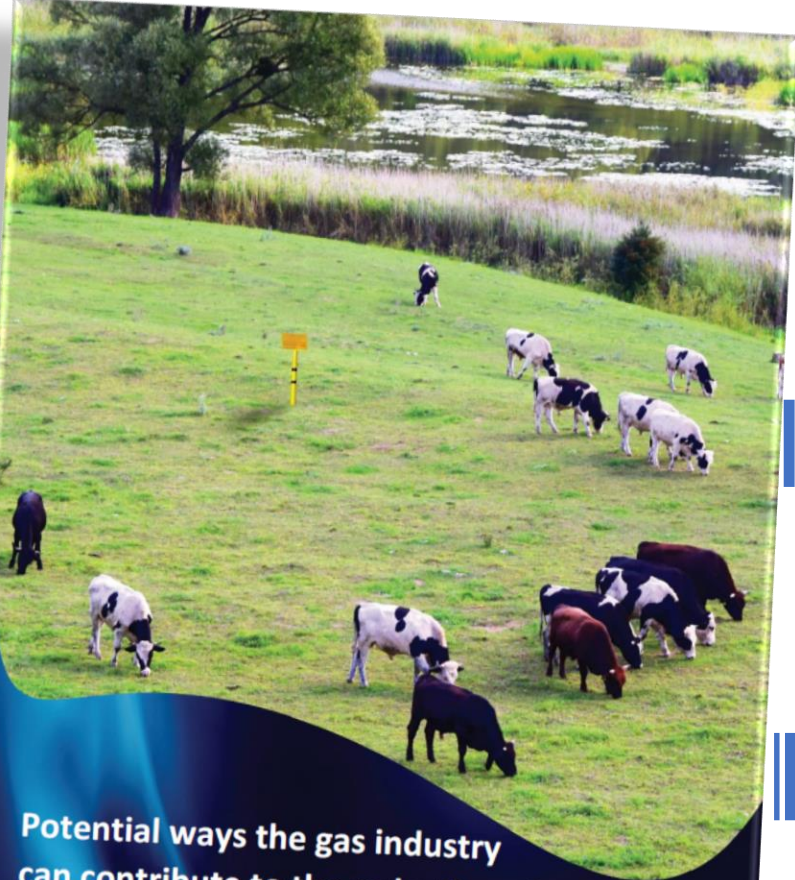
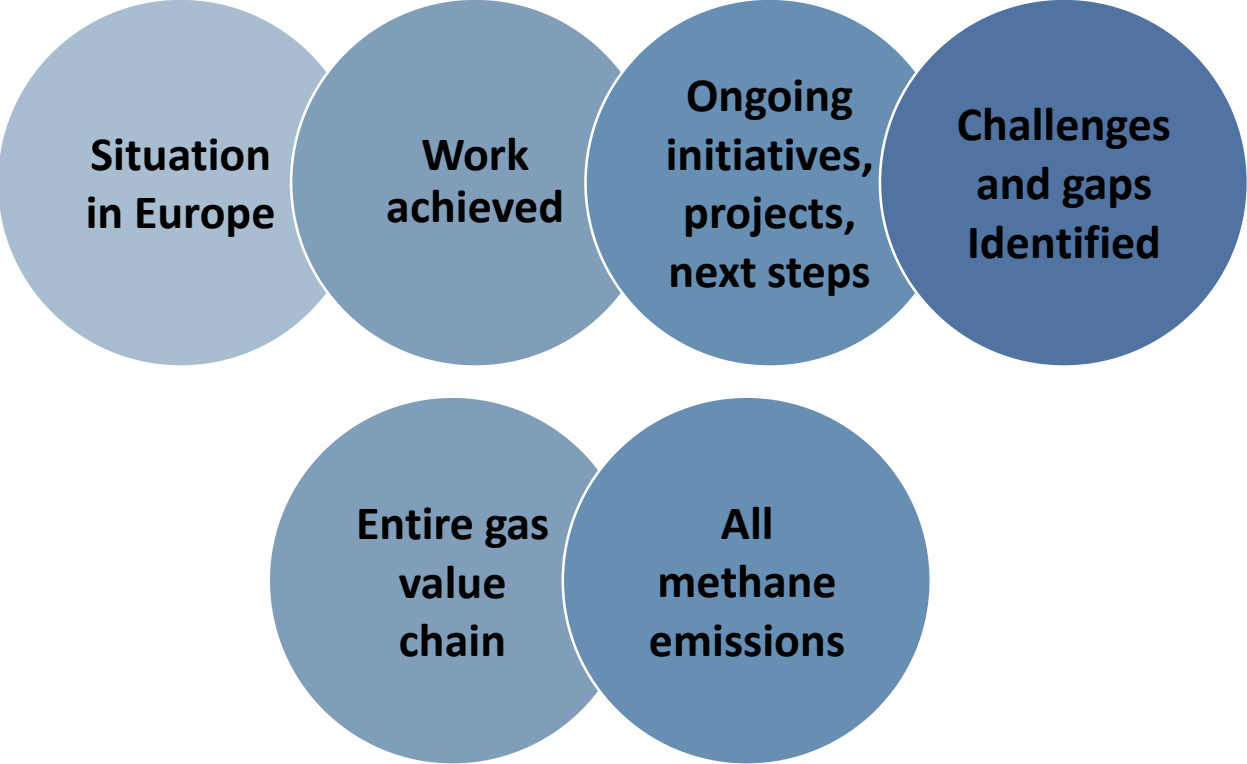


The role of the industry in reducing methane emissions



Reflecting

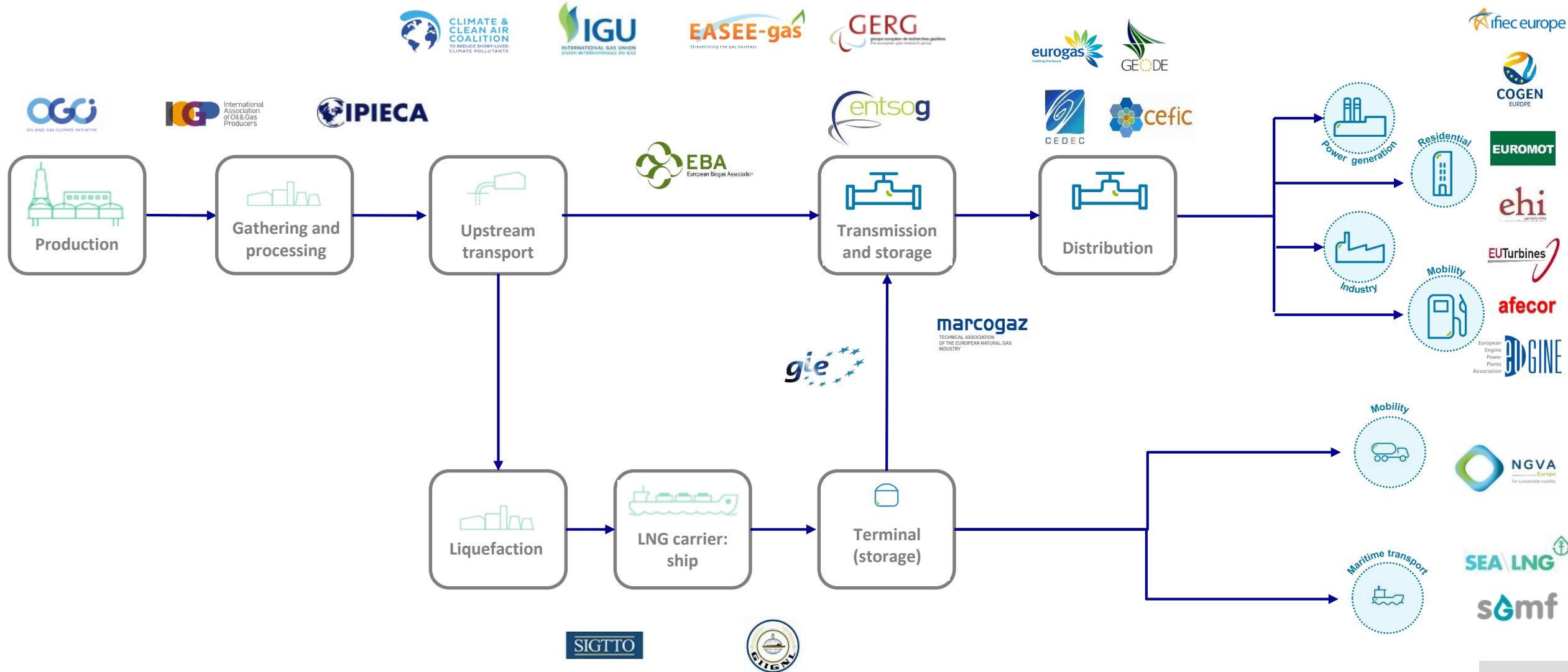
Covering



Potential ways the gas industry can contribute to the reduction of methane emissions

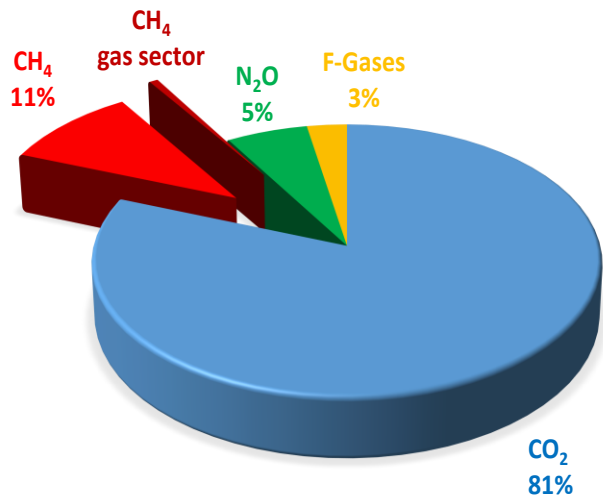
Report for the Madrid Forum (5 - 6 June 2019)

From production to utilisation, including biomethane plants

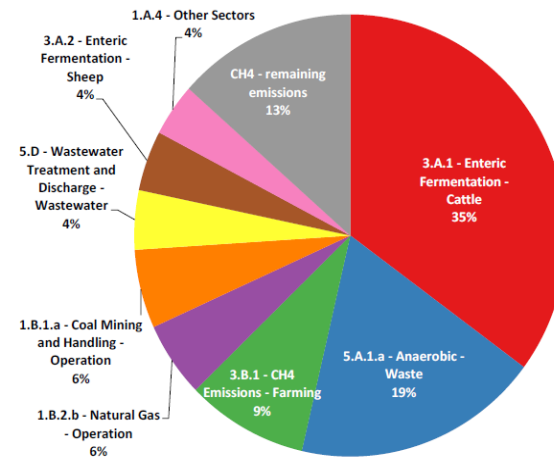


Current status of EU CH₄ emissions (data 2016)

Total EU GHG emissions (in CO₂-eq)

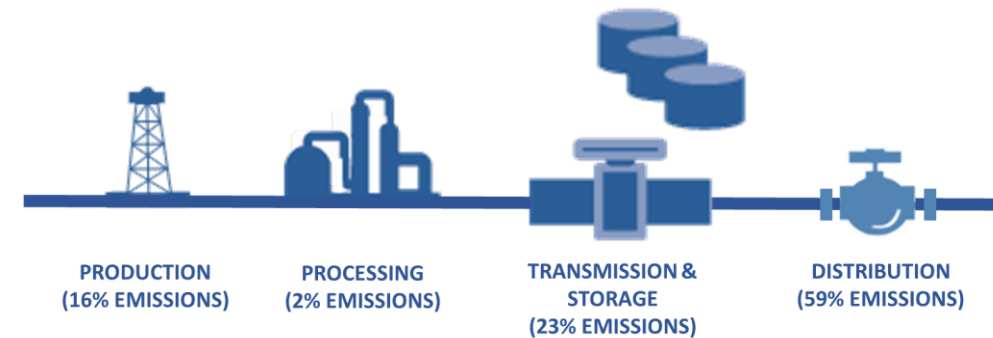


CH₄ emissions per source



Note: Other is calculated by subtracting the presented categories from the sector total

CH₄ emissions from natural gas operations



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

Gas industry activities to reduce methane emissions

- ✓ The industry has been routinely conducting identification, detection, quantification and mitigation of methane emissions for a long time, as a **safety** requirement.
- ✓ In more recent past, gas operators have further expanded such activities also for **environmental** reasons to reduce the footprint of natural gas.



Summary of existing activities to reduce methane emissions

Production, transmission, LNG terminals, UGS and distribution	Type of emission		
	Fugitive	Venting	Incomplete combustion
Identification / Detection	LDAR-type programmes 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 programmes	Implementation of BAT	
Reporting	<ul style="list-style-type: none"> - Sustainability and carbon footprint reports (based on company inventories) - National Inventory Reports (to national authorities) - Partnership and associations methodologies (e.g. CCAC OGMP, OGCI, IOGP, IPIECA, MARCOGAZ) - Reporting initiatives (e.g. CDP, EDF) 		
Validation / Verification	<p>According to GHG Protocol, EN 15446, ISO 14064, ISO 14001, ISO 50001, ISAE 3000.</p> <p>Verification often done by a third party</p>		

Challenges and gaps vs. potential actions

Challenges and gaps	Actions (timing)
Awareness and knowledge on the methane emissions topic	<ul style="list-style-type: none"> Educational toolkit under development by Methane Guiding Principles (<i>by the end of 2019</i>) Educational Outreach Programme under development by Methane Guiding Principles (<i>by the end of 2019</i>) OGCI outreach to national O&G companies (NOCs) on BAT implementation (<i>ongoing</i>) OGCI engagement in downstream activities (<i>ongoing</i>) Dissemination activities and training programmes 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 (<i>end of 2019 / beginning 2020</i>) IPIECA Methane mapping tool (<i>2019</i>)
Fragmented initiatives along the gas value chain	Gas operators seeking guidance to address methane emission reduction and urge the associations to take an active role in the global initiatives (<i>ongoing</i>)
Aggregation of methane emission data along the EU gas value chain	EU gas associations to work jointly on a proposal, including units (<i>TBD²⁵</i>)
Proper allocation of methane emissions to oil & gas chains	Oil & gas producers to explore possible methodologies related to the allocation of methane emissions (<i>TBD</i>)
Harmonised definitions along the EU gas value chain	EU gas associations to collaborate based on the IPIECA Glossary (<i>TBD</i>)

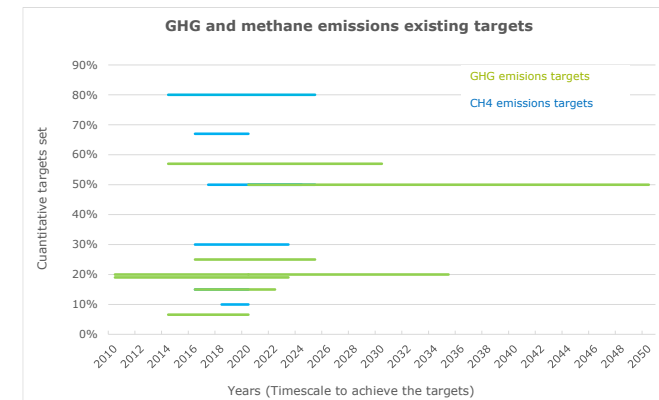
Challenges and gaps	Actions (timing)	
Reporting	Harmonised reporting	<ul style="list-style-type: none"> Methane common reporting template developed by Methane Guiding Principles (2019-2020) European voluntary system for control of methane emissions in the biogas/biomethane plants will be developed by EBA (<i>TBD</i>)
	Improve accuracy and transparency of national inventories	<ul style="list-style-type: none"> Coordination between the gas industry and national authorities to improve quality of data (<i>TBD</i>) To explore how NIR could be based on Tier 3 approach for the entire gas chain in the future (<i>TBD</i>)
	Improvement of harmonised quantification methodologies and gathering measured data	<ul style="list-style-type: none"> CCAC Methane Science Studies, in collaboration with UNECE, EDF and OGCI (<i>ongoing</i>) MARCOGAZ pre-standard for transmission and distribution related to identification and quantification (<i>2019</i>)
	Reconciliation of bottom-up and top-down approaches	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) (<i>TBD</i>)
	Improvement of companies' inventory data	Verification and validation of emissions according to reference standards (<i>TBD</i>)
Knowledge and data on utilisation	Ongoing projects (<i>2019 & 2020</i>)	

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

Gas industry initiatives

- ✓ Gas industry contributes to increasing transparency via studies, research, analysis and initiatives, in order to overcome the uncertainty about methane emissions.
- ✓ Several **collaboration initiatives** (on voluntary basis).

- ✓ Many gas companies have already **established** their own **targets**. This shows the **commitment** of the gas industry to continue with the effort to achieve additional reductions.
- ✓ There is a significant dispersion in target setting in the different companies, mainly regarding scope, ambition and timeframe.



- ✓ Development of a **roadmap/action plan** covering the potential actions
- ✓ Define the framework for a **forum /platform on methane emissions** (at least EU and non-EU gas industry, other sectors responsible for CH₄ emissions)
- ✓ **Dissemination activities** and **training programmes** to be organised between GIE and MARCOGAZ based on the report, highlighting **reporting and mitigation practices/key BATs**