

28 March 2022

Informal Document

Agenda item 4. 60th session of the Working Group on Strategies and Review

Gothenburg Protocol Review Group

Potential options for addressing methane as an ozone precursor under the Air Convention

Gothenburg Protocol Review

This document presents a broad list of options for potentially addressing *methane as an ozone precursor under UNECE's Air Convention*. The purpose of this document is to provide information, gather feedback and begin a dialogue on potential ways forward. It will help in the development of conclusions on further work under the Review and next steps for addressing methane as an ozone precursor. In addition, this paper highlights where additional background is needed to determine where and how methane is already being addressed in other related MEA actions.

A number of options are available for addressing methane and they range in ambition level and legal status. Additional options may also exist. Discussion of these options are under the purview of the current Review of the protocol in order to help inform the Review conclusions on appropriate next steps for addressing transboundary air pollution. Reducing transboundary ozone in the UNECE region is an objective of the Gothenburg Protocol per Article 2.1. It is important to note that methane is addressed to some extent under the UNFCCC. However, since the UNFCCC is focussed on limiting global warming, methane is generally treated as interchangeable with other greenhouse gases in the basket of gases, via conversion to carbon dioxide equivalent. Thus, the UNFCCC was not designed to take into account the health benefits of methane mitigation, nor does it have quantitative commitments to focus particularly on methane as an ozone precursor. Regarding the role of methane in ozone formation and its impact on health and environment, the scientific evidence from the 2016 Scientific Assessment Report, ¹ its Policy Response (ECE/EB.AIR/WG.5/2017/3 and Corr.1), as well as the information presented thus far in the Review, including results of the Global Methane Assessment² establishes a strong link and therefore it is becoming increasingly relevant to address methane as an ozone precursor.

The WGSR at its 60th session is not expected to negotiate the options at this time and is invited to take note of this informal document. The Gothenburg Protocol Review Group welcomes any additional information and/or comments on this document to be sent to the Secretariat by 3 June 2022 to help inform the review conclusions and the preparation of the next draft Review report.

There are several questions posed in Annex I to the Preparatory document (ECE/EB.AIR/2020/3 and also included in the annotated outline EB.AIR/WG.5/2021/4) regarding methane. These questions are being addressed as part of the Review and information will be included in the main Review document, Annex I and II and related documents.

Question 3.3 (TFHTAP, MSC-W)

What is the projected future trend in methane emissions? What is the impact on ozone formation? In which regions and in which sectors outside the ECE region is there potential for emission reductions that have a significant effect on reducing ozone effects in the ECE region?

¹ See Rob Maas and Peringe Grennfelt, eds., *Towards Cleaner Air: Scientific Assessment Report 2016* (Oslo, United Nations Economic Commission for Europe (ECE), 2016); and United States Environmental Protection Agency and Environment and Climate Change Canada, "Towards Cleaner Air: Scientific Assessment Report 2016 – North America" (2016)

² <https://www.unep.org/resources/report/global-methane-assessment-benefits-and-costs-mitigating-methane-emissions>

28 March 2022

Informal Document

Agenda item 4. 60th session of the Working Group on Strategies and Review

Gothenburg Protocol Review Group

Question 6.3 (TFTEI, TFRN, TFIAM, WGSR, WGE)

- a. What are the (best) available emission abatement techniques and measures for the reduction of methane emissions from key sources?

Include existing information from TF reports and links to other sources of information that exists (IEA, UNEP, GMI, CCAC, etc).

- Draft Guidance document on methane mitigation technologies by TFTEI (non-agricultural sources)

- Draft Guidance document/policy brief on co-mitigation of methane and ammonia, and other nitrogen compounds, from agricultural sources by TFRN

- b. What is the contribution of implemented and new climate measures on the reduction of methane emissions?
- c. What is the projected future trend in methane emissions and subsequent improvements in air quality, human health effects and ecosystems impacts?
- d. How could methane be addressed in a future instrument?

Overarching themes for how to address methane

Timing:

- Timelines are key criteria when assessing options; current political window of opportunity/momentum created by the Global Methane Pledge which could support selection of options which can be introduced relatively quickly under the Air Convention.
- Possibility of looking at short-term, medium-term and long-term actions (not necessarily mutually exclusive); a step-wise approach may help to capture both the easier quick fixes and the more complicated long-term processes.
- Create synergies & avoid unnecessary duplication with other related MEA actions, and other legislation or global initiatives. (*See background section below*).

Type of Instrument:

- Mandatory vs non-mandatory measures, or a combination of both
- Technical guidance, best practices/BATs, reduction measures recommendations, promotion campaigns and or voluntary pledges
- Usefulness of sector-specific approaches to target key sources most efficiently and use synergies
- Possibility of potentially revising the current protocol or potentially developing a new, separate instrument (protocol), both options with advantages and disadvantages;
- Allowing a piecemeal (incremental) ratification of a separate new amendment on CH₄ to the Gothenburg Protocol
- Individual or overall/region-wide target-setting

28 March 2022

Informal Document

Agenda item 4. 60th session of the Working Group on Strategies and Review
Gothenburg Protocol Review Group

- Flexibility mechanisms to avoid creation of disproportionate ratification barriers; e.g. allow joint implementation of CH₄ obligations by Parties
- Possible emission reporting (voluntary or protocol obligation)
- Emission reduction targets; flat rate or optimised allocation reductions
- Combine NMVOC with CH₄? → allow for pollutant swapping in order to increase cost-effectiveness of ozone abatement
- Compilation of instruments/guidance with different timing

Geographical Scale and Ambition

- Larger geographical scope with lower ambition level vs more narrow geographical scope with higher ambition
- Assess the potential co-benefits for addressing NH₃ emissions
- Assess the benefits of international cooperation and coordination with other international initiatives (see below), with support of the Task Force on International Cooperation for Air Pollution
- Use of BACA voluntary commitment approach
- Other outreach options to complement Air Convention processes with actions to also address methane sources in non-UNECE regions

Potential options for how methane could be addressed in a future instrument.

These options are provided for information only and are not exhaustive. These are not in priority order but rather presented as technical/data, reductions/abatement, and voluntary/capacity-building. Each option could be stand-alone or used in combination or as a package.

Option 1: Compiling, reviewing and improving methane emissions information: issues include consistency/non-duplication of efforts with UNFCCC reporting, could result in creation of shareable database across MEAs

Considerations: Access to data for scientific and technical analysis; need for additional resources/expertise in the Convention

Option 2: Minimum requirements for monitoring and reporting of data: issues could include requirements for leak detection, remote sensing

Considerations: Access to data, verification of emission trends; potential for duplication of efforts

Option 3: Adoption of national emission reduction targets/optimized national/regional methane reduction commitments: issues include binding or non-binding, national or collective using low-cost measures

Considerations: First emission reduction commitment on methane, sets an example for other regions, may include a smaller number of countries; may reduce flexibility/cost-efficiency in implementing climate change targets addressing all GHGs (policies and measures)

Option 4: Methane emission limit values for certain activities: issues include different requirements by sector; a new technical annex including emission limits & BAT, and guidance

28 March 2022

Informal Document

Agenda item 4. 60th session of the Working Group on Strategies and Review
Gothenburg Protocol Review Group

documents on best practices for major activities in certain sectors such as landfills, coal mining, oil and gas and agriculture

Considerations: Guidance documents could be shared with other MEAs and initiatives; could incentivize/support and increase efficiency of biogas production and facilitate the uptake of renewable gases, technical annexes could be too stringent or result in barriers to implementation; key sources of CH₄ differ between subregions of UNECE area: uniform requirements on all CH₄ producing activities may be less cost-effective to achieve certain emission reductions

Option 5: Voluntary programs (such as BACA): for example, agricultural best practices, consumer outreach, industry trade groups, behavioural and non-technical measures (could include guidance documents from Option 4)

Considerations: Could leverage resources with other initiatives with voluntary programs addressing methane and ozone, could duplicate efforts under GMI or CCAC; monitoring

Option 6: Capacity building programs, especially in Eastern Europe and Central Asia: supporting GMI, CCAC and coordination with the Forum (Task Force on International Cooperation on Air Pollution)

Considerations: Could apply resources directly to a country or a sector and achieve emission reductions more quickly; could leverage engagement mechanisms that are unique to UNECE, could overlap with existing efforts under GMI or CCAC (depending on how this is coordinated, this could be a pro or a con); may require additional resources (funding)

Background information on other efforts for addressing methane, including other MEAs

-Coordination with national climate/agriculture/energy colleagues & institutions addressing these agreements/initiatives

- Global Methane Initiative: supports capacity building to increase recovery and use of methane (as well as emission reductions) with a focus on oil and gas, coal and biogas.
- Climate and Clean Air Coalition: supports capacity building for national planning and technical assistance in implementation of emission reductions in oil and gas, agriculture, and waste sectors.
- Global Methane Pledge: a voluntary, collective goal of 30% emission reduction from 2020 levels by 2030.
- Zero Routine Flaring by 2030 (Global Gas Flaring Reduction Partnership), an initiative by the World Bank to eliminate routine flaring of methane in oil and gas production systems.
- International Methane Emissions Observatory, a project led by UNEP to combine nationally reported emissions, data provided by companies, and observations of atmospheric composition to inform opportunities to reduce methane emissions.
- Methane Tracker, a project by the IEA (International Energy Association) to track oil and gas sector methane emissions and provide regulatory guidance to reduce emissions.
- Oil and Gas Methane Partnership (OGMP 2.0) launched by CCAC – companies responsible for a third of global O&G production are participants, including many European companies. Companies must meet requirements on emissions data reporting and also set and show progress against methane reduction targets.

28 March 2022

Informal Document

Agenda item 4. 60th session of the Working Group on Strategies and Review

Gothenburg Protocol Review Group

- Arctic Council Expert Group on Black Carbon and Methane (EGBCM) works to implement the Arctic Council Framework on Black Carbon and Methane, including tracking national efforts to reduce emissions of black carbon and methane within and beyond the borders of Arctic states and reports on existing and planned actions. Currently tasked with developing proposals for a more stringent post-2025 collective goal on black carbon and a potential collective methane reduction goal.

-Emission reporting synergies with UNFCCC & the Arctic Council to minimise administrative burden, avoid duplications

- UNFCCC requires reporting of emissions annually on April 15 for all years from the base year to two years prior to the current reporting year by Annex 1 Parties. Parties provide both tabular emissions data and a National Inventory report describing data sources and methods. All this information is publicly available on the UNFCCC website:
<https://unfccc.int/ghg-inventories-annex-i-parties/2021>
 - o Reporting requirements for Annex 1 countries: <https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/reporting-requirements>
- The Arctic Council Expert Group on Black Carbon and Methane Summary of Progress and Recommendations report includes historical and projected methane emissions for parties that provide this information. The historical emissions data are aligned with UNFCCC reporting mentioned above.