

# Executive Summary

**Human-caused methane emissions are responsible for roughly one-third of the planet's current warming. Reducing these emissions is the fastest, most cost-effective way to slow global warming in the near-term—and is essential to averting critical climate damages.**

**The fourth edition of the United Nations Environment Programme (UNEP) International Methane Emissions Observatory (IMEO) publication, *An Eye on Methane: Invisible but not unseen*, takes stock of the progress made to harness a methane data revolution that can accelerate methane reduction at a global scale.**

**UNEP's IMEO provides data and context to the individuals who can act to reduce emissions. To do this, IMEO collects and publishes data through rigorous industry reporting via the Oil and Gas Methane Partnership 2.0 (OGMP 2.0), from satellites via the Methane Alert and Response System (MARS), from its series of global methane science studies, and from national emissions inventories.**

**This report finds that engagement with the systems built to reduce emissions has not kept pace with the mounting pledges to act. The tools for a methane data revolution are ready—governments and companies must now deliver. As UNEP's 2024 Emissions Gap Report warns that climate goals are slipping out of reach, data-driven action on methane represents a clear opportunity.**

## 1. Enabling oil and gas sector transparency and mitigation

OGMP 2.0 sets the global standard for methane accountability and transparency in the oil and gas sector, and has expanded to 140 members covering 42 per cent of global production in 2024. This marks an increase of over 20 companies since last reported in 2023.

This is also the first year that OGMP 2.0 has begun awarding its "Gold Standard reporting" to companies that report their emissions at the partnership's highest data quality levels. Moving all companies to Gold Standard emissions reporting is necessary to effectively track and target mitigation with measurement-based data. In 2024, 55 companies achieved Gold Standard reporting, out of OGMP 2.0's first cohort of 68 companies that joined in 2020 and 2021.

OGMP 2.0's other 72 member companies that reported data in 2024 (OGMP 2.0 companies are expected to submit their first report the year after they join) are earlier on their journey. Forty-one companies met the agreed Gold Standard pathway as they roll out empirical measurements across their operated and non-operated portfolios. One company achieved Gold Standard reporting ahead of the deadline, demonstrating to the rest of the partnership what is possible.

## 2. Understanding the oil and gas methane emissions reporting gap

UNEP's OGMP 2.0 provides data to guide and track methane reduction in the oil and gas sector. To do this, its member companies report their emissions through a measurement-based framework. Notably, the past two IMEO reports found that emissions reported by OGMP 2.0 companies were significantly less than the corresponding amount of methane observed in the atmosphere.

This year's report clarifies this gap—and confirms that UNEP's OGMP 2.0 is shifting the sector from imprecise estimates to credible measured data. Analysis by UNEP's IMEO reveals the methane volumes estimated with generic emissions factors, rather than measurements, underestimate emissions, while assets of OGMP 2.0 companies remain unreported. In addition, the available data indicates that significant differences in the types of oil and gas assets operated by OGMP 2.0 vs. non-OGMP 2.0 companies begin to plausibly explain why OGMP 2.0 companies would have lower emissions intensity.

OGMP 2.0 companies' implementation plans provide assurance that the gap will continue to narrow in the coming years as companies provide more verified data. Expanding OGMP 2.0 participation across the sector is necessary to shed more light on the actual sources of emissions—and where mitigation efforts must be targeted.

## 3. The Methane Alert and Response System (MARS): Ready for action

Through MARS, IMEO draws data from over a dozen satellite instruments to alert countries and governments of major emissions. To date, UNEP has issued over 1,200 MARS notifications and enhanced the system's capabilities with new AI tools and an expanded engagement network.

So far, MARS has catalysed and verified action to mitigate emissions across four continents. However, while the system's capabilities and notifications have grown, response and action by operators and governments has not kept pace.

Of the more than 1,200 MARS notifications issued, just over one per cent have received any substantive response. Given this low response rate, there is a clear climate opportunity for countries and governments to engage and increase mitigation action.

## 4. Methane emissions in the steel supply chain

Methane emissions from the steel supply chain offer a major but overlooked opportunity for climate action. Production of metallurgical coal (metcoal) accounts for one-tenth of energy sector methane emissions and contributes around one-third of the near-term climate footprint of steel. The majority of these emissions can be mitigated at less than one per cent of the price of steel. With the vast majority of steel produced using blast furnaces fueled by metcoal, addressing these emissions is consistent with industry's effort to curb the cost of lower-carbon alternatives.

Through IMEO, UNEP is working to incorporate methane mitigation into the steel industry's climate strategies, advancing a suite of scientific studies and expanding MARS to cover metcoal facilities.

At the core of this work is the IMEO Steel Methane Programme, which sets ambitious targets and promotes emissions measurement in metcoal production. This initiative builds on OGMP 2.0's success in the oil and gas sector, and offers a practical, cost-effective way to lower the climate footprint of steel while the industry adopts cleaner technologies.

## 5. Evolving IMEO's methane science

As of 2024, IMEO has launched 37 methane science studies across 19 countries. Initial IMEO methane science studies have successfully filled key knowledge gaps, including by providing the first empirical studies of offshore oil and gas infrastructure and liquefied natural gas facilities, as well as research campaigns in regions lacking empirical data.

Now, a new generation of satellites and monitoring approaches that provide policy-relevant data is creating new opportunities. IMEO is evolving its scientific efforts to capitalize on these changes. While initial studies sought to obtain a basic understanding of emissions in regions without reliable data, moving forward, all studies will prioritize four main objectives.

1. Advancing reconciliation and data integration approaches for multi-scale emissions data
2. Validating measurement-based approaches
3. Supporting data assurance and characterisation of regions and sources with high uncertainty or discrepancies in the integrated data
4. Furthering science studies in support of countries targeting methane mitigation.

## 6. Assembling the methane data puzzle

Accurately estimating the full picture of methane emissions requires integrating data from diverse sources. The number of variables involved—including how emissions change over time, differing operational conditions and measurement instruments' range of detection thresholds and applications—means that relying on a single data source to obtain a complete picture of emissions is not possible.

Through IMEO, UNEP is expanding its efforts to synthesize data so that decision makers are empowered to take targeted action through informed choices. This includes products like the Methane Supply Index, which will enable gas buyers, governments and civil society to compare the methane content of different oil and gas imports. This index will integrate empirical data from IMEO's scientific studies, satellite data and OGMP 2.0 reporting to provide transparency and accountability.

## 7. Building capacity for methane action

IMEO is driving collaboration between governments, industry and other key players to address systemic barriers to methane reduction. By engaging policymakers and regulators who shape the conditions for mitigation, UNEP aims to facilitate action, particularly by those with direct agency to reduce emissions.

UNEP's IMEO Methane Training Series has nearly doubled the number of government officials and industry professionals empowered to identify and implement strategic actions by leveraging methane data. To date, these trainings have been provided to over 1,000 individuals across 30 countries.

Further, IMEO is ensuring major scientific efforts are paired with engagement, including in its Colombia and Nigeria country-wide baseline studies as well as work in Turkmenistan, where IMEO has provided analysis and scoping of a major in-country mitigation project with the potential to reduce four million tonnes of methane annually.

### **Making the leap from ambition to action for global methane reduction**

Achieving global climate goals hinges on a decisive shift from ambition to action, and the tools to make that shift are already available. UNEP has laid the foundation for global methane progress with cutting-edge initiatives like OGMP 2.0, MARS, its new Steel Methane Programme and a growing suite of data products. But real progress will only come when stakeholders across governments, industries and civil society embrace these resources and turn them into action.

The path to a more sustainable future is clear—by harnessing the power of data and collaboration, we can dramatically cut methane emissions, slow global warming and deliver on the promise of the Global Methane Pledge and the Paris Agreement.

The time to act is now.

