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Fast Action to Cut HFCs Avoids Up to 0.5°C of Warming by End of Century

Cutting HFCs and other short-lived climate pollutants avoids 1.5°C of warming by end of century

Cutting short-lived climate pollutants comparable to aggressive CO₂ cuts through end of century

Washington DC, 26 June 2013 — A [study published today in *Atmospheric Chemistry and Physics*](#) confirms the importance President Obama is placing on cutting hydrofluorocarbons (HFCs), as reflected in his [climate speech](#) yesterday and his new [climate action plan](#). The study calculates that replacing high-GWP HFCs with low-GWP alternatives, as the U.S. and many other countries have proposed under the Montreal Protocol, can avoid up to 0.5°C of warming by 2100.

“Our calculations show that controlling HFC growth can avoid a significant amount of warming in this century, at least comparable to CO₂ mitigation at 2050, and almost 50 percent of CO₂ mitigation by 2100,” stated Yangyang Xu from the Scripps Institution of Oceanography, lead author of the study.

HFC are a small contributor to global warming today, but they are the fastest growing greenhouse gas in many countries, including the US, EU, China, and India. HFCs are used as refrigerants, propellants, and cleaning and foam blowing agents; many are, molecule-for-molecule, thousands of times more powerful at causing warming than CO₂.

Study co-author Dr. V. Ramanathan stated, “It is still possible to avert disastrous climate changes including extreme sea level rise. We have to simultaneously cut down CO₂ and the short-lived climate pollutants: HFCs, methane, tropospheric ozone, and black carbon. HFCs mitigation emerges as an attractive low hanging fruit for mitigating warming.” Dr. Ramanathan is Distinguished Professor at the Scripps Institution of Oceanography, University of California, San Diego. He discovered the greenhouse effect of chlorofluorocarbons (CFCs) in 1975, which paved the way for identifying the greenhouse effect of other non-CO₂ pollutant gases including HFCs and methane.

“This timely paper shows how important reducing high-GWP HFCs can be for avoiding future warming. It confirms the UNEP-World Meteorological Organization assessment on avoided warming from black carbon and methane and tropospheric ozone, then extends the analysis by adding the avoided warming from reducing high-GWP HFCs, concluding that this will avoid another 0.1°C of warming by 2050, and up to 0.5°C by the end of the century,” stated Dr. A. Ravishankara, Director at the Chemical Sciences Division of the NOAA Earth System Research Laboratory.

Nobel Laureate Mario Molina stated, “We’ve known for several decades that some of the HFCs developed to replace ozone-depleting CFCs are powerful climate change agents, but this is the first calculation showing how much global warming we can avoid by reducing emissions of these chemicals, helping us to address the challenge in the near-term as well as through the end of the century.” Dr. Molina is Distinguished Professor of Chemistry and Biochemistry at University of California, San Diego; he shared the Nobel Prize in Chemistry in 1995 for his work on the impact of CFCs on the stratospheric ozone layer.

Co-author Dr. Guus Velders, from the National Institute for Public Health and the Environment in The Netherlands, stated, “The metric of ‘avoided warming’ in a given time frame may be the most relevant for climate policymakers today. This paper now adds the avoided warming from limiting HFCs growth to the earlier work of UNEP and WMO, which calculated how much warming can be avoided by cutting black carbon, methane, and tropospheric ozone. HFCs in the atmosphere are growing at a high rate throughout the world, 10 to 15% per year, making them a vital target for climate mitigation.”

“The findings of our study provide even greater justification for phasing-down HFCs under the Montreal Protocol,” stated Durwood Zaelke, co-author of the study and President of the Institute for Governance & Sustainable Development. “It’s the biggest, fastest, and cheapest climate mitigation available to the world today.”

Earlier this month at the first-ever summit between President Obama and President Xi, the two presidents [agreed to work together to phase down HFCs under the Montreal Protocol](#). More than 100 other Parties to the Montreal Protocol

have expressed support for reducing HFCs. A formal discussion group was formed this week during the Montreal Protocol Open-ended Working Group meeting to discuss how best to deal with HFCs, an important milestone in the effort to reach consensus on the amendment.

“The prominence that the President gave HFCs in his speech and his climate plan makes it clear that he will be continuing his personal diplomacy to ensure a swift victory under the Montreal Protocol,” added Zaelke. “Phasing down HFCs will be seamless, and won’t even be noticed by the consumers.”

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