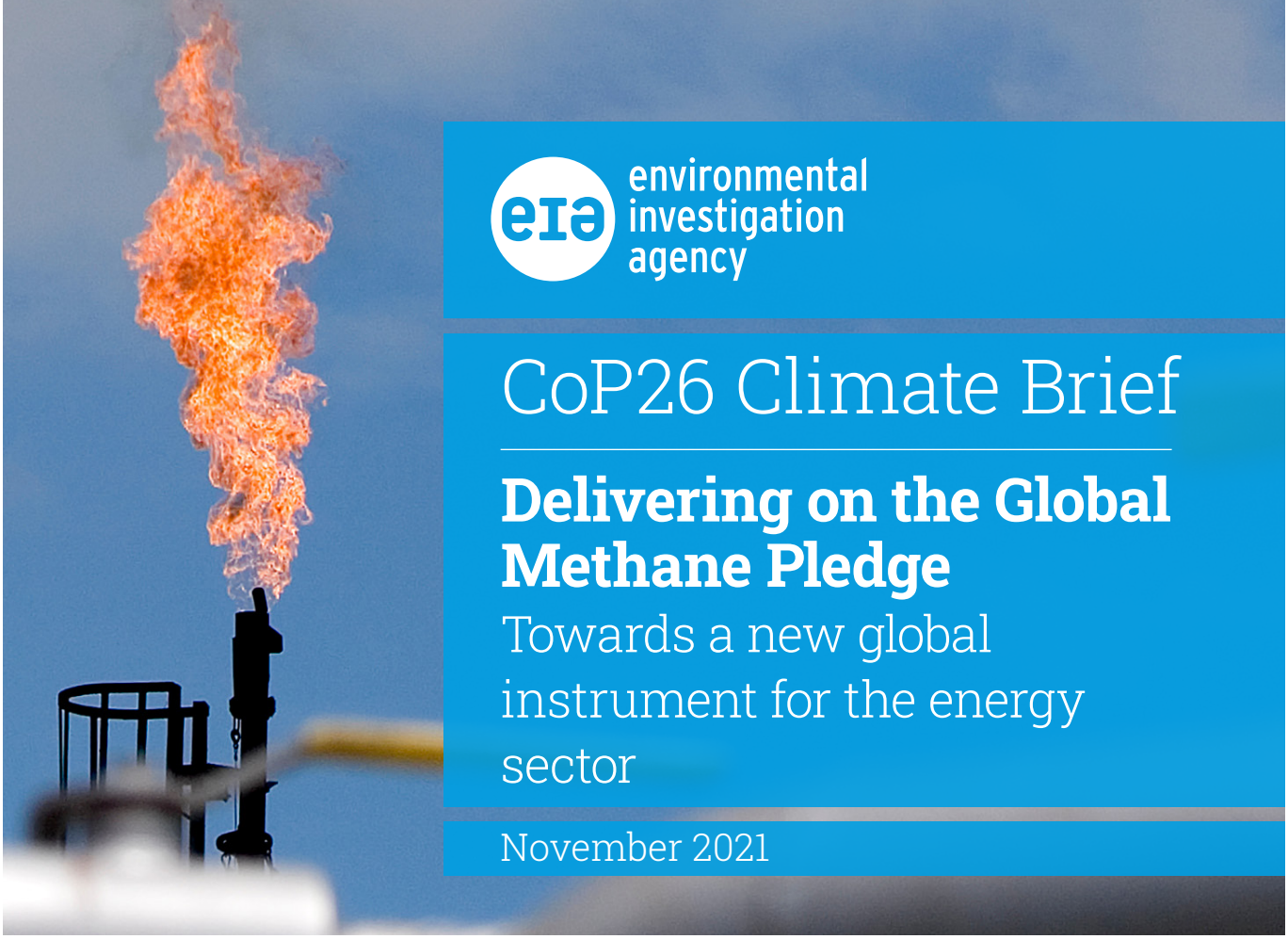

environmental investigation agency

CoP26 Climate Brief

Delivering on the Global Methane Pledge

Towards a new global instrument for the energy sector

November 2021

Background

To stay well below 2°C and limit global warming to 1.5°C, the global community must take decisive action to reduce methane emissions from the energy sector and transition to alternative energy sources.

Methane is the second most important greenhouse gas, 86 times more powerful than carbon-dioxide (CO_2) over a 20-year period, contributing to 25 per cent of warming experienced today.[1] Atmospheric methane concentrations are at their highest ever since measurement,[2] having risen by almost 10 per cent in the past 20 years.[3] Recent studies show that human-caused methane emissions are much higher than reported.[4]

In the Special Report on Global Warming of 1.5°C, the Intergovernmental Panel on Climate Change (IPCC) found that "pathways that limit global warming to 1.5°C with no or limited overshoot involve deep reduction in emissions of methane." [5]

In the Global Methane Assessment, UN Environment further found that "global methane emissions must be reduced by between 40-45 per cent by 2030 to achieve least cost pathways that limit global warming to 1.5°C this century" and readily available targeted measures "can reduce 2030 methane emissions by 30 per cent" with nearly half of these technologies "available to the fossil fuel sector in which it is relatively easy to reduce methane at the point of emission and along production/transmission lines".[6]

The Global Methane Pledge comes as a critical time. Unveiled in advance of the 26th UN Climate Change Conference (CoP26) under the UN Framework Convention on Climate Change (UNFCCC), it represents an important milestone, committing signatories to collectively reduce global anthropogenic methane emissions across all sectors by at least 30 per cent below 2020 levels by 2030, further resolving to review progress towards the target on an annual basis until 2030 by means of a dedicated ministerial meeting.[7]

This is a starting point for a decade of ever-increasing ambition on methane, but strong and bold diplomatic efforts are needed to develop an international governance framework – a new global methane instrument – to underpin and deliver on these commitments and more.

This 'thought starter' sets out a framework for collective international action on methane emissions in the energy sector, identifying the pillars of action for a new global methane instrument to implement and strengthen the Global Climate Pledge.

Link to phase-out of fossil fuels

In addition to tailpipe and smokestack emissions of carbon dioxide (CO_2) and other greenhouse gases from combustion, fossil fuels emit methane along the supply chain.

For gas, which is itself predominantly methane, methane emissions occur during exploration, production, gathering, processing, liquefaction, regasification, transmission, storage and distribution. For oil and coal, for which methane is a co-product or by-product, methane emissions occur primarily at or around the oil pad or coal mine during exploration, production, gathering and processing.

For these reasons, any effort to reduce methane emissions in the energy sector is closely linked to the transition away from the use of fossil fuels.

Pillars of action

Pillar 1 - Monitoring and reporting

An essential element in any multilateral environmental agreement is monitoring and reporting. As a result, an initial body of work for the new global methane instrument will be to harmonise definitions, formats, templates and methodologies, including for site-level measurement and specific emission and activity factors with the objective being to move toward higher tiers of reporting on actual emissions.

Measurement and monitoring of methane emissions should cover each segment of the supply chain and be accompanied by national reporting obligations. To assist countries, the International Methane Emissions Observatory (IMEO) should provide satellite surveillance and verification as well as an early warning system for super-emitters.

Periodic comprehensive assessments will compile nationally reported information, reviewing progress toward targets and ratcheting review to increase ambition.

Pillar 2 – Methane mitigation

At the heart of the new global methane instrument is collective and national action to reduce methane emissions in the energy sector.

Global commitments. To stay within 1.5°C, the Global Methane Assessment speaks to the need to reduce global methane emission by 40-45 per cent by 2030, a significant proportion of which should come from the energy sector where over 80 per cent of the measures could be implemented at negative or low cost, with further targets appropriate for 2040 and 2050 in line with climate-neutrality objectives. In setting targets specific to the energy sector, countries should set achievable reductions align with the best available science and tremendous mitigation potential in this sector. Countries should also include controls on production and consumption of fossil fuels, in line with net zero for carbon-dioxide (CO_2) emissions by 2050.

National methane action plans. National methane action plans, for inclusion as a specific sub-section dedicated to reducing methane emissions in nationally determined contributions (NDCs) under the Paris Agreement, are the cornerstone of methane mitigation, transposing global commitments and obligations and setting out the specific policies and measures tailored to the national circumstances. To this end, national methane action plans should contain sectoral phase-out strategies, linked to alternatives deployment and infrastructure investments in the main methane-emitting sectors—e.g. energy, heating, transport and industry—with national targets and measures to mitigate methane emissions in the interim. Such mitigation measures should include: (i) monitoring, reporting, verification (MRV) subject to minimum requirements and ensures independent third-party verification; (ii) leak detection and repair (LDAR) subject to minimum requirements on frequency of checks, repair timelines and resurveying obligations, eventually moving to continuous monitoring; (iii) bans on routine venting and flaring (BRVF) with clearly defined exceptions and criteria and updated flaring efficiency standards; (iv) unused and abandoned wells, in particular obligations to cap and seal or capture and use leaking methane to eliminate legacy methane emissions; (v) coal mine methane; and (vi) petrochemicals and feedstocks. These national methane action plans should be updated periodically.

Super-emitters. A disproportionate share of methane emissions come from super-emitters, with five per cent of methane links in the energy sector contributing to 50 per cent of the emissions.[8]

Addressing super-emitters is therefore an important undertaking, with the International Methane Emissions Observatory (IMEO) and other satellite surveillance initiatives playing a potentially significant role in detecting and alerting to national authorities and countries, which should have in place a set of measures and protocols to eliminate the super-emitting event.

Pillar 3 – Financial and technical assistance

Collective action on methane emissions in the energy sector will require technical and financial assistance made available to policymakers and developing countries.

Policymaking should always be based on the best available science, convening the relevant expertise as needed to inform policymakers. This can be best achieved through a dedicated scientific and technical assessment body, one which undertakes periodic comprehensive assessments on progress toward targets and analyses increasing ambition through a ratcheting review process while also producing ad hoc reports on specific issues.

In addition, targeted technical assistance to developing countries can be provided by implementing and bilateral agencies, such as capacity-building and help with policy development and reporting and monitoring, as well as through best practice and knowledge exchanges. Such targeted technical assistance to developing countries would complement financial assistance, which would ideally be provided via a dedicated mechanism designed to assist developing countries with implementation and compliance with the new commitments under the new global methane instrument.

Financial assistance can be divided into two main categories: (i) enabling activities, i.e. those activities necessary to pave the way for or enable compliance such as capacity-building and training, policy development, monitoring and reporting, institutional strengthening and pilot and demonstration projects; and (ii) incremental costs, i.e. agreed costs related to complying with the new commitments. Finally, an implementation and compliance mechanism could provide countries in non-compliance with assistance to come back into compliance.

Pillar 4 – Coordination

Several existing international and national bodies and stakeholder initiatives are working to monitor or reduce methane emissions from the energy sector. However, there is often a lack of coordination and coherence among these activities and unclear roles and responsibilities.

Actors in this space include UN Environment (UNEP), Climate & Clean Air Coalition (CCAC), International Energy Agency (IEA), European Space Agency (ESA) and National Aeronautics and Space Administration (NASA) as well as several stakeholder initiatives. For example, UNEP and CCAC support countries in the implementation of methane reduction targets for the oil and gas industry, while the IEA provides data, analysis and abatement potentials to support governments in drafting their policies.

Moreover, the emergence of satellite surveillance will, in the next five years, radically increase the amount of methane emissions data available, with greater accuracy, spatial detail, quantification and timelines. On this, ESA has committed to add two additional flagship missions in its Copernicus programme.[9] NASA plans its GeoCarb mission to provide wall-to-wall observations over the Americas.[10] And Carbon Mapper is a pioneering programme deploying a ground-breaking hyperspectral satellite constellation with the ability to pinpoint, quantify and track methane emissions.[11]

The new global methane instrument should thus ensure coordination and coherence with existing bodies and initiatives, exploring synergies, avoiding redundancies and clarifying roles and responsibilities.

NEW GLOBAL METHANE INSTRUMENT FOR THE ENERGY SECTOR
PILLARS OF ACTION

PILLAR 1
MONITORING AND REPORTING

Monitoring and reporting on methane emissions and implementation

Harmonisation

- Definitions
- Formats and templates
- Methdologies (e.g. site-level measurement, specific emission and activity factors)

Emissions Measurement and Monitoring

- Exploration and production
- Gathering and processing
- Liquefaction and regasification
- Transmission and storage
- Distribution

National Reporting

- Emissions
- National methane action plan and updates

International Methane Emissions Observatory (IMEO)

- Satellite surveillance and verification
- Detection and alert of super-emitters

Periodic Comprehensive Assessments

- Progress toward targets
- Ratcheting review

PILLAR 2
METHANE MITIGATION

Measures to reduce methane emissions and transition to alternative energy sources

Global Commitments

- Energy sector targets (2030, 2040, 2050)
- Controls on production and consumption

National Methane Action Plans

- Sectoral phase-out strategies
  - targets and other policies
  - alternatives deployment
  - infrastructure investments
- Monitoring, reporting, verification (MRV)
  - minimum requirements (e.g. site-level measurement, transparency)
  - independent third-party verification
- Leak detection and repair (LDAR)
  - minimum requirements (e.g. checks, repair timelines, resurvey)
  - continuous monitoring
- Ban on routine venting and flaring (BRVF)
  - exceptions and criteria
  - capture and reinjection or use
  - flaring efficiency standards
- Unused and abandoned wells and mines
  - cap and seal or capture and use
- Coal mine methane
- Petrochemicals and feedstocks

Super-Emitters

- Measures and protocols

PILLAR 3
FINANCIAL AND TECHNICAL ASSISTANCE

Technical support to policymakers and financial support to developing countries

Scientific and Technical Assessment Body

- Periodic comprehensive assessments
- Ad hoc reports

Implementing and Bilateral Agencies

- Provision of technical assistance
  - capacity-building and training
  - policy development
  - monitoring and reporting
- Best practices and knowledge exchanges

Financial Assistance

- Enabling activities in developing countries
  - capacity-building and training
  - policy development
  - monitoring and reporting
  - institutional strengthening
  - pilot and demonstration projects
- Incremental compliance costs

Implementation and Compliance Mechanism

- Assistance for countries in non-compliance

PILLAR 4
COORDINATION

Coordination with other international and national bodies and stakeholder initiatives

UN Environment (UNEP)

- International Methane Emissions Observatory (IMEO)
- Emissions Gap Report

Climate & Clean Air Coalition (CCAC)

- Global Methane Alliance
- Scientific Advisory Panel (SAP)
- Oil & Gas Methane Partnership (OGMP) 2.0

International Energy Agency (IEA)

- Methane Tracker

European Space Agency (ESA)

- Copernicus Programme

National Aeronautics and Space Administration (NASA)

- GeoCarb

Stakeholder Initiatives

- Carbon Mapper
- MethaneSAT
- Global Emissions Monitoring (GHGSat)
- Global Methane Initiative
- Zero Routine Flaring by 2030

Conclusion

Political momentum for concrete collective action to reduce methane emissions is growing.

Signatories to the Global Methane Pledge must build upon this momentum to initiate formal negotiations among signatories and non-signatories to develop a new global methane instrument for the energy sector, one that takes a comprehensive approach toward addressing methane emissions.

For more information

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