14th ECDSO-g Coordination Platform

6 December 2022, in Vienna & on-line

Energy Community

WEBEX RULES

1) Please keep your **microphone muted and camera turned off**

2) In case of technical problems, please use the **chat function**, the Secretariat will try to help ☺

3) In case of comments & questions please use **“raise hand”** function (next to your name in the list of participants on the right hand side) or write your question using the **chat function** and wait until the Chair allows you to speak

4) When **taking the floor**, please **unmute microphone and turn on camera**

14th ECDSO-g Coordination Platform meeting, 6 December 2022

09:45-10:00	Welcome coffee / Connection to WebEx	
10:00-11:00	**Part 1: Update on 2022 activities**	
	Energy Community update Activities in 2H 2022 New legislation Security of supply Support for Ukraine TF	*ECS*
	Tour de table / DSOs	*DSO-g members*
11:00–12:00	**Part 2: Methane emissions**	
	OGMP 2.0 / IMEO LDAR / Link between losses and emissions ECRB' overview	
12:00–12:30	**Part 3: Gas quality**	
	New gases in the natural gas networks Biomethane issues Hydrogen issues Energy units	
12:30–12:45	**Part 4: Plan for 2023**	
	Discussion on the activities of the DSO-g Coordination Platform	*ECS, DSO-g members*
12:45–13:00	Conclusions & Closing of the meeting	

Part 1: Update

Energy Community update
Activities in 2H 2022
New legislation
Security of supply
Support for Ukraine TF

Tour de table / DSOs

Part 2: Methane emissions

OGMP 2.0 / IMEO
LDAR / Link between losses and emissions
ECRB’ overview

Emissions Data – assessing, reporting, monitoring, measuring, verifying…..

UNFCCC / Paris Agreement / bi-annual reporting on GHG emissions

CH4: fugitive emissions from energy sector + agriculture + waste

Industrial initiatives: IOGP, IPIECA, OGCI, MGP, **Marcogaz**….

CH4: fugitive emissions, venting & flaring, incomplete combustion

Global Methane Pledge

CH4: energy, agriculture, waste
Emissions down 30% by 2030

EU Regulation

OGMP 2.0

IMEO

Oil and Gas Methane Partnership / OGMP 2.0 [1]

Key Features

- 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

Source: UN, MM 2021

Oil and Gas Methane Partnership / OGMP 2.0 [2]

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

Source: UN, MM 2021

Oil and Gas Methane Partnership / OGMP 2.0 [3]

Energy Community

OGMP requirements	- Define & disclose **2025 methane reduction target** - Submit **implementation plan** on pathway to **Gold Standard** - **Report annually** on methane emissions from **operated and non-operated assets**
Publicly reported data	- Declared methane **reduction targets** of companies - Company total emissions (**aggregated** by core source and by level (1-5) & distinct operated and non-operated ventures) + **progress towards targets** - Members have reasonable opportunity to review company fact sheet before publication. - **Confidential asset level data and/or country level emissions data will not be publicly disclosed.**

Source: UN, MM 2021

Oil and Gas Methane Partnership / OGMP 2.0 [4]

Technical Guidance Documents

- TGDs provide guidance on how to meet OGMP 2.0 reporting requirements for most common material sources
- Developed by TGD Task force, integrating inputs from all companies through the mirror groups
- Approved by Steering Group by consensus after 2 week no-objection period
- All TGDs were approved and are available on the OGMP 2.0 website: https://www.ogmpartnership.com/templates-guidance

Natural gas driven pneumatic controllers, pumps and measurement devices	Glycol dehydrators	Gas well hydraulic fracture completion venting/flaring	Incidents, emergency stops and malfunctions *(under SG approval)*
Fugitive component and equipment leaks	Un-stabilized liquid storage tanks	Flare efficiency	Level 1 and 2 reporting
Centrifugal compressor shaft seals (wet and dry seals)	Gas well liquids unloading	Incomplete combustion	Permeation
Reciprocating compressors	Oil well casinghead venting/flaring	Purging and venting, starts and stops and other process and maintenance vents *(under SG approval)*	General TGD

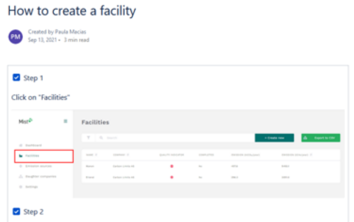
MIST – tool for companies to follow OGMP 2.0 easier

A step-by-step methane inventory and abatement tool

Targeted for the oil and gas sector

Key objective – Understand where your emissions are coming from to be able to address them

A step-by-step user guide for the software



A structured documentation for each emission source with key information

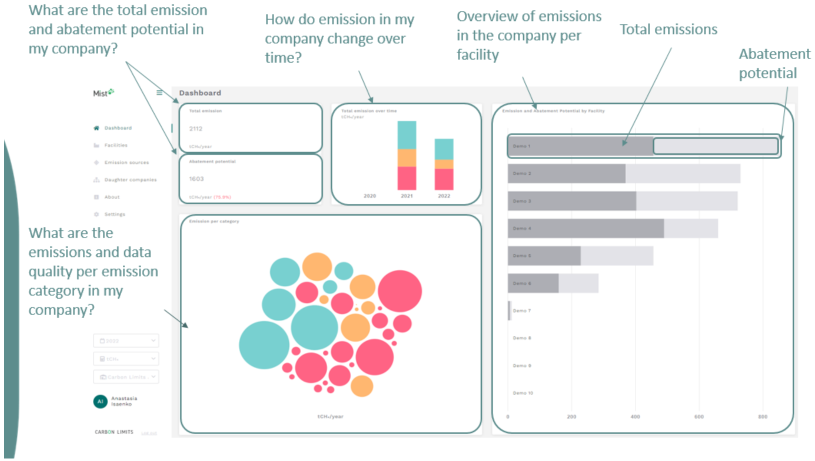
Full transparency on all the default values used and information sources

Default emission factors & assumptions

Compressor Size Range & Type of seal	1 MW - 10 MW	10 MW - 15 MW	>15 MW	Unit
Wet Seal	10	20	35	cfm/compressor
Dry Seal	1.0	3.0	6.0	cfm/compressor
Dry Seal with Nitrogen Loop	0.2	0.6	1.2	cfm/compressor

Constantly updated and completed – 660 pages to date

CARBON LIMITS



https://www.mist.carbonlimits.no/

Source: CarbonLimits, MM2022

An independent and trusted entity

With the task to integrate emissions data from multiple sources (companies, satellites, scientific studies, and national inventories)

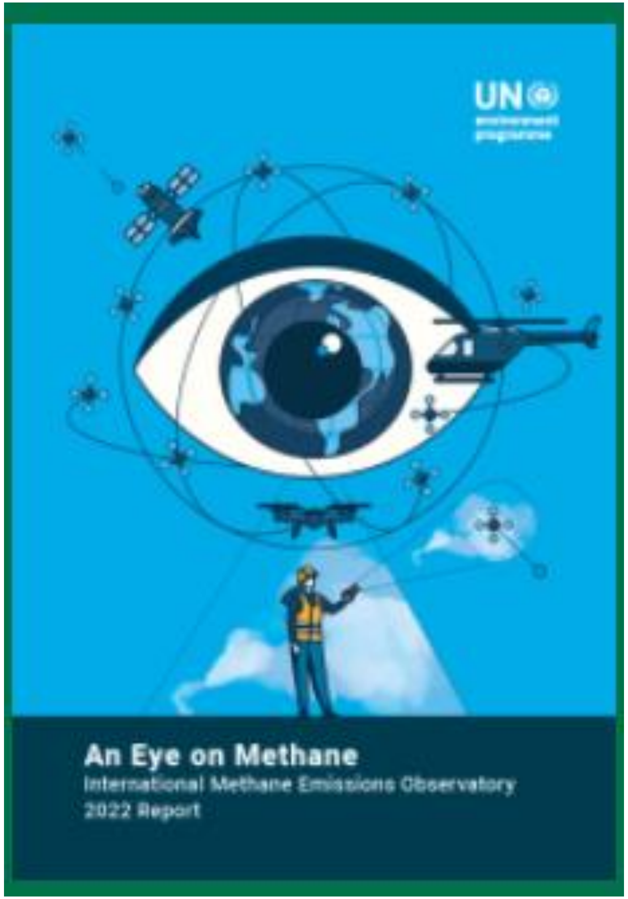
AND

By using scientific insights, to integrate these multiple sources of heterogeneous data

INTO

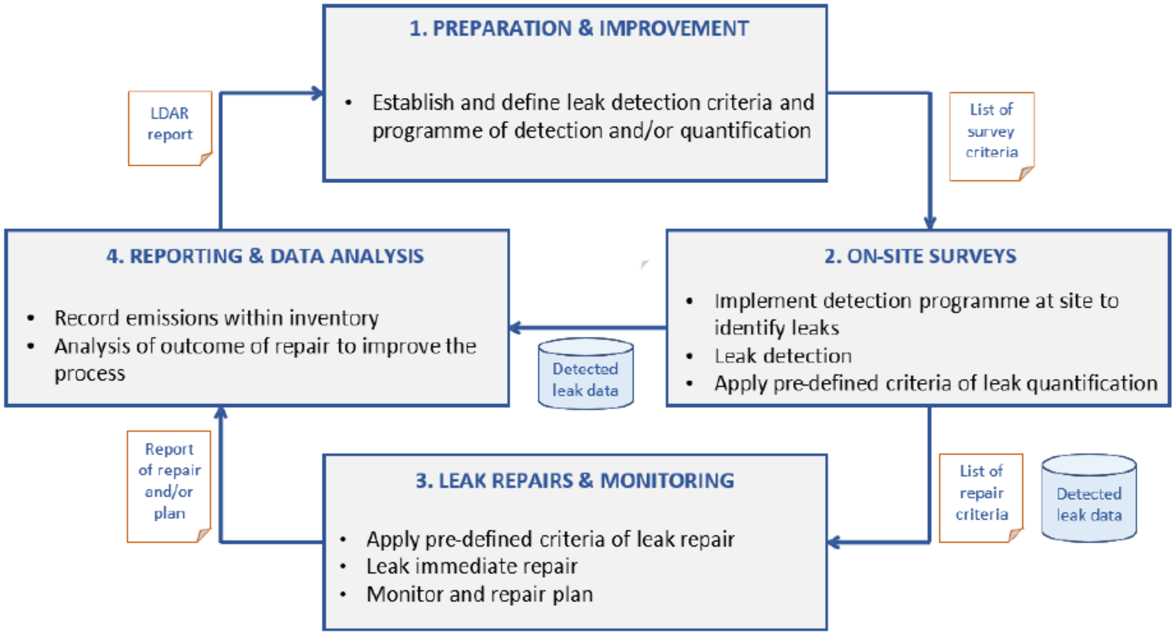
a coherent and policy-relevant global public dataset of empirically verified methane emission data with associated confidence levels

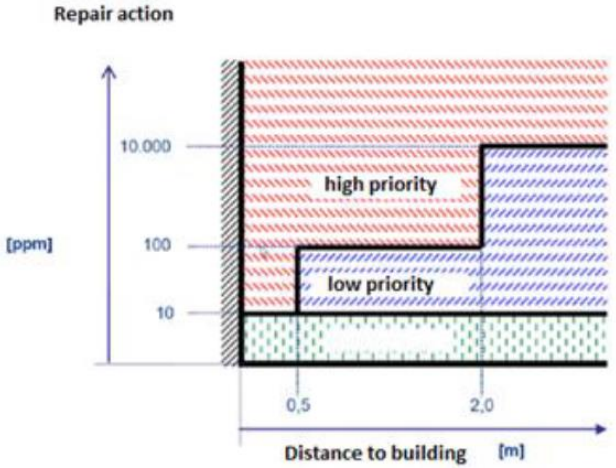
https://www.unep.org/explore-topics/energy/what-we-do/imeo



Leak Detection And Repair [1]

Basis for a robust LDAR programme





- Leak density of typically 1 leak per 50 km
- Older materials have more leaks,

  and are being replaced
- Leak density is related to inspection frequency

  (1 yr – 5 yr)

Source: Marcogaz, MM2021

Leak Detection And Repair [2]

EU Regulation on methane emissions under preparation:
LDAR in the focus of heated discussions

Frequency
Technologies
Costs
Tariffs

//www.marcogaz.org/app/download/8312431163/WG_ME-748-MARCOGAZ+recommendation+on+LDAR+campaigns.pdf?t=1618815999

https://methaneguidingprinciples.org/resources-and-guides/best-practice-guides/

Part 3: Gas quality

New gases in the natural gas networks
Biomethane issues
Hydrogen issues
Energy units

Old and new gases in the gas networks [1]

Natural Gas

CH_4 80-95%
CO_2 1-2%
N_2 1-5%
O_2 10-100 ppm
H_2 traces
S 5,5 mg/m^3

Component	Agricultural waste	Landfills	Industrial waste
Methane CH_4	50–80	50–80	50–70
Carbon dioxide CO_2	30–50	20–50	30–50
Hydrogen sulphide H_2S	0.70	0.10	0.80
Hydrogen H_2	0–2	0–5	0–2
Nitrogen N_2	0–1	0–3	0–1
Oxygen O_2	0–1	0–1	0–1
Carbon monoxide CO	0–1	0–1	0–1
Ammonia NH_3	Traces	Traces	Traces
Siloxanes	Traces	Traces	Traces
Water H_2O	Saturation	Saturation	Saturation

Biogas

Blending
2% 10%.....100%

Reaction with sulphur…

Hydrogen

1 cal = 4,19 J
1 PJ = 3,6 TWh
1 kWh = 3,6 MJ
1 MJ = 0,2778 kWh

kWh….Energy Units = solution for all?

Wobbe Index (WI or I_W)

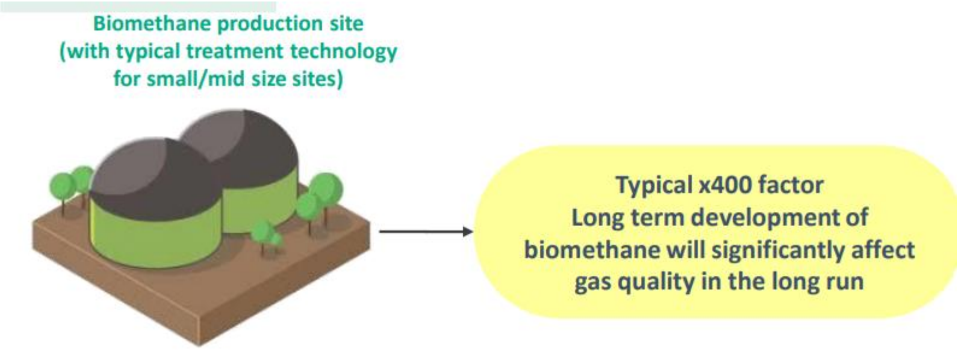
the combustion energy output

$$I_W = \frac{V_C}{\sqrt{G_S}}.$$

High calorific value (V_C)
Specific gas gravity (G_S)

$$G_S = \frac{\rho_{STP}}{\rho_{air,STP}} = \frac{M}{M_{air}}$$

Biomethane gas quality



H2S treatment requires oxygen injection for an efficient operation of activated carbon. Residual oxygen content generally lies between **1000 and 4000 ppm mol**

BUT:

Oxygen in UGS?
“Oxygen unfriendly” specific industrial customers?

Issue of:

Fluctuation in biomethane production
Tracking gas quality along the route
Biomethane at interconnection points

Oxygen decrease:
Additional costs for biomethane producers

Or

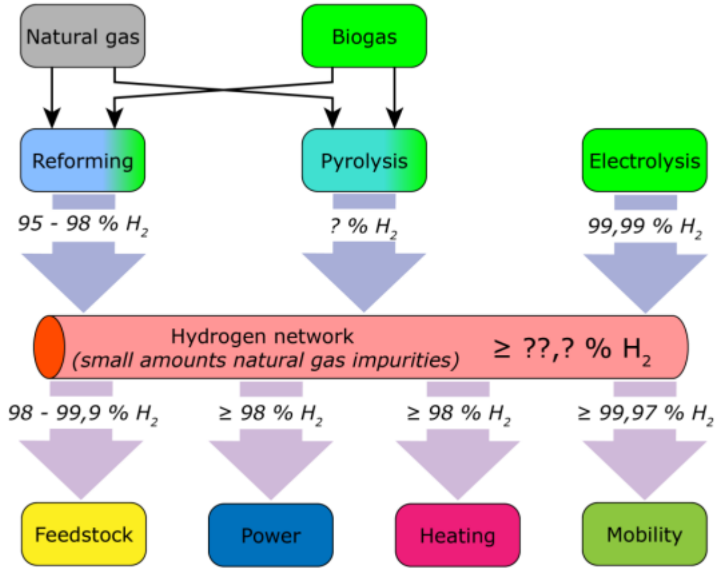
Oxygen increase:
Change of national, and international gas standards

Source:ENTSOG PM WS 2022

Hydrogen gas quality

Hydrogen specification

Challenges to be solved



Draft Technical specification

CEN TC 234/WG11: Hydrogen used in rededicated gas systems

Origin	Component / Physico-chemical Property	Value
H_2 Generation	Hydrogen	≥ 98 mol-%
	Sum of Inerts (e.g. N_2, He, Ar)	≤ 2,0 mol-%
	Carbon Monoxide (CO)	≤ 20 µmol/mol
	Carbon Dioxide (CO_2)	≤ 20 µmol/mol
	Ammonia	≤ 13 µmol/mol
	Halogenated compounds	≤ 0,05 µmol/mol
Ubiquitary	Water	≤ 249 µmol/mol @ MOP ≤ 10 bar
		≤ 62 µmol/mol @ MOP > 10 bar
	Oxygen	≤ 1 mol-%
		≤ 0,001 mol-% if attached to UGS
NG Infra	Hydrocarbon dew point (HCDP)	≤ -2 °C @ 1 ≤ p ≤ 70 bar
	Gaseous Hydrocarbons	≤ 2,0 mol-%
	Total sulfur (*non-odorised hydrogen*)	≤ 7 µmol/mol
	Particulate concentration	Technical free
	Wobbe-Index (*min: 2% N_2, max: 100% H_2*)	40,09 – 45,88 MJ/m³ (15,15)
	Upper heating value (*min 2% N_2, max: 2% CH_4*)	11,86 – 12,10 MJ/m³ (15,15)

Hydrogen shall not contain solid, liquid or gaseous material that might interfere with the integrity or operation of pipes or any gas appliance

Source:ENTSOG PM WS 2022

Old and new gases in the gas networks [2]

Energy Community

Safety

Access to the network – by quality
Sources, routes / National standards / International recommendations / Interconnection agreements

Access to the network – by pressure
Production quantities/investments

Access to the market – TPA for everyone and everywhere
Commercial arrangements / DSO-TSO rules

Access to the market – buyers' requirements
Specific customers – specific gas quality requirements / SOs vs suppliers/producers

Sustainability
Proof of origin/compliance with criteria/verification system

Part 4: Plan for 2023

Discussion on the activities of the DSO-g Coordination Platform

Work plan for 2022

Biomethane
Hydrogen
Energy Units / Methodology bringing volumes to standard conditions
Smart metering / experience in Ukraine
Unbundling (updated report)
DSOs‘ role in proposed decarbonisation package

Methane emissions report

Regular (physical) meetings + Webinars

Meetings with other stakeholders

ECRB views on methane emissions

Joint meeting ECRB – DSO-g

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Conclusions

THANK YOU
FOR YOUR ATTENTION

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