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STUDIES

Methane Emissions Regulation and Its Implications for North Sea Producers

Methane emissions in the North Sea Symposium

Utrecht, 13 November 2025

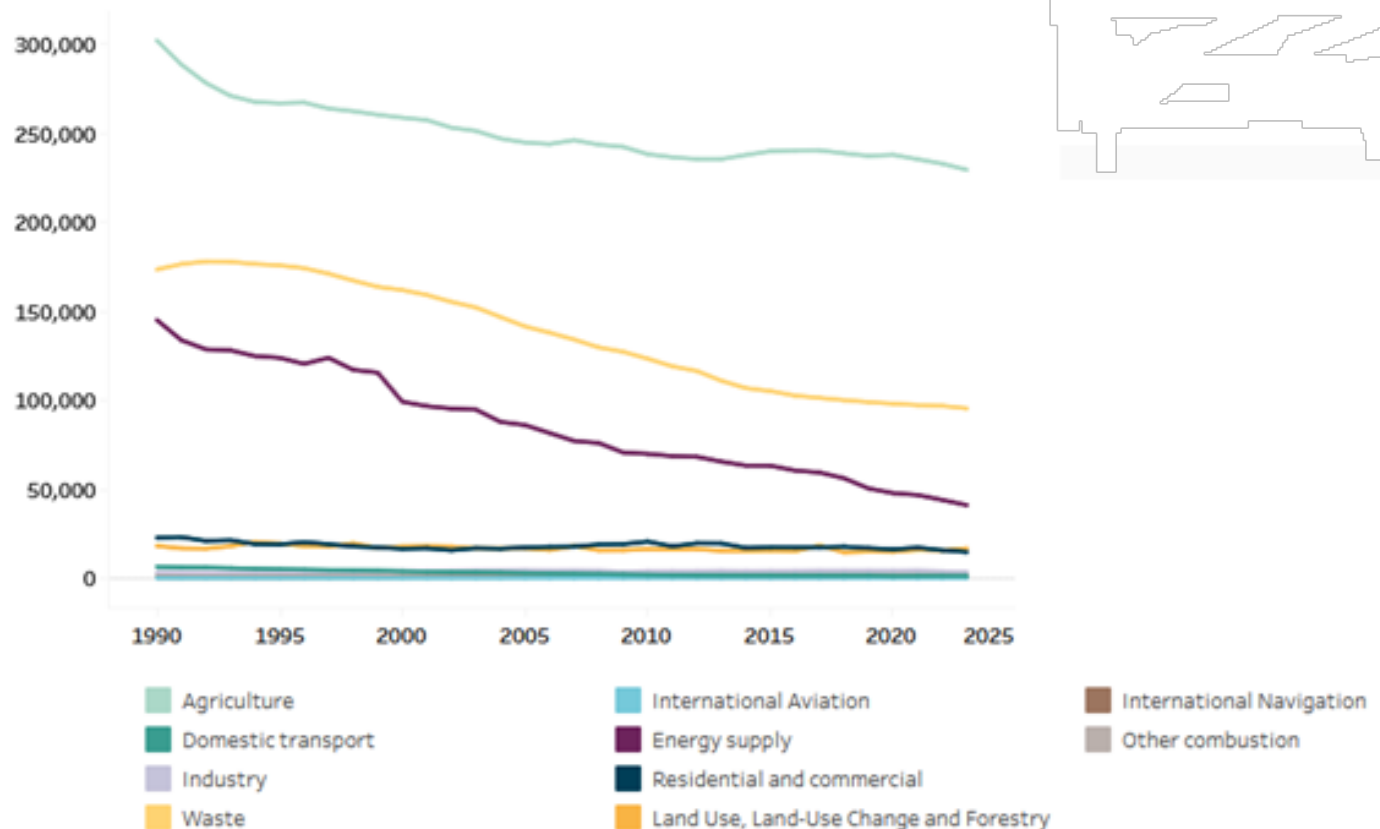
Dr Maria Olczak



Methane emissions in the EU: spotlight on the energy sector

Methane emission trends by sector

EU-27 | kt CO₂ equivalent



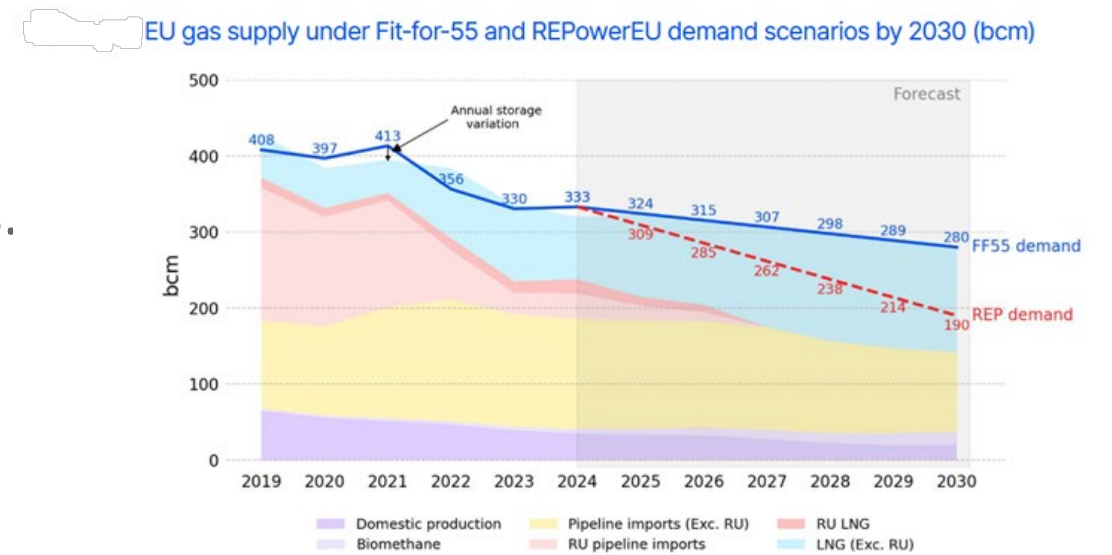
- ~**3-5%** EU contribution to global methane emissions (570 Mt) in 2023 (**403.1 Mt CO₂eq** or **14.4 Mt of CH₄** (GWP-100=28))
- **12%** share of methane in total EU GHG emissions
- **36%** decrease in EU methane emissions between 1990-2020, led by energy sector

Why focus on energy-related emissions in EU MER?



2020 EU Methane Strategy

- Accelerated methane reductions are necessary to meet the EU's 2030 climate target (34–35% reduction from 2005 levels, instead of 29%).
- The EU has both responsibility and leverage as a major fossil-fuel importer.
- Focus on improved monitoring, reporting and verification (MRV), and on reducing emissions.
- Legislative proposal published in 2021.
- Regulation adopted in 2024.





Methane emissions from offshore areas: evolving scientific evidence

- Academic research found that official GHG inventories significantly underestimate methane emissions.
- Most academic measurement studies (2012–2022) focused on measuring emissions from the **US and Canadian onshore oil and gas production** (Vollrath et al. 2024).
- Limited measurements in major offshore production regions: Persian Gulf, the Gulf of Mexico, the West Coast of Africa, and the North Sea.

GREENHOUSE GASES

Assessment of methane emissions from the U.S. oil and gas supply chain

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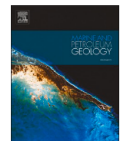
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Methane leakage from abandoned wells in the Dutch North Sea

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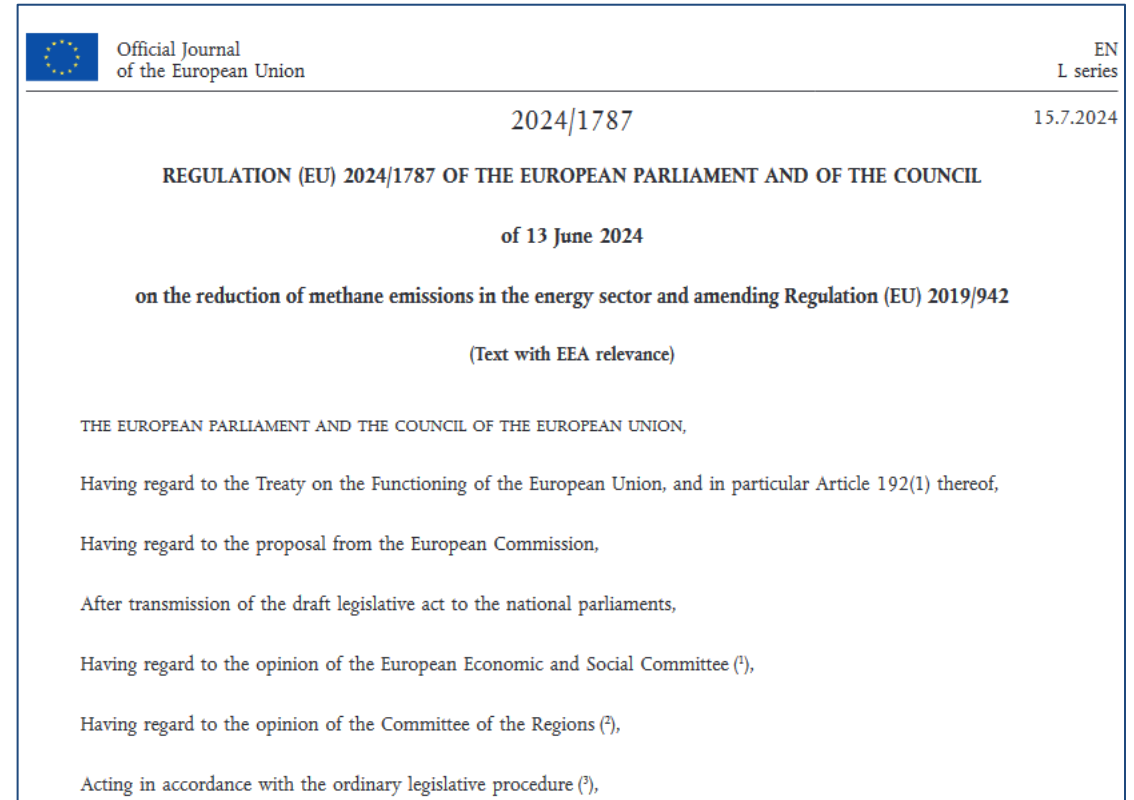
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2024 EU Methane Regulation: one year into implementation

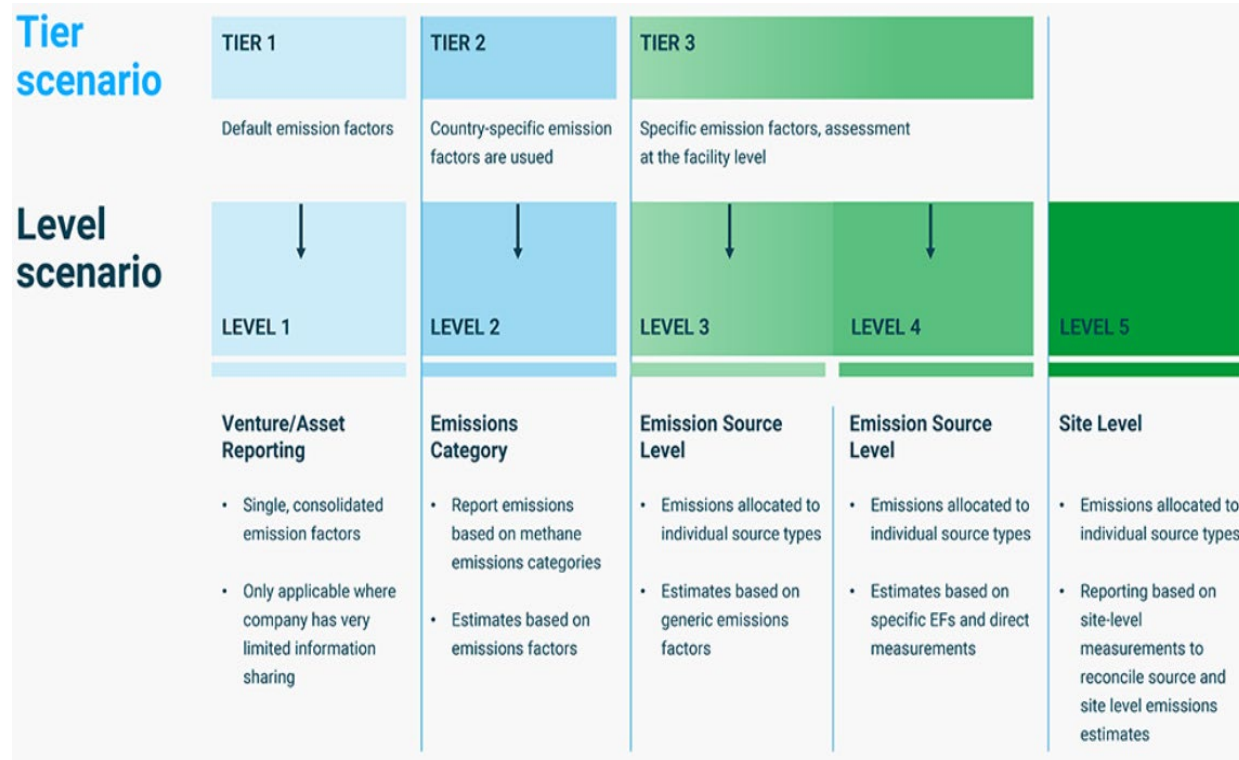
- Entry into force on **4th Aug 2024**.
- Scope: crude oil, **natural gas** and coal.
- **Domestic dimension:**
 - Measurement, Reporting, Verification (MRV)
 - Leak Detection and Repair (LDAR)
 - Ban on routine venting and flaring
- **International dimension (Chapter 5):**
 - Importer requirements, MRV equivalence, methane intensity values
 - Transparency tools (methane performance profiles, super-emitter program)





The Oil and Gas Methane Partnership 2.0 and the EU MRV: similarities and differences

- The EU Methane Reg builds on the voluntary OGMP 2.0 framework:
 - **measurement-based**
 - **5 levels of reporting** with a combination of source-level and site-level measurements
 - The EU operators have 12, 18 and 30 months (from the date of entry into force of Reg) to achieve Level 3-, Level 4-, and Level 5-compatible reporting respectively
- But they are not exactly the same:
 - **Materiality**
 - **Reconciliation obligations**
 - **Scope: LNG shipping** covered under the OGMP2.0, but not covered under the EU Methane Reg -> **EU Emissions Trading System**. Will it become a part of the methane intensity profiles?
 - **Third-party verification** required by the Reg (art. 8-9)



Source: [OGMP2.0](#)



OGMP 2.0 members 152 companies (66 Upstream, 86 Downstream)

Figure 4: OGMP 2.0 members share of production by region

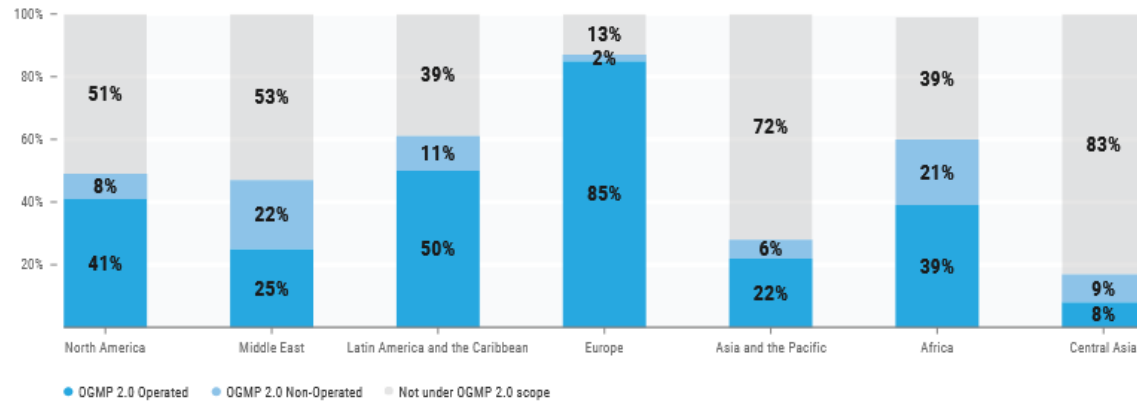
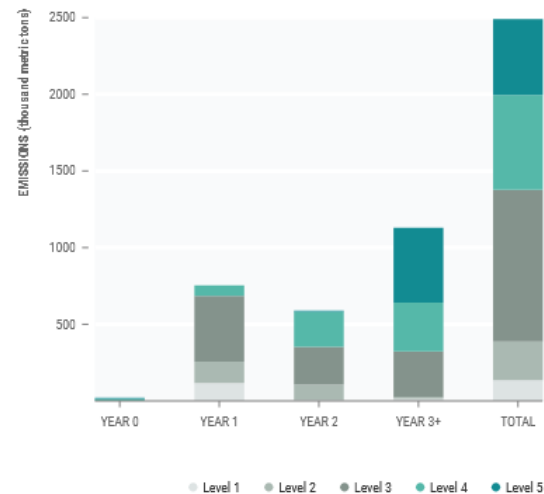


Figure 6: Reported emissions by reporting levels by reporting year



- Initially primarily EU and O/G majors, but significant increase in the membership across the US-based companies, e.g. Jonah Energy, Cheniere, Chevron, ExxonMobil; Middle East (QatarEnergy, ADNOC, Oman LNG).
- Slow growth among Asian companies, including: Petramina (Indonesia), Petronas (Malaysia), PTTEP (Thailand), Inpex Corporation (Japan), China Gas Holdings Limited (China), Cairn (India), KazMunayGas, NCOC and KPO (Kazakhstan).
- The adoption of the EU methane regulation did not accelerate this trend – +10 companies joined compared to June 2024, but growing interest among oil companies.
- Slow progress on Level 5.



Leak Detection and Repair (LDAR) at subsea components (art. 14)

- LDAR's dual role: detection/quantification and mitigation of emissions
- By **5 May 2025** operators submit a leak detection and repair programme to Competent Authorities and within 6 months from the start of operations (new sites)
- Key LDAR characteristics specified in the Regulation:
 - inspection frequency,
 - detection limits,
 - repair/replacement limits
 - timelines and record-keeping

Type of LDAR survey	Type of component	Frequency
Type 1 LDAR survey	Offshore components above the sea level	12 months
	Offshore components below the sea level	24 months
	Offshore components below the seabed	36 months
Type 2 LDAR survey	Offshore components above the sea level	24 months



Leak Detection and Repair (LDAR) at subsea components (art. 14)

- LDAR for all subsea components every **24 months** using „the best detection techniques that are commercially available for offshore components below the sea level or below the seabed”.
- **Repair or replacement** if emissions ≥ 7000 ppmv or **17 g/h**
- Repair or replacement – immediately, but if not possible:
 - **5-30 days** (first attempt-completion)
 - If not possible, notify the Competent Authority within 12 days of detection and submit a repair/monitoring schedule.
 - If shutdown required, the operator must **minimise the leak within 24 hours** and repair by the **next scheduled shutdown or within 1 year**, whichever is sooner.
- The operators shall prioritise repairs of larger leaks. Check after the repair within 45 days / 3 months.
- **OFFSHORE EXEMPTION:** for offshore components at a water depth > 700 metres, if operator can prove that potential methane emissions are highly likely to be negligible (CA’s decision).



What is not (but will eventually need to be) in the Regulation

DELEGATED ACTS	IMPLEMENTING ACTS
Art. 22(3) restrictions on venting methane from ventilation shafts for coking coal mines [2027]	Art. 12(4) MRV reporting templates
Art. 27(1) further information to be required from importers, amending Annex IX	Art. 14(7) Minimum detection limits and detection techniques for LDAR surveys [2025] delayed
Art. 29(4) the methodology for calculating, at the level of producer, the methane intensity values associated with imports [2027]	Art. 28(6) MRV equivalence for third countries: a) procedure and evidence requirements for establishing equivalence, b) decisions establishing/revoking equivalence
Art. 29(6) maximum methane intensity values and classes for crude oil, natural gas and oil	
Art. 32 EU COM can establish mandatory standards or technical prescriptions concerning e.g. measurement and quantification, LDAR	



Inactive wells, temporarily plugged wells and permanently plugged and abandoned wells (art. 18)

- Art. 18 introduces obligations to **identify** (inactive, plugged and abandoned) wells, **quantify** methane emissions from these wells and **remediate** if material emissions are found.
 - **By 5 August 2025**, Member States shall establish and make publicly available an inventory of IPA wells, derogation exists for countries with $\geq 40,000$ IPA wells
 - **By 5 May 2026**, operators shall submit reports with information on methane emissions quantification and pressure monitoring (where pressure monitoring equipment exists) from all **inactive and temporarily plugged wells**, this needs to be repeated annually and reports are verified by third-party verifiers:
 - If no emissions identified for 5 years (onshore), for 3 years (offshore) – quantification obligation ceases to apply.
 - If material emissions are identified, operator or MS shall take all the necessary measures available to remediate, e.g. submit a mitigation plan by **5 August 2026** and implement it **by 5 May 2027**, **derogation** applies in case of safety, administrative or technical considerations.
- **OFFSHORE EXEMPTION:** Competent Authorities can exempt oil and gas wells located at a water depth:
 - >700 metres from the quantification/remediation requirements, robust evidence of negligible climate impact required
 - 200-700 metres (plugged and abandoned wells)



Methane Regulation Penalty Regime and Enforcement Overview

EU-MER Legal Text

enters into force in July 2024

- Proposed by Commission (2021)
- Adopted by Parliament and Council (2024)
- Enters into force in July 2024
- Art 33 (Penalties) contains detailed principles, but still leaves significant scope of implementation to the EU MS



27 EU MS must set their own rules on penalties

by July 2025

- Must conform to all requirements of the EU-MER (otherwise MS risks infringement procedure)
- Will make use of the scope of implementation left to the MS by the EU-MER and thereby impact on compliance and enforcement
- Rules may be amended, and must be notified to Commission.



Enforcement by the CA directly or, in some MS, via courts

from 2025 onwards

- CA monitor compliance
- For certain infringements, CA must impose administrative penalties (or ask courts to do so)
- CA (and courts) must apply the rules established by their national legislators, which must conform to the EU-MER Text

EU-wide cooperation

- Commission to set up network of CA to cooperate, among others, on compliance
- This will stimulate exchange of best practice, among others on penalties
- However, the MS remain free to set their own penalty rules as long as they fulfil the EU-MER requirements

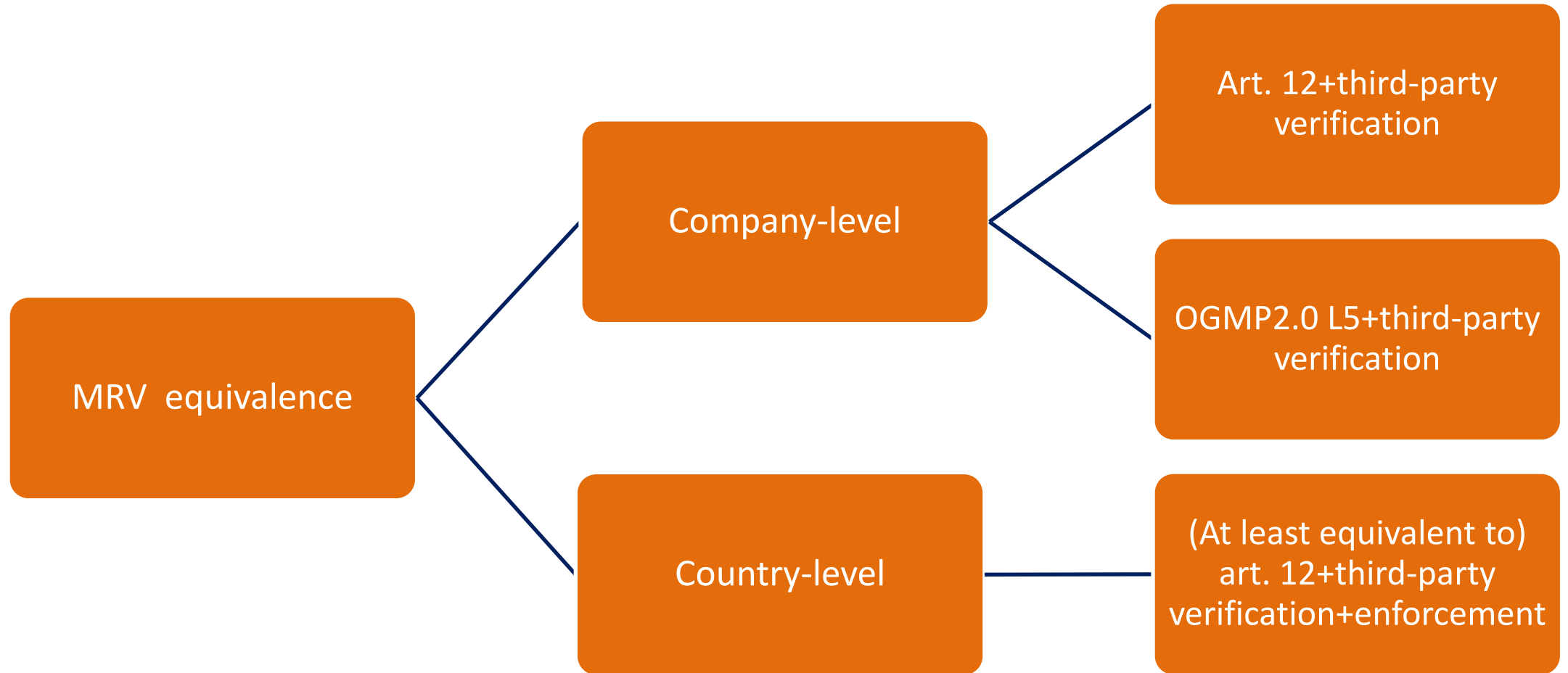


Implications for North Sea (oil and gas) producers

- **Producers operating in the North Sea will be impacted differently by the EU MER.**
 - Netherlands, Germany, Denmark – as an EU Member State – art. 14 and 18
 - Norway – as a European Economic Area (EEA) country or as a country with country-level MRV equivalence?
 - UK – as a third country – import requirements and as a transit country (direction of gas flows and LNG regs utilisation capacity)
- **Netherlands, Germany, Denmark** – the prescriptive requirements generate additional costs for assets that are approaching the end of their economic life.
- Despite the prescriptive character, MER allows **flexibility** (e.g. decreased inspection frequency, use of advanced detection technologies) subject to evidence (operators) and approval by Competent Authorities.



MRV equivalence: available pathways





Norway: the only exporter with country-level MRV equivalence?

- In [2024](#), Offshore Norge recommended against incorporating the EU MER into the EEA Agreement and suggested that Norwegian authorities explore the possibility of establishing country-level MRV equivalence instead. No decision of the Norwegian government yet.
- Under art. 28 MRV equivalence can be established either at a **company** or **country** level. When country-level equivalence is granted, **EU importers are exempt from reporting obligations**.
- Some Norwegian companies will fall under MER's scope as producer **and** importer.
- Issues:
 - **Limited time for negotiations:** equivalence obligation takes effect in 2027, but Commission has not yet published general implementing act outlining the process
 - **Third-party verification:** will the review by the Norwegian Environment Agency be considered equivalent by the EU?
 - **Political acceptance:** if changes to domestic legislation are required to establish MRV equivalence, will they be politically acceptable in Norway?



UK: the importance of crude oil exports

- In 2024, the EU accounted for 70% of the UK's crude oil exports (worth £11.4 bln) and important source of refined oil imports.
- EU MER is likely to have:
 - **Direct impact on UKCS crude oil exports** to the EU and UKCS gas exports to Ireland by creating contract and reputational risks.
 - **Indirect impact on the UK gas export infrastructure** (LNG regasification, gas transmission, and the capacity at interconnection points with Belgium and the Netherlands) by altering the gas flow direction and as a result LNG regasification/transport capacity utilisation rates.
- Current UK framework (EEMS reporting, NSTA's flaring and venting consents, industry voluntary efforts) falls short of EU MER requirements. The alignment would require a change from:
 - emission estimates to measurement-informed inventories
 - industry self-reporting to third party verification
 - basin-level to individual producer-level methane intensities
 - elimination of routine venting and flaring well before 2030



UK: no clear case for the government intervention

- Regulatory alignment could be pursued by the UK government through:
 - OPTION 1: the establishment of MRV equivalence between the UK and EU once the relevant implementing acts are adopted (art. 28(6)), or
 - OPTION 2: the adoption of a UK import standard as suggested by the UK Climate Change Committee in 2022.
- Either approach would **reduce uncertainty for UK producers and preserve access to EU market**, but will require **significant upfront investment** in methane emission monitoring and mitigation (e.g. elimination of routine flaring), which may lead some operators (particularly **private equity-backed companies**) to exit UKCS earlier, accelerating the decline in the UK oil and gas production and increasing imports.
- **UK ETS extension to upstream methane emissions**, as advocated by the UK offshore industry, may complicate discussions on EU-UK ETS linkage and fails to address emissions associated with imports.



Key takeaways

- The 2024 EU's Methane Emissions Regulation (MER) introduces obligations on oil and gas operators with regard to **MRV and mitigation of emissions**. It is a first methane policy (globally) targeting imported emissions.
- Different regulatory approach for domestic and imported emissions – each comes with certain challenges.
- Art. 14 and art. 18 standardise **LDAR programs** and introduce new obligations concerning emissions from **inactive, plugged and abandoned wells**.
- Despite prescriptive character, **flexibility is encouraged** – subject to evidence provided by an operator and Competent Authority' decision.
- **Potential exemptions** for offshore components and wells.
- The EU's Methane Emissions Regulation (MER) will require importers to take producers' emissions into account in their **purchasing decisions**, in addition to price and delivery conditions.



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Analysing the EU Methane Regulation: what is changing, for whom and by when?

1. Introduction

Methane is the second-largest contributor to climate change after carbon dioxide (CO₂) responsible for at least 25% of the rise in global temperature since the industrial revolution.¹ Achieving long-term climate goals requires reducing both gases. However, due to methane's higher global warming potency, swiftly reducing it could help limit near-term warming. The urgency of methane reduction gained more policy attention after the publication of the 6th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC)² and the launch of the Global Methane Pledge aiming to collectively reduce manmade methane emissions by 30% by 2030 compared to the 2020 levels.³ Although over 150 countries representing over half of global methane emissions have signed the Pledge, by 2022 only a handful had implemented methane-specific measures.⁴ Among these, most prioritize reducing methane emissions from the energy sector.

Methane emissions in the energy sector arise from extraction, transport and the end use of fossil fuels – coal, oil and natural gas. Methane is both a Greenhouse Gas (GHG), an air pollutant and the major component of natural gas, and once captured it can be monetised, providing one of the most cost-effective ways to tackle climate change. Yet, methane emissions originate from diverse sources, posing challenges in accurate quantification and reporting. Studies across multiple jurisdictions have found that the official GHG inventories tend to underestimate methane emissions. This is likely due to several reasons including – the failure to account for episodic and super-emitting events, limited data sets used in developing emission factors (EFs), and associated measurement uncertainties in creating bottom-up EFs – all of which stem from the sparse use of direct measurement data in these inventories.⁵

While EU domestic fossil fuel production and associated methane emissions are declining and the agriculture and waste sectors account for a majority of the EU domestic methane emissions, the EU remains one of the biggest fossil fuel importers. Hence, the 2020 EU Methane strategy prioritised the improved measurement and reporting of methane emissions alongside the mitigation of energy-related emissions both within the EU and those associated with fossil fuels imports.⁶ The EU Commission

¹ Chapter 6.

² IPCC, 'Climate Change 2021'.

³ Commission, 'Launch by United States, the European Union, and Partners of the Global Methane Pledge to Keep 1.5C Within Reach'.

⁴ Olczak, Piebalgs, and Balcombe, 'A Global Review of Methane Policies Reveals That Only 13% of Emissions Are Covered with Unclear Effectiveness'.

⁵ Johnson, Conrad, and Tyner, 'Creating Measurement-Based Oil and Gas Sector Methane Inventories Using Source-Resolved Aerial Surveys'.

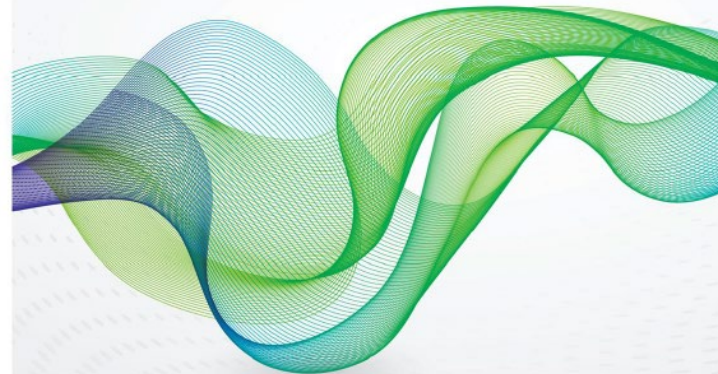
⁶ European Commission, 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on an EU strategy to reduce methane emissions [2020] COM(2020) 663 final. Brussels, 14.10.2020.'

Energy Insight: 153

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EU Methane Import Requirements: Can a Regulation Change How and From Where the EU Buys Gas?

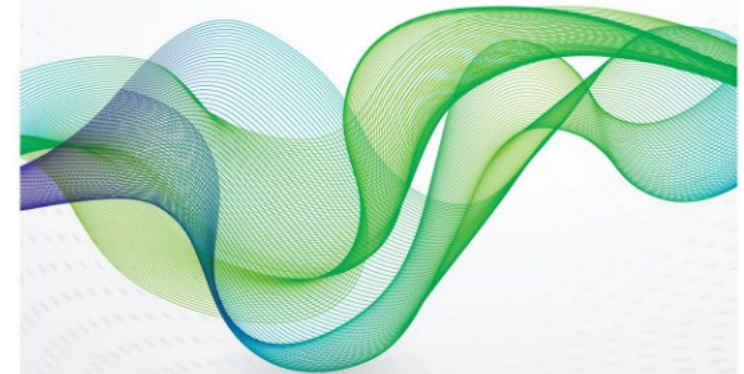


OIES Paper: ET 44

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September 2025

Bridging the Methane Gap: What the EU Import Standard Means for UK Oil and Gas Exports?



OIES Paper: NG 200

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Thank you

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