Follow-up meeting on methane emissions in the gas sector

3rd of December 2020
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker(s)</th>
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</table>
| 10:00 - 10:15 | Welcome and introduction  
Predrag GRUJICIC (Energy Community)  
Jose TUDELA (MARCOGAZ)  
Francisco DE LA FLOR (GIE) |                                              |
| 10:15 – 10:30 | EU strategy to reduce methane emissions  
Brendan DEVLIN (European Commission - DG Energy) |                                              |
| 10:30 – 10:40 | OGMP 2.0  
Manfredi CALTAGIRONE (UNEP) |                                              |
| 10:40 – 11:10 | GIE & MARCOGAZ ongoing activities on methane emissions  
GIE & MARCOGAZ team |                                              |
| 11:10 – 11:40 | Energy Community ongoing activities on methane emissions  
Karolina CEGIR (Energy Community) |                                              |

**Break**

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<th>Time</th>
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<th>Speaker(s)</th>
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| 11:50 – 12:00 | ACER views on ways and means to reduce methane emissions  
Boyko NITZOV (ACER) |                                              |
| 12:00 – 12:15 | Florence School of Regulation activities on methane emissions  
Andris PIEBALGS (FSR)  
Maria OLCZAK (FSR) |                                              |
| 12:15 – 12:30 | Next steps, wrap-up and concluding remarks  
Predrag GRUJICIC (Energy Community)  
Jose TUDELA (MARCOGAZ)  
Francisco DE LA FLOR (GIE) |                                              |
Welcome and introduction

Predrag Grujicic (Energy Community)
Jose Miguel Tudela (MARCOGAZ)
Francisco de la Flor (GIE)
EU legislative proposal on methane emissions in 2021


on an EU strategy to reduce methane emissions
Some activities on methane emissions

- Dissemination activities & training
- MRV
- Technical recommendations
- Supporting R&D projects
- Collaboration with non-EU countries
- Glossary
- Guidelines to set targets
- BATs
Action plan on methane emissions

- Awareness and knowledge on CH₄ emissions
- Fragmented initiatives along the gas value chain and lack of harmonisation
- MRV-IV
- Technologies to detect, measure and quantify / Data accuracy & reconciliation
- Mitigation measures and best practices
- Reduction targets
- Cross sectorial opportunities and non-EU countries involvement
- Additional studies and initiatives

EU Strategy to reduce methane emissions

Brendan Devlin (EC)
Methane with regard to hydrocarbon production and transportation

An EU strategy to reduce methane emissions
Measures within the EU*

**Mandatory**
- Legislation on (1) measurement, reporting and verification based on OGMP Standards; and (2) leak detection and repair.
- Review environmental legislation.

**To be considered**
- Flare efficiency standards.
- Ban on routine flaring in all installations.
- Ban on venting.
- Enabling legislation to tackle mine Methane.

**To be supported**
- Use of ‘waste methane’ from coal-mines, as well as the agriculture and waste sectors.

**To be developed**
- Access to the market based on transparency of the supply chain.
- How to attribute and deal with associated gas losses.

Elements to be developed **internationally**

1. Establish an International Methane Emissions Observatory. Validation and data integrity (accumulation and resolution).

2. Develop satellite capabilities and a detection and alert system for super emitters (and diplomatic follow up).

3. Promote methane emission reduction diplomatically amongst purchasers and producers of fossil gas.

4. Develop a methane supply index.

5. Consider methane emissions reduction targets, standards or other incentives for fossil energy consumed and imported into the EU in the absence of significant commitments from international partners.

6. World Bank / GGFRI.

7. UN Pathway.
OGMP 2.0

Manfredi Caltagirone (UNEP)
Oil and Gas Methane Partnership 2.0

Manfredi Caltagirone
3 December 2020
The Oil and Gas Methane Partnership (OGMP) brings together governments, international organizations, NGOs, and industry.

### OGMP Structure and Membership

<table>
<thead>
<tr>
<th>Hosting Organizations</th>
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<tbody>
<tr>
<td>UN Environment Programme</td>
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<td>Climate &amp; Clean Air Coalition</td>
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<tr>
<th>Partners</th>
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<tr>
<td>EDF Environment Defense Fund</td>
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<td>European Commission</td>
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<td>Norway Flag</td>
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<td>UK Flag</td>
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<table>
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<th>Member Companies</th>
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<tr>
<td>BP</td>
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<tr>
<td>Ecopetrol</td>
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<tr>
<td>Eni</td>
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<tr>
<td>Equinor</td>
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<tr>
<td>PEMEX</td>
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<tr>
<td>Neptune Energy</td>
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<td>PTT EP</td>
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<tr>
<td>Repsol</td>
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<tr>
<td>Shell</td>
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<tr>
<td>Total</td>
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### Key Facts:
- Launched 2014
- The only multi-stakeholder initiative working on methane
- Raised awareness on methane globally
- Voluntary company initiative
- Covers 15% of oil and gas production
- Created series of Technical Guidance Documents
OGMP 2.0: The new “gold standard” of methane reporting

Companies report methane emissions from all assets, **operated and non-operated** in line with their reporting boundaries

- **All segments** of the oil and gas sector
- **All material sources** of methane emissions
  - (OGMP 1.0 nine sources + midstream and downstream sources, incomplete combustion from flaring, offshore sources)

Member companies will announce individual **reduction targets** that will be periodically reviewed
OGMP 2.0 allows companies to categorize asset-level reporting by 5 categories

**Level 1**
- **Venture/Asset Reporting**
  - Single, consolidated emissions number
  - Only applicable where company has very limited information sharing

**Level 2**
- **Emissions Category**
  - Report emissions based on 5 IOGP and 3 Marcogaz emissions categories
  - Estimates based on emissions factors

**Level 3**
- **Generic Emission Source Level**
  - Emissions reported by detailed source type
  - Estimates based on generic emissions factors

**Level 4**
- **Specific Emission Source Level**
  - Emissions reported by detailed source type using specific emissions and activity factors
  - Based on direct measurement or other methodologies (e.g. OGMP TGDs, Marcogaz assessment)

**Level 5**
- **Site Level**
  - Emissions allocated to individual source types
  - Reporting based on site-level measurements to reconcile source and site level emission estimates

*Gold standard is achieved when all assets with material emissions and where there are no demonstrable impediments report at level 4 and demonstrate efforts to move to level 5.*
Member companies reported 2019 data using a hybrid approach of OGMP 1.0 and 2.0 framework.

- **2020**: Member companies reported 2019 data using a hybrid approach of OGMP 1.0 and 2.0 framework.
- **2021**: Member companies begin reporting using OGMP 2.0 framework.
- **2022**: Member companies achieve or confirm gold standard for operated assets based on 2023 data.
- **2024**: Member companies achieve or confirm gold standard for non-operated assets based on 2025 data.
- **2025**: Member companies achieve or confirm gold standard for non-operated assets based on 2025 data.
- **2026**: Member companies achieve or confirm gold standard for non-operated assets based on 2025 data.
OGMP 2.0 could influence half of global oil and gas production

- **Total global oil and gas production**
  - Gross production of all oil and gas companies globally

- **Zone of influence**
  - Operating partners of OGMP member companies in direct operational control

- **Zone of commitment**
  - OGMP member companies are non-operating partners

- **Zone of control**
  - OGMP member companies in direct operational control

50% 100%
30% 50%
15% 30%
OGMP 2.0 Launch Highlights

Oil and gas majors sign up to ‘gold standard’ of methane reporting

By Kira Taylor  | EURACTIV.com  | Nov 23, 2020

Sixty-two major oil and gas companies on Monday (23 November) agreed to a new framework for monitoring, reporting and reducing methane emissions as part of the Oil and Gas Methane Partnership 2.0.

EU, UN-led pact commits oil and gas firms to tackle methane emissions

By Shadia Nunnally  | ENDEPNDENT  | 3 MIN READ  | 24.11.2020 - 09:29

Climate crisis: Swathe of oil and gas industry agree ‘ambitious’ methane emissions reporting framework

Agreement paves way for stricter rules on fossil fuel accounting for one of the planets biggest contributing sectors
A central function can provide consistency among multiple methane programs

1. Challenge and corroborate company reports using independent observations (e.g. satellite data)

2. Update core methodologies based on scientific advances to increase the accuracy of emissions estimates

3. Publish aggregated company reports and track emissions reduction progress against company targets

4. Aggregate confidential core source data and publish an annual report on the state of methane emissions

5. Provide technical support and knowledge to countries to reduce methane emissions
Thank you

Manfredi Caltagirone
Programme Management Officer
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PO Box 30552 – 00100 GPO Nairobi, Kenya

www.unep.org
GIE & MARCOGAZZ ongoing activities on methane emissions

GIE & MARCOGAZZ Team
European standard

MARCOGAZ WG ME 485 - Assessment of methane emissions:

- Published: 11/2019
- TSO/DSO
- Scope:
  - Methane emission assessment strategy
  - Identification
  - Quantification / E.F. determination
  - Detection and Quantification techniques
  - Reporting
  - Uncertainties

CEN TC234 WG14 Technical Report

- Creation of CEN TC234 WG14 “Methane Emissions” 09/2020,
  - ✓ 26 committee members, 12 member states
- Adoption of a New Work Item for a CEN Technical Report:
  “TC234 WI 00234094 Assessment of methane emissions for gas transmission and distribution systems”
- 1st Draft based on the MARCOGAZ assessment document (equivalent scope, limited to TSO and DSO)
- Existing Liaison with IOGP and MARCOGAZ
- LNG and storage Operator experts to be included in the WG
- Comments on 1st Draft addressed, 2nd Draft will be issued early December:
  - ✓ with a scope enlarged to LNG and Storage
  - ✓ with reference to the OGMP2.0 Frame Work (level 4)
- Final document to be proposed for formal vote next June, to be available 3rd Q 2021
Methane emissions reporting template

Reporting Template for Methane Emissions in the Midstream Sector

- TSO, DSO, SSO and LNG
- Enables companies to report on either of the five OGMP-levels
- Reporting of mixed levels is possible, if necessary
- Based on users input: calculation of most emission data
Reporting Template for Methane Emissions in the Midstream Sector

- Marcogaz’ proposal as unique reporting tool for methane emissions
- Expandable to Upstream-Sector
- 100% in alignment with the OGMP 2.0 framework
- Comprehensive guidance-document for better ease of use

Future development

- Visual Basic based dialogues are guiding user
- Integration of non-operated assets
- Deduction and reporting of methane emission reduction targets
- Basis of a European / Worldwide database for emission factors
- LDAR programmes in Europe follow the same principles but are not harmonized.
- MARCOGAZ has developed a technical recommendation for the gas midstream (above ground installations of transmission networks, LNG regasification terminals and underground gas storages) and downstream (distribution networks) segments taking into consideration the best practices applied in Europe.
- A questionnaire was prepared to gather information on the current practices (frequencies to detect methane emissions (inspections), frequencies to measure/quantify and the maximum period to repair the leaks after they were detected).
- Majority of the mid and downstream operators are regulated entities. Costs associated to LDAR should be recognised by NRAs.
- MARCOGAZ organized a workshop with the EU gas organisations (CEDEC, ENTSOG, Eurogas, GEODE, GERG, GIE, IOGP) on 25th of November to discuss the content of the technical recommendation and to collect views.
- Publication before the end of 2020
Process for LDAR programmes

1. PREPARATION
   - Establish and define leak detection criteria and programme of detection and/or quantification

2. ON-SITE SURVEYS
   - Implement detection programme at site to identify leaks
   - Leak detection
   - Apply pre-defined criteria of leak quantification

3. LEAK REPAIRS & MONITORING
   - Apply pre-defined criteria of leak repair
   - Leak immediate repair
   - Monitor and repair plan

4. REPORTING & DATA ANALYSIS
   - Record emissions within inventory
   - Analysis of outcome of repair to improve the process

List of survey criteria
List of repair criteria
Detected leak data
Detected leak data
Report of repair and/or plan
LDAR report
## MARCOGAZ – Technical recommendations

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<tr>
<th></th>
<th>TSO / LNG / UGS</th>
<th>DSO</th>
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<tbody>
<tr>
<td>Detection</td>
<td>1 year</td>
<td>...</td>
</tr>
<tr>
<td>Quantification</td>
<td>4 years</td>
<td>...</td>
</tr>
<tr>
<td>Repair</td>
<td>Pre-defined criteria &lt; 1 year</td>
<td>Pre-defined criteria &lt; 1 year</td>
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**TSO / LNG / UGS**
- Detection frequency to be reviewed based on previous results.
- For less complex and numerous assets (as network valve station), the quantification is extrapolated from a representative sample.
- Repairs
  - As soon as possible.
  - Major leaks can be subject to specific projects.
  - Cost, safety and environment impacts to be considered.
  - Non repaired leaks to be monitored.

**DSO**
- No recommendations for detection and quantification frequencies.
- The quantification is extrapolated from a representative sample.
- Repairs
  - As soon as possible (immediate during campaign).
  - Within 1 year.
Questionnaire on LDAR programmes

Answers from 15 Member States covering transmission, storages, LNG terminals and distribution.
**Glossary:**
- Consistent terminology for the whole gas value chain,
- Based on the frequent references (IPIECA Methane Glossary, CEN standards, ...),
- Can be used as reference for the legislative process.

**Venting & Flaring**
- To identify and clarify the technical details and consequences of the EU Strategy
  - E.g. routine flaring, cost/benefits, reliability of service
- MARCOGAZ flagship publication for 2021
- Views and proposals from the audience?
Energy Community ongoing activities on methane emissions

Karolina Cegir (Energy Community)
Energy Community
Ongoing activities on methane emissions

3rd joint meeting GIE & Marcogaz & Energy Community on methane emissions

3 December 2020
Focus on methane emissions in 2020

TF on losses in distribution network within the ECDSO-g Coordination Platform

Internal ECS project
To make base-line assessment of CH4 emissions by the gas industry of the Contracting Parties

Joining the Methane Guiding Principles as a Supporting Organisation

Following the development of EU Strategy
Supporting CP's companies to join OGMP 2.0 reporting framework (3 companies joined)

Sharing reports, guidelines, invitations to workshops
the Energy Community / gas sector

- Total natural gas consumption ~ 38 Bcm/y
- Total natural gas production ~ 20 Bcm/y
- UGS capacity ~ 31 Bcm
- No LNG terminals

- Transmission network
  - ~ 45,000 km
- Distribution network
  - ~ 370,000 km

10 producers
2 SSOs
10 TSOs
131 DSOs
2020 - Internal CH4L project / Report under development

Background and reasoning
Activities (MGP, OGMP 2.0…)
Used methodology
Participation
Analysis & Findings
Proposals for follow up

Marcogaz questionnaires & methodology
Translation, education, cooperation
Received answers by:
1 SSO
5 (+1) TSOs
22 (+1) DSOs
Going further in 2021

Follow up of the report:

• Presentation to RAs
• Reporting framework
• LDAR practices
• Plans to decrease methane emissions

Trainings, knowledge sharing, webinars

Cooperation with EU institutions, CPs stakeholders
THANK YOU
FOR YOUR ATTENTION
karolina.cegir@energy-community.org

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ACER views on ways and means to reduce methane emissions

Boyko Nitzov (ACER)
WAYS AND MEANS TO REDUCE METHANE EMISSIONS
Remarks by Boyko Nitzov, Team Leader – Gas Infrastructure, ACER

The views expressed in this presentation are the views of the speaker and do not necessarily reflect the views of the European Union Agency for the Cooperation of Energy Regulators, or of any of its Boards.
Measure, Report, Verify... and Act!

• **One: Existing infrastructure:**
  • Upgrades to prevent fugitive and vented emissions inherent to *deployed technology and routine operations AND*
  • Upgrades to *reduce the risk of anomalous events*

• **Likely regulatory needs to enable regulatory action (e.g. inclusion in RAB):**
  • Preferably direct site specific measurements, narrow confidence interval (OGMP Level 5 data specs), although lower OGMP levels could be used, too
  • 360° horizon: include non-GHG emissions (PM, SOx, NOx)
  • Emission savings based on actual gas flows, not capacity
  • Life cycle time horizon
  • Consistent costs and benefits analysis framework

Image source: https://cdn.egu.eu/media/filer_public/e4/1e/e41ee7fd-19f0-4f5e-b0a6-524c1f04342e/howarth_2019_biogeosciences_-_pipeline_blowdown_-_copy.jpg
Scoping Future Infrastructure: Decision Frameworks

• **Two:** Future infrastructure:
• CBA in the TYNDP/PCI processes is limited:
  • No computation of methane emissions
  • No computation of non-GHG emissions (PM, SOx, NOx)
  • CO2 emissions linked to capacity and not to gas flows
  • Low time granularity of the model
  • Dynamic interactions with electricity not captured
• **Sustainability of gas projects was – and is - highly debated**
• Consider CH4 in the context of proposed technologies and modality of operations:
  • All sources pertinent to the project (direct emissions - Greenhouse Gas Protocol Scope 1) – mandatory
  • GHG Scope 2 (indirect from purchased energy) and Scope 3 (emissions elsewhere in the chain – for reference only

Consistency of Scope by Object:

- **Scope 1** (own generated emissions – mandatory for all infrastructure, existing and future)
  - Stationary combustion (process heaters, engines, turbines, flares, incinerators, oxidisers, production of electricity, heat and steam)
  - Process emissions (process vents, equipment vents, maintenance/turnaround activities, non-routine activities)
  - Mobile combustion (transportation of raw materials/products/waste; company owned vehicles)
  - Fugitive emissions (leaks from pressurised equipment, wastewater treatment, surface impoundments)

- **Scope 2** *(purchased energy – for info)* - stationary combustion (consumption of purchased electricity, heat or steam)

- **Scope 3** *(other energy consumption – for info)* - emissions related to other inputs not related to the direct purchase of energy; goods and services, employee commuting, business travel, etc.

Regulatory Fairness Needs Consistency

- **Domain: Intra-EU and 3rd countries** - be consistent across borders in each element of the MRV + the act sequence

- **Chain: apply consistent criteria across all links of the supply chain:**
  - ✓ Upstream – E&P, gas processing
  - ✓ Hi-pressure pipelines, compressor stations (CSs)
  - ✓ LNG: liquefaction, shipping, re-gasification
  - ✓ UGS – similar to upstream and CSs
  - ✓ Distribution
  - ✓ User-end

- **Mind the scale:** need consistency (and proportionality!) of:
  - The scale of the problem and the focus of the regulatory effort
  - The scale of the problem and the tools to address it
  - The costs and the benefits of the regulatory measures
  - Best industry practices and regulation
  - Best practices and technical norms and methods
Impact Focus: Find the Elephant

- The EU imports >80% of its gas over great distances
- Most of the EU gas chain GHG emissions occur outside the EU:
  - 80+% (maybe more) of the upstream emissions
  - About 2/3 to 3/4 of the transmission, UGS and LNG emissions
- Major CH4 emitters within the EU’s internal gas supply chain*:
  - Distribution (~53%, 0.3% of total GHG)
  - Transmission, UGS (~21%, 0.12% of total GHG)
  - Upstream (~17%, 0.1% of total GHG and declining)
- Within-EU CH4 emissions in the gas supply chain* are:
  - Dwarfed by other GHG emissions: 25.1 million tons vs. 4.3 billion tons (0.5-0.6% of total intra-EU GHG emissions)
  - Of those 0.5-0.6%, most (ca. 80%) are not related to transmission and UGS (their share is ca. 0.1% of total GHG emissions...)

*Rendered to CO2 equivalent. Source: Annual European Union greenhouse gas inventory 1990–2016 and inventory report 2018. Submission to the UNFCCC Secretariat, 27 May 2018
Florence School of Regulation activities on methane emissions

Andris Piebalgs and Maria Olczak (FSR)
GIE/MARCOGAZ/Energy Community meeting on methane emissions

December 3, 2020

Andris Piebalgs and Maria Olczak
MRV & LDAR will be the basis of the legislative proposal

**Actions in the energy sector**

6. The Commission will deliver legislative proposals in 2021 on:
   - Compulsory measurement, reporting, and verification (MRV) for all energy-related methane emissions, building on the Oil and Gas Methane Partnership (OGMP 2.0) methodology.
   - Obligation to improve leak detection and repair (LDAR) of leaks on all fossil gas infrastructure, as well as any other infrastructure that produces, transports or uses fossil gas, including as a feedstock.

7. The Commission will consider legislation on eliminating routine venting and flaring in the energy sector covering the full supply chain, up to the point of production.

8. The Commission will work to extend the OGMP framework to more companies in the gas and oil upstream, midstream and downstream as well as to the coal sector and closed as well as abandoned sites.

9. The Commission will promote remedial work under the initiative for Coal Regions in Transition. Best-practice recommendations and/or enabling legislation will be brought forward if necessary.
Measurement, reporting and verification of methane emissions: opportunities and barriers

Overall aim:

• to contribute to the creation of a robust MRV system for energy-related methane emissions

Specific objectives:

• to explore what constitutes a robust MRV system (elements, indicators)
• to investigate what motivates companies to report their emissions or to join voluntary initiatives such as OGMP 2.0
• to identify the main barriers and opportunities related to the creation of a MRV system
• to provide recommendations to address the identified barriers
• to identify what could and what should happen to create a robust EU MRV system and to reduce methane emissions (projections)

How?

• by conducting a series of semi-structured interviews with the main stakeholders: companies (upstream, midstream, downstream), investors, policy makers, regulators, civil society organizations, etc.

Building blocks of reporting schemes
Source: OECD, 2012.
How to track methane emissions from natural gas imports?

- Carbon Limits analysed value chain methane emissions arising from natural gas imports
- less than ¼ of methane emissions from natural gas consumed in the EU occurs within the EU Member States borders.
- How to establish a transparent monitoring system?

Source: Carbon Limits, 2020
2nd FSR-EDF webinar on December 4, 14.00-15.30 CET

- You can register here: [https://fsr.eui.eu](https://fsr.eui.eu)
- Opinion piece: The time is ripe to cut methane emissions in the natural gas value chain

Programme:
- **Introduction** – Poppy Kalesi (EDF), Christopher Jones (FSR)
- **Keynote presentation** by Stephanie Saunier (Carbon Limits)
- **Keynote presentation** by Manfredi Caltagirone (UNEP)
- **Panel discussion** – EU Commission, EU Parliament, Federal Ministry for Economic Affairs and Energy (GE) OIES, EDF, The Institute of Energy Economics (JPN), MiQ
- **Conclusions** – Poppy Kalesi (EDF), Christopher Jones (FSR)
Closing remarks

Predrag Grujicic (Energy Community)
Jose Miguel Tudela (MARCOGAZ)
Francisco de la Flor (GIE)
Thank you for your attention!

gie
Gas Infrastructure Europe

mar cogaz

Energy Community