Station Note

World Café at TD 1.3

Station 8: What is the role of reducing non-CO2 emissions in achieving the long-term global goal on mitigation?

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- Contributions to the 2010-2019 warming relative to 1850-1900 assessed from radiative forcing studies are: CO2 0.8 [0.5 to 1.2]°C; methane 0.5 [0.3 to 0.8]°C; nitrous oxide 0.1 [0.0 to 0.2]°C and fluorinated gases 0.1 [0.0 to 0.2]°C. In virtually all global modelled pathways that limit warming to 2°C (>67%) and lower, the relative contribution of CO2 to total global warming increases over time. This is because warming from continued CO2 emissions continues to increase until net zero CO2 emissions are reached, given the long lifetime of CO2, whereas the contribution to global warming from methane is lower in future in modelled mitigation pathways, given the short lifetime of CH4 in the atmosphere and projected deep reduction of CH4 emissions up until the time of net zero CO2.
- From a physical science perspective, limiting human-caused global warming to a specific level, requires limiting cumulative CO2 emissions, reaching at least net zero CO2 emissions, along with strong reductions in other GHG emissions. Deep GHG emissions reductions by 2030 and 2040, particularly reductions of methane emissions, lower peak warming, reduce the likelihood of overshooting warming limits and lead to less reliance on net negative CO2 emissions that reverse warming in the latter half of the century.
- Reaching net zero CO2 emissions is different from reaching net zero GHG emissions. Net zero CO2 emissions is a requirement for stabilizing long-term warming at any level and is a prerequisite for reaching net zero GHG emissions. Reaching net zero GHG emissions implies net-negative CO2 emissions along with deep reductions in methane and other GHG emissions, such that net negative CO2 emissions counterbalance residual non-CO2 emissions (weighted using a GHG emission metric).
- Global modelled pathways that limit warming to 1.5C with no or limited overshoot reach net zero CO2 emissions in the early 2050s, and in the early 2070s in pathways that limit warming to 2°C (>67%). There are similar reductions of non-CO2 emissions by 2050 in both types of pathways: CH4 is reduced by 45% [25–70%]; N2O is reduced by 20% [–5 to +55%]; and F-gases are reduced by 85% [20–90%].
- Mitigation potentials vary across gases and between different sources of each gas, for example modelled global reductions of methane emissions from energy supply and use are much deeper and more rapid than for methane from agricultural activities.
- There are mitigation options available today to reduce non-CO2 GHGs. However, relative mitigation potentials and costs will vary across countries.
- Global net zero CO2 or GHG emissions can be achieved even if some regions are net emitters, provided that others reach net negative emissions.

- Reductions in non-CO2 GHG emissions can have synergies with SDGs. For example, reducing CH4 emissions can improve air quality. Reductions in N2O can improve water quality. Efforts to reduce non-CO2 emissions can often be linked with efforts to improve efficiencies of production and reduce waste within economies. However, some sources of non-CO2 emissions are tightly linked with activities that are essential to SDGs and development goals, especially in agriculture. Nonetheless, there are options to reduce at least the emissions intensity of agricultural production in ways that support rather than counteract development goals.

Questions for advisor:

a) What progress has been made on mitigating non-CO2 GHG, including actions, targets, policies, and initiatives?
b) What actions and approaches have been successful? What are the challenges in mitigating non-CO2 GHG?
c) What role can multi-lateral cooperative and initiatives play, or have played so far, to inform and support goals and actions?

Rounds:

Each round will cover national experiences and barriers, international cooperative initiatives and the potential for multi-lateral guidelines and capacity building to support nationally determined targets and actions

- Round 1: Agriculture & Land
- Round 2: Fugitive methane from energy supply and use
- Round 3: F-gases and industry
- Round 4 and 5: Waste, and general