Methane Emissions
Snam international activities

EFFICIENZA IN RETE

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Energy Management & Climate Change

Snam company profile

Snam is one of the world's leading energy infrastructure operators. Hydrogen, biomethane, CNG/LNG, energy efficiency are the pillars of Snam's strategy for the energy transition

Network ~ 32,700 km
Compressor stations 13
Gas injected into network ~ 75.4 bcm
8 supervisory and controlling districts
48 O&M centers

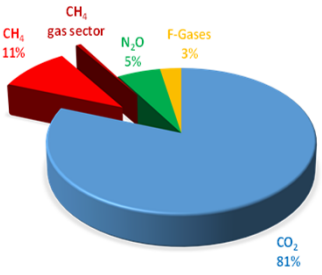
Storage sites 9
Gas moved ~ 19 bcm
Natural gas storage capacity ~ 12.5 bcm

1 LNG terminal
Max. regasification capacity 3.5 bcm

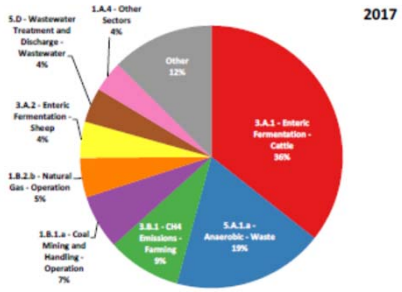
EU methane emissions

- Methane emissions: safety, climate change (policy developments, public opinion..), commercial value
- Methane emissions account for 11 % of total EU GHG emissions in 2017. The two largest sources are enteric fermentation and anaerobic waste (54 %); gas operations 5% (0.6% total EU GHG emissions)
- From 1990 to 2016 methane emissions gas sector: -37% (1.b.2 oil&gas) – 51% (1b2b natural gas) -> gas consum. +25%

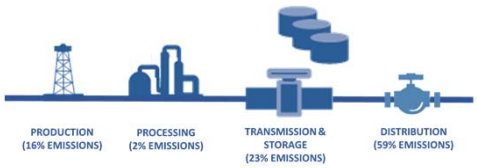
Total EU GHG emissions



CH4 emissions per source



CH4 emissions from natural gas operations



Source: Elaborated by Madrid Forum report authors based on European Environment Agency GHG report

Snam approach

Since 1993, Snam carried out an international project in order to obtain a methodology scientifically recognised and able to provide a reliable estimate of annual methane emissions from its gas infrastructure.

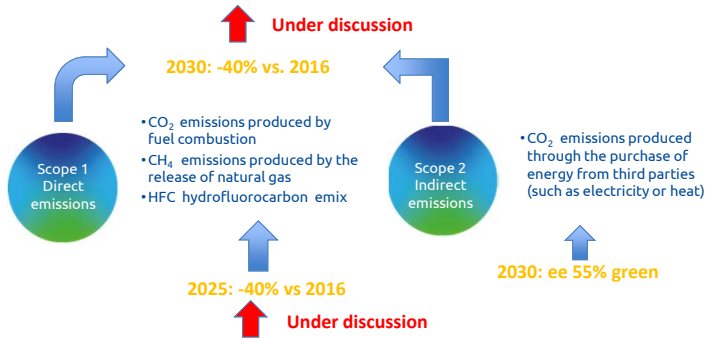
The activity was performed in co-operation with the US-Gas Research Institute and Radian, both with a solid experience in this field derived by several studies already achieved in the U.S. This approach also fits the Marcogaz methodology Tier 3 approach, developed by European gas companies.

All the gas infrastructure and all emitting typologies are considered, according to international approach

	Pipeline	CS	R&R	Other
Fugitive	X	X	X	X
Pneumatic	X	X	X	X
Vent	X	X	X	X
Unburnt	X	X	X	X

Snam's GHG emissions and Targets

- Green House Gases that Snam releases into the atmosphere are carbon dioxide (CO2) and methane. The Company increased the targets for reducing methane emissions by 2025, from -25% to -40% vs. 2016, -40% by 2030 for Scope 1 and 2 and 55% use of green electricity by 2030. **Under discussion vs. 2015 according to UNEP OGMP**
- Snam joins **Carbon Disclosure Project,** a not-for-profit charity that runs the global disclosure system to manage environmental impacts and **CLIMATE RELATED FINANCIAL DISCLOSURES** by the Financial Stability Board with the goal to improve the disclosure of companies on financial aspects related to climate change.
- https://www.snam.it/export/sites/snam-rp/repository/file/Sostenibilita/strategie_impegni/Snam_climate_change_2019.pdf



Climate Change & Methane Emissions - Snam activities

UNEP

European Commission

- Snam Presentations – Geneva
- Methane Strategy consultant
- OGMP 2.0 Gold Standard

gie Gas Infrastructure Europe

- Madrid Forum report
- Snam Presentations (Brux-Wien..)
- Position paper Methane Strategy
- Guidelines for setting targets

marcogaz
TECHNICAL ASSOCIATION OF THE EUROPEAN NATURAL GAS INDUSTRY

- FAQ on methane emissions
- Guidance for reporting template
- Glossary document
- LDAR guidelines
- NIR Recom. improve accuracy

gas naturally
making a clean future real

- Event European Parliament
- Opinion piece EURACTIV

cen

- CEN standardisation
- TC 234 new TR on CH4 emix

METHANE GUIDING PRINCIPLES

- Imperial College masterclass
- Best Practices IDMQ & BAT
  Snam case studies

LUISS BUSINESS SCHOOL

- Specialised Master Programme

GERG

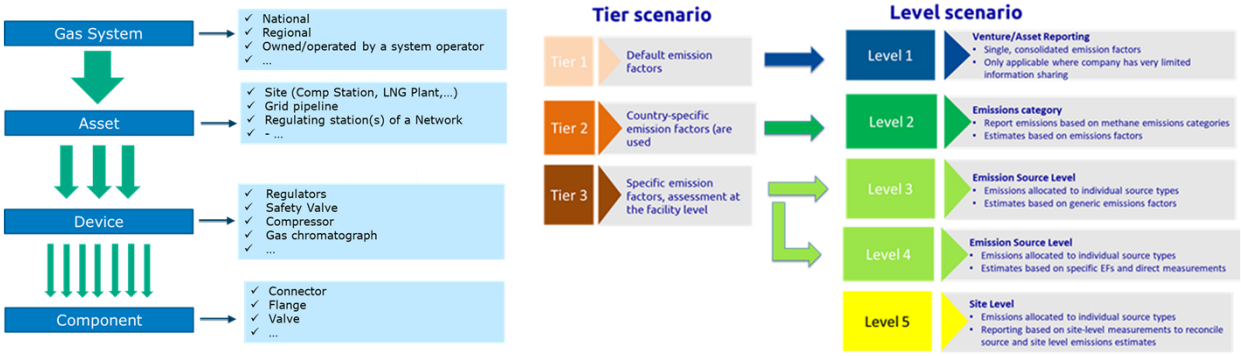
- Snam Presentations IGRC
- New Research Proposal

IGU
INTERNATIONAL GAS UNION

- GEME Task Force
- Snam Presentations - Korea

OGMP 2.0

- UNEP OGMP brings together governments, international organizations, NGO's and industry
- Launched in 2015 (upstream) now considering mid-downstream (2020); about 50 companies involved, including Snam
- Three task forces have been established to assist member companies (Reporting, Technical Guidance, Uncertainty and Reconciliation). Action plan:
  - Operated/non-operated ventures (% share)
  - Methane emissions reduction targets and path to reach them (-45% al 2025 vs. 2015 -60-75% al 2030 vs. 2015)
  - Action plan to get to level 4/5 in 3 years for material and operated (non operated -> 5 years)
  - Mid 2021 -> 2020 data according to reporting template



Technological innovation - MGP Snam case studies

- The Methane Guiding Principle, a voluntary international partnership comprising of industry Signatories and Supporting Organizations, have developed a collection of Reducing Methane Emissions Best Practice Guides.
- The main goal is to share best available techniques to reduce methane emission in the gas supply chain.
- Snam provided technical information and support in the development of the new guides: "Identification, Detection, Measurement and Quantification" and "Transmission, Storage, LNG Terminals and Distribution".

Technological innovation - MGP Snam case studies

- Gas companies are promoting and implementing mitigation measures to reduce GHG and methane emissions. Emission sources should be identified and quantified on a regular basis, to incorporate new data on emissions rates from equipment and operations
- The analysis of the technical and economic feasibility of the Best Practices should be done on a case-by-case basis together with a cost-benefit analysis, considering that "one size does not fit all" principle. This will allow gas companies to select the most effective methane emission reduction.
- Snam presented six different Best Practices.
- https://methaneguidingprinciples.org/best-practice-guides/

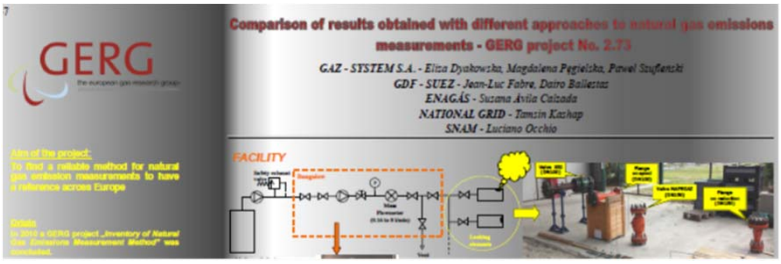
NIR – New Research

National Inventory Reports – Recommendation to improve accuracy

- Coordination between industries and national authorities to improve the quality of data and the amount of methane emissions

Under discussions - Research on Methane emissions
Understand the different systems, limitations, « trends » Top Down Methodologies

- State of the art
- assessment technologies and quantification methodologies,
- assessment reconciliation of bottom-up vs. top-down



Dissemination