

DECODING THE EU METHANE REGULATION

Unveiling the key elements of the compromise agreement

General Assessment

On November 15, 2023, almost two years after the [European Commission's initial proposal](#), the European institutions reached a [final agreement](#) on the text of the EU Methane Regulation. This is the first EU-wide regulation tackling methane emissions, the main component of fossil gas.

After long negotiations and repeated attempts [until the end](#) to dilute the content of the legislation by the fossil fuel industry, an agreement was reached between the Member states and the European Parliament. It is a **first step in the right direction**, as the regulation introduces new requirements for the oil, gas and coal sectors to measure, report and verify methane emissions (so-called MRV rules), and adds methane abatement measures with leak, detection and repair rules (LDAR) and a ban on routine venting and flaring (BRVF). The monitoring and reporting rules of this framework and some contractual obligations will also be extended to emissions from imported energy sources, representing the EU's biggest consumption.

However, this is not enough. Several crucial elements are missing, endangering the effectiveness of the Regulation to concretely cut down the EU's methane emissions from the energy sector:

- The concrete mitigation measures (LDAR, BRVF) are not part of the framework for imported energy sources; **and the timeline to implement a maximum methane leakage rate has been excessively extended, making the regulation incompatible with the urgency highlighted in the [IEA's last report on methane emissions](#)** and most certainly inconsistent with commitments under the [Global Methane Pledge](#) (to reduce global methane emissions at least 30% from 2020 levels by 2030);
- Methane is the main component of fossil gas, yet the Regulation does not include **an overarching methane emission reduction target**, as proposed by the European Parliament, nor does it include a general reference to reduce methane emissions **as part of a long-term strategy to phase-out fossil fuels**.
- The **regulation does not cover the petrochemical sector**, even though it is set to be the [largest driver of world oil demand](#) and the International Energy Agency (IEA) estimates it to consume an additional 56 billion cubic meters (bcm) of fossil gas by 2030, and 83 bcm by 2050.

Why must we cut methane emissions now?

- 1. Greenhouse Gas Impact:** Methane is an extremely potent greenhouse gas (GHG) that has more than 80 times the warming power of carbon dioxide (CO₂) over a 20 year-period. While CO₂ is the primary contributor to long-term climate change, reducing methane emissions can have a more immediate impact on slowing global warming.
- 2. Meeting Climate Goals:** The Paris agreement's overarching goal is to limit global warming to well below 2°C, and ideally no more than 1.5°C, above pre-industrial levels. Rapid reduction of methane emissions is essential to achieving these goals, especially as global methane emissions are still rising.
- 3. Air Quality and Public Health:** Methane emissions are often accompanied by other pollutants, such as volatile organic compounds (VOCs) and nitrogen oxides (NO_x), which contribute to air pollution. By cutting methane emissions we can improve air quality, reducing the risk of respiratory issues and other health problems.
- 4. Human and Ecosystem Vulnerability:** Climate change poses an existential risk to communities and ecosystems, including more frequent extreme and severe weather events, disruptions in food and water supply, and threats to biodiversity. By cutting methane emissions, we mitigate these risks and enhance the resilience of both natural and human systems.
- 5. Transition to Clean Energy:** Addressing methane emissions is integral to the transition to 100% renewable energy sources. Investing in renewable energy such as wind and solar while phasing out reliance on fossil fuels, and especially fossil gas, aligns with broader efforts to decarbonize the energy sector. Cutting down methane emissions from the energy sector is one of the NGO policy demands to [phase out gas by 2035](#) to be in line with the objectives of the Paris Agreement.



Order of Magnitude

Estimates of methane emissions are subject to a high degree of uncertainty, because most emissions are under-reported. The IEA in the latest [Global Methane tracker \(2023\)](#) suggests that around 580 Mt of methane are emitted annually.

This includes emissions from natural sources (around 40% of the total) and from human activity (around 60% of the total), also known as anthropogenic emissions. The largest source of anthropogenic emission is agriculture (representing around 142,3 MT) **closely followed by the energy sector (around 135 MT)**, which includes emissions from coal, oil, and fossil gas.

- **The oil sector accounts for 45.6 Mt;**

- **The gas sector accounts for 36,7 Mt** (most emissions coming from normal every day gas operations; followed by emissions from very large single events leaks);
- **The coal sector represents 41,8 Mt of emissions.**

For these 3 fossil fuel sectors, the IEA's estimates are taking into account the whole value chain, with methane emissions occurring at any point during extraction, production, processing and transport/storage. This also includes emissions from the end use equipment of coal, oil and gas products (approx. 5 Mt or 3% of energy-related methane). Only emissions from abandoned coal mines and oil and gas wells are not included in the Global Methane Tracker, which nonetheless represent a significant part of the emissions.¹

What about LNG?

Methane emissions from LNG processes are not accounted for in the overall emissions from the gas sector. However, LNG being primarily composed of methane, leaks occur along the entire LNG value chain and there is increasing evidence that they represent a small but important source of emissions. There is a lack of accurate data yet, but the **IEA estimates total fugitive methane emissions from LNG liquefaction and shipping in 2022 to be around 0.4 Mt**, which represented around 0.1% of the global LNG transported at that time. But with the increasing LNG production since the Russian invasion of Ukraine, the related methane emissions are also increasing.

Methane leaks from LNG can occur at liquefaction facilities, transfer of LNG from the facility to the ship, but also during shipping, when part of the LNG cargo evaporates or is vented. **And the IEA estimates that shipping represents the majority of emissions from LNG processes.** However, the scope of the regulation does not encompass LNG transport (it only applies to LNG terminals, so for liquefaction activities for example), and there is a real lack of data on the leakages or venting activities occurring on LNG carriers; as satellite data is difficult to collect on sea. This is even more concerning as an analysis conducted by the ICCT found that **82%** of methane emissions from the international shipping industry in 2021 came from LNG carriers. This concern has been partly addressed, because the European Union's Emissions Trading System (**ETS**) will cover methane emissions from ships entering or departing EU ports, but only starting 2026. According to the **ICCT**, reducing methane emissions from ships could allow to achieve the Global Methane Pledge's objectives of reducing global methane emissions by 30% between 2020 and 2030.

1. The [U.S. Environmental Protection Agency](#) indicates they are responsible for close to 5% of energy-related methane in the United States; and a recent [study](#) estimated that abandoned mines could account for almost one fifth of methane emissions from worldwide coal production.



Scope of the Regulation

According to Article 1, the regulation applies to:

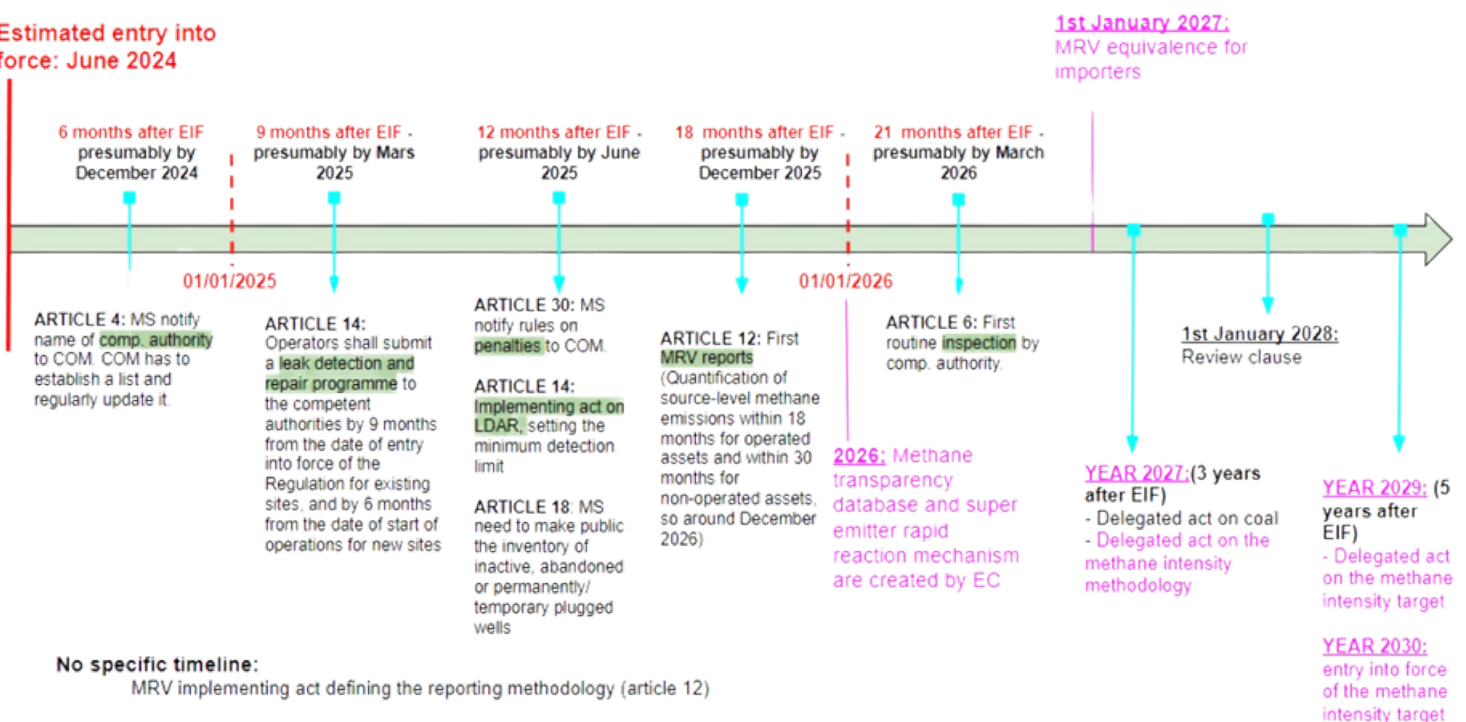
- **Oil and fossil gas exploration and production** (including inactive, abandoned, temporarily and permanently plugged wells) **as well as fossil gas gathering and processing.**²
- **Fossil gas transmission and distribution**, including underground storage and Liquefied 'Natural' Gas (LNG) terminals.
- **Operating coal mines** (underground and surface), along with abandoned and closed underground coal mines.
- **Imports of oil, fossil gas and coal** (see point below on fossil fuel imports).



Timeline for implementation

The compromise agreement was officially adopted by the Council on the 19th of December 2023. and was voted by the joint ITRE and ENVI Committees on the 11th of January 2024. The plenary vote is expected in the week of 11-13 March 2024. which would bring the regulation to enter into force earliest around mid-2024. Aiming that the Regulation enters into force in June 2024, we can expect the following timeline:

Estimated entry into force: June 2024



2. After a well is drilled and is producing fossil gas or oil, those need to be gathered, separated and, many times, processed before they can be used for domestic or industrial purposes. A gathering system consists of pipelines, compressors, and other facilities designed to transport the raw gas from wellheads to processing facilities such as gas plants or refineries.

Obligations for the oil and gas sectors

European operators of oil and gas will have to follow new requirements to measure, report and verify methane emissions; and apply methane abatement measures by detecting and repairing the leaks, with different frequencies depending on the type of leak and the type of components; and stopping routine flaring (venting being allowed under specific circumstances). The Regulation concretely foresees the following rules:



Monitoring, Reporting and Verification (Art. 12)

Monitoring, Reporting and Verification (MRV) involve measuring methane emissions, compiling and communicating this data, while verification ensures the accuracy and reliability of reported information through independent assessment and validation processes.

Within specific time periods from the entry into force of the regulation, operators must submit reports to the competent authorities containing:

- **Quantification of source-level methane emissions within 18 months for operated assets and within 30 months for non-operated assets.**
- **Site level measurement of emissions within 30 months for operated assets and within 48 months for non-operating assets.**

The European Commission will specify through the adoption of implementing acts (although there is no specific deadline - but probably to come soon) the methodology for the reporting. In the meantime, operators will use the **technical guidance documents of the Oil and Gas Methane Partnership (OGMP) 2.0**.³ Additionally, in case of discrepancies between these two measurements, operators will have to notify without delay to the competent authorities and carry out a reconciliation process.

Inspections by the competent authorities

Member states will have to designate a competent authority; which will be able to carry out non-routine inspections for operators, mine operators and importers, in accordance with the elements set out in Article 6 of the Regulation. The competent authorities will also have to complete routine inspections for coal, oil and gas operators, as follows:

- The **first inspection must be completed no later than 21 months** after the date of entry into force of the regulation
- The period between inspections **cannot exceed 3 years**
- If a **serious breach** has been detected, the next inspection must take place **within 1 year**.

3. The Oil & Gas Methane Partnership (OGMP) is a voluntary reporting framework about methane emissions for oil and gas companies initially created in 2014. The framework was later revised and replaced by the OGMP 2.0. The latter includes 5 levels of reporting, for instance, levels 3 and 4 refer to source-level emissions reporting, whereas Level 5 refers to site-level reporting.



Leak Detection and Repair (Art. 14)

Leak Detection and Repair (LDAR) for methane emissions involve identifying and fixing unintended releases. The process aims to address and reduce leaks for example from gas infrastructure.

The text introduces a risk-based approach, and establishes **two types of LDAR surveys** for operators who will have to replace all components, as follow:

- **TYPE 1 (larger leaks)** - Leaks will have to be repaired once they reach 7000 parts per million (ppm) in volume of methane or 17 grams per hour (g/h) of methane.
- **TYPE 2 (smaller leaks)** - Leaks will have to be repaired once they reach 500 ppm or 1 g/h of methane.
- These thresholds rise to 1000 ppt or 5 g/h for underground components and offshore components above the sea level, while a threshold of 7000 ppt or 17 g/h will apply to offshore components below the sea level and below the seabed.

Operators will need to submit a leak detection and repair programme to the competent authorities by 9 months after the entry into force of the Regulation for existing sites, and by 6 months after the date of start of operations for the new sites.

The frequency of LDAR surveys differ depending on whether the components are aboveground, underground and distribution and transmission networks.

Example of LDAR surveys for aboveground & underground components

	TYPE 1 (larger leaks)	TYPE 2 (smaller leaks)
Aboveground component	<ul style="list-style-type: none"> • Every 4 months (Compressor station, underground storage, LNG-terminal, regulating and metering station) • Every 9 months (valve station) 	<ul style="list-style-type: none"> • Every 8 months (Compressor station Underground storage LNG-Terminal Regulating and metering station) • Every 18 months (valve station)
Underground component	<p>Different frequencies according to the kind of material, eg ductile iron every 6 months & PVC and protected steels every 15 months</p>	<p>Different frequencies according to the kind of material, eg grey cast iron every 6 months & PVC (every 18 months) and protected steels (every 30 months)</p>

Repairs or replacements of components need to take place **as soon as possible**, a first attempt shall take place **no later than 5 days after detection and 30 days for a complete repair**. If it is not possible, operators will need to notify it and provide evidence.

LDAR Exemptions

- **Offshore oil and fossil gas components at a water depth greater than 700 meters** are exempted from LDAR obligations.
- If oil and gas operators can provide evidence, on the basis of the MRV rules and assessed by a verifier, that **during the five preceding years that less than 1 % of all their components and subcomponents in each site are leaking and that the methane emissions associated with these leaks aggregated represent less than 0.08% of the total volume of gas or 0.015% of the total mass of oil processed or extracted**, different LDAR survey frequencies will be applied, extending the frequencies up to every 60 months.



Limits on Routine Venting and Flaring - (Art. 15, 16, 22&26)

Routine Venting and Flaring (RVF) involves the intentional release of methane into the atmosphere. Venting releases methane directly, while flaring combusts it, converting methane in carbon dioxide (CO₂). These practices are justified by fossil companies for safety, operational or regulatory reasons.

Routine flaring is immediately banned with the entry into force of the regulation; venting is only allowed in case of an emergency or malfunction (according to circumstances provided in art. 15). Operators shall notify the competent authorities of venting and flaring events: caused by an emergency, a malfunction or lasting a total of 8 hours or more within a 24 hour period from a single event.



Closed, Inactive, Plugged and Abandoned Assets - (Art. 18)

After 12 months of the entry into force of the regulation, member states need to **make publicly available an inventory** of all recorded inactive wells, temporarily plugged wells, and permanently plugged and abandoned wells. The inventory shall then be regularly updated. **Proof of no methane emissions should be produced for wells permanently plugged and abandoned less than 30 years ago and, where available, for other wells.**

- But exemptions for Member States with more than 40.000 inactive wells and for offshore oil and gas wells located at a high water depth have been introduced.

What about the coal sector?

The scope of the Regulation covers **operating underground and surface coal mines**; including methane emissions from ventilation shafts, drainage stations (regardless of the reason for the venting and flaring activities) and post-mining activities (within the area of the mine) during the mining process. **For underground abandoned or closed coal mines**, the regulation only applies where coal production has been discontinued since 70 years prior to the date of entry into force of this Regulation. Coal mines that have been abandoned and closed for more than 70 years, and coal mines that have been flooded for more than 10 years are not covered by the Methane Regulation.

Regarding the monitoring and reporting rules, mine operators and drainage station operators will have to submit the first MRV report 12 months after the entry into force of the regulation; and then yearly source level methane emission data, but with different measurement methods depending if it applies to ventilation shaft and drainage station, or surface mine. For underground closed or abandoned mines, the operators only have to submit an inventory of all sites by 12 months after entry into force of the regulation. The real measurement activities start 24 months after entry into force. Exemptions were added to the MRV rules allowing specific components to be exempted from further monitoring and reporting if the observed annual methane release is below 1 tonne of methane for six consecutive years in the case of flooded mines or twelve consecutive years in the case of dry mines;

Regarding the rules on routine venting and flaring:

- Routine venting and flaring will be banned for drainage stations from 2025 onwards and from 2027 onwards for ventilation shafts.
- Venting of methane more than 5 tonnes per kiloton of coal mines will be banned in 2027 for thermal coal mines, reducing to 3 tonnes per kiloton in 2031. Within 3 years of the regulation, the Commission will set the venting threshold for coking coal.
- Venting and flaring from closed and abandoned mines will be banned from 1 January 2030.

A major weakness of the Regulation is the delayed timeline to define a venting threshold for methane-intensive coking. Coking coal mines release around 200 thousand tonnes of methane per year, similar to the emissions from underground thermal coal mines and just under half of the emissions from active underground mines in the EU.

For **operating underground coal mines**, drainage station operators will notify the competent authorities of all venting events and flaring events - with a destruction and removal design efficiency below 99% - caused by an emergency or a malfunction, or occurring unavoidably due to maintenance of the drainage system.



Rules for Imported Fossil Fuels - (Art. 27 to 30)

Most importantly, the text will put in place measures to tackle methane emissions associated with energy imports into the EU. As the EU is one of the largest fossil fuel consumers in the world and imports 80% of its fossil fuel consumption, addressing the upstream segment of the supply chain is a vital component of the regulation. In particular, the text foresees three implementation phases:

1 Phase 1: Information obligation for importers

By 9 months after the regulation comes into effect (**presumably March 2025**), **importers will have to provide specific informations detailed in Annex VIII concerning for example the producer or the exporter** of oil and gas to know whether they are undertaking source and site-level measurement and quantification, whether the data is subject to independent third-party verification, whether its methane emissions are reported on, whether it is in compliance with UNFCCC reporting requirements or with the Oil and Gas Methane Partnership 2.0 standards, etc.)

The European Commission will have to create a **methane transparency database within 18 months after the entry into force, (no later than 2026)**, where the data reported by importers and EU operators will be made available to the public. The idea is that the tool will track the methane emissions of different gas supply sources and show which energy companies and energy producing countries are taking commitments seriously and which are falling behind. This will be **coupled with the creation of a so-called super emitter rapid reaction mechanism** based on satellite data made available by certified providers (such as the Copernicus component of the EU space program) to detect and exchange information on super-emitting events. This will allow the European Commission to notify the Member State or third country of the super-emission event, and take rapid action to remedy the consequences or stop the event. This collection of data will allow the Commission to define methane performance profiles of countries and companies within 2 years after entry into force of the regulation (mid-2026).

2 Phase 2: MRV equivalence for importers

As of 1st January 2027, the same monitoring, reporting and verification (MRV) measures applying within the EU will be extended to **importers of fossil fuels** (for new contracts only, signed after entry into force of the regulation, so starting mid-2024. These rules will also apply to renewed contracts, even occurring under tacit renewal, happening after entry into force of the Regulation).

3 Phase 3: Defining a methane intensity standard

The last step of the import framework involves establishing a methane intensity target. **By 3 years after the entry into force of the regulation (i.e. at the earliest mid-2027)**, the European Commission will publish a **delegated act to define a methane intensity methodology; requiring importers to report the intensity of their methane leaks. This obligation will kick in around 2028, coinciding with the implementation of the delegated act. The methodology and collected data will allow the Commission to define a maximum methane intensity target via delegated act, 5 years after entry into force of the regulation (earliest mid-2029)**. However, this maximum methane intensity threshold, which is the most concrete measure to reduce upstream methane emissions, will not be enforced before 2030, 6 years after regulation takes effect.

The IEA and Global Methane Pledge on the other hand advocate for active methane emission reduction already achieved by 2030. And the methane intensity target will only apply to new energy contracts, concluded after entry into force of the regulation. It is difficult to assess exactly how this scope restriction will impact the implementation of the measures, as a lot of supply contracts are concluded for a long term period and as these informations are anyway confidential. But this restriction implicitly delays the implementation of the methane intensity target even further, as we will have to wait until existing contracts are terminated and renewed before importers obligations kick in.



Assessment

While the regulation is a first step in the right direction, much remains to be done to enhance imports measures, and to follow their implementation:

- The text doesn't introduce any other mitigation rules for fossil fuel importers than equivalent MRV, thus excluding the extension of EU domestic measures to imports on leak detection and repair (LDAR) and limit on routine venting and flaring (LRVF).
- Additionally, the timeline for introducing a methane intensity standard is too long. Considering only in 2027 the European Commission will publish a delegated act to define a methodology. This is clearly in direct contradiction with the EU's international commitments under the Global Methane Pledge, **which aims to reduce global anthropogenic methane emissions by 30% in 2030**.

Penalties: a Weak Framework

Member States will have to lay down their own rules on penalties and will be able to fix themselves the measures necessary to ensure that they are implemented. The only rule mentioned in article 30 is that penalties must be **effective, proportionate and dissuasive** and will have to include **finances proportionate to the environmental damage and impact on human safety and public health**. Periodic penalties are also foreseen to ensure operators put an end to the infringement.

Member States shall ensure that the competent authorities have the power to impose administrative penalties and administrative measures relating to breaches of the import provisions and of the corresponding provisions applicable at EU level. Member States will have to notify the rules they decided to the Commission by 12 months from the date of entry into force of the Regulation, in order to ensure they are consistent with those applied by other member states.

But **the regulation does not provide EU-wide uniformed rules and a methane fee as foreseen in the [U.S. Inflation Reduction Act \(IRA\)](#)**. This applies to oil and gas facilities that report emissions of more than 25,000 metric tons of CO2 equivalent per year to the U.S. Environmental Protection Agency (EPA) - see the table below for more information. **Moreover, art. 30 does not provide for a ban of the products that do not respect the EU methane regulation**. The penalties to importers will only be applicable starting from 2030.



A Global Perspective

While methane emissions from the EU are relatively moderate compared to other major fossil fuels producing regions, the bloc's heavy reliance on gas and oil imports - constituting around 80% of its consumption - results in an extremely high methane footprint (check here for more information).

It is thus crucial to scrutinize the EU methane regulation by comparing it with provisions in place or under discussion in some key exporting countries. In particular, we are taking into consideration some countries that are currently the most important fossil fuel suppliers to Europe.

Since the Russian invasion of Ukraine, we have seen a radical change in previous energy trade patterns, with pipeline fossil gas imports from Russia being replaced by an exponential growth in liquefied 'natural' gas (LNG) imports, i.e. Europe became the main destination for U.S. LNG exports in 2022 and 2023. It is therefore important to compare what happens in other countries, especially considering that the EU has decided to not impose maximum intensity values until 2030.

Notably, when comparing the EU methane rules with those of other countries, it can be observed that the EU falls behind countries such as the US and Norway when it comes to the introduction of a taxation or a fee for exceeding set threshold levels in methane emissions.

COUNTRY	<u>UNITED STATES</u>
Monitoring, Reporting & Verification (MRV)	<ul style="list-style-type: none"> • Comprehensive monitoring for leaks of methane from well sites and compressor stations, while giving oil and gas companies flexibility to use low-cost and innovative methane monitoring technologies. • Inclusion of a Super Emitter Program - using third-party expertise in remote sensing to detect large methane releases.
Leak Detection & Repair (LDAR)	<ul style="list-style-type: none"> • Well sites are divided into several regulatory categories: • Single wellheads require quarterly audible, visual, and olfactory (AVO) inspections. Repairs: to be completed 30 days after the first attempt. • Multi-wellhead require semiannual optical gas imaging (OGI) inspections and quarterly AVO inspections. Repairs: to be completed 30 days after the first attempt. • Well sites with major production and processing equipment require quarterly OGI inspections and bi-monthly AVO inspections. Repairs: to be completed 30 days after the first attempt.
Venting & Flaring	<ul style="list-style-type: none"> • Requirement to eliminate routine flaring of fossil gas that is produced by new oil wells, except in very limited cases such as emergencies and for safety reasons. • Additionally, Colorado and New Mexico do not allow long-term routine flaring of associated gas.
Methane Fee	<p>YES - Introduced by the Inflation Reduction Act (IRA) in 2022 and starting from 2024 (initially at a rate of \$900 per metric ton). In January 2024, a draft rule was published to answer the question on how the fee would work. In particular, LNG terminals and storage facilities, offshore production and pipelines are not covered by the methane rule, but methane fees could be assessed if their emissions exceed the law's emissions thresholds.</p>

COUNTRY	<p style="text-align: center;">NORWAY</p> <p><i>Methane emissions are regulated through several acts: the <u>Pollution Control Act</u>, the <u>Greenhouse Gas Emission Trading Act</u>, the <u>Petroleum Act</u> and the <u>CO2 Tax Act</u></i></p>
Monitoring, Reporting & Verification (MRV)	<ul style="list-style-type: none"> • According to legislative act M-107 there is an obligation to report emissions to air, including methane emissions. • All operators need to submit an annual report to the Norwegian Environment Agency
Venting & Flaring	A ban on routine gas venting and flaring exists since 1970, except for safety reasons which are based on permits issued by the Ministry of Petroleum and Energy.
Methane Fee	Venting of fossil gas is taxed at a rate of NOK 766 per tonne of CO2-eq.

COUNTRY	<p style="text-align: center;"><u>NIGERIA</u></p>
Monitoring, Reporting & Verification (MRV)	Operators shall develop and submit GHG management plans within 6 months of the effective date of the legislation that include an inventory of emission sources, accounting methodologies, and plans and timelines to reach net-zero emissions.
Leak Detection & Repair (LDAR)	<p>LDAR inspections with the following frequency:</p> <ul style="list-style-type: none"> • One inspection within the first year of implementation of the legislation; • Two inspections in the second year; • Four inspections in the third and subsequent years.
Venting & Flaring	Venting is prohibited and elimination of routine gas flaring by 2030. 60% reduction in fugitive methane emissions/leakages from oil and gas operations by 2031.

COUNTRY	<u>ALGERIA</u>
Monitoring, Reporting & Verification (MRV)	There are no specific limitations on emissions nor reporting requirements
Leak Detection & Repair (LDAR)	
Venting & Flaring	Prohibition of flaring and venting, with some exemptions as listed in law No. 19-13
Methane Fee	Tax on flared volumes of fossil gas at a rate of 12,000 Algerian dinars (about 81€ as of January 2024) per 1,000 cubic meters (m ³).

