations are also possible (so-called Boil Off Gas - BOG).

Further proposals

The various activities described above confirm ARERA's commitment to reducing methane emissions. In addition, further proposals for intervention may be examined, also including technological developments and the regulatory evolution underway, not only at European level. Possible proposals for intervention include: the introduction of MRV procedures based on the Marcogaz and OGMP 2.0 standards once they

have been validated by relevant bodies, as well as the possibility of extending provisions to the gas distribution sector, along the same lines as those currently applied in the transmission sector, in terms of recording and reporting gas volumes released into the atmosphere.

5. Environmental monitoring and the role of ISPRA

Enhancement of ISPRA's role as the National Agency for Environmental Monitoring, responsible for collecting, managing, and reporting methane emissions data.

Data from the National Greenhouse Gas Emissions Inventory

The overview of methane emission factors and related estimate methods currently used in the national greenhouse gas inventory, shows that there is significant room for improving data quality in different portions of the gas system. This quality should be improved by greater use of direct measurements and by updating current estimation models, as well as by greater involvement of operators in all segments of the supply chain.

It is deemed appropriate to also improve estimates on post-metering emissions, which are currently estimated using rather outdated German emission factors and remodeled those on the Italian reality.

Satellite Monitoring

The upcoming access to advanced satellite data will have the potential to significantly improve the characterization and quantification of emissions, even without access to production/transmission/distribution facilities.

Beginning in mid-2023, for example, satellite data from MethaneSAT will help improve the capabilities of existing satellite constellations such as Copernicus, while also enabling high-precision assessment of methane emissions at the spatial level.

Once this data is available, it will allow relevant authorities to directly verify emission estimates, as all emission estimates from MethaneSAT and other satellites will be publicly available.

All these aspects point to possible future paths to take at the European level, but also at the national level. For example, a clear mandate to the relevant authorities, focused on methane emissions from the energy industry, could enable them to create a system of technical standards based on direct measurements from satellite data made available.

Proposals: objectives and tools

Improving quality in methane emission data from the NIR natural gas chain, considering the specificities of the gas system's different portions:

- greater use of direct measurements and updated estimation models, bringing emission factors at a Tier 2 minimum level and, where possible, achieving Tier 3 level in the most relevant segments of the chain;

- greater collaboration from the operators, with yearly data reporting to ISPRA for NIR compilation (National Inventory Report);
- enhancement of MRV procedures applied by operators, based on the OGMP 2.0 protocol;
- introduction and enhancement of satellite monitoring tools;
- enhanced monitoring data required by the AIA measures (Integrated Environmental Authorization) and the environmental compatibility declarations;
- setting up of working tables involving ISPRA, the operators and relevant associations representing the different segments of the supply chain, in terms of data collection;
- Italian participation at the IMEO through ISPRA as Italy's Environmental Monitoring Agency;
- elaboration of the "Methane Supply Index" for the natural gas supply chain in Italy based on adequate data, as also indicated by ACER and CEER;
- preparation of an annual report on methane emissions from the natural gas supply chain.

6. The role of enterprises

Promote a proactive role of natural gas supply chain operators in all segments of the industry in developing methane emission mitigation initiatives.

For several years, Italian oil & gas operators have been committed to methane emission reduction targets, which, among other things, often reflect adherence to voluntary international agreements or partnerships, such as the OGCI, the MGP and the OGMP 2.0 protocol, the first version of which was launched in 2014, while version 2.0 is for 2020.

The updated protocol envisages five levels of reporting, with a "Gold Standard" level requiring site-level measurements (level 5) based on source-level measurements (level 4) to validate emissions. This partnership provides a platform for companies to report on their commitments to reduce methane emissions.

OGMP 2.0 is currently the only reporting initiative involving the private sector, the European Union and international organizations, outlining a structure in which goals and principles are established, data reporting goals and requirements are defined, and data is quantified at various levels, from national to site-level measurement. The system will enable a standardization and comparability of data, a validation process based on independent verifications, an updating of national inventories framed on validated data, thus activating a virtuous process of communication between operators and the Inventory.

Large operators, by virtue of their organizational/managerial characteristics, are naturally facilitated in initiating this type of process. Smaller operators can follow the same path and take advantage of the wealth of knowledge and experience accumulated by those who have already undertaken it. Most large players have not only initiated procedures for directly joining international protocols, as holding companies, but they have also begun to involve their subsidiaries, or those in which they have a stake, giving them the necessary technical, operational, and managerial support so that the process can extend as far as possible into the value chain. This prerequisite is requested by the OGMP 2.0 protocol, which envisages extending the field of application not only to "operated assets", but also to "non-operated assets", both at home and abroad.

It is important that associations of industry operators also promote the reduction of methane emissions, considering it an essential element in the entire decarbonisation process of the gas sector. The industry has already pursued significant improvements on this issue. In this context, the essential prerequisite for defining a strategy and also for establishing any actions that can also be implemented by the widespread network of companies in the sector is to have a precise picture of the current situation, with data collection and display framed according to shared criteria.

The role of associations will be aimed at making available as much information as possible to their members, in order to draw a complete and detailed picture, and to assess the prospects for improvement

and the untapped potential to reduce emissions, through the dissemination of monitoring and reporting procedures, as an essential first step in this process. The involvement of associations in initiatives such as OGMP 2.0 is also an effective tool for developing the monitoring capacity of companies.

Associations will also be able to encourage information and communication actions by the operators to increase awareness among target groups about their initiatives and the results achieved in the process of reducing methane emissions. Associations can play a crucial role in promoting communication activities, thus generating a system-wide awareness that is key for achieving effective results.

7. Valuing best practices in Italy

Promote communication, dissemination and sharing of good mitigation practices, which are already being implemented in the sector by the operators. Enhance best practices for transfer to smaller operators, with a key role from ARERA. Enhancement in terms of supply chain - by also involving associations at both national and European level - of companies that own the needed technology and know-how for reducing methane emissions in the natural gas supply chain.

From an early survey²¹, the consolidated heritage of Italian good practices for mitigating methane emissions from the supply chain appears quite significant:

- dedicated documents on Climate Change such as, for example, the Financial Disclosure on Climate Change report or participation in the international CDP - Carbon Disclosure Project questionnaires that detail the activities and targets implemented;
- advanced sustainability reports with methane emissions data and reduction targets;
- implementation of advanced LDAR (Leak Detection & Repair) programs;
- updated emission factors using direct measurements;
- installation/replacement of components in transmission networks, such as valve replacement in pressure-reducing plants to cut emissions from filter tank and plant venting, and replacement of existing valves with more effective ones in booster and storage plants;
- memberships to voluntary initiatives such as OGMP 2.0, OGCI and MGP;
- adoption of LCA methodology in environmental reporting, with an all-inclusive approach that also considers third-party actions within the gas system;
- direct measurement in accordance with operational best practices;
- procedures to significantly reduce operational venting, namely from equipment that by design features vent points (i.e., natural gas-fired pneumatic controls, tank relief valves, certain types of compressors, etc.);
- emission reporting from venting and unburnt methane from energy generation processes for auxiliary plants and for the gas sent to flaring, with the aim of reducing them;
- voluntary inspections of distribution networks, even beyond the minimum standards set by ARERA, with the aim of cutting emissions, by also using equipment and suitable methods to detect and repair leaks at an early stage;

²¹ More detail on best practices in Italy for reducing emissions is available in Annex 2.

- modulation of network pressure. With appropriate actions on network components, reducing the operating pressure during off-peak hours (so-called "soft") allows a contraction of both micro leakage (fugitive) and fault-related venting. Appropriate techniques make it possible to achieve percentage reduction targets on fugitive emissions that are measurable and independent of emission factors and initial values;
- innovative solutions for operating pressure management, with an approach that computes both flow rates and pressure measures using smart grid management software;
- smart management solutions based on direct data on all assets, with the aim of increasing network safety, detecting leaks on distribution systems, quantifying and mitigating methane emissions.

The involvement of industry associations in promoting voluntary initiatives such as OGMP 2.0 is a very relevant practice for encouraging the reduction of methane emissions in the supply chain.

The dissemination of smart metering will contribute to improve the accuracy of measurements, with expected benefits also in terms of safety of the user's plant.

The digitization process of the Italian gas system, as promoted by ARERA, offers an advanced example of smart grid development in the national gas system, with a huge potential for specific applications aimed at monitoring, verifying and reducing methane emissions in the supply chain.

8. Strategy Governance

Introducing a specific governance for implementing a national strategy to reduce methane emissions from the natural gas supply chain could be a genuine opportunity for the Government. Notably, the Government, through the Ministry of Ecological Transition (MITE), should seize the opportunity of this initiative to establish permanent discussion forums with different players, with clear assignments of roles and responsibilities for each of the operators, an essential element to achieve the set goals.

A first level of governance for the strategy's implementation implies an adequate degree of institutional cooperation amongst the main public players involved, starting from MITE - with the Department for Energy and Climate and its three directorates - and including ISPRA, ARERA, CIG and other relevant institutional players at national level.

In terms of conveying information to target audiences, and in order to facilitate the implementation of the strategy, ISPRA could play a very important role in drafting a special annual monitoring report on methane emissions from the natural gas supply chain.

The establishment of working tables between ISPRA and the operators from the different segments of the supply chain (upstream, transmission, storage and distribution) could greatly improve the data transfer needed by ISPRA to the drafting the National Inventory of greenhouse gas emissions.

National forum for the implementation of the strategy, with the participation of all institutional stakeholders, operators and their associations, environmental NGOs and civil society. Involvement of OGMP 2.0, IMEO and other voluntary initiatives such as OGCI.

Glossary

(Marcogaz, Glossary on methane emissions)

Asset - Part of the gas system owned by a natural gas company, comprising multiple devices that allows the company to produce, process, transport, store and/or distribute gas.

Bottom-up emission approach/inventory - Method based on direct measurements, engineering calculations, manufacturer data and emissions factors for emissions sources/activities, compiled to develop an account of emissions discharged to the atmosphere from an asset (e.g. compressor station) or a geographic area (e.g. basin, state, region).

Directed Inspection and Maintenance (DI&M) - Programme to confirm that equipment (e.g. pneumatic devices) are operating per design and emissions remain within specified ranges.

Distribution - Supply of gas through local or regional pipeline networks to its customers, usually ending with the customer meter, and so excluding end-use.

Distribution System Operator (DSO) - A natural or legal person who carries out the function of distribution and is responsible for operating, ensuring the maintenance of, and, if necessary, developing the distribution system in a given area and, where applicable, its interconnections with other systems, and for ensuring the long-term ability of the system to meet reasonable demands for the distribution of gas.

Emission Factor (EF) - The emission factor describes typical methane emissions per unit of activity of a component or part of the gas system (e.g. valve, pipeline section) or from an event and can have units like [kg/km], [kg/event] or [kg/equipment]. (Note - This is not an exhaustive list, the emission factor is linked to the activity factor and expressed in a numerical value consistent with the activity factor).

Flaring - Controlled burning of hydrocarbons mainly for safety reasons. (Note 1 - Flaring also reduces hydrocarbons to CO₂ and water, thus lowering the global warming impact of the released gases. Note 2 - A definition for "routine flaring" will be included later).

Fugitive emission - Leaks due to tightness failure and permeation.

Gas supply chain segments - upstream, midstream and downstream

Upstream - The upstream sector/segment of the natural gas supply chain, which includes activities and/or operations involving the exploration, development and production. (Note - In some circumstances, this section of the supply chain may also include gas gathering pipelines, gathering compressor stations, and gas processing plants).

Midstream - The midstream sector/segment of the natural gas supply chain, which includes gas transmission, storage and LNG regasification terminals. (Note - In some documents, the distribution grid and/or the gas-processing plants are considered part of this segment of the supply chain).

Downstream/Distribution system - The segment of the natural gas supply chain covering distribution activities delivering gas to end-users.

SEGMENT SEGMENTO	ACTIVITY ATTIVITÀ	TYPICAL ASSETS ASSETTI TIPICI
Upstream	Exploration - Esplorazione Production - Produzione Gathering & boosting – Raccolta & potenziamento Processing- Processo Storage - Stoccaggio Liquefaction - Liquefazione	Exploration facility - Struttura di esplorazione Production facility - Struttura di produzione Processing plant - Impianto di processo LNG liquefaction plant - Impianto di liquefazione dell'LNG
Midstream	Transmission - Trasmissione Storage - Stoccaggio LNG Regasification - Rigassificazione del LNG	High pressure system (e.g. transmission gas networks, compressor stations) Sistema ad alta pressione (p.e. reti trasmissione gas, stazioni di compressione) Underground gas storage facility Struttura sotterranea di stoccaggio del gas LNG regasification terminals Terminali di rigassificazione dell'LNG
Downstream	Distribution - Distribuzione	Gas system (e.g. distribution gas networks, city gates, service lines, LNG/CNG refuelling station, compressor skids, LNG satellite stations, biomethane injection facilities) Sistema gas (p.e. reti di distribuzione del gas, city gates, linee di servizio, stazioni di rifornimento dell'LNG/CNG, compressori, stazioni satellite dell'LNG, strutture di iniezione del biometano).
End use	Utilisation - Utilizzazione	Domestic and industrial appliances (e.g. boiler, turbine, CCGT) Apparecchi domestici e industriali (p.e. boiler, turbine, CCGT)

Gas system - Any transmission networks, distribution networks, LNG facilities and/or storage facilities owned and/or operated by a natural gas undertaking, including linepack and its facilities supplying ancillary services and those of related undertakings necessary for providing access to transmission, distribution and LNG.

Gas transmission system - A pipeline system for transport of gas, which mainly contains high pressure pipelines and compressor stations. (Note - Transmission lines transport natural gas across long distances and occasionally across interstate boundaries. They are connected to the distribution grid via city gate stations and/or pressure regulating stations. High-pressure gas transport over long distance including pipelines, compressor stations, metering and regulating stations and a variety of above-ground facilities to support the overall system. Underground gas storage and LNG terminals are excluded. Operating pressure is normally equal or greater than 16 bar).

Gate station - A facility located adjacent to a transmission grid where at least one of the following functions is performed: pressure reduction, odorization, measurement or flow of gas through a splitter system for distribution to different districts or areas.

Incident - Unexpected occurrence, which could lead to an emergency situation.

Incident emission - Methane emissions from an incident/event.

Incomplete combustion emissions - Unburned methane in the exhaust gases from natural gas combustion devices, such as turbines, engines, boilers or flares. (Note: sometimes incomplete combustion is also called methane slip).

Infrared (IR) camera - Optical device (camera) equipped with infrared sensors for detecting gases that have infrared absorption bands within the band-pass filter installed in the device. Includes Optical Gas Imaging (OGI) and forward-looking IR cameras. (Note - Hydrocarbon emissions absorb infrared (IR) light at a certain wavelength and an IR camera uses this characteristic to detect the presence of hydrocarbon gas emissions from equipment at an oil and gas facility. The IR camera operator scans the leak area in real time (user selectable for cold/hot temperature environments). This scanned area is viewed as a live, image such that the gas plumes are visible on the camera display due to their absorption of the IR light. IR camera is also an optical gas imaging (OGI) technology).

Inventory - A record of all known sources of emissions and emission rates. An inventory provides a summary of emissions over a given period of time. (Note - Inventory includes information gathered during the identification, detection, measurement, quantification and repairs of methane emissions)

Leak - Unintentional emission from pressurized equipment used in the gas industry. Leaks are usually caused by imperfections in or ordinary wear and tear of sealed joints, such as flange gaskets, screwed connections, valve-stem packing, or by poorly seated valves. Leaks can also come from the wall of a pressurized vessel or pipeline, as a result of corrosion or damage.

Leak Detection And Repair (LDAR) - A programme to identify and repair the equipment or infrastructure that can be a source of emissions due to leaks from pressurized equipment. It is often accomplished by a periodic inspection survey to identify leaks, followed by repair of any found leaks. (Note - Within the LDAR programme, a variety of techniques can be employed for detecting the leaks. While LDAR in certain jurisdictions can have a specific regulatory definition, it is more generally used to describe the processes and systems by which leaking equipment is identified, prioritized and then repaired).

Methane emission - Any release of methane to the atmosphere, whatever the origin, reason and duration.

Methane emission detection - Process of identification of methane emissions from potential sources, without the measurement of the mass quantity (flow rate, e.g. kg/h). Several devices, screening instruments and methodologies are available to detect methane emissions, including optical gas imaging cameras, laser leak detectors, portable analysers (OVAs, TVAs), soap bubble screening and/or AVO methods. Some of these are able to detect and provide a concentration level (volume, e.g. ppmv) that can be used to estimate the mass emission (e.g. by applying specific emission factors or correlation equations available from literature).

Methane intensity - The ratio of methane emissions (numerator) over a selected variable (denominator). (Note - Methane intensity prevalently used is total methane emissions emitted from an asset, area or value chain (numerator) divided by well production volume, facility throughput, area production volume or gas transported or distributed (denominator) and reflected as a percentage.)

Methane measurement - The process of taking a reading of a methane emission. Measurement can be of any variable (volume, concentration, mass, frequency and so on) that allows for detection or for an estimate of emission rate.

Source - A component within a process or equipment that releases methane to the atmosphere either intentionally or unintentionally, intermittently or persistently.

Storage system operator (SSO) - A natural or legal person who carries out the function of storage and is responsible for operating a storage facility.

Super-emitter - Methane emission source that represent a disproportionate amount of the total methane emissions released from all sources. *(Note - The term 'super-emitter' can refer to malfunctioning equipment, particularly in unmanned installations where such equipment has the potential to exist for long periods of time. The determination of a super-emitter is best associated with emissions data from a given source and should not be viewed as an attribute of an entire site. Care should be taken when Glossary on methane emissions utilizing methodologies for identifying super-emitters to differentiate between episodic events (e.g. gas actuation events), erroneous measurements and/or malfunctioning equipment. The term 'fat-tail' is often used to describe the statistical anomalously high values from a small number of sources seen from representation of the data—a probability distribution that is highly skewed relative to a well-behaved distribution such as the normal or an exponential distribution. Having super-emitters at a few sites could skew significantly the distribution of emissions from a sample of sites).*

Top-down emission approach - Estimate made using different remote sensing based techniques, e.g. satellite and airborne, to measure ambient air concentrations of methane, calculate methane flux based on atmospheric and meteorological conditions, and then attribute the emission to different activities. Each measurement technique has different resolution capabilities, strengths and weaknesses. *(Note - Methane emissions are allocated to the natural gas industry by: (a) using a ratio of methane to ethane or propane (longer chain aliphatics which do not occur from biogenic sources); (b) isotopic ratio analysis, using a co-located tracer (such as SF₆ or C₂H₂); or (c) subtracting estimates of other sources of methane emissions such as, livestock, wetlands, agriculture, waste management, etc. together with background methane concentrations.)*

Transmission - The transport of natural gas through a network, which mainly contains high pressure pipelines, other than an upstream pipeline network and other than the part of high- pressure pipelines primarily used in the context of local distribution of natural gas, with a view to its delivery to customers, but not including supply.

Transmission System Operator (TSO) - A natural or legal person who carries out the function of transmission and is responsible for operating, ensuring the maintenance of, and, if necessary, developing the transmission system in a given area and, where applicable, its interconnections with other systems, and for ensuring the long-term ability of the system to meet reasonable demands for the transport of gas.

Underground Gas Storage (UGS) - The part of the gas supply chain that stores natural gas underground under pressure, to be used when there is a high demand. *(Note: underground gas storage facilities are created in depleted gas or oil reservoirs, salt cavern formations and aquifers).*

Vented emissions - Gas released into the atmosphere intentionally from processes or activities that are designed to do it, or unintentionally when equipment malfunctions or operations are not normal. *(Note: in the case of transmission and distribution grids, unintentional vented emissions during not normal operation cover also vents due to external interference (third-party damage), ground movements, over pressure, etc.).*

Venting - Operational release of gas into the atmosphere. *(Note - Often carried out in order to maintain safe conditions.)*

Documents and sources

- *Methane Strategy*, [EUR-Lex - 52020DC0663 - EN - EUR-Lex \(europa.eu\)](#)
- *Oil and Gas Methane Partnership (OGMP) 2.0 Framework*, [Oil and Gas Methane Partnership \(OGMP\) 2.0 Framework | Climate & Clean Air Coalition \(ccacoalition.org\)](#)
- *Rules to Prevent Methane Leakage in the Energy Sector, "European Green Deal" Regulatory White Paper series (paper #3) relevant to the European Commission's Methane Strategy, 22 July 2021*
- *"At work" - A report from the Oil and Gas Climate Initiative (OGCI), september 2018*
- *ISPRA, "Inventario nazionale delle emissioni di gas serra" National Inventory Report 2021 – Italiano* ([isprambiente.it](#))
- *"Value chain methane emissions from natural gas imports in Europe" Methane Value-Chain Carbon-Limits.pdf* ([carbonlimits.no](#))
- *CEER, Paper on Regulatory Issues Related to the 'Delta In-Out' in Distribution Networks, 15 July 2020*
- *prCEN/TS Methodology for methane emissions quantification for gas transmission, distribution and storage systems and LNG terminals.*
- <https://www.iea.org/reports/methane-tracker-2021>
- [Cambiamenti climatici - nuove norme per prevenire le fughe di metano nel settore energetico \(europa.eu\)](#)
- <https://www.marcogaz.org/knowledge-hub/#publications>
- <https://www.cig.it>

Annex 1. Italy's role in import-related emissions

In the context of European gas consumption, most of the methane emission footprint is estimated²² to come from upstream and transmission emissions from supplier countries.

This aspect is already considered in the Methane Strategy and, with respect to the energy sector, legislation is foreseen on the possibility of introducing binding MRV techniques for all methane emissions in the supply chain based on the UNEP OGMP 2.0 protocol. In addition, the creation of an International Observatory on Methane Emissions and the strengthening of the Copernicus program aimed at detecting CH₄ emissions from space are also planned.

The Methane strategy also considers the possibility of introducing normative instruments related to the imports of fossil energy. To this end, the Commission is considering making measurement, reporting, and verification (MRV) compulsory for all the supply chain, based on the OGMP 2.0 framework. The Commission also intends to conduct a diplomatic outreach campaign to gas-producing countries and producers themselves, to promote the adoption of a reporting system based on a reliable MRV shared by all operators in the supply chain of gas imported, based on OGMP 2.0. This approach is also reflected in those of relevant committees in the European Parliament. Indeed, the ENVI and ITRE committees encourage the EU Commission not only to legislate on venting and flaring, but also to develop regulatory instruments on fossil energy imports²³.

According to European regulators, emissions tracking should cover the entire supply chain, extending obligations also to imported and exported fossil gas to or from the EU. Methane emissions are a global problem with negative externalities across borders.

Satellite environmental monitoring capacities, on their part, could have a strong potential in quantifying natural gas imports, for example. With new analytical tools that can attribute large methane leaks to their sources, it should be possible to regulate the methane emissions content on gas imports and create tailored solutions for regulators, but also, on the other hand, provide an opportunity for producers to implement mitigation measures.

Remote sensing technologies also provide an additional opportunity to trigger a virtuous process of climate diplomacy with supplier countries and producers, giving them the opportunity to validate emission content for export purposes.

With this background - without prejudice to the two-step approach of the EU: a) introduce prescriptive requirements on MRV to establish a robust basis for measurement and reporting, so as to ensure

²² "Value chain methane emissions from natural gas imports in Europe" [Methane_Value-Chain_Carbon-Limits.pdf](#) (carbonlimits.no)

²³ *DRAFT REPORT* of the Committee on the Environment, Public Health and Food Safety on an EU strategy to reduce methane emissions, 18 May 2021. *OPINION* of the Committee on Industry, Research and Energy on an EU strategy to reduce methane emissions, 16 July 2021.

availability of validated data; b) on this basis, introduce performance-based standards - the Italian strategy should provide a proactive attitude on this issue.

Italy, with an annual natural gas consumption of 70.8 billion cubic metres (an increase of 4.5% over 2018), is the second largest consumer of natural gas in the European Union. In addition, approximately 92% of the total natural gas supplies comes mainly from imports (slightly higher than the EU's overall dependence of 89.5%) from five non-EU countries: Russia, Algeria, Qatar, Norway and Libya.

Annex 2. Activities of the working table for an Italian strategy on methane emissions from the natural gas supply chain

The works began on April 13, 2021, with a kick-off meeting, which was attended by representatives of UNEP (Manfredi Caltagirone), the newly established Ministry of Ecological Transition, ISPRA, the Italian Energy Authority (ARERA), and the Italian Gas Committee (CIG).

This initial presentation meeting was followed by five thematic sessions, each addressing a specific issue, organized on a fortnightly basis, in videoconference mode (Zoom platform).

The first session, held on May 11, 2021, was focused on data collection and processing: Data on methane emissions from the natural gas supply chain.

ISPRA, in its capacity as institute responsible for the National Inventory, presented a report on the state of the art and potential improvements that can be achieved to produce energy and emission scenarios. What emerged is a need for closer dialogue between stakeholders, in order to exchange more thorough information and reach the quantification of more reliable data, with the aim of receiving data from direct measurements, and not estimates based on emission factors derived from outer realities and from past years.

The second session on May 25, 2021, examined MRV procedures, diffusion of direct measurements and reporting of methane emissions, with reports from Giulia Ferrini (UNEP), Cristiano Fiameni (CIG) and Andrea Taramelli (ISPRA).

The speakers started with an overview of the OGMP 2.0 international partnership, which is at the moment the most valid voluntary agreement aimed at fully addressing the issue of methane emissions through shared and homogeneous procedures. At the same time, the central role of technical standards has emerged, which falls under the umbrella of CIG at national level (integrated by CEN and Marcogaz at international level), as well as its ability to influence legislative standards in their upward phase.

The session then examined the great potential of data collection from satellite systems, and their ability to offer detection services to players in the energy sector. In particular, the "Copernicus" system offers available data and at no cost.

The third session on June 8, 2021 - Good practices and technologies adopted for reducing methane emissions in Italy - saw relevant players in the Table illustrate their experiences and the results achieved by their operations.

Snam, with a long-established experience, began by showing their membership to OGMP 2.0 and then passed on to illustrate their policy of continuous emissions reduction, through enhanced calculations accuracy and support to the development of policies and regulations.

UNARETI/A2A, as a distributor, tries to prevent leakage through the optimization of inspections and replacements, the improvement of detection technology and the experimental activity of network pressure modulation.

HERA Group, through its distribution companies Inrete and AcegasApsAmga, among its ongoing activities to mitigate methane emissions, is now installing newly designed gas meters equipped with additional sensors, as compared to regular smart meters. These tools are able to also detect and automatically intercept gas leaks at the end customer's plant (post meter) and, through an advanced remote system, they can provide specific data and information for a more accurate management of networks and volumes.

ITALGAS, on the other hand, uses Picarro's CRDS technology to monitor emissions from its networks, via an innovative system, with high sensitivity/selectivity capacity and a wide range of detection, capable to offer precise and accurate data in wide operating conditions.

P. FIORENTINI focuses its activity of technology provider on the possibility to act on network pressure, by detecting cyclical flows in gas supply periods and by specifically restricting the analysis on the so-called "soft" periods.

The fourth session, on June 22, 2021, examined the topic of Regulation and reduction of methane emissions from the natural gas supply chain.

Maria Olczak, from the Florence School of Regulation, addressed the specificities of imported gas entering the EU and the fact that the emission footprint is largely linked to territories outside Europe. In order to objectively assess the problem, the principle of a level playing field (between domestic and imported gas) could be introduced, regulatory equivalence agreements could be implemented or real performance/supply standards could be set. An International Emissions Observatory (IMEO) will allow the management of the change in approach.

Claudio Marcantonini, on behalf of ARERA, articulated his speech around the three stages where the Authority's activity is carried out. In particular, in the transmission sector there exist a mechanism for recognizing costs of network losses based on standard criteria, thus reaching the quantification of the so-called "efficient leaks". On the other hand, the distribution sector does not envisage incentive regulation, but an in-out delta is assessed, between the gas injected into the network and the volumes measured at final customers meters. Finally, pilot projects complete the framework of activities, through experiments aimed at testing the optimization of network management and the innovative use of infrastructures along the regulated chain.

In the fifth and final session on July 6, 2021, the discussion revolved around: Methane supply index, Carbon Footprint and LCA for the natural gas supply chain.

Tommaso Franci, from Amici della Terra, illustrated the possible application of LCA and CFP techniques to the gas supply chain, referring to a specific chapter in their report "Market-based instruments for reducing methane emissions from the natural gas supply chain" (October 2020), where these methods are described to define possible market instruments for reducing emissions.

Eni illustrated its medium-long term decarbonisation strategy, which envisages the achievement of carbon neutrality in 2050, and which is based on an all-encompassing "well to wheel" methodology. The strategy for reducing methane emissions is therefore also part of this framework, which includes a series of actions focused on operational emissions, including LDAR monitoring, in line with the indications of OGMP 2.0, where Eni has been a member since its foundation.

Clara Poletti, from ACER, addressed the issue of emissions from the perspective of European regulators, referring to a common reporting methodology, transparency and data validation, harmonization of costs recognized to regulated operators, allowances market and fiscal instruments to reduce emissions.

The first round of activities, implying the establishment of the "Table" and in-depth thematic sessions, has allowed for a significant increase in attention and the dissemination of shared information between Italian gas operators and institutions dealing with the issue of methane emissions. These results create the conditions for an action that can spur the Italian Government to intervene on the issue of methane emissions from the natural gas supply chain.

