



Why Phase Down HFCs Under the Montreal Protocol?¹

- 1. Adopting the Federated States of Micronesia's proposed amendment will prevent the emission of up to 100 billion tonnes (Gt) of carbon-dioxide equivalent (CO₂-eq.) by 2050.²**
 - This climate mitigation is approximately 10 times that achieved by full compliance with the Kyoto Protocol through 2012.³
- 2. The FSM amendment is necessary to prevent a dramatic increase in HFC emissions that will otherwise wipe out years of CO₂ emission reductions.**
 - In the absence of an HFC phase-down, HFC emissions growth will dramatically outstrip all other GHGs and, by 2050, will reach 5.5–8.8 Gt CO₂-eq. per year, which is equivalent to 9-19% of projected global CO₂ emissions under business-as-usual scenarios and 28-45% under a CO₂ stabilization scenario of 450 parts per million (ppm).⁴
- 3. The time to act is now; it will cost less and provide more environmental benefits.**
 - Ongoing HCFC phase-out under the Montreal Protocol means developing countries will be transitioning to HFCs in next 5 years, guaranteeing an enduring market and significant emissions.
 - Coordinating the phase-down of HFCs with ongoing HCFC phase-out under the Montreal Protocol will allow Parties to leapfrog high-GWP HFCs entirely and save billions.
 - In May 2010, a report from the Technical and Economic Assessment Panel (TEAP) of the Montreal Protocol determined that critical alternatives are already commercially available or in-development.⁵
- 4. It is far more cost-effective to prevent HFC emissions by reducing upstream production and use—something the Montreal Protocol is uniquely qualified to do—than it is through emissions-based regulations (e.g., the Kyoto Protocol).⁶**
 - We can prevent emissions of HFCs by phasing down production and use at cost US\$ 0.05 per CO₂-eq. tonne through the Montreal Protocol funding mechanism, the MLF—less than 1% of the price currently being paid through the CDM for equivalent reductions.⁷
- 5. By phasing out CFCs and HCFCs to protect the ozone layer, the Montreal Protocol is responsible for increasing HFCs, which are being used to replace these chemicals.**
 - This causal connection triggers an obligation for the Montreal Protocol to act to reduce HFCs according to the Vienna Convention for the Protection of the Ozone Layer.⁸
- 6. It ensures no new HFC-23 destruction projects under the CDM; restores integrity of CDM.**
 - It will increase the number of CDM host countries, the price of carbon credits, and the number of CDM projects that achieve long-term emissions reductions and promote sustainable development (e.g. renewable energy and energy efficiency projects).
- 7. Funding for developing countries' agreed incremental costs of compliance is guaranteed.⁹**
 - It uses developing countries' preferred financial mechanism to mitigate climate change.¹⁰
- 8. Montreal Protocol is already set up to implement an HFC phase-down.**

- HFCs are in the same family of gases (F-Gases), have similar chemical properties, and are used in the same sectors as the chemicals already regulated by the Montreal Protocol.
- Amendments are already put forward; agreement can take place in 2010.

9. Phasing down HFCs does not affect the operation of the UNFCCC or Kyoto Protocol—production and consumption control measures under the Montreal Protocol are complementary to Kyoto Protocol emissions-based regulations.

- HFCs remain in the Kyoto Protocol basket.
- UNFCCC envisioned and encouraged cooperation with existing international institutions (Art. 7(2)(l)); Kyoto Protocol has already relied on other international organizations to reduce GHG emissions in specific sectors (Art. 2(2)).¹¹

10. The phase-down would demonstrate compromise and cooperation in combating climate change giving momentum to discussions under the UNFCCC.

- Applies principle of common but differentiated responsibilities: industrialized countries reduce first with developing countries given a grace period and all agreed incremental costs of compliance for developing countries paid for by industrialized countries.
- Takes HFCs off the crowded climate agenda, streamlining the UNFCCC negotiations.

¹ Proposals to amend the Montreal Protocol to phase down HFCs have already been submitted. See, e.g., Proposed Amendment to the Montreal Protocol (submitted by the Federated States of Micronesia), 30 Apr. 2010: http://ozone.unep.org/Meeting_Documents/oewg/30oewg/OEWG-30-4E.pdf.

² See, e.g., Guus J.M. Velders, et al., *The large contribution of projected HFC emissions to future climate forcing*, 106 PROC. NAT'L. ACAD. SCI. 10949 (2009) [hereinafter Velders et al. 2009] (providing business-as-usual estimates of HFC consumption and emissions growth through 2050).

³ The combined amount of emissions reduced or avoided from 1990 levels by 2012 under the Kyoto Protocol is approximately 10 Gt CO₂-eq. See Guus J.M. Velders, et al., *The importance of the Montreal Protocol in protecting climate*, 104 PROC. NAT'L. ACAD. SCI. 4814, 4818 (2007) [hereinafter Velders et al. 2007].

⁴ Compare *supra* note 2, Velders et al. 2009 with L. Bernstein et al., IPCC, CLIMATE CHANGE 2007 SYNTHESIS REPORT 44 (A. Allali et al. eds., 2007).

⁵ See TEAP 2010 PROGRESS REPORT, VOLUME 1 – “ASSESSMENT OF HCFCs AND ENVIRONMENTALLY SOUND ALTERNATIVES” AND “SCOPING STUDY ON ALTERNATIVES TO HCFC REFRIGERANTS UNDER HIGH AMBIENT TEMPERATURE CONDITIONS”, (May 2010).

⁶ To date, the MLF has spent US\$ 2.9 billion to phase out ODSs in developed countries preventing 135 Gt CO₂-eq. emissions from 1990-2010—costing approximately US\$ 0.02 per CO₂-eq. tonne. Compare Multilateral Fund for the Implementation of the Montreal Protocol, <http://www.multilateralfund.org/> and *supra* note 3, Velders, et al. 2007 with TEAP, TASK FORCE DECISION XX/7 – INTERIM REPORT, “ENVIRONMENTALLY SOUND MANAGEMENT OF BANKS OF OZONE-DEPLETING SUBSTANCES,” (June 2009) at 25-27 and 42-47 (showing the cost destroying the most cost-effective ODSs at the point of emission in the sectors that will be replaced by HFCs is US\$13.2-18.7 per CO₂-eq. tonne).

⁷ There are no publicly available estimates of the cost of implementing an HFC phase-down. However, most experts estimate the high end of the cost range of phasing down HFCs is US\$ 5 billion. This is consistent with past ODS phase-outs—the MLF has spent US\$2.9 billion from 1990-2010 to phase down CFCs and HCFCs in these same sectors. See *id.*

⁸ See Vienna Convention for the Protection of the Ozone Layer, *opened for signature* Mar. 22, 1985, 1513 U.N.T.S. 293 at Arts. 1(2) and 2(2)(b).

⁹ See Montreal Protocol on Substances that Deplete the Ozone Layer, *opened for signature* Sept. 16, 1987, 26 I.L.M. 1550 (1989) (as amended 32 I.L.M. 84) (1992) at Art. 10.

¹⁰ See UNFCCC, *Proposal on a Financial Mechanism for Meeting Financial Commitments Under the Convention (submitted by the Philippines on behalf of the G-77 and China)*, http://unfccc.int/files/kyoto_protocol/application/pdf/g77_china_financing_1.pdf.

¹¹ See United Nations Framework Convention on Climate Change, 31 I.L.M. 849 (9 May 1992) at Art. 7(2)(l). The Kyoto Protocol delegates responsibility for pursuing limitations or reductions of GHGs from aviation and bunker fuels to the International Civil Aviation Organization (“ICAO”) and International Maritime Organization (“IMO”) respectively. See Kyoto Protocol to the United Nations Framework Convention on Climate Change, *opened for signature* March 16, 1998, U.N. Doc FCCC/CP/1997/7/Add.1, 37 I.L.M. 22 (1998) at Art. 2(2).