Policy Brief

December 2023 Daniel Ace Rose

Policy paths for meeting the Global Methane Pledge

NEGOTIATORS NEED TO EXPAND METHANE REDUCTION EFFORTS TO MEET BOTH GLOBAL METHANE PLEDGE AND PARIS AGREEMENT GOALS

- **More needs to be done** to reduce methane emissions if the global rise in temperatures is to be kept below 1.5°C
- **Existing technologies** must be implemented in the agricultural, oil and gas, and waste sectors to reduce methane emissions
- **New technologies** in the research and development stages must be funded to further reduce future methane emissions in all sectors
- **Policies on source reduction** for organic waste can reduce methane emissions while reducing pressure on waste management facilities
- **Regulations on the oil and gas sector** should be applied to importations as well as domestic production

What's the issue?

Methane (CH_4) is a greenhouse gas with a global warming potential 28 times that of carbon dioxide (CO_2) in a 100 year period, and 80 times greater over a 20 year period. According to the International Energy Agency, "methane is responsible for around 30% of the rise in global temperatures since the industrial revolution" (*Methane and Climate…*, 2022), making it one of the most influential sources of climate change. In turn, reducing the emission of methane into the global atmosphere is critical to reaching the goals of the Paris Agreement to limit the increase in global temperatures to below 1.5°C.

Studies from NASA have found that "the concentration of methane in the atmosphere has more than doubled over the past 200 years" (Biferno, 2023), and will continue to increase unless more is done to curb anthropogenic sources of this greenhouse gas. The main sectors that contribute to the release of anthropogenic methane are agriculture, energy, and waste (*Overview of Greenhouse Gases*, 2023). Figure 1 illustrates a more detailed list of the various sources of anthropogenic methane emissions.

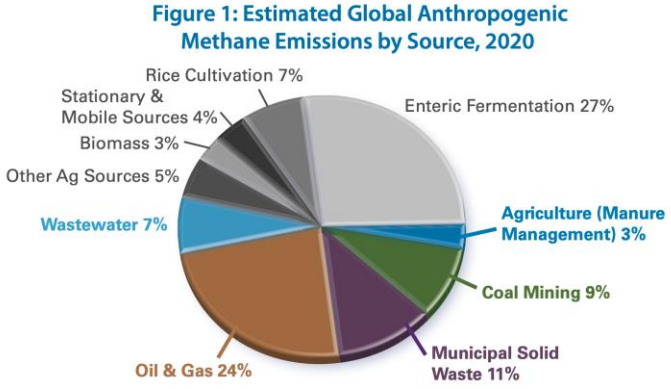

Figure 1. *Estimated Global Anthropogenic Methane Emissions by Source* (Bruns, 2023)

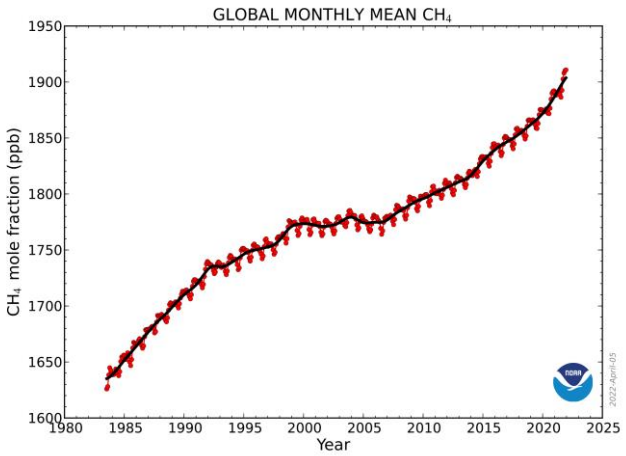

Figure 2. *Global Monthly Mean CH_4* (Lan, 2023)

Why is this important?

Existing technologies to reduce the emissions from each of these sectors, such as improved leak detection and alternative farming techniques, have been underutilized. Furthermore, emissions reported to the UNFCCC and other climate-focused organizations have proven to be inaccurate (see figure 3), complicating efforts to gauge the progress, or lack thereof, in reducing methane emissions.

To address these issues, the Global Methane Pledge was launched at the 26th conference of the parties to the UNFCCC, led by the European Union and the United States and signed by an initial 103 countries. The goals of this pledge include reducing global anthropogenic methane emissions across all sectors by at least 30 percent below 2020 levels by 2030, supporting existing initiatives for methane reduction (such as the Global Methane Initiative), and maintaining accurate and transparent data regarding methane emission reductions (*Global Methane Pledge: From Moment to Momentum*, 2022).

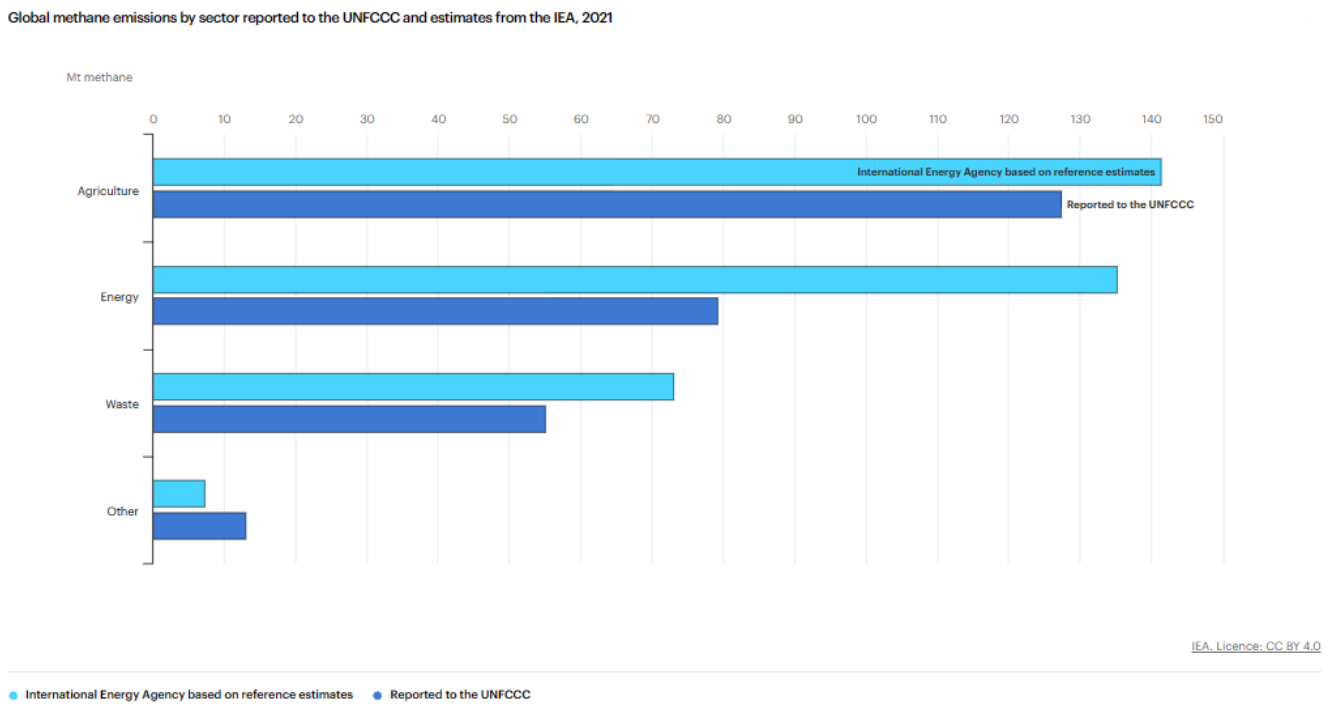

Figure 3. *Global methane emissions by sector reported to the UNFCCC and estimated from the IEA* (*Overview-Global Methane Tracker 2022*, 2022)

The pledge's success relies on several factors. For one, both developed and developing nations must actively participate, as methane emissions originate from diverse sources globally. Despite boasting more than 150 signatory countries to the Global Methane Pledge, several of the world's highest methane emitting countries (such as China, India, and Russia) are not among them (*Overview-Global Methane…*, 2022). The involvement of these countries will play a vital role in the success of the pledge. Additionally, the involvement of non-governmental entities, such as corporations and industries, is essential to implementing effective solutions. Lastly, accurate and transparent reporting of methane emissions by all signatories is crucial for assessing the impact of mitigation efforts, identifying areas that require additional attention, and ensuring accountability among participating nations and industries. Negotiators must continue to push for more regulation and cooperation surrounding these factors in order to reach the goal of reducing 30% of anthropogenic methane emissions by 2030.

What happened at COP28?

Methane emerged as a central focus throughout the myriad of main and auxiliary events featured at COP28, with particular attention dedicated to advancements in greenhouse gas monitoring technology, such as satellite and drone scanning. Notable discussions also encompassed improved data transparency facilitated by publicly available databases, the financing of methane abatement through a combination of public and private investments, and the strategic allocation of funds for both existing technology and those in the research and development stages. Additionally, the intense focus on increasing regulations on methane emissions within the global energy sector underscored the discussions addressing methane-related challenges in other sectors.

The majority of new initiatives were announced during the 2023 Global Methane Pledge Ministerial, which took place on Monday, December 4th. This event featured ministers from around the world alongside corporate and organizational sustainability leaders. Each representative contributed insights on their strategies for meeting the target of reducing 30% of anthropogenic methane emissions (compared to 2020 levels) by 2030. Announcements at this event included over $1 billion in new grant funding for new and existing methods to reduce emissions, new national commitments for pledge signatories to reduce methane emissions in energy, agricultural, and waste sectors, the release of new data tools and campaigns to identify and reduce large sources of methane emissions (with a heavy focus on satellite technology), and the welcoming of new members to the pledge including Turkmenistan, Kazakhstan, Kenya, Kosovo, Romania, and Angola (*Turning pledges into action…*, 2023).

The United States and the European Union took center stage in introducing new methane regulations for the oil and gas sector, driven by increasing pressure to enhance oversight. During COP28, the Biden-Harris administration confirmed the finalization of a two-year process by the Environmental Protection Agency, unveiling rules that ban routine gas flaring for

new oil wells, require heightened monitoring of leaks from wells and compressor stations, integrate new cost-effective monitoring technologies, and establish the Super-Emitter Response Program. This program, utilizing regulatory agencies and approved third parties, will monitor and report high-emission sources to companies for swift correction. The rules also require states to submit plans within two years to reduce existing methane emissions that consider community needs and opinions (*Biden-Harris Administration Finalizes Standards…*, 2023). Simultaneously, the European Union revealed landmark regulations on oil, gas, and coal companies, emphasizing more stringent measurement and reporting guidelines, mandates for leak detection, repair, and timely solutions, a ban on methane flaring and venting, and new requirements for companies importing fossil fuels (*Climate Action: Council and Parliament…*, 2023).

At the corporate level, the COP28 featured the launch of the Oil and Gas Decarbonization Charter by the COP28 presidency and the Kingdom of Saudi Arabia. A total of 52 companies, responsible for an estimated 40% of global oil production, have become signatories, committing to "net-zero operations by 2050 at the latest and ending routine flaring by 2030" (*Summary of Global Climate Action at COP 28*, 2023). In addition to these commitments, these companies have pledged to take several other critical actions related to decarbonizing their operations such as investing in low-carbon energy sources, increasing data transparency, and reducing energy poverty and inequality (*Oil & Gas Decarbonization Charter…*, 2023).

While discussions around methane emissions in the agricultural sector did not match the depth seen in the energy sector at COP28, significant strides were made in collective efforts to align with the objectives of the Global Methane Pledge. Recognizing the agricultural sector's major contribution to global anthropogenic methane emissions, action to mitigate these emissions will be critical in meeting both the Global Methane Pledge and the targets set by the Paris Agreement. Noteworthy initiatives announced at COP28 included the launch of the Dairy Methane Action Alliance and the introduction of the Enteric Fermentation R&D Accelerator. The Dairy Methane Action Alliance, a global agreement focused on the mitigation of methane emissions from dairy production, was announced by the Environmental Defense Fund in partnership with six of the largest food companies, including the Bel Group, Danone, General Mills, Kraft Heinz, Lactalis USA, and Nestlé, each of which are signatories to the pledge and will begin reporting their emissions and drafting action plans in 2024 (Leland, 2023). The Enteric Fermentation R&D Accelerator, announced by the Global Methane Hub, is a cooperative effort between multiple public, private, and philanthropic entities in reducing global methane emissions through a fund of $200 million. This initiative is "the largest-ever, globally coordinated investment of breakthrough research tackling livestock methane emissions", with ongoing research projects including the breeding of cattle that emit lower levels of methane, development of new feed sources, and technology to track individual emissions of cattle (*Enteric Fermentation Research & Development Accelerator…*, 2023).

The global waste sector received the least attention and garnered minimal commitment during COP28 discussions. A standout initiative, however, emerged in the form of the Lowering Organic Waste Methane (LOW-Methane) initiative. This collaborative effort, forged between numerous national governments and organizations, aims to curtail methane emissions originating from the waste sector. LOW-Methane sets out to achieve a reduction of 1 million metric tons in annual methane emissions through comprehensive measures, including organic waste reduction and diversion, the implementation of on-site landfill emission reduction strategies and technology, and the combined funding of $10 million in private and public investments dedicated to supporting these endeavors (*Lowering Organic Waste Methane Initiative (LOW-Methane)*, 2023).

Although each of these efforts represent critical strides in meeting the goals of the Global Methane Pledge, the International Energy Agency has released a report stating that each of the negotiations and commitments made during the 28th Conference of the Parties, including those highlighted in this brief, fall short of aligning the world with the Paris Agreement's target of limiting global warming to 1.5°C (*IEA Assessment…*, 2023). In addition, the draft decision for the outcome of the first global stocktake has requested continued focus on the reduction of methane emissions along with other non-CO_2 greenhouse gases in the nationally determined contributions (NDC) of each party member (*Outcome of the First Global Stocktake…*, 2023). As such, future policy recommendations can be made to ensure methane emission reduction continues to be a major focus for all parties of the UNFCCC and CMA as well as all signatories to the Global Methane Pledge.

Policy recommendations

1) Implement policies for food corporations surrounding organic waste

Initiating source reduction for organic waste stands as the initial and crucial step in mitigating methane emissions linked to the waste sector. Implementing targeted policies for corporations involved in food production, addressing both the generation and disposal of organic waste, serves to alleviate the burden on public and private waste management facilities

and, consequently, diminishes methane emissions.

2) Enhance policies related to the importation of fossil fuels

Existing policies addressing methane emissions in the oil and gas sector primarily pertain to domestic production, hindering substantial global progress. To catalyze advancements, an increase in policies targeting importing countries and companies is imperative. Incorporating consequences for non-compliance, such as additional taxation (or alternative measures that safeguard fuel supply and prevent disparities), can exert heightened pressure on entities reluctant to enhance their operational practices.

3) Implement initiatives to increase public awareness on the importance of methane reduction

Corporate stakeholders wield considerable influence in instigating change across various sectors. Elevating public awareness regarding the imperative need for reduced global anthropogenic methane emissions will heighten the pressure on companies to decarbonize their operations and mitigate methane emissions, including within their supply chains.

4) Include a ban on venting in regulations for oil and gas production

The introduction of new policies carries the inherent risk of unintended consequences. Numerous regulations addressing methane emissions in the oil and gas sector, as highlighted in announcements during COP28, center on prohibiting the practice of gas flaring. However, this prohibition has demonstrated a concerning tendency to incentivize operators to shift towards venting the gas—a process proven to be more detrimental in terms of global warming and also more challenging to detect (Olczak et al., 2023). Consequently, any future policies should carefully consider the inclusion of venting, with an increased focus on avoiding other inadvertent loopholes that could be exploited by producers.

5) Require action plans for the mitigation of methane emissions in all future Nationally Determined Contributions

A key finding of the synthesis report on the technical dialogue of the first global stocktake is that "much more ambition in action and support is needed in implementing domestic mitigation measures and setting more ambitious targets in NDCs to realize existing and emerging opportunities across contexts, in order to reduce global GHG emissions by 43 per cent by 2030…compared to 2019 levels" (*Technical Dialogue of the First Global Stocktake…*, 2023). Although 95% of NDCs currently include methane or plan to incorporate it in the near future (*Global Methane Pledge…*, 2022), it is imperative that all members are required to do so to ensure a global collaborative effort toward methane abatement. In addition, those who have already included methane in their NDCs should set more ambitious targets in methane reduction to align with the recommendations of the UNFCCC.

References

1. *Biden-Harris Administration Finalizes Standards to Slash Methane Pollution, Combat Climate Change, Protect Health, and Bolster American Innovation*. (2023). U.S. Environmental Protection Agency. https://www.epa.gov/newsreleases/biden-harris-administration-finalizes-standards-slash-methane-pollution-combat-climate
2. Biferno, A. (2023). *Methane* (H. Shaftel, Ed.). Climate Change: Vital Signs of the Planet; NASA. https://climate.nasa.gov/vital-signs/methane/#:~:text=(Learn%20more%20about%20the%20Global
3. Bruns, M. (2023). *Ruminant Methanogens as a Climate Change Target*. American Society for Microbiology. https://asm.org/Articles/2023/June/Ruminant-Methanogens-as-a-Climate-Change-Target
4. *Climate action: Council and Parliament reach deal on new rules to cut methane emissions in the energy sector*. (2023). European Council. https://www.consilium.europa.eu/en/press/press-releases/2023/11/15/climate-action-council-and-parliament-reach-deal-on-new-rules-to-cut-methane-emissions-in-the-energy-sector/
5. *Enteric Fermentation Research & Development Accelerator, a $200M Agricultural Methane Mitigation Funding Initiative*. (2023). Global Methane Hub. https://www.globalmethanehub.org/2023/12/02/enteric-fermentation-research-development-accelerator-a-200m-agricultural-methane-mitigation-funding-initiative/
6. *Global Methane Pledge: From Moment to Momentum*. (2022). Office of the Spokesperson; United States Department of State. https://www.state.gov/global-methane-pledge-from-moment-to-momentum/
7. *Highlights from 2023 Global Methane Pledge Ministerial*. (2023). United States Department of State. https://www.state.gov/highlights-from-2023-global-methane-pledge-ministerial/#:~:text=The%20Dairy%20Methane%20Action%20Alliance
8. *IEA assessment of the evolving pledges at COP28*. (2023). International Energy Agency. https://www.iea.org/news/iea-assessment-of-the-evolving-pledges-at-cop28
9. Lan, X., Thoning, K. W., & Dlugokencky, E. J. (2023). Trends in globally-averaged CH4, N2O, and SF6 determined from NOAA Global Monitoring Laboratory measurements. *Global Monitoring Laboratory*. https://doi.org/10.15138/P8XG-AA10
10. Leland, A. (2023). *Global food companies join EDF for a groundbreaking step on dairy methane*. Environmental Defense Fund. https://www.edf.org/article/global-food-companies-join-edf-for-groundbreaking-step-on-dairy-methane
11. *Lowering Organic Waste Methane Initiative (LOW-Methane)*. (2023). United States Department of State. https://www.state.gov/lowering-organic-waste-methane-initiative-low-methane/#:~:text=The%20ambition%20of%20LOW%2DMethane

12. *Methane and climate change – Global Methane Tracker 2022 – Analysis*. (2022). IEA. https://www.iea.org/reports/global-methane-tracker-2022/methane-and-climate-change
13. *Oil & Gas Decarbonization Charter launched to accelerate climate action*. (2023). COP28UAE. https://www.cop28.com/en/news/2023/12/Oil-Gas-Decarbonization-Charter-launched-to--accelerate-climate-action
14. Olczak, M., Piebalgs, A., & Balcombe, P. (2023). A global review of methane policies reveals that only 13% of emissions are covered with unclear effectiveness. *One Earth*, *6*(5), 519–535. https://doi.org/10.1016/j.oneear.2023.04.009
15. *Outcome of the first global stocktake. Draft decision -/CMA.5. Proposal by the President*. (2023). UNFCCC. https://unfccc.int/documents/636608
16. *Overview-Global Methane Tracker 2022*. (2022). IEA. https://www.iea.org/reports/global-methane-tracker-2022/overview
17. *Overview of Greenhouse Gases*. (2023). US EPA. https://www.epa.gov/ghgemissions/overview-greenhouse-gases#methane
18. *Summary of Global Climate Action at COP 28*. (2023). UNFCCC. https://unfccc.int/documents/636485
19. *Technical dialogue of the first global stocktake. Synthesis report by the co-facilitators on the technical dialogue*. (2023). UNFCCC. https://unfccc.int/documents/631600
20. *Turning pledges into action: COP28 Global Methane Pledge Ministerial*. (2023). Clean Air Task Force. https://www.catf.us/2023/12/turning-pledges-action-cop28-global-methane-pledge-ministerial/