

Key messages on Methane for COP28

Headlines

To Keep 1.5°C Within Reach, We Need Fast Action on Methane

- Methane is responsible for a third of net warming since the Industrial Revolution and is around 80 times more powerful than CO₂ at warming the atmosphere over 20-year timeline.
- Meeting the Global Methane Pledge target of reducing methane emissions by 30% below 2020 levels by 2030 would reduce warming by at least 0.2°C by 2050.
- The fossil energy sector must deliver over half of methane emissions reductions by 2030 to achieve the Global Methane Pledge. Emissions from the sector should be reduced by approximately 60% below 2020 levels by 2030. Without a dual strategy of reducing methane and deep decarbonisation of the energy sector we will not be able to meet the Paris Agreement objective.

Cutting methane boosts health, energy and food security, and economic development

- Methane is a precursor of tropospheric ozone, a powerful air pollutant linked with roughly one million premature deaths per year due to respiratory diseases. Tropospheric ozone is also responsible for the loss of 5-7% of staple crops annually, contributing to food insecurity.
- Meeting the Global Methane Pledge target would prevent annually 255,000 premature deaths, 775,000 asthma-related hospitalizations and 73 billion hours of lost labor due to extreme heat.
- Moreover, many methane-cutting interventions deliver major development benefits: capturing wasted gas boosts energy security; increasing livestock productivity and cutting food waste boosts food security and accelerates economic growth; and improved waste management delivers health and air quality benefits.

The Global Methane Pledge is Driving Climate and Development Progress

- We are seeing the “methane moment” from COP26 turn into a “methane movement”.
- Over 150 countries are now participating in the Global Methane Pledge.
- Over 50 countries have developed or are developing national methane action plans, over 30 of them are supported by the Climate and Clean Air Coalition (CCAC). Several countries are working to integrate methane into their updated NDCs. Countries across the world are developing landmark methane policies in the energy, agriculture, and waste sectors.
- The world’s climate finance institutions are now taking methane seriously: the World Bank is launching a “Methane for Development” platform, the Inter-American Development Bank just announced its “Too Good to Waste” initiative focused on cutting methane from the waste sector, bilateral donors like USAID are mainstreaming methane into their climate work, and philanthropies have committed over [\$300 million] to methane action.
- New initiatives like the Methane Alert and Response System are leveraging satellite data and other disruptive technology to accelerate progress on methane. Over 115 companies joined the Oil and Gas Methane Partnership 2.0 reporting standard, with high level of ambition in terms of measurement and reporting.
- More announcements on methane progress will be announced at COP28.

For more information, check out the Global Methane Pledge website at globalmethanepledge.org

Main messages

The evidence and imperative to act

- Methane is responsible for a third of total warming since the Industrial Revolution and is around 80 times more powerful than CO₂ at warming the atmosphere over 20-year timeline. The fossil fuel, waste and agriculture sectors are the main methane emitters from human activities.
- Methane also harms human and ecosystem health. Methane emissions lead to ground-level ozone pollution which causes approximately a million premature deaths per year globally and, reduces crop productivity and harms ecosystems.
- We must double down on our efforts to reverse the trend. Without action, global anthropogenic methane emissions are projected to rise by up to 13% between 2020 and 2030. Global methane emissions must be reduced by 30-60% below 2020 levels by 2030 to be consistent with least cost-pathways of limiting global warming to 1.5°C this century.
- It is not an either/or. Decarbonizing our economies and transitioning out of fossil fuels to achieve net zero by 2050 must go hand in hand with full implementation of targeted methane abatement by 2030 to keep our 1.5 °C target within reach. All least cost pathways consistent with 1.5 °C require full implementation of methane targeted measures by 2030 to cut emissions by 30-60% below 2020 levels by 2030.
- The good news is that this is achievable. Proven technologies and practices could reduce emissions from the major sectors, i.e. fossil fuel, waste and agriculture, by approximately 180 million tonnes a year, or as much as 45% by 2030. Most of these technical solutions can be implemented at negative or low cost, especially in the fossil fuel and waste sectors.
- Investments needed in operational changes in the oil and gas sector are equivalent to less than 2% of income generated by oil and gas companies in 2022.
- As methane has a short atmospheric lifetime, the benefits of mitigation will quickly materialize and slow the rate of atmospheric warming. This would help limit dangerous climate feedback loops, such as the melting of the polar ice caps and sea level rise, while simultaneously delivering important health, environmental, and economic benefits from reducing ground-level ozone.
- Meeting the Global Methane Pledge target [of reducing methane emissions by 30% below 2020 levels by 2030] would reduce warming by at least 0.2 °C by 2050 to keep the planet on a pathway consistent with staying within 1.5 °C and prevent annually 255,000 premature deaths, 775 thousand asthma-related hospitalizations and 73 billion hours of lost labour due to extreme heat.
- We are seeing the “methane moment” from COP26 turn into a “methane movement”. Over 150 countries are now participating in the pledge. Over 50 countries have developed or are developing national methane action plans, and several are working to integrate methane into their updated NDCs. Countries across the world are developing landmark methane policies in the energy, agriculture, and waste sectors. The world’s climate finance institutions are now taking methane seriously. Progress has also been made with regards to increased policy attention, technological capability and organisational support devoted to measurement, reporting and verification. GMP Progress has been supported by international methane emission reduction initiatives such as the UNEP-convened CCAC and IMEO as well as many others.

The call for accelerating efforts

- Accelerated action is needed to achieve the pledge objective, from policies to finance, to measurement, monitoring, reporting and verification, and engagement of the private sector.
- To be serious about addressing climate change and to tap into climate finance, all countries must include all GHGs in their NDCs and national climate policy frameworks and do so in a way that enables tracking of progress under the GMP. This means greater attention to methane and other non-CO₂ climate forcers. Just over 60% of NDCs submitted as of October 2023 identify measures in the agriculture, waste and fossil fuel sectors that will reduce their emissions of methane.
- The Global Stocktake must acknowledge the urgency for methane abatement.
- There needs to be a drastic increase in funding for methane abatement, including toward international methane emission reduction initiatives such as the UNEP-convened CCAC and IMEO. Current funding is not commensurate with the size of the issue and opportunity. Finance for methane abatement measures represented less than 2% of total climate finance flows in 2019 and 2020.
- Countries need to take comprehensive domestic action and maintain up-to-date, transparent, and publicly available information on their policies and commitments. Such efforts should be supported by national planning for methane abatement, including through national methane action plan or roadmap development.
- Better data alongside an implementation support system for countries are necessary to drive emission reductions at speed and scale.

Thematic messaging

Fossil fuel sector

- The fossil fuel sector accounts for about 35% of anthropogenic methane emissions. To be consistent with IPCC 1.5 °C scenarios, methane emissions from the sector should be reduced by approximately 60% below 2020 levels by 2030 and nearly 80% by 2050.
- The fossil fuel sector has the greatest share of ready-to-implement and cost-effective technical opportunities to reduce methane emissions and must deliver over half of methane emissions reductions by 2030 to achieve the Global Methane Pledge.
- Immediate, targeted methane abatement in the fossil fuel sector can prevent nearly 1 million premature deaths due to ozone exposure, 90 million tonnes of crop losses due to ozone and climate changes, and about 85 billion hours of lost labour due to heat exposure by 2050, providing roughly USD 260 billion in direct economic benefits.
- Achieving net zero emissions will require a phase out of coal, oil and gas through a Just Transition and any new oil and gas licensing is inconsistent with IPCC 1.5 °C consistent scenarios.
- Without a dual strategy of reducing methane and deep decarbonisation we will not be able to meet the Paris Agreement objective. Reduction in oil and gas demand will lead to a reduction in methane emissions—but will not reduce methane fast enough to limit warming to 1.5 °C without additional, immediate actions to abate methane emissions from fossil fuel production. We cannot wait to deploy this essential climate and health solution.
- Tried and tested approaches exist. 80% of oil and gas methane abatement measures and up to 98% of coal measures could be implemented at a negative or low cost. Total spending required to deploy all available methane mitigation strategies in the oil and gas sector through 2030 is less than 2% of the net income earned by this industry in 2022.
- Appropriate regulatory frameworks are needed, as well as credible data, and a dramatic ramp-up in investment to mitigate methane emissions from fossil fuel production.
- Measures can and should be financed by the industry itself, but a number of low- and middle-income countries may face barriers to accessing capital for some interventions, which may not be implemented without external support.
- COP 28 must be a turning point, with industry players and producing countries demonstrating leadership.

Agriculture sector

- Agriculture accounts for 42% of all anthropogenic methane emissions. To be consistent with IPCC 1.5 °C scenarios, methane emissions from the agriculture sector should be reduced by approximately 20-25% below 2020 levels by 2030 and nearly 40% by 2050.
- Methane emissions increase atmospheric ozone, which lead to crop losses, contributing to food insecurity. Tropospheric ozone is responsible for the loss of 5-7% of staple crops annually.
- Fast action on methane reduction by 2030 can avoid 26 million tons of crop losses per year and support the building of more sustainable food systems, increasing agriculture’s adaptive capacity to climate change, and expanding access to safe, nutritious food.
- There are many well understood measures to reduce methane emissions intensity from agriculture (particularly livestock) by improving animal health and increasing productivity. These measures improve farmer incomes and increase food production alongside reducing methane.
- In highly productive systems, innovative new technologies—such as feed additives—are showing promise to reduce methane emissions from the livestock sector. While these approaches are in early stages, the work of partners in the Global Methane Pledge are helping to advance these solutions through the Enteric Methane Accelerator.
- All countries need to make methane abatement an integral part of their transition toward sustainable food systems and ensure that appropriate consideration is given to methane in key international initiatives and platforms such as COP28 Sustainable Food System declaration.

Waste sector

- The waste sector accounts for 20% of all anthropogenic methane emissions. Methane is created when organic waste decomposes in landfills and large open dumps, as well as wastewater. To be consistent with IPCC 1.5 °C scenarios, methane emissions from the waste sector should be reduced by approximately 30-35% below 2020 levels by 2030 and nearly 55% by 2050.
- Current waste management systems are not coping with rapidly increasing waste generation. If current trends continue, the amount of waste will increase by over 70% to 3.88 billion tonnes per year by 2050. Waste reduction, through circular economy approaches and applying the waste hierarchy, are key to address waste issues and their detrimental impacts on human and ecosystem health as well as our climate.
- As much as 60% of waste-sector targeted methane measures have either negative or low cost. The greatest potential is in improved treatment and disposal of solid waste. Organic waste can produce biogas and biomethane through anaerobic digestion, and the remaining digestate can be used as fertiliser. Organic waste can produce compost, another win-win solution. These are mature and not costly technologies and approaches that not only reduce methane emissions, but also replace fossil fuels in energy generation and/or in fertilisers.
- All countries need to make methane abatement an integral part of their transition toward sustainable waste management and circular economies and ensure that appropriate consideration is given to methane in key international initiatives and platforms such as the “Waste to Zero, The Global Initiative for Waste Decarbonization” that will be launched at COP28.

Health

- Methane harms human and ecosystem health as a primary precursor to the formation of tropospheric (ground-level) ozone, a powerful greenhouse gas as well as an air pollutant. Globally, increased methane emissions are responsible for half of tropospheric ozone levels.
- Tropospheric ozone causes approximately a million premature deaths per year globally. Tropospheric ozone it harms ecosystems and crops by damaging plants and suppressing growth. It is responsible for the loss of 5-7% of staple crops annually.
- Implementation of key available targeted methane measures, together with additional measures that contribute to priority development goals could each year, prevent 255 000 premature deaths, 775 000 asthma related hospital visits, 73 billion hours of lost labour from extreme heat, and 26 million tonnes of crop losses globally, in addition to their climate benefits.

Key resources

UNEP CCAC. (2021). Global Methane Assessment: Benefits and Costs of Mitigating Methane Emissions (UNEP). www.ccacoalition.org

UNEP CCAC. (2022). Global Methane Assessment: 2030 Baseline Report (UNEP). www.ccacoalition.org

UNEP. (2022). An Eye on Methane: International Methane Emissions Observatory 2022 Report (2022)

IEA, UNEP, CCAC. (2023). The imperative of cutting methane from fossil fuels.

<https://iea.blob.core.windows.net/assets/9efb310e-94d7-4c46-817b-9493fe5abb0a/Theimperativeofcuttingmethanefromfossilfuels.pdf>

CCAC NDC tracker database. Data available on demand.

Climate Policy Initiative. (2022). Landscape of Methane Abatement Finance.

https://www.climatepolicyinitiative.org/publication/the-landscape-of-methane-abatement-finance/#_ftn1

IPCC (2023). Summary for Policymakers. In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 1-34, doi: 10.59327/IPCC/AR6-9789291691647.001CPI report.

https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf