



Minimizing Methane: High Impact Decarbonization



NCEL

National Caucus of
Environmental Legislators



**environment
programme**

Speakers

- Clara Summers, Climate & Energy Manager, National Caucus of Environmental Legislators
- Hilary French, Program Officer, UN Environment Program North America Office
- Mark Radka, Chief, Energy and Climate Branch, UN Environment Program
- Manfredi Caltagirone, Program Management Officer, Energy and Climate Branch, UN Environment Program

Why regulate methane emissions?

Mark Radka, Chief of Energy and Climate Branch, UNEP

5 March 2021

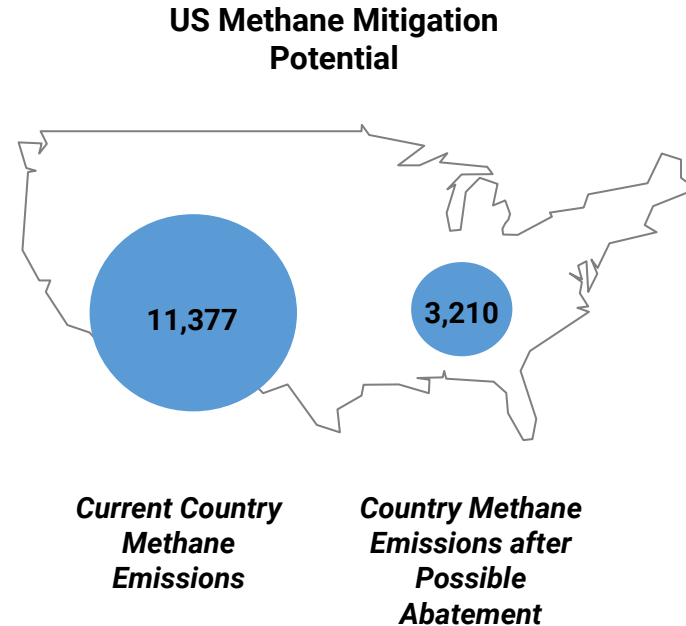
Reducing oil and gas methane can limit global warming

Global temperatures have already risen by over **1°C**, and despite a brief dip in emissions caused by the pandemic, the world is heading for a temperature rise in excess of **3°C this century** (2020 Emissions Gap Report).

The IPCC states that in order to limit warming to 1.5°C, we need **“deep reductions”** in short-lived climate pollutants like methane, which, over 20 year period, is over **80 times more potent** than CO₂ at warming the planet.

The oil and gas sector is one of the largest manmade source of methane emissions, and **cost-effective mitigation solutions exist today**.

Reducing methane emissions from the oil and gas sector by 75% could limit warming by **0.2°C** by 2030 and **0.5°C** by the end of the century.



Units: kilotons of methane
Data from IEA Methane Tracker

Cost savings associated with methane mitigation

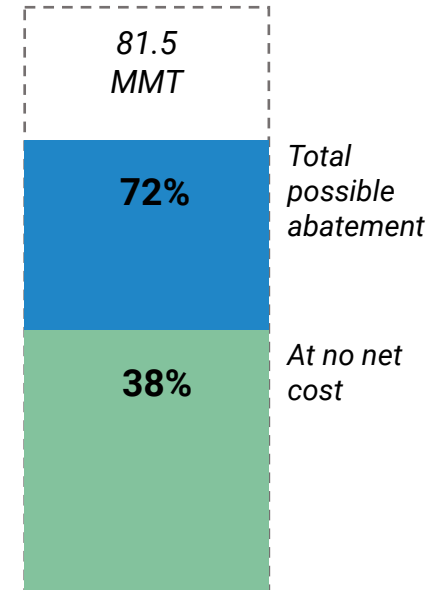
IEA estimates that it is technically possible to avoid around $\frac{3}{4}$ of today's methane emissions from global oil and gas operations.

Around **40%** of current methane emissions could be avoided at **no net cost**.

Since 2013, EDF calculated that US companies have wasted more than **\$2.8 billion** worth of natural gas from leaks – and that number grows by more than **\$1 million each day**.

In the next decade, US taxpayers will lose out on **\$800 million** of royalty revenue as a result.

**Methane Reduction
Potential from Oil and Gas**



Source: IEA

How reducing methane emissions creates jobs

Tackling methane emissions creates **high-quality jobs** that cannot be offshored.

A growing US industry of **LDAR firms** supports six job types with varying education (from high school diploma to PhD) and annual salary levels (from \$27,040 to \$113,110).

More than half (55%) of 60 US LDAR firms are **small businesses**.

A common entry-level job, LDAR technician, offers opportunity for **upward mobility**. Many skills developed by technicians are transferrable to other jobs in the oil & gas industry.

US companies have already experienced **5–30% business growth** in states with methane regulations.

Source: Datu Research, 2017



Health co-benefits of methane regulation

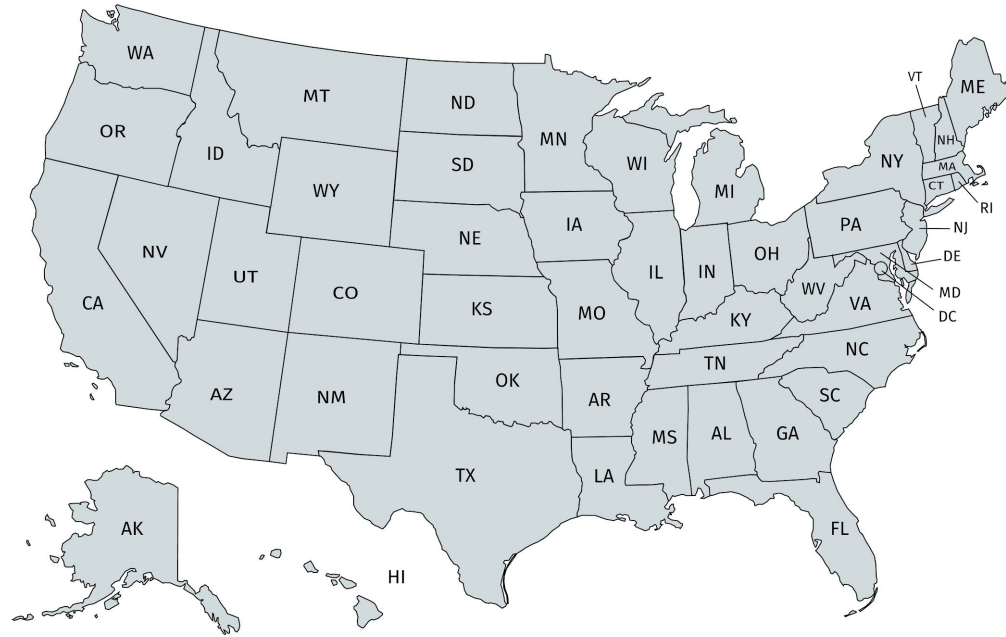
Methane is a key precursor gas of the harmful air pollutant, **tropospheric ozone**.

Globally, methane emissions are **responsible for half of the observed rise in tropospheric ozone levels**.

While methane does not cause direct harm to human health ozone was responsible for about **1 million premature respiratory deaths** globally in 2010 – approx. **one in five** of all respiratory deaths, more than previously estimated (~0.4 million).



U.S. State Regulation of Methane



Policy Options: Bans

No new gas infrastructure

- **WA HB 1084** - would prohibit natural gas infrastructure in new construction

Fracking bans

- **MD HB 1325** - prohibited hydraulic fracturing



Policy Options: Reductions

Address leaks

- **CO SB 19-181** - enhanced requirements for leak detection and repair (LDAR) and pipeline inspection

Set emissions reductions targets

- **CA SB 1383** - set targets for reducing short-lived climate pollutants throughout the value chain.

Regulate transmission

- **MA 310 CMR 7.73** - would require fixing leaks with “significant environmental impact”



Status of Methane Mitigation Commitments around the World

Manfredi Caltagirone
5 March 2021

Overview of Regulatory Approaches to Methane Emissions

Prescriptive	Performance-based	Economic	Information-based
<ul style="list-style-type: none">• “Command and Control”: state what regulated parties must do with specific rules and methods• May include technology or process requirements	<ul style="list-style-type: none">• Designed to reach a desirable outcome without requiring a specific methodology• May include emissions reduction targets	<ul style="list-style-type: none">• Apply penalties or incentives for certain behaviors• May include taxes, subsidies, or market-based approaches such as tradable emissions permits	<ul style="list-style-type: none">• Designed to improve the state of information about emissions• May include requirements that regulated entities estimate, measure and report their emissions to public bodies

Methane Policies Categorized by Regulatory Approach

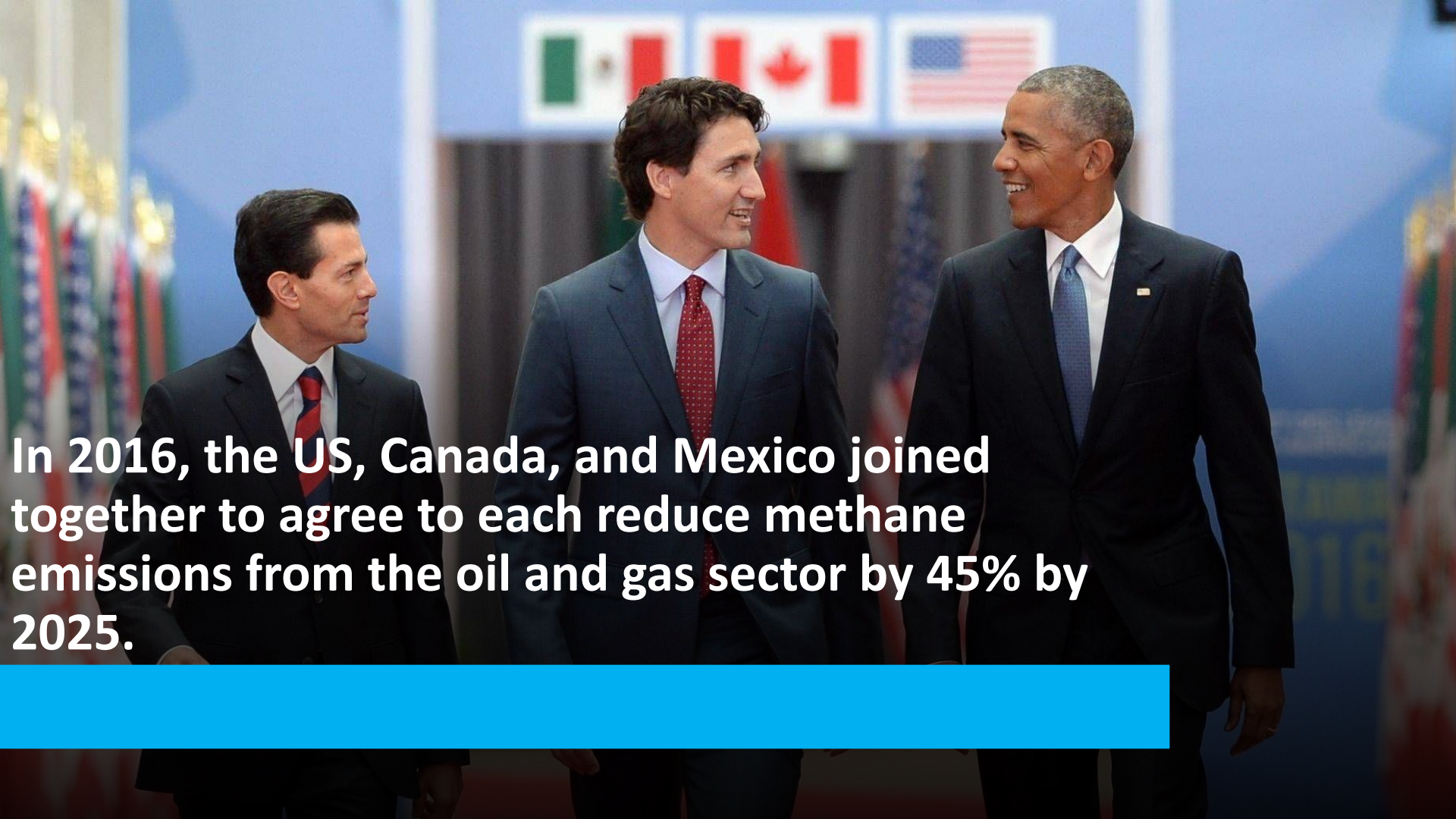
Source: International Energy Agency Regulatory Roadmap

	Prescriptive					Performance-based				Economic			Information-based		
	Permitting requirements	Leak detection and repair	Restrictions on flaring or venting	Technology standards	Enforcement and related provisions	Strategic targets	Facility or company emissions standards	Process or equipment standards	Flaring or venting standards	Taxes, fees and charges	Emissions trading and credits	Other financial incentives	Emissions estimates	Measurement requirements	Reporting requirements
Brazil	●		●	●	●				●	●	●		●		●
Canada	○	●	○	●	○	●	○	●	○		○	●	●	●	●
China (People's Republic of)	●		●	●	●										
Iraq	●				●										
Iran	●														
Mexico	●		●	●	●	●	●	●	●		●		●	●	●
Nigeria	●		●	●	●	●			●	●		●	●	●	●
Norway	●		●		●					●			●	●	●
Russia	●								●	●					
Saudi Arabia	●			●	●										
United Arab Emirates	●				●										
United States	○	●	○	●	●	○	○	●	○	○		○	●		●

Notes: A full circle indicates a policy applied at the national-level. An empty circle indicates a subnational policy (e.g. at state or provincial level in a federal system). Definitions for each type of instrument can be found in [Annex A](#). This table reflects entries in the [IEA Policies Database](#) as of 18 January 2020. We welcome feedback from jurisdictions regarding any updates to existing policies or on additional policies that are missing from the database

Overview of Regulatory Approaches to Methane Emissions

Prescriptive	Performance-based	Economic	Information-based
<ul style="list-style-type: none">• Pro: Simpler to design and implement• Con: Can become dated with changes in work practices or equipment	<ul style="list-style-type: none">• Pro: More flexibility on technology and practices• Con: May require advanced understanding of infrastructure and emissions levels	<ul style="list-style-type: none">• Pro: Can lead to the most cost-effective mitigation approach• Con: Does not guarantee a certain level of emissions reduction	<ul style="list-style-type: none">• Pro: Can be applied with lack of data or emissions uncertainty• Con: Does not directly lead to emissions reduction



In 2016, the US, Canada, and Mexico joined together to agree to each reduce methane emissions from the oil and gas sector by 45% by 2025.

Regulatory Approach in Canada

Canada includes methane reduction from the oil and gas sector as part of its **Nationally Determined Contribution**. To achieve this, Canada has passed regulations at both the federal and provincial level.

Federal regulations take a **prescriptive approach**, where facilities have specific requirements regarding fugitive and venting emissions. The bottom-up approach is focused on **individual activities and components**, including LDAR requirements and the regulation of pneumatics, compressors, and routine venting.

The Minister of Environment may defer to **“equivalent” regulations promulgated by a sub-national government**. British Columbia’s methane regime has been designated as equivalent, while Alberta and Saskatchewan are seeking equivalency.

Canada’s regulations are not comprehensive: while approximately 96% of onshore gas production facilities are covered, **only about 20% of onshore oil facilities are covered**. Operators are not required to control associated gas at oil wells, and downstream facilities and abandoned wells are excluded from the requirements. Modeled results suggest that the **regulations will only achieve a 29% reduction** by 2025.

In 2020, Canada announced a CA\$750 Emissions Reduction Fund as part of its Covid-19 recovery package. This fund includes a focus on reducing methane pollution and maintaining jobs.

Regulatory Approach in Mexico

Each facility is required to conduct an “**emissions diagnostic**” to identify emissions sources, then establish **a reduction target and a plan** to achieve that target in the next six years (PPCIEM).

An **authorized third party** will verify the plan and progress towards it at the end of each year. The plan may then be **adjusted** to reflect the actual progress achieved.

Technological choices are left to the discretion of the company, provided they can demonstrate that they are **equal to or better than** what is considered “best practice”.

Leak Detection and Repair (LDAR) is **mandatory** on a quarterly basis and facilities must **maintain records** related to methane emitting components and activities for 5 years.

Mexico's regulation is considered the most comprehensive and ambitious policy currently in existence.

Mexico's Methane Regulation Cycle



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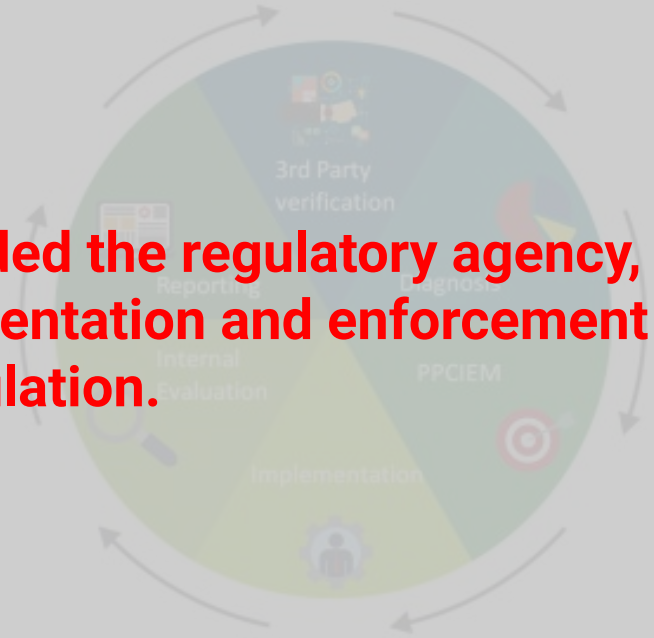
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This week, the government of Mexico defunded the regulatory agency, leaving doubts as to the future of the implementation and enforcement of Mexico's methane regulation.

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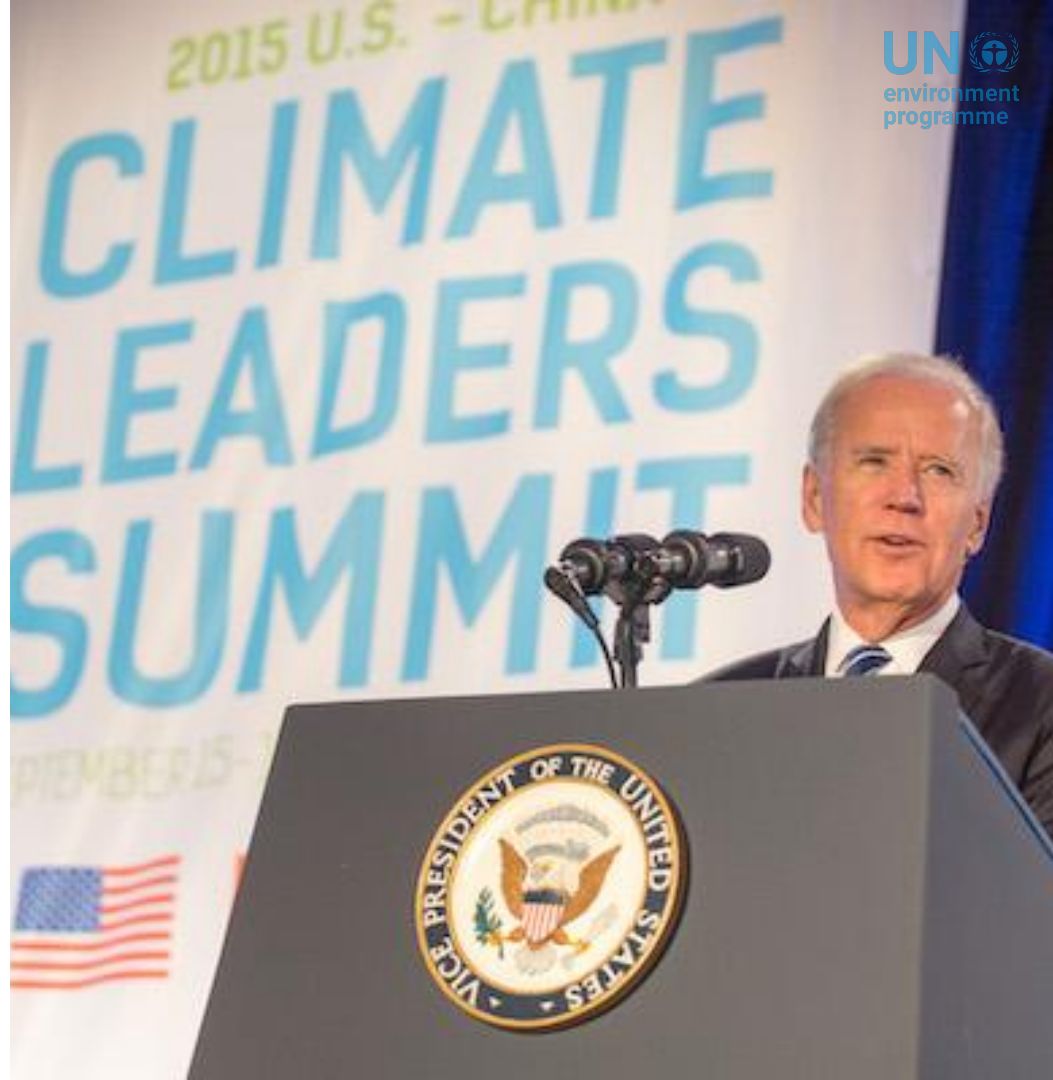
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Mexico's Methane Regulation Cycle



Methane as a US Climate Priority

In his Executive Order on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, President Biden identified methane regulations as one of the key rollbacks that his administration would consider rescinding.



European Union Methane Strategy

In 2020, the European Commission announced an **EU strategy to reduce methane emissions**, with a strong focus on actions in the fossil fuel sector, particularly oil and gas.

The strategy highlights **voluntary and business-led initiatives** in the near-term, with the future intent to **explore legislative proposals** such as compulsory measurement, reporting, and verification (MRV), mandatory LDAR, eliminating routine venting and flaring, flaring efficiency improvements, and methane reduction targets.

The legislative proposal for MRV will build upon the framework established in the **Oil and Gas Methane Partnership**, a comprehensive measurement-based methane reporting framework that standardizes rigorous and transparent emissions accounting practices.



The strategy highlights the importance of credible methane emissions data, stating that “currently, there exists no independent, international body which collects and verifies methane emissions data.” To address this problem, UNEP and the EC will launch the International Methane Emissions Observatory, which will be tasked with collecting, reconciling, verifying, and publishing anthropogenic methane emissions data at a global level.

International Methane Emissions Observatory – UNEP’s answer to the methane data problem



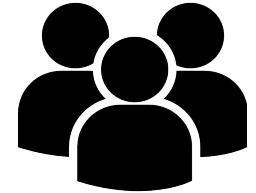
Integrate, reconcile and analyze data on methane emissions



Validate measurement techniques and technologies



Provide an early warning system for extraordinary methane emissions



Engage countries to raise awareness on methane emissions

IMEO’s Programmes:

Transparency

Provide accurate, unbiased and up-to-date information on methane emissions attributable to fossil fuel operations

Science

Close the knowledge gap on methane emissions through peer-reviewed studies and reconciliation of data

Implementation

Raise awareness and increase capacity of governments to pursue policy options to manage methane emissions

Thank you

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