



Methane emissions: the increasing importance of measurement, reporting, and verification

The pressure on companies and governments to reduce greenhouse gas (GHG) emissions is increasing. Declarations to meet carbon neutral or net zero emissions targets for years or decades ahead remain important, but demonstrating that these are more than aspirations on paper will require substantially more detail of ongoing progress. This requires measurement, reporting, and verification (MRV) of all GHG emissions, with the emphasis switching to methane. The past two years have seen a broad recognition by governments that methane accounts for nearly 20 per cent of global GHG emissions (the second most important gas after carbon dioxide) and reduction of these emissions from the energy sector can be achieved more rapidly and at a lower cost than from any other source, resulting in significant temperature reduction by mid-century. The signing of the Global Methane Pledge at COP26 marked a key turning point in national and corporate recognition of the problem, and discussions at COP27 continued the momentum. 2023 will be another key year as plans to accurately account for, and reduce, emissions are further matured ahead of COP28.

EU and US Legislation and Regulation

In 2021, the European Commission published its proposed regulation on methane emissions reduction in the energy sector. The obligation to provide emissions information will be on EU importers who are required to verify the extent to which their contractual counterparts are undertaking measurement consistent with UNFCCC and OGMP standards.¹ The inference (but not a clear statement) is that if importers are unable to obtain this information, the Commission will designate a standard for such imports. Oil and gas (and eventually also coal) imports which fail to meet this standard would be subject to a tax or fee.

In 2022, the US Inflation Reduction Act included a specific methane fee rising from USD 900/tonne to USD 1500/tonne from 2024-26, applied to domestic petroleum and natural gas supply chain functions (compression, transmission and storage, processing, LNG (export, import, and storage), gathering and boosting) in excess of a specified percentage of emissions. The Act requires reporting of emissions to move from engineering-based estimates to empirical measurements from 2026.

International Initiatives

The past decade has seen a plethora of intergovernmental and industry initiatives but it is unclear how they help to monitor progress in relation to national and corporate commitments.² The high profile Global Methane Pledge (GMP), signed at COP26 in 2021 is `a collective effort to reduce global methane emissions

¹ United National Framework Convention on Climate Change and Oil and Gas Methane Partnership Version 2.0

² The Global Methane Pledge, the International Methane Emissions Observatory, the Methane Guiding Principles, Oil and Gas Climate Initiative, Global Methane Initiative, One Future, Collaboratory to Advance Methane Science, Oil and Gas Methane Partnership, and most recently the US National Petroleum Council study on natural gas Greenhouse Gases, and the Joint Declaration from Energy Importers and Exporters on Reducing Greenhouse Gas Emissions from Fossil Fuels.

by at least 30 per cent from 2020 levels by 2030 which could eliminate over 0.2 degrees C warming by 2050'.³ A year later at COP27 a US/EU press release stated:⁴

'Country endorsements of the GMP have grown from just over 100 last year to 150, more than 50 countries have developed national methane action plans or are in the process of doing so, substantial new financial resources are being directed to methane action, and partners have launched "pathways" of policies and initiatives to drive methane reductions in key methane-emitting sectors – a GMP Energy Pathway launched at the June 2022 Major Economies Forum on Energy and Climate and a GMP Food and Agriculture Pathway and GMP Waste Pathway both launched today at COP27.'

But despite the significant increase in endorsements, Azerbaijan, China, India, Iran, Kazakhstan, Russia, South Africa, Turkmenistan and Venezuela – extremely important fossil fuel producing, consuming, and exporting countries – remain absent from the Pledge. Perhaps even more important is the absence of detailed commitments as to how signatories plan to achieve the 30 per cent goal. Work on these issues will be a priority in 2023, and will be reviewed again at COP28 as part of the Global Stocktake.

Table 1: Canadian Methane Emissions Reduction Plan (megatonnes of CO₂e)

| Sector/Year | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Agriculture | 27.37 | 27.36 | 27.38 | 27.40 | 27.41 | 27.39 | 27.37 | 27.34 | 27.33 | 27.29 | 27.22 |
| Buildings | 1.30 | 1.28 | 1.24 | 1.20 | 1.16 | 1.12 | 1.08 | 1.05 | 1.01 | 0.97 | 0.94 |
| Electricity & Steam | 0.17 | 0.19 | 0.24 | 0.23 | 0.25 | 0.24 | 0.26 | 0.23 | 0.20 | 0.19 | 0.18 |
| Heavy industry | 0.18 | 0.18 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.20 |
| Oil and Gas | 34.06 | 33.10 | 30.67 | 26.61 | 25.87 | 23.87 | 23.43 | 21.99 | 18.64 | 15.30 | 11.94 |
| Others | 1.34 | 1.26 | 0.47 | 0.46 | 0.42 | 0.40 | 0.40 | 0.39 | 0.40 | 0.40 | 0.41 |
| Transportation | 0.59 | 0.61 | 0.62 | 0.63 | 0.66 | 0.66 | 0.66 | 0.66 | 0.67 | 0.68 | 0.68 |
| Waste | 26.98 | 26.95 | 25.76 | 24.39 | 22.92 | 21.54 | 20.10 | 18.82 | 17.49 | 16.22 | 14.90 |
| Grand Total | 91.99 | 90.93 | 86.57 | 81.11 | 78.89 | 75.41 | 73.50 | 70.68 | 65.93 | 61.26 | 56.46 |

Source: Environment and Climate Change Canada, *Faster and Further: Canada's Methane Strategy*, September 2022, Table 1, p.13.

A notable exception is the Canadian methane emissions reduction plan (above) which has the virtue of providing detailed targets by year and by sector so that progress can be tracked. It also shows that more than 60 per cent of the reductions will come from the oil and gas sector with almost all the rest from waste. There will be a slight decline in buildings and agriculture (the latter peaking in mid-decade) while electricity, heavy industry, and transportation emissions are expected to increase slightly. This author has not been able to locate any similarly detailed official statement of how other governments intend to meet their pledge,⁵ but it is to be hoped that 2023 will see the publication of similar documents that will help to crystallise the implementation of the Global Methane Pledge.

Challenges for 2023

Overall, encouraging governments and companies to improve the transparency of measurement, reporting, and verification of emissions to demonstrate progress towards reduction commitments will be one major challenge for 2023. Another will be to persuade more non-OECD governments and their energy companies to join what are not yet, but need to become, 'global' initiatives. COP28 in the UAE in November will be the next formal gathering where progress is reviewed but before then it is hoped that John Kerry, the US climate envoy, will continue the lobbying work that he undertook at COP27 to bring more countries on board.

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³ For more details of the Pledge see: Jonathan Stern, 'The Global Methane Pledge: An Urgent Need For Progress At Cop 27', *Oxford Energy Forum*, Issue 133, October 2022, pp.63-65.

⁴ *Global Methane Pledge: From Moment to Momentum*, <https://www.state.gov/global-methane-pledge-from-moment-to-momentum/>

⁵ An NGO proposal for the UK involves significant emission reductions in agriculture and waste as well as energy. Green Alliance, *The Global Methane Pledge: how the UK can meet its commitment*, November 2022, p.19.