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TECH FORUM

Guidance on the EU Methane Emissions Reduction Regulation application

Presentations

Opening

Alexander Schwanzer

President of MARCOGAZ

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Technical Association of the European Gas Industry

MARCOGAZ Tech Forum on EU Methane Emissions Reduction Regulation

Alexander Schwanzer, President Marcogaz

Thursday, 12 June 2025

EU Methane Emissions Reduction Regulation

- **Methane emissions: agriculture, energy use, waste**
- **Global methane emissions increasing trend**
- **EU reductions period 1990-2017 by 37%**
- **Improvement by the gas industry**
  - Emissions **fell by 56% across the EU**
  - increase in gas consumption and longer gas networks
- **EU Methane Regulation: aim reduction by a further 30% by 2030**
  - New requirements for the measurement, reporting, and verification of methane emissions
  - Emission reduction measures: detection and repair of methane leaks, venting and flaring
  - Global monitoring tools: transparency methane emissions - oil, gas, and coal imports into the EU
- **Key words for operators**
  - **Measure methane emissions** at source,
  - prepare monitoring **reports**,
  - conduct **independent audits**,
  - maintain **inventories** of all **wells** and **emission reduction plans**,
  - **measure** and monitor emissions from **coal mines**,
  - conduct **regular regulatory inspections**,
  - **detect** and **repair methane leaks** within specified timeframes,
  - **prohibit venting** and **flaring** of methane with certain exceptions,
  - **monitoring methane emissions** from **EU energy imports**
- **MARCOGAZ**
  - **Guidance on the application of the EU regulation on methane emissions reduction**

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Global perspective on Methane Emissions Mitigation

Tomas de Oliveira Bredariol

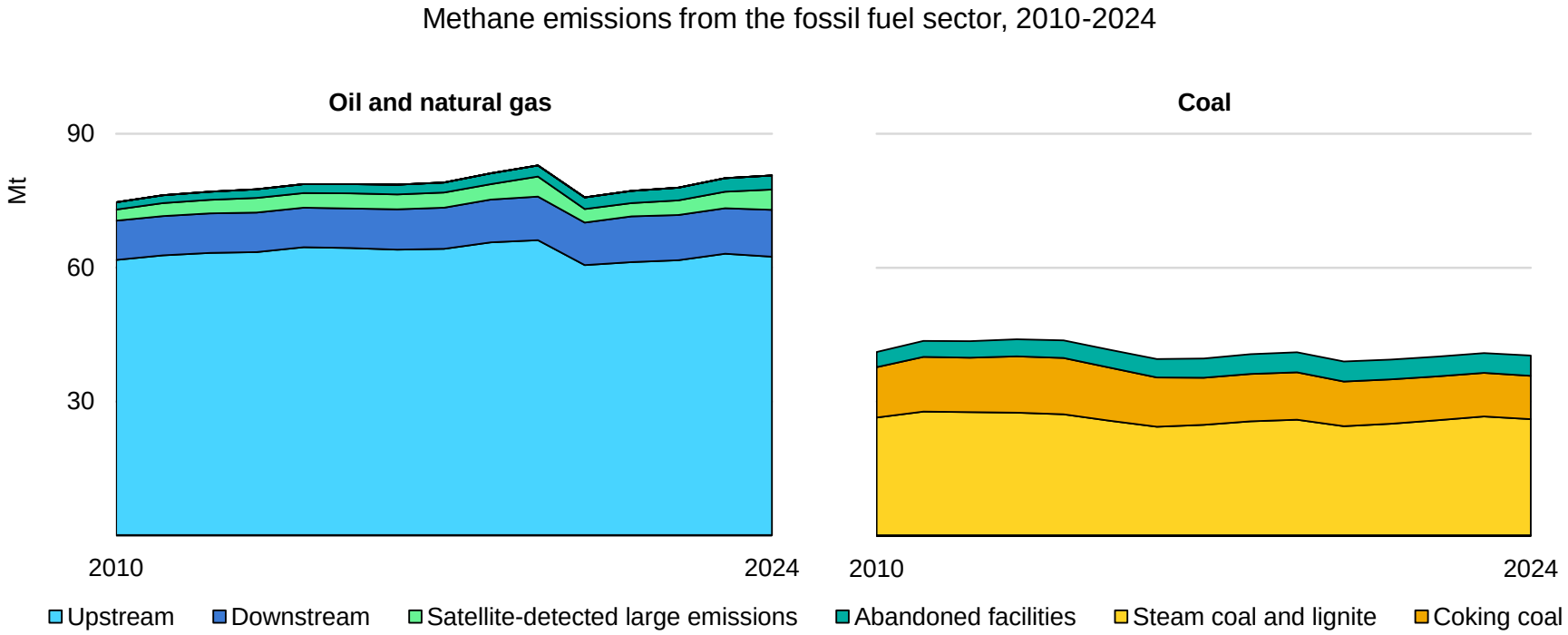
Energy and Environmental Policy Analyst at International Energy Agency (IEA

Driving down methane emissions

MARCOGAZ Tech Forum on the Guidance on the EU Methane Emissions Reduction Regulation

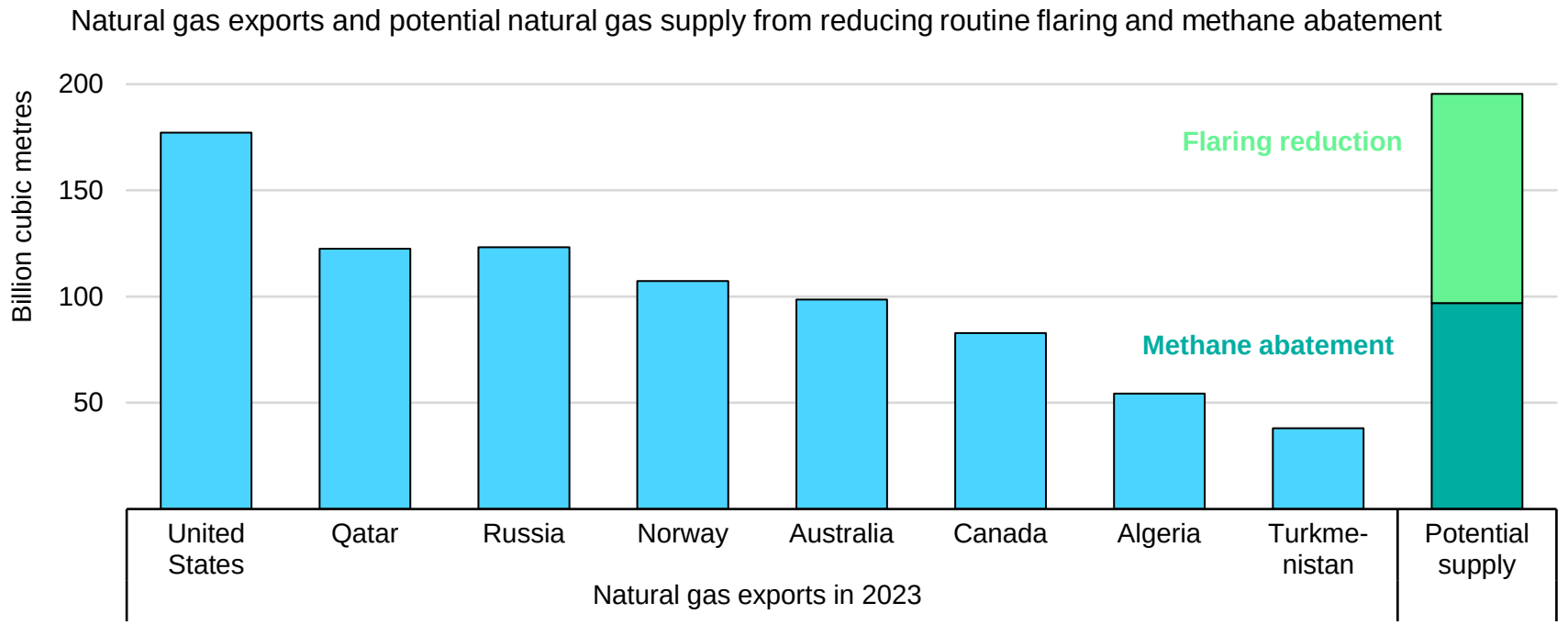
June 12, 2025

Methane emissions have still not reached a definitive peak



Record production of oil, gas and coal, combined with limited mitigation efforts, have kept methane emissions at stubbornly high levels

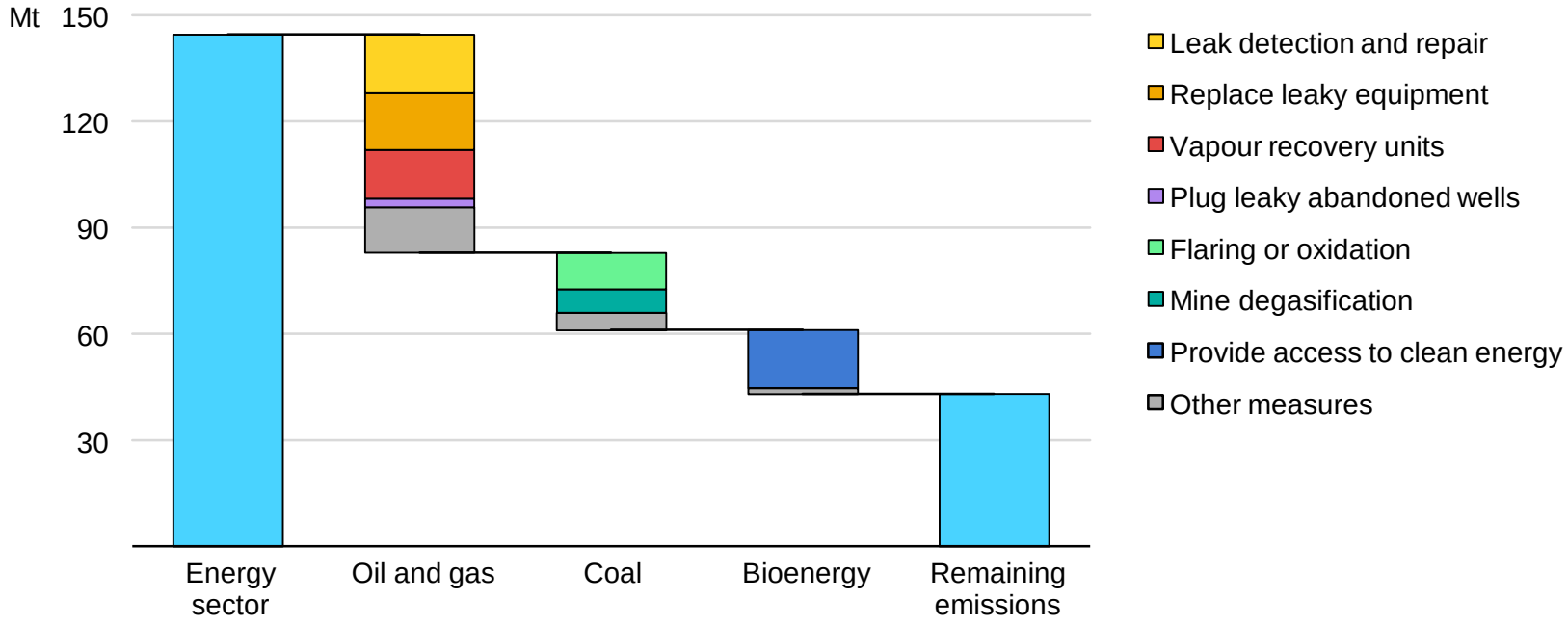
Rapid and sustained reductions in methane emissions are essential



A concerted effort to limit methane emissions could make 100 billion cubic metres of natural gas available to markets and prevent a roughly 0.1 °C rise in global temperatures by 2050

No technological breakthroughs are needed

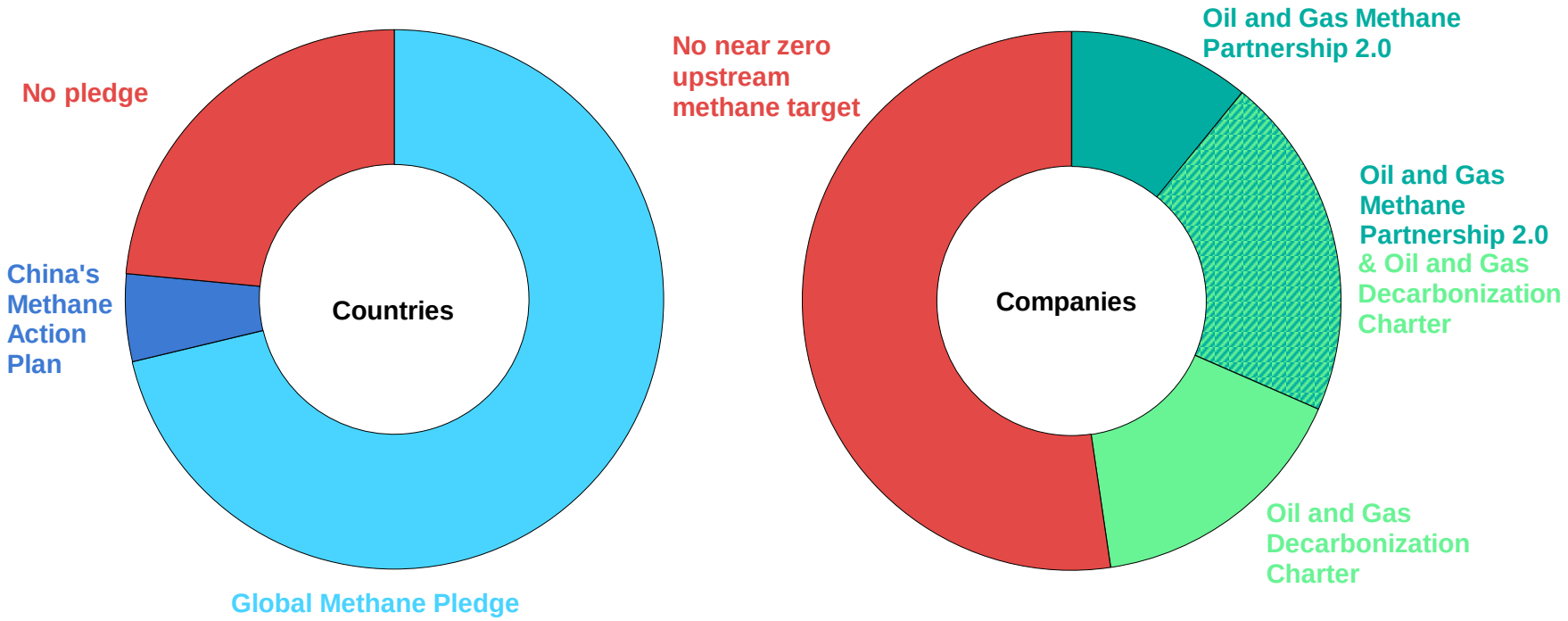
Opportunities to reduce methane emissions in the energy sector, 2024



Around 70% of methane emissions from the energy sector could be avoided with existing technologies, often at a low cost

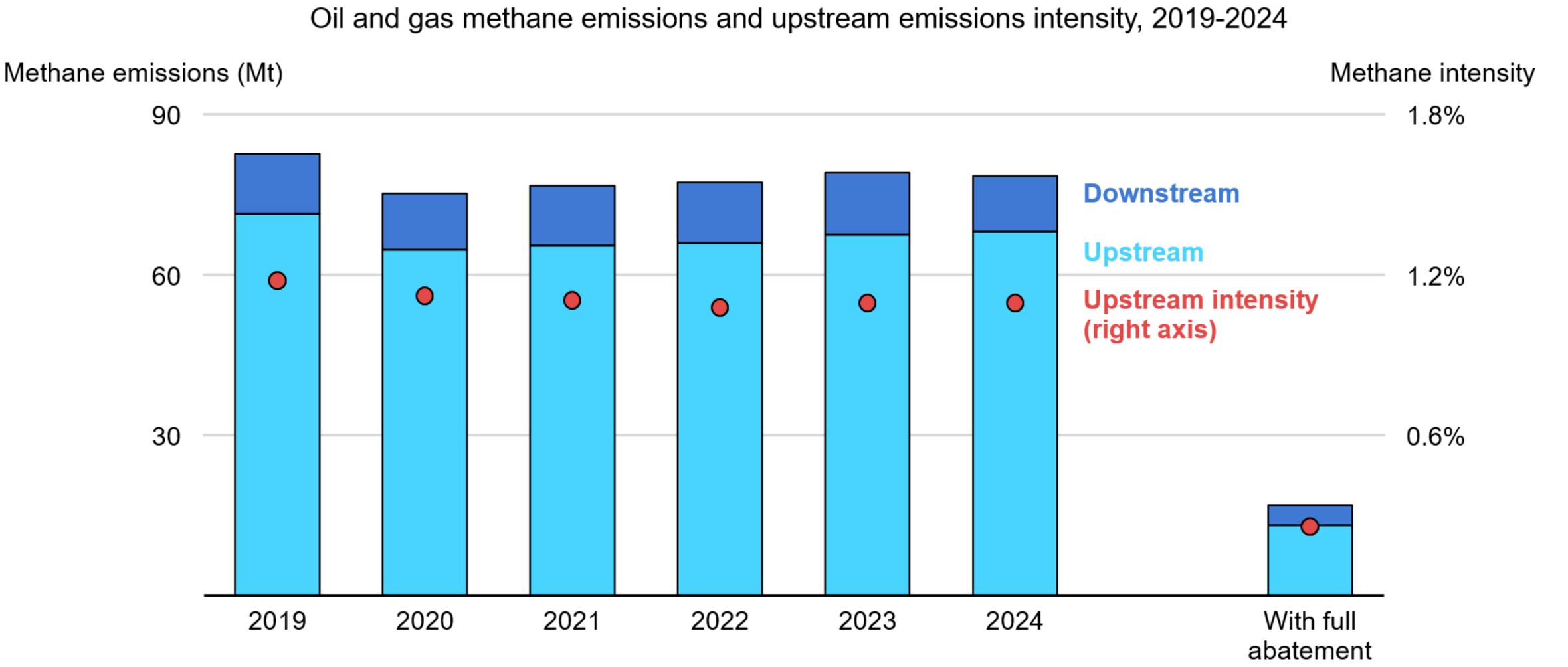
Methane pledges cover around 80% of global oil and gas production

Global oil and gas production covered by countries' methane pledges



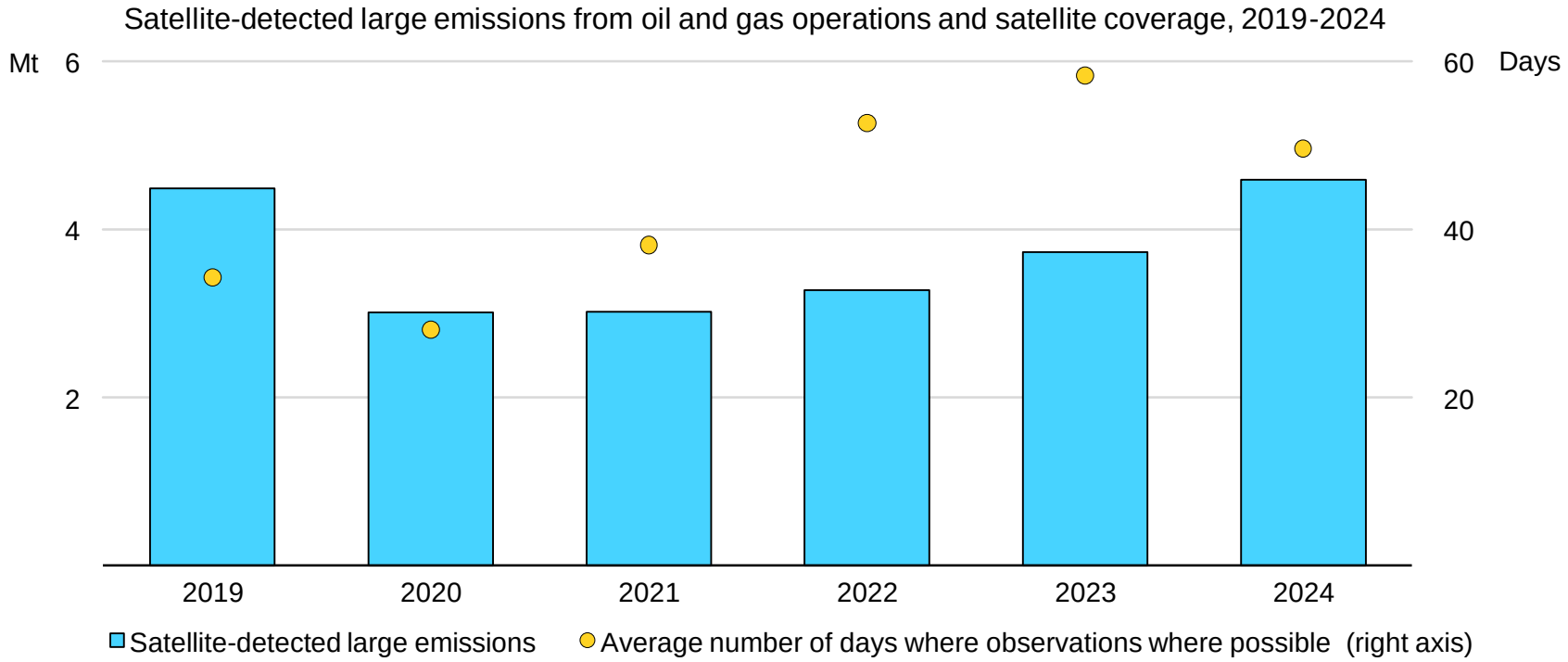
Coalitions to cut methane emissions continue to grow, the focus should now be on turning pledges into action

Performance has improved in recent years but a lot can still be done



The global average upstream methane intensity of oil and gas has fallen by around 10% since 2019 but there remains a factor of 100 difference between the emissions intensity of the best- and worst-performers

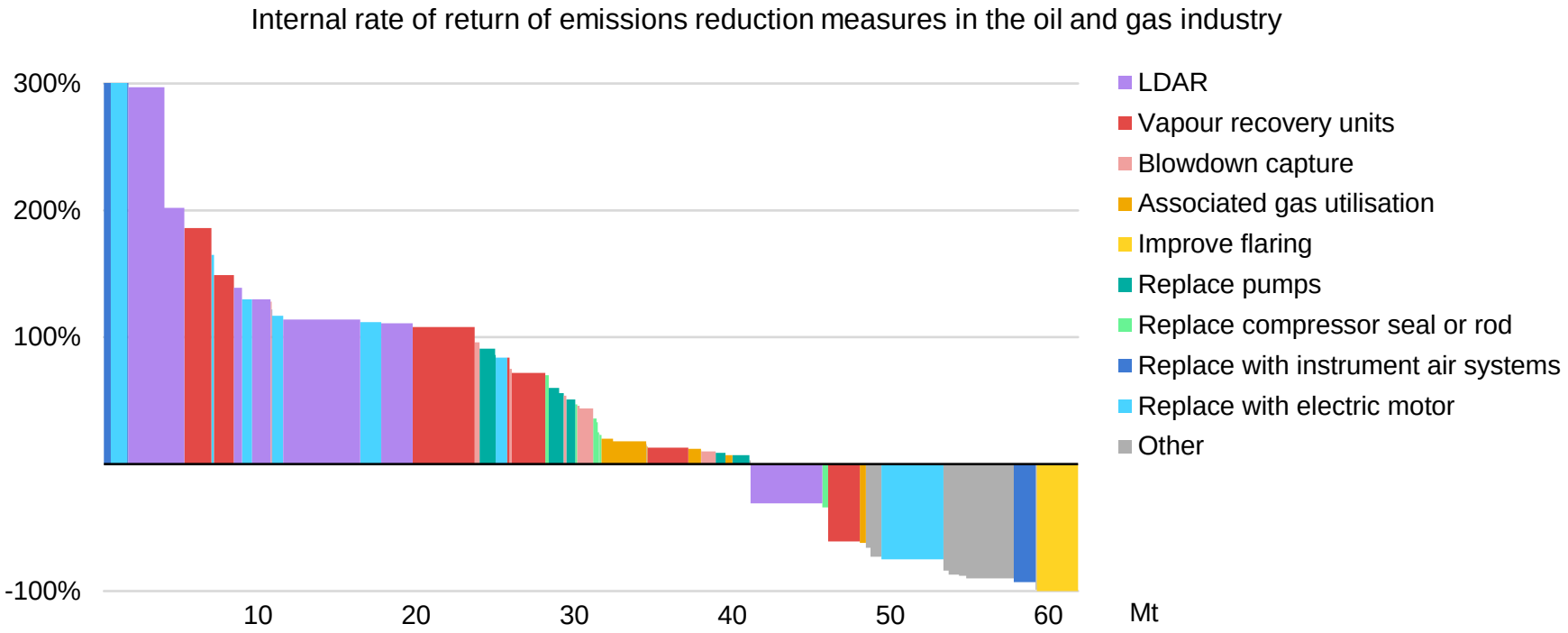
Satellites are bringing increased transparency



Source: IEA analysis based on Sentinel 5P data processed by Kayrros

Emissions from super-emitting methane events at oil and gas facilities rose to a record high in 2024 despite a drop in coverage

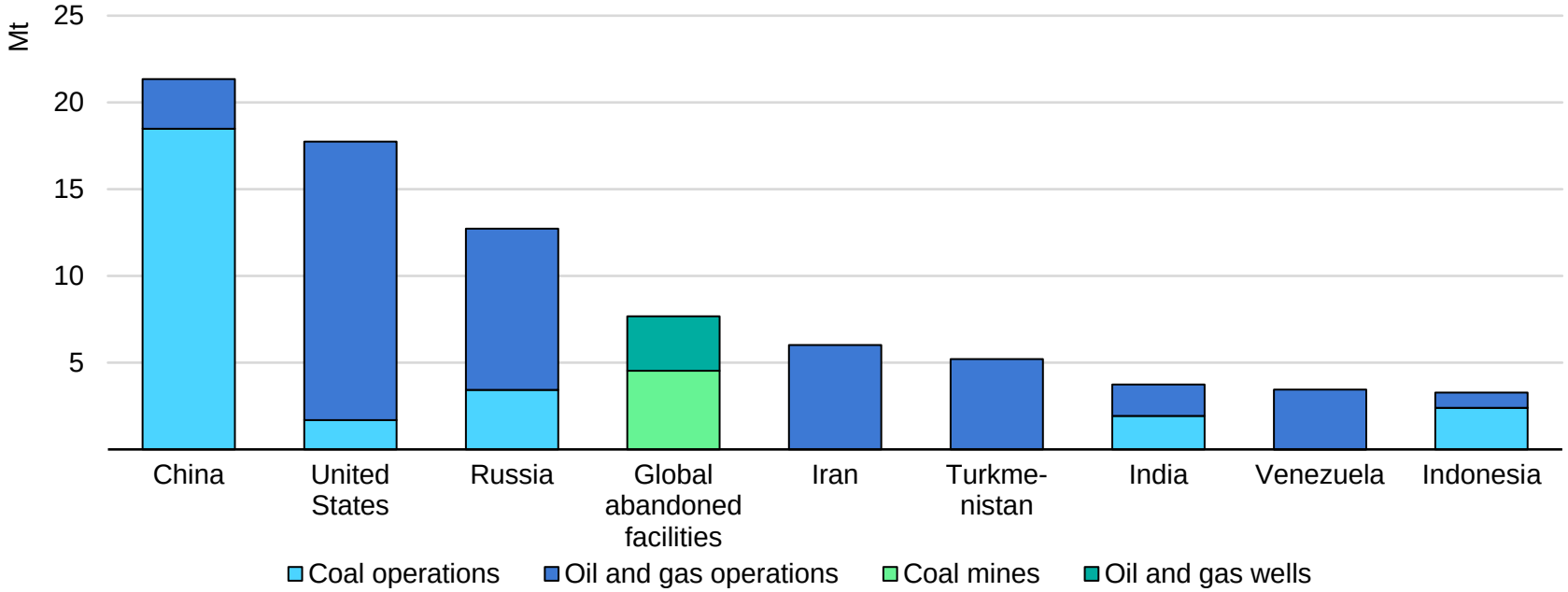
Methane abatement can deliver high rates of return



Nearly 30% of the industry's methane emissions can avoided with measures with rates of return of more than 25%. Understanding and overcoming the hurdles that exist are crucial to moving forward.

Abandoned facilities should not be overlooked

Methane emissions from fossil fuel operations for top eight emitters and from abandoned facilities globally, 2024



Closure plans should include measures to mitigate methane emissions. Timely action is critical for effective mitigation as most emissions result from mines and wells that have recently been abandoned

Overview of MARCOGAZ's "Guidance on the Application of the EU Regulation on Methane Emissions Reduction"

Ronald Kenter

Environment Coordinator at Gasunie & Chair of Methane Emissions at MARCOGAZ

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Guidance on the application of the EU regulation on methane emission reduction

Ronald Kenter

Marcogaz Tech Forum 12th of June 2025

General

- This application aims to make relevant information available and to contribute to an appropriate interpretation of the EU regulation. This in:
  - awareness of the costs
  - in terms of the resulting impact of emissions on the environment

  Document provides guidance in translating the requirements of the regulation into policies and strategies regarding methane emissions for the individual companies.

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Directive is aiming for zero emissions

In the mid- and downstream sectors, emissions are categorized according to a list of categories:

OGMP naming	Addressed to in EU regulation
Fugitives	LDAR
Vents	Venting and Flaring
Incomplete combustion (Unburned)	Venting and Flaring

- clearly distinguishes “unburned” from “venting and flaring”, the EU regulation does not.
- Emissions originating from incidents are categorized as “vents”.
- The undisputed goal is to eliminate all methane emissions, bearing in mind that the burden to society shall not be disproportional (EU regulation recital 10).

10. Compliance with the obligations under this Regulation is likely to require investments by regulated entities, and the costs associated with such investments should be taken into account in tariff setting,
subject to efficiency principles. The necessary costs should not result in a disproportionate financial burden on end users and consumers.

Measurement reporting and Verification (MRV)

- It is crucial to determine, quantify and report all methane emissions at source level.
- Proper use of statistical sampling and engineering calculations based on measured data are necessary.
- **Establish a transparent and traceable line of reporting**.
- Annual methane emission reports shall be verified by an independent verifier and be submitted to the competent authorities before May 31 in the year after the reporting
- The OGMP guidance mentions not “material” and de-minimis emissions that might be reported with less certainty than material emissions in the reporting. The EU regulation doesn’t mention explicitly the materiality of the emissions.
- In addition to determination of emissions at source level, the findings shall be evaluated using measurements at site level (ref art. 12.6). In case of discrepancies between source and site level measurement, a **reconciliation** process shall be carried out.
- In the near future the EU commission will provide **in implementing acts** more specific rules, requirements and templates regarding measurement and quantification. Within CEN TC234 relating standards are under development.

- The limited maturity of site level measurements should not cause extensive discussions until the site level measurements are more trustworthy. Marcogaz suggests appropriate alignment with the competent authority regarding reconciliation.

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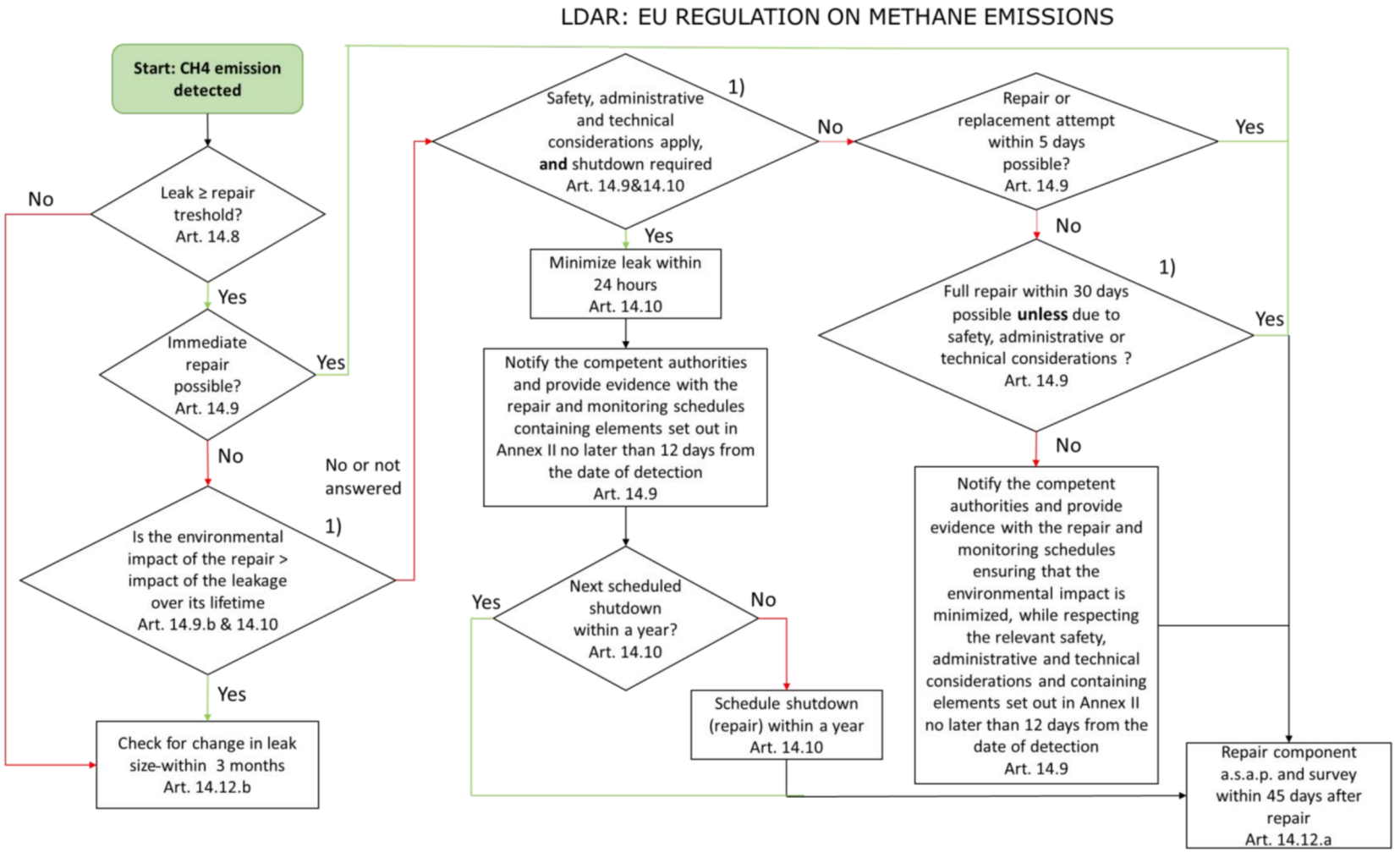
Leak Detection and Repair (LDAR)



Additional Clarification

1) These items are not persé sequential. f.e. the environmental check can be done at any of these stages

Art. 13* "Appropriate" definition should prevent disproportionate measures that hinder the ability of an organization to utilize assets most effectively to reduce emissions

The environmental impact of a repair is defined as the total emmissions associated with a repair and goes beyond exclusively CH4 emissions

Everything should be registered and reported yearly to the comptetent authority Art. 14.13 & 14.13

A "delayed repair as refered to in art 14 is considerd a repair that is excecuted more than 30 days after detection

*repairs or replacements should be made with the best available technologies that provide long-term protection against future leakage
*larger leaks should be prioritized over smaller leaks
* When no shutdown is required AND one or more conditions apply, repair date can exceed 1 year

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Vents

OGMP categorizes vents in:

- Operational emissions
- Purging and venting (Maintenance, process commissioning and decommissioning)
- Regular emission technical devices (pneumatic devices, gas analysers, compressor seals..)
- Start & stops
- Incidents / emergency situations

Art. 15.5 of the EU regulation requires that “Equipment that vents shall be replaced by non-emitting alternatives where those are commercially available and if they meet the standards or technical prescriptions for components designed to vent”

Because it is not very well defined what the scope of “equipment” is in this context, it is suggested to discuss with the competent authority: If you need to make major changes to the installation's design (beyond just replacing the equipment) to use a "non-emitting" piece of equipment, it indicates that this new equipment doesn't meet the original standards or technical requirements. Therefore, in some cases do not have to replace it.

The standards developed in CEN TC 234 WG 14 should provide more guidance on these situations when they are completed.

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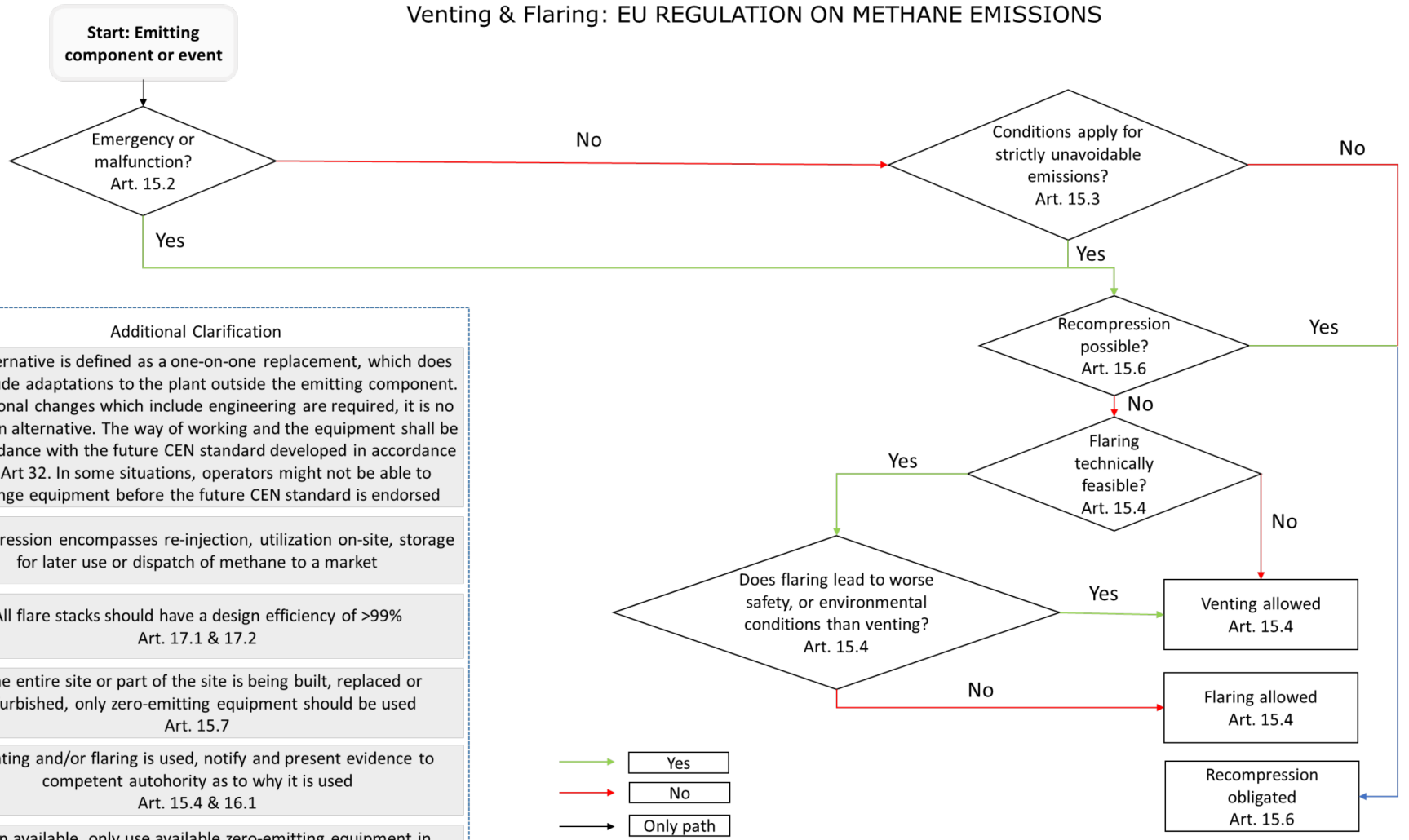
Venting and Flaring



Additional Clarification
*an alternative is defined as a one-on-one replacement, which does not include adaptations to the plant outside the emitting component. If additional changes which include engineering are required, it is no longer an alternative. The way of working and the equipment shall be in accordance with the future CEN standard developed in accordance with Art 32. In some situations, operators might not be able to exchange equipment before the future CEN standard is endorsed
Recompression encompasses re-injection, utilization on-site, storage for later use or dispatch of methane to a market
All flare stacks should have a design efficiency of >99% Art. 17.1 & 17.2
If the entire site or part of the site is being built, replaced or refurbished, only zero-emitting equipment should be used Art. 15.7
If venting and/or flaring is used, notify and present evidence to competent autohority as to why it is used Art. 15.4 & 16.1
When available, only use available zero-emitting equipment in accordance with future CEN standard conform Art 32 Art. 15.5

Incomplete combustion

- Unburned emissions from gas combusting devices such as boilers, engines and turbines (not flaring devices) are not within the scope of the regulation, in accordance to art. 2.1.
- In line with definition 31 in art. 2, emissions from gas combustion devices other than flares are not “direct” emissions and not considered as vented.
- That emissions are not subject to the considerations in art. 15 about venting and flaring.
- In line with the regulation art. 17, flares shall have methane conversion efficiency of at least 99%.

Combustion devices designed to use gas for other purposes than the sole aim of destroying methane and converting it to CO2 are not considered to be subject to the requirements specified in art 17. They may be maintained as long as they meet their design specifications and comply with the Industrial Emissions Directive (IED) if applicable, the Machine Directive with its safety requirements that affect the proper functioning of combusting equipment, such as the EN 746-2:2020 and the Energy Efficiency Directive (EED), knowing that their methane conversion efficiency should be better than 99%.

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Consideration

- Marcogaz strongly supports the transparent reporting of remaining emissions and the execution of measures that are reducing methane emissions.
- Marcogaz as well as OGMP compiled Best Available Techniques (BAT'S) documents to achieve that. The BAT documents will evolve according to technological development and evolving practices. This includes also the ongoing prevention of incidents and the related emissions.
- Marcogaz recognize the obligation to repair all leaks above the given threshold limit, but also that a clarification of the art. 13 stating that "Operators shall take all appropriate mitigation measures .." is needed. For small leaks:
    a. Where emissions as sum of scope I, II and III of repair greatly exceeds the lifetime emission of the leak (art. 14.9 point b)
    b. Where the societal cost of the repair greatly exceeds the lifetime societal cost of the leak
- In those two cases Marcogaz suggests that operators have an open discussion with the competent authorities to clarify what the appropriate mitigation measure will be.
- It should be clear that in addition to the environmental impact of the emitted gas, this emission causes a small scope 3 CO2 emission in the provision chain due to up-stream activities too. It is suggested to discuss with the competent authority to either neglect this scope 3 portion of the emissions or to agree on the way of settling it in the evaluation of the balance of the methane emission and the emission caused by the repair.

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Midstream application of the EU Regulation: challenges, opportunities and solutions

Emiel Wehkamp

Asset Manager at Gasunie

Midstream application of the EU Regulation: challenges, opportunities and solutions

Content

- Background of Gasunie
- Monitoring protocol
- Impact
- Repair policy & consequences
- Abatement of CH_4

Background

- Transmition grid operator
- Operating on Netherlands and Germany

- OGMP 2.0 gold standard
- Site-level already performed

- CH_4 related emissions 2024
- Fugitive: 16 kton CO2eq
- Vents: 65 kton CO2eq

Asset	Netherlands
Pipelines	High pressure: 6500 km Regional system: 6055 km
Valve schemes	2930
Compressor stations	12
LNG terminals	1

Leak detection

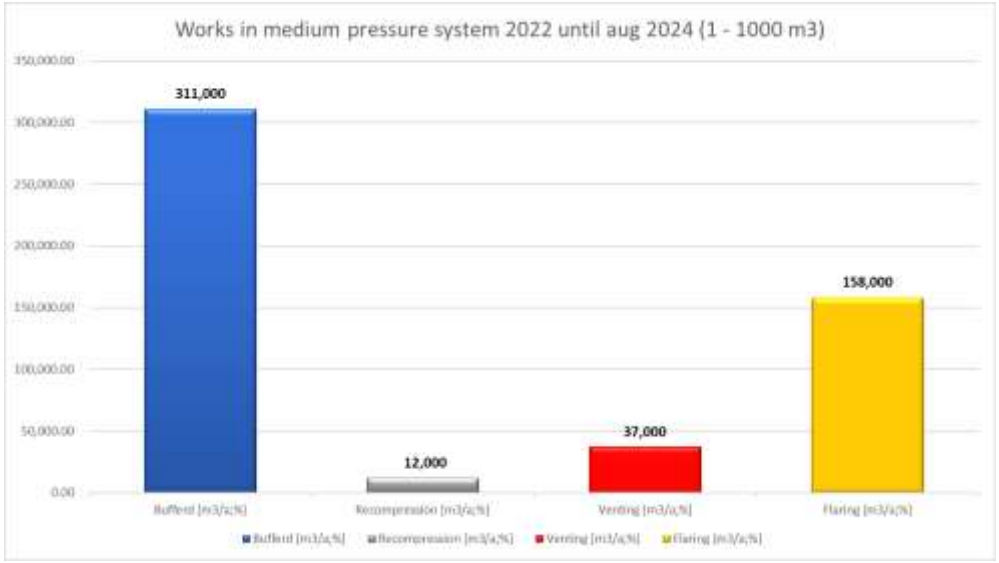
- Current intensity (type 2)
  - ¼ of system each year
- Future intensity (type 2)
  - Once per 4 months
- Additional costs estimated
  - ~€20 mio over 8 year
    - Increase of ~800%
  - This is excluding pipeline inspections
- Valve schemes
  - First measurements in 2023/2024
- Site-level measurements

Repair

1. Block section with valve schemes
2. Buffering gas
   - Reduce gas to minimum pressure
3. Recompression with nitrogen displacement
   - Barg: 72-2,5
   - Flow rate: 4.400-8.000 m3(n)/h
4. Nitrogen displacement
   - Specific conditions apply for gas system
5. Flaring
   - Barg: 66,2-0,2
   - Flow rate: 500-1.200 m3(n)/h
6. Bellowing (balg)
7. Venting

Repair: recompression in practice

- Already using recompression for the higher feeding pressures in our high pressure system
- Up until now, limited use of recompression in our medium pressure system.
- Expected
  - CAPEX: €885.000
  - OPEX/y: €376.500
  - M3(n) recovered: 155.938



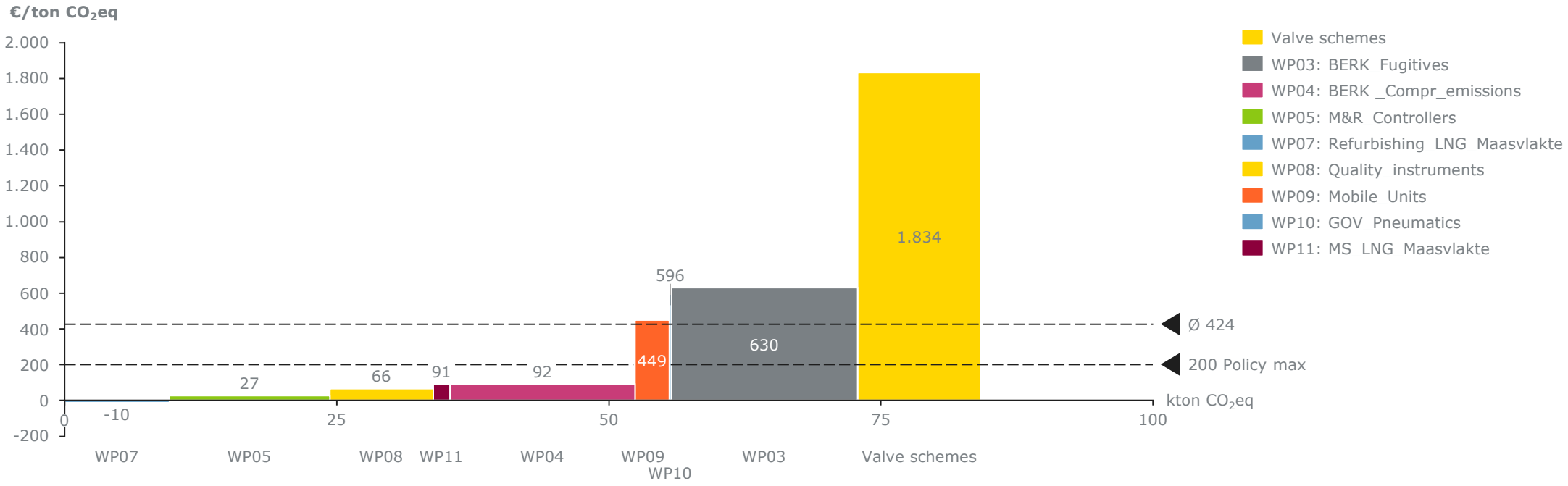
Repair: consequences

- Aboveground leaks
  - Limited impact expected in current base
- Underground leaks in current base
  - Valve stations
  - Expected costs: €350-€690 mio

	# of valve schemes	#schemes in measurement campaign	#leaks found	#leaks > repair treshold	#of schemes with leak > repair treshold	Total leikfreight (ton $CH_{4/y}$)	Cost in €/ton CO_2
High pressure system (66-100 bar)	716	100	248	146	70	62	€1.943
Regional system (<40 bar)	2214	557	244	87	71	24	€655

Abatement of CH4

- (mobile) recompression units
- LDAR



Questions?

Downstream application of the EU Regulation: challenges, opportunities and solutions

Liliane Wietzerbin

European Technical Support at GRDF & Vice-Chair of Methane Emissions at MARCOGAZ

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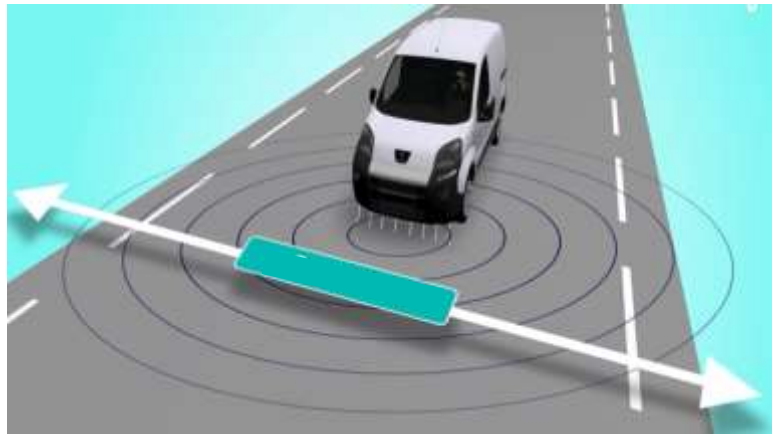
Downstream applications of EU regulation on methane Emissions

challenges, opportunities and solutions for DSOs

Liliane Wietzerbin, chair of Marcogaz WG (downstream gas systems)
vice-chair of Marcogaz WG on Methane Emissions+

Opportunities for DSOs

- DSOs have **an extensive experience in detecting and repairing leaks** , as safety and control of emissions have always been at the core of their operations and as they are in close contact with the end-user
- DSOs **have developed LDAR processes adapted to urban areas and to the specifities of DSO grids,** which are in line with the EU regulation requirements.
- DSOs **have developed methodologies to measure, quantify leaks and monitor leaks** and many of them participate to OGMP 2.0
- **The EU regulation on methane emissions and the set of related implementing acts and standards is a unprecedent opportunity** to develop standardised approaches for monitoring, detecting and decreasing methane emissions.



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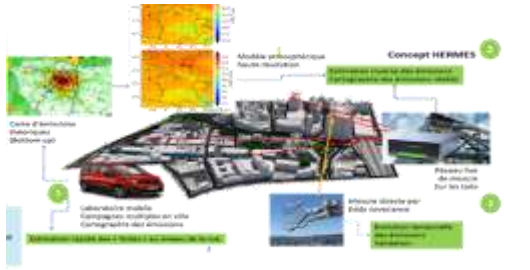
Challenges for DSOs

Specifities of the DSO grids…

- **EU regulation applies to the whole gas value chain** : upstream, midstream, downstream (DSOs).
- **DSOs In Europe**:
  - 1300 operators
  - 2 000 000 km of pipelines;
  - 115 000 000 connecting points
- **DSO grids** : high density, made of burried pipes and small components, in urban areas

… leads to some Challenges, eg :

- **The notion of « site » is difficult to apprehend** : site level measurements methodologies are not mature yet



- **Source level measurements : ** still low maturity solutions and on-site measurements for all leaks not feasible.
- **Diversity of LDAR processes** : detection can be done entirely by foot, or by combining vehicle use and immediate on-foot detection or by vehicle with confirmation at a later stage…
- Emissions due to **many other sources than the grid**
- Equipment should be compliant with **safety requirements** and **internal operational processes**…

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Recommendations for DSOs

- **Develop CEN standards adapted to specifities of the operators** and ensuring that requirements on EU regulation are met, while **enabling a degree of freedom** to match each operator grid specifics and environment context
- **Also, taking into account market maturity and technological neutrality position is key** to ensure than there are many playing field robust solutions and avoid unecessarly restriction of choices

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Q&A Session and closing remarks

Pascal Alas

Senior Technical Advisor at NaTran

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Q&A Session and closing remarks are available in the full video of the webinar, published on the Communications Hub/Videos section of our website