



## **Methane Emissions**

### ***Activities of the European gas industry***

29<sup>th</sup> meeting of the EU - Russia Gas Advisory Council's

Work Stream on Internal Market Issues

21 of October of 2019, Berlin

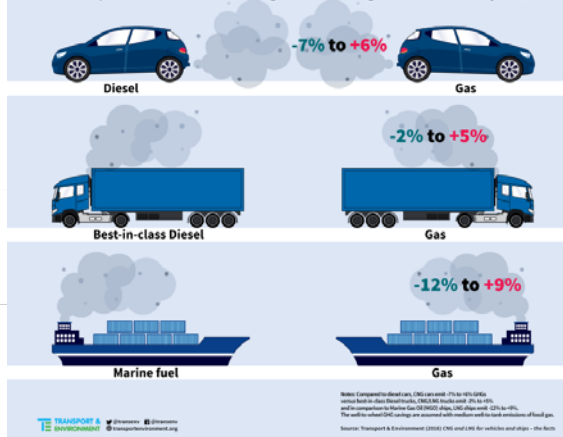
# Some publications questioning the future role of natural gas



Natural gas is a \$22bn distraction for EU shipping that won't decarbonise the sector – study

## Gas in transport: just another fossil fuel

EU transport needs to be zero greenhouse gas emissions by 2050



EUROPE'S CARBON BUDGET: NO ROOM FOR GAS

THE METHANE PROBLEM: LEAKING AWAY OUR CHANCES



Natural gas is not a 'bridge fuel', as claimed, but an expensive dead-end on the pathway to decarbonising transport.



## Fossil fuel industry's methane emissions far higher than thought

Emissions of the powerful greenhouse gas from coal, oil and gas are up to 60% greater than previously estimated, meaning current climate prediction models should be revised, research shows

HOME SEARCH

The New York Times

ENERGY & ENVIRONMENT

## Future of Natural Gas Hinges on Stanching Methane Leaks

## Natural gas in vehicles – on the road to nowhere



The role of natural gas and biomethane in the transport sector

Final Report  
Report for Transport and Environment (T&E)

## Natural Gas Makes No Contribution to Climate Protection

Switching from coal and oil to natural gas accelerates climate change through alarming methane emissions



## LNG as a marine fuel in the EU

Market, bunkering infrastructure investments and risks in the context of GHG reductions

Methane leaks

## A dirty little secret

The Economist

Natural gas's reputation as a cleaner fuel than coal and oil risks being sullied by methane emissions

## The New Gas Boom

TRACKING GLOBAL LNG INFRASTRUCTURE

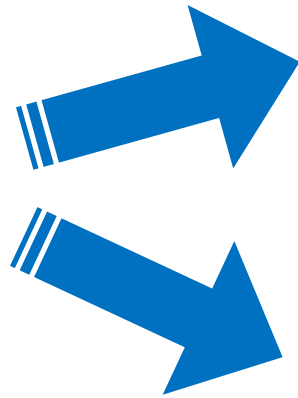
WORSE THAN THE COAL BOOM:  
MEASURING THE CARBON FOOTPRINT OF THE LNG BOOM



# Overview on the current initiatives by Authorities



**EU Governance Regulation 2018/1999**  
**Article 16 - Strategic plan for methane**



## ***Conclusion of 31<sup>st</sup> Madrid Forum, October 2018***

*GIE & MARCOGAZ report on the potential ways the gas industry can contribute to the reduction of methane emissions*

## ***Tender: "Limiting methane emissions in the energy sector"***

*Methane Supply Index (indicator of methane footprint) of the gas supply corridors to the EU (Norway, Russia, North-Africa, LNG and in the future, the Caspian route)*



Climate Action Summit (UN)  
New York, September 2019

Given the scale of the challenge, the EC is exploring further ways to better measure and report methane emissions across all hydrocarbon industries and reduce methane emissions from energy production and use. There is still a significant potential to reduce emissions with low costs.

# Overview on the current initiatives by Authorities

## European “Green Deal”

European Commission - Speech

[Check Against Delivery]

**Opening Statement in the European Parliament Plenary Session by Ursula von der Leyen, Candidate for President of the European Commission**

Strasbourg, 16 July 2019

It means change. All of us and every sector will have to contribute, from aviation to maritime transport to the way each and everyone of us travels and lives. **Emissions must have a price that changes our behaviour.** To complement this work, and to ensure our companies can compete on a level-playing field, I will introduce a **Carbon Border Tax** to avoid carbon leakage.



## ACER Consultation on the bridge beyond 2025



Furthermore, TSOs, storage operators (SSOs) and LNG operators (LSOs) should be **obliged to measure and report their methane emissions** according to a **standard methodology**. The data should be publicly available through a **European Methane Emissions Observatory** as well as in the audited annual reports of the operators, which should also cover other sources of methane emissions. The measurements should be followed by an **action plan** at system operator level to address emissions.

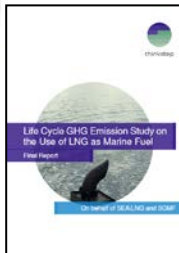
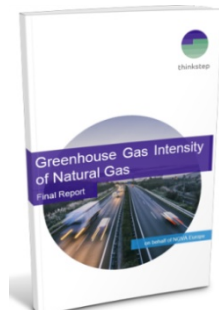
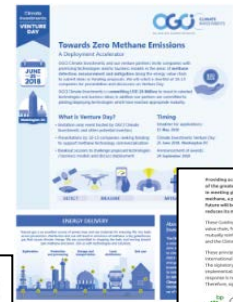
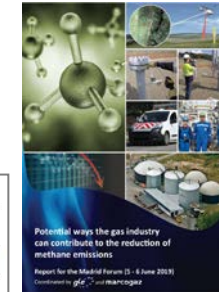
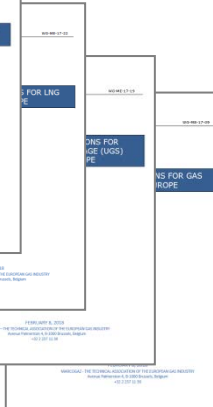
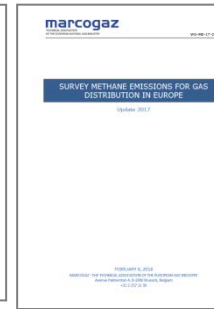
# Gas industry initiatives

- ✓ Several collaboration initiatives (on voluntary basis).

- ✓ Gas industry contributes to increasing transparency via studies, research, analysis and initiatives, in order to overcome the uncertainty about CH<sub>4</sub> emissions.



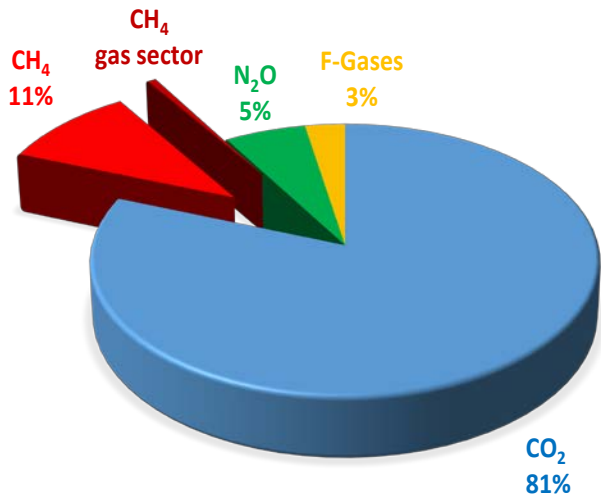
Methane Guiding Principles



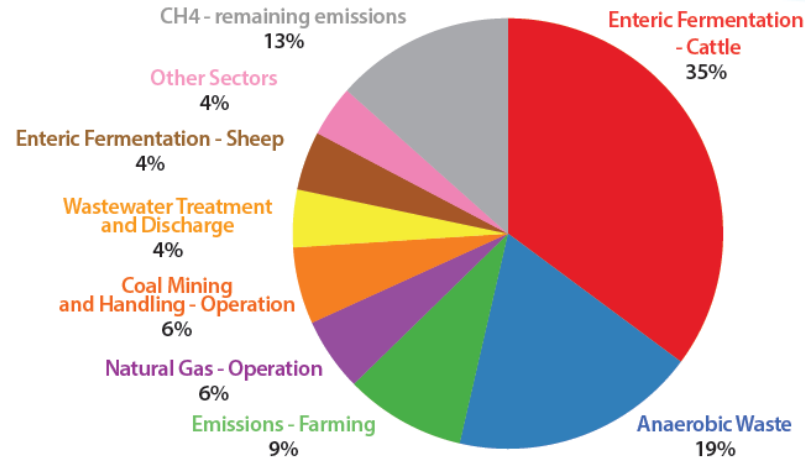


# Current status of EU CH<sub>4</sub> emissions (data 2016)

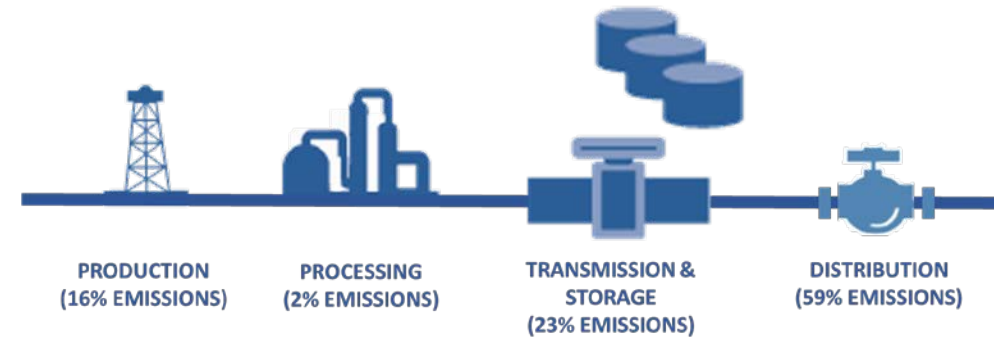
## Total EU GHG emissions (in CO<sub>2</sub>-eq)



## CH<sub>4</sub> emissions per source





## CH<sub>4</sub> emissions from EU natural gas operations



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

# Organisation of the project

## Terms of Reference

**Terms of Reference**

**Joint proposal on potential way industry can contribute to the reduction of methane emissions**

**Background**

During the last European Gas Regulatory Forum held in October 2018 in Madrid, the Forum invited GIE and MARCOGAZ to co-lead, with the support of the gas industry, the development on the way industry can contribute to the reduction of methane emissions in the gas sector.

**Conclusion of 31<sup>st</sup> meeting of the European Gas Regulatory Forum, 16 - 17 October 2018, Madrid**

The reduction of fugitive methane emissions in the energy sector is a prerequisite for the sustainable use of gases in the future energy mix. Therefore, the development of a common, robust measurement methodology and life-cycle based reporting of net methane emissions are necessary. The Forum invites GIE and Marcogaz to develop further on the potential way industry can contribute to these objectives and report back to the next Madrid Forum.

Over the last years the gas industry has recognized the importance of understanding methane emissions along the gas value chain. Several initiatives and studies have been undertaken to better understand the scale of losses, potential sources and opportunities for reductions.

In addition, the gas industry is striving to further reduce methane emissions from their gas infrastructure, to implement good industry practices to achieve this goal and to improve transparency of emissions data.

However, there is work to do to better understand losses in the gas value chain, standardize methodologies and improve transparency. This is important to support the future role of gas in a decarbonized future energy mix.

**Objective**


A report on current understanding within the gas industry to be presented during the next Madrid Forum that will take place on 5<sup>th</sup> and 6<sup>th</sup> June 2019.

The entire gas chain (from production to utilization) and all the types of methane emissions will be covered.

The document will reflect the work done on this topic, the ongoing initiatives and projects (including next steps and timelines) and the identified gaps (proposals and recommendations will be included when possible) along the gas value chain.

The work will be divided in 2 parts:

- **Current understanding and initiatives**
  - This first phase will describe the current situation of the gas sector, and particularly of the gas industry, regarding methane emissions. This will include:
    - Introduction to methane emissions



business cases and developments by relevant stakeholders.

**Reducing methane emissions**

methane emissions in the gas value chain and the role of gas in a decarbonized future energy mix. The study will set the main guiding principles data

OAD campaigns)

Technologies and data acquisition

top-down methods to detect and quantify methane emissions

calculation, estimation or verification

on in accordance with (current and best practice) methodologies

to publish the aggregated methane emissions data

The gas value chain methane emissions

and the development of new methodologies to improve methane emissions will be covered.

advance strong performance in methane emissions reduction


the reduction targets and identify the main challenges

by the industry/companies

in order to periodically review progress and target

of BATs, LDAR, etc (qualitative and quantitative)

on methane emissions



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## Project plan

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Peer review panel

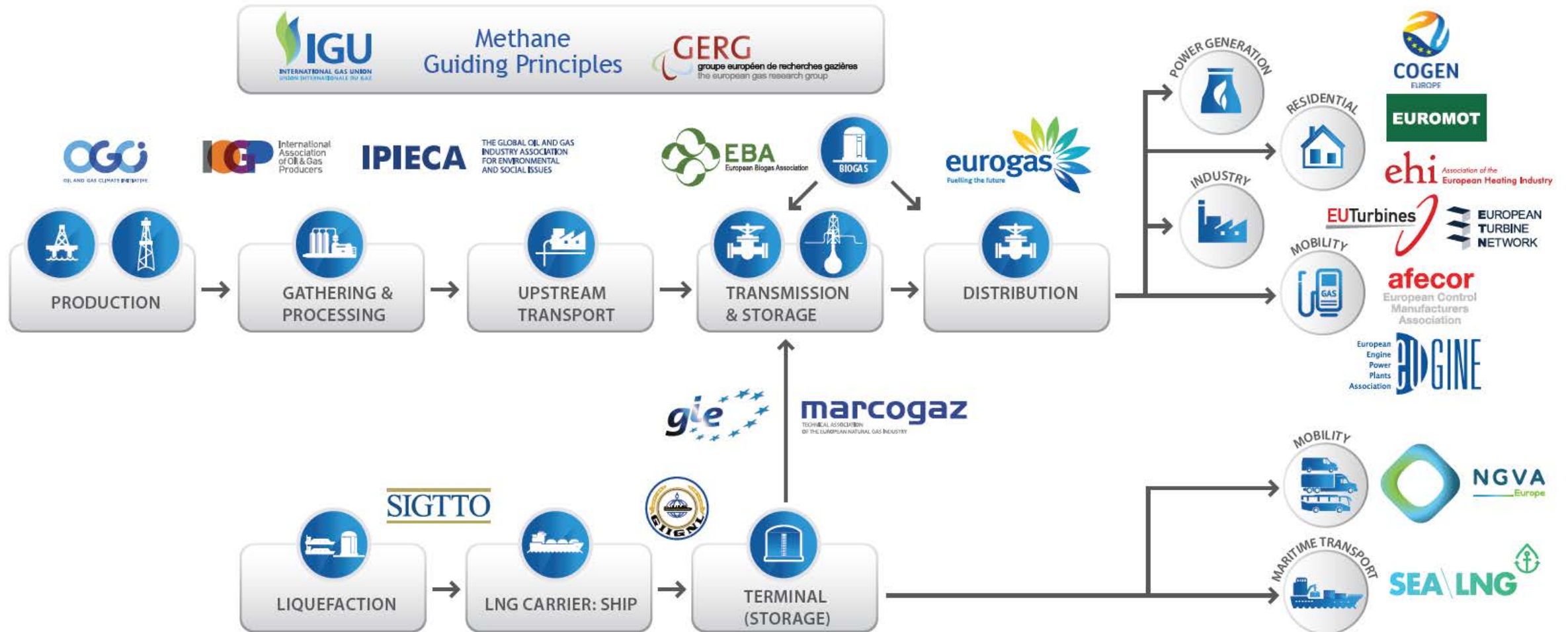


1<sup>st</sup> WS (Brussels) - Almost 50 participants representing 37 organizations covering the entire gas chain, from production to utilization, the EC and NGOs

2<sup>nd</sup> WS (Geneva) – More than 90 participants representing gas industry, the EC, international institutions, NGOs and academics. Representatives from Third Countries

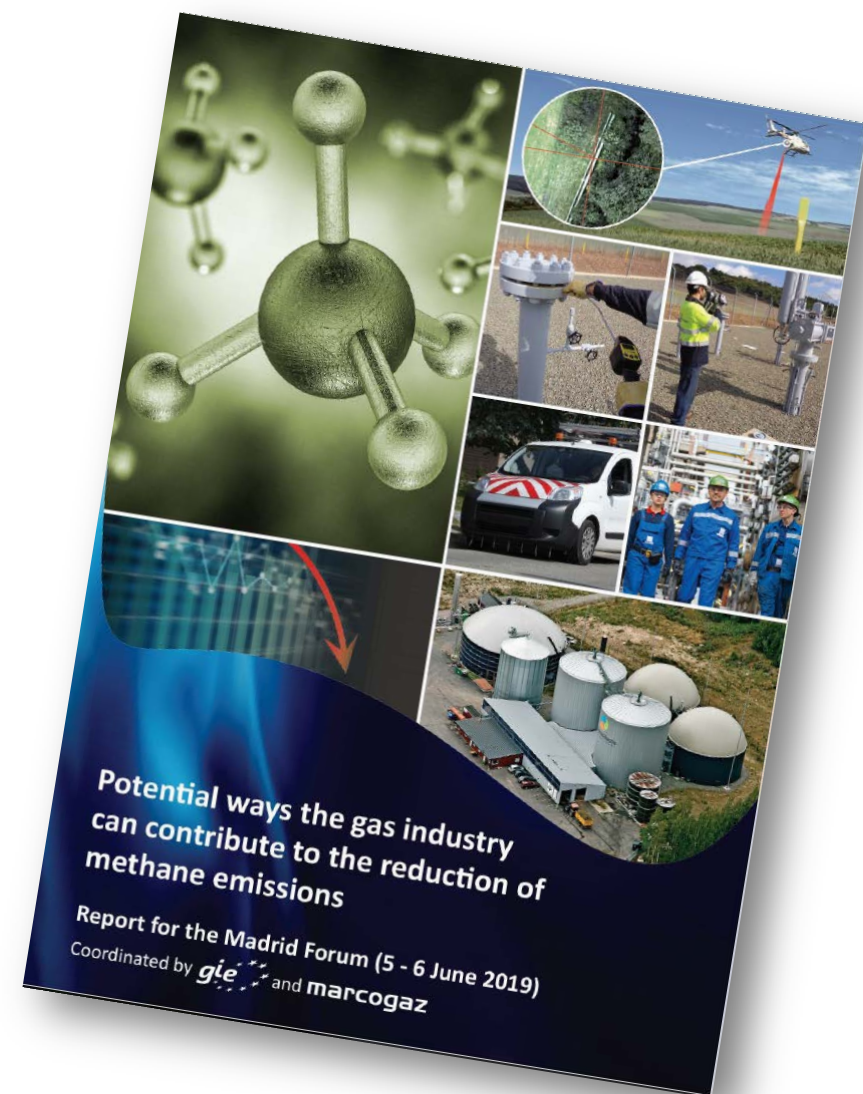
# Report - Contributions from representatives of the entire gas chain

From production to utilisation, including biomethane plants





# The role of the industry in reducing methane emissions



Reflecting

Situation  
in Europe

Work  
achieved

Ongoing  
initiatives,  
projects,  
next steps

Challenges  
and gaps  
Identified

Covering

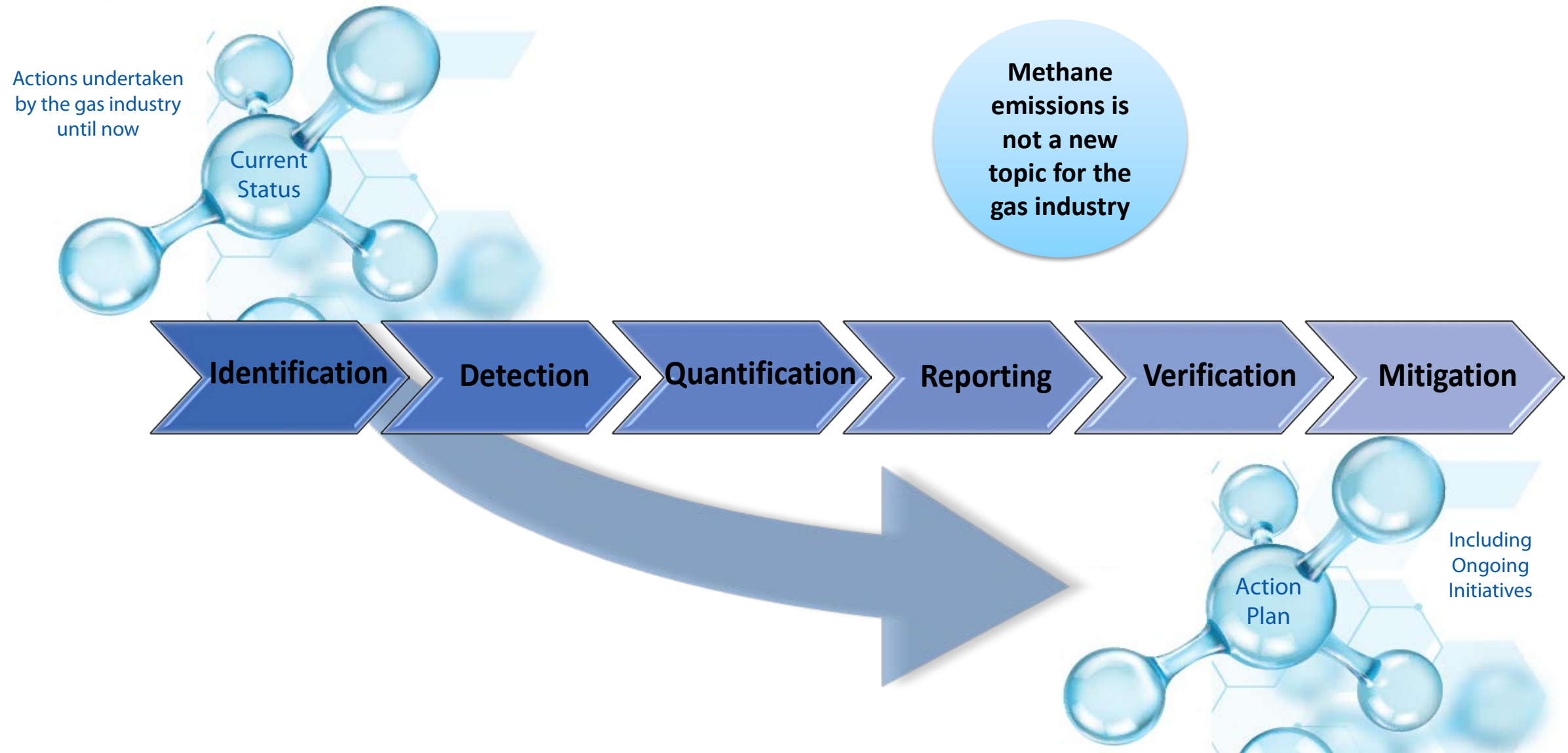
Entire gas  
value  
chain

All  
methane  
emissions

# Report – Contents



# Report – Contents





# Report – Contents



**Tools and  
technologies**

**Continuous  
progress**

**BATs**

**Innovation**

**Collaborative  
Initiatives**

**Reduction  
targets**

# Report - Summary of existing activities

Production, transmission, LNG terminals, UGS and distribution	Type of emission		
	Fugitive	Venting	Incomplete combustion
Identification / Detection	LDAR-type programs involving use of IR cameras, sniffers, etc.	Equipment/process mapping	Equipment/process mapping
Quantification	Measured, calculated and/or modelled	Measured, calculated and/or modelled	Calculated and/or modelled
Mitigation	LDAR programs	Implementation of BAT	
Reporting	<ul style="list-style-type: none"><li>- Sustainability and carbon footprint reports (based on company inventories)</li><li>- National Inventory Reports (to national authorities)</li><li>- Partnership and associations methodologies (e.g. CCAC OGMP, OGCI, IOGP, IPIECA, MARCOGAZ)</li><li>- Reporting initiatives (e.g. CDP, EDF)</li></ul>		
Validation / Verification	According to GHG Protocol, EN 15446, ISO 14064, ISO 14001, ISO 50001, ISAE 3000. Verification of emissions often done by a third party		

- ✓ The systematic approach to identify, detect, quantify, report and verify emissions is essential to close the current knowledge gap and enable gas industry to prioritise and allocate capital and human resources to efficiently target methane emissions at the lowest abatement cost.

# After the report - Action plan

**Dissemination activities** and **training programmes** organise between GIE and MARCOGAZ based on the report



**Brochure** already published

First **training programme** will take place on 26-27 November in Vienna



## Dissemination activities:

- ✓ Madrid Forum
- ✓ IGU Committees
- ✓ GasNaturally WS
- ✓ EGATEC 2019
- ✓ ...



# After the report - Action plan

## AROUND 60 MAIN ACTIONS



### Standardisation & Measurement

Challenges and gaps	Actions (timing)
Awareness and knowledge on the methane emissions topic	<ul style="list-style-type: none"><li>Educational toolkit under development by Methane Guiding Principles (by the end of 2019)</li><li>Educational Outreach Programme under development by Methane Guiding Principles (by the end of 2019)</li><li>OGCI outreach to national oil &amp; gas companies (NOCs) on BAT implementation with (ongoing)</li><li>OGCI engagement in downstream activities (ongoing)</li><li>Organisation of workshops for EU gas industry to share information on the main findings of the (present) GIE and MARCOGAZ report, ensuring involvement of all EU countries and utilisation (end of 2019 / beginning 2020)</li><li>IPIECA Methane mapping tool (2019)</li></ul>
Fragmented initiatives along the gas value chain	<ul style="list-style-type: none"><li>Gas operators seeking guidance to address methane emission reduction and urge the associations to take an active role in the global initiatives (ongoing)</li></ul>
Aggregation of methane emission data along the EU gas value chain	<ul style="list-style-type: none"><li>EU gas associations to work jointly on a proposal, including units (TBD<sup>10</sup>)</li></ul>
Proper allocation of methane emissions to oil & gas chains	<ul style="list-style-type: none"><li>Oil &amp; gas producers to explore possible methodologies related to the allocation of methane emissions (TBD)</li></ul>
Harmonised definitions along the EU gas value chain	<ul style="list-style-type: none"><li>EU gas associations to collaborate based on the IPIECA Glossary (TBD)</li></ul>

### Awareness

Challenges and gaps	Actions (timing)
Harmonised reporting	<ul style="list-style-type: none"><li>Methane common reporting template developed by Methane Guiding Principles (2019-2020)</li><li>European voluntary system for control of methane emissions will be developed by EBA (TBD)</li></ul>
Improve accuracy and transparency of national inventories	<ul style="list-style-type: none"><li>Coordination between the gas industry and national authorities to improve quality of data. NIR should be based on Tier 3 approach for the entire gas chain in the future. (TBD)</li></ul>
Improvement of harmonised quantification methodologies and gathering measured data	<ul style="list-style-type: none"><li>CCAC Methane Science Studies, in collaboration with UNECE, EDF and OGCI (ongoing)</li><li>MARCOGAZ pre-standard for transmission and distribution related to identification and quantification (2019)</li></ul>
Reconciliation of bottom-up and top-down approaches	<ul style="list-style-type: none"><li>Collaboration between NGOs, industry and academia will lead to further reduction of uncertainty between methodologies (some ongoing CCAC Methane Science Studies, but more work in this area is required) (TBD)</li></ul>
Improvement of companies' inventory data	<ul style="list-style-type: none"><li>Verification and validation of emissions according to reference standards (TBD)</li></ul>
Knowledge and data on utilisation	<ul style="list-style-type: none"><li>Ongoing projects (2019 &amp; 2020)</li></ul>

Challenges and gaps	Actions (timing)
Limited financial and economic incentives (in some cases) to put in place mitigation measures	<ul style="list-style-type: none"><li>Gas industry to do cost/benefit analysis</li><li>Incentives from Authorities</li></ul>
Establishment of methane emission reduction targets at company level	<ul style="list-style-type: none"><li>Gas companies, who don't have it yet, to consider the establishment of reduction targets</li></ul>
Employees engagement on methane emission reduction	<ul style="list-style-type: none"><li>Once gas companies establish reduction targets, to evaluate the possibility to set up performance remuneration for the employees</li></ul>
Dissemination of BAT information	<ul style="list-style-type: none"><li>Analysis of the most efficient BATs</li></ul>
Innovation on technologies	<ul style="list-style-type: none"><li>Gas industry to take part of the outreach programmes and participate in GIE and MARCOGAZ workshops</li><li>OGCI (Climate Investments) initiative "Towards zero methane emissions"</li></ul>
Missing cross sectorial opportunities and exchange of views (i.e. innovative technologies, BATs) aimed at the reduction of methane emissions	<ul style="list-style-type: none"><li>Creation of an industry/cross-sectorial Forum/Platform bringing together different EU sectors responsible for methane emissions and representatives of non-EU companies/organisations.</li></ul>
Methane emissions data of natural gas imports	<ul style="list-style-type: none"><li>Enhance the collaboration with non-EU companies (suppliers)</li></ul>
Potential overlapping with existing EU and national regulation on methane emissions	<ul style="list-style-type: none"><li>Analysis of EU and national regulation, including its impact (gas industry to support this action). (TBD)</li></ul>

### Mitigation & Reporting

GIE and MARCOGAZ encourage the gas industry to support the next steps and to join the action!

Thank you.

