

## Why phase down HFCs under the Montreal Protocol?<sup>1</sup>

- 1. Phasing down HFCs under the Montreal Protocol will prevent the emission of up to 100 billion tonnes (Gt) of carbon-dioxide equivalent (CO<sub>2</sub>-eq.) or more by 2050.<sup>2</sup>**
  - This climate mitigation is approximately 10 times that achieved by full compliance with the Kyoto Protocol through 2012.<sup>3</sup>
- 2. The amendment will prevent a dramatic increase in HFC emissions that will otherwise offset years of CO<sub>2</sub> 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 CO<sub>2</sub>-eq. per year. This is equivalent to 9-19% of projected global CO<sub>2</sub> emissions under business-as-usual scenarios, and 28-45% of global CO<sub>2</sub> emissions under a 450 parts per million (ppm) stabilization scenarios.<sup>4</sup>
- 3. The time to act is now; it will cost less and provide more environmental benefits.**
  - Without the HFC Amendment, developing countries will transition into HFCs in the next five years as HCFCs are phased out, diverting investment to obsolete HFC technologies and producing significant climate emissions.
  - Coordinating the phase-down of HFCs with the ongoing HCFC phase-out under the Montreal Protocol will allow Parties to leapfrog high-GWP HFCs entirely and save billions of dollars.
  - In May 2010, a report from the Technical and Economic Assessment Panel (TEAP) of the Montreal Protocol determined that alternatives are already commercially available or in development.<sup>5</sup>
- 4. It is far more cost-effective to prevent HFC emissions by reducing production and consumption—something the Montreal Protocol is uniquely qualified to do—than it is through emissions-based regulations (e.g., the Kyoto Protocol).<sup>6</sup>**
  - The HFC Amendment can prevent emissions of HFCs by phasing down production and consumption at a cost to the public of pennies per CO<sub>2</sub>-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.<sup>7</sup>
- 5. By undertaking the phase-outs of CFCs and HCFCs, the Montreal Protocol is inadvertently increasing HFC use and emissions even in applications where they are not necessary.**
  - This causal nexus triggers an obligation for the Montreal Protocol to act to reduce HFCs according to the Vienna Convention for the Protection of the Ozone Layer.<sup>8</sup>
- 6. The HFC phase-down also requires the destruction of HFC-23, which will ensure there are no new HFC-23 destruction projects under the CDM and help restore integrity to carbon markets.**
  - Requiring the destruction of all HFC-23 emissions will remove “additionality” from any new, future HFC-23 CDM projects, and this will increase the opportunity for CDM projects such as renewable energy and energy efficiency projects that achieve long-term emissions reductions and promote sustainable development.
- 7. Funding for developing countries’ agreed incremental costs of compliance is assured.<sup>9</sup>**
  - Uses developing countries’ preferred financial mechanism to mitigate climate change.<sup>10</sup>
- 8. The 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 chemicals already regulated by the Montreal Protocol.
  - Amendments have already been put forward; agreement can take place in 2011.

**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 emissions-based regulations under the Kyoto Protocol.**

- HFCs remain in the Kyoto Protocol basket.
- The UNFCCC envisions and encourages cooperation with existing international institutions in Art. 7(2)(l) and the Kyoto Protocol has already relied on other international organizations to reduce GHG emissions in specific sectors in Art. 2(2).<sup>11</sup>

**10. An HFC phase-down under the Montreal Protocol demonstrates compromise and cooperation in combating climate change, giving momentum to discussions under the UNFCCC.**

- Montreal applies the 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 are paid for by industrialized countries.
- A phase-down takes HFCs off the crowded climate agenda, streamlining work on other priorities within the UNFCCC.

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<sup>1</sup> Proposals to amend the Montreal Protocol to phase down HFCs have already been submitted. See Proposed Amendment to the Montreal Protocol (submitted by the Federated States of Micronesia), 28 Apr. 2011 [hereinafter FSM 2011 HFC Amendment] at 2-7, [http://ozone.unep.org/Meeting\\_Documents/oewg/31oewg/FSM-Proposed-Amendment.pdf](http://ozone.unep.org/Meeting_Documents/oewg/31oewg/FSM-Proposed-Amendment.pdf); Proposed Amendment to the Montreal Protocol (submitted by the United States of America, Canada, and Mexico), 30 Apr. 2011 [hereinafter North American HFC Amendment], at 2-6 [http://ozone.unep.org/Meeting\\_Documents/oewg/31oewg/HFC\\_Amendment\\_Proposal\\_Text.pdf](http://ozone.unep.org/Meeting_Documents/oewg/31oewg/HFC_Amendment_Proposal_Text.pdf).

<sup>2</sup> Compare *supra* note 1, FSM 2011 HFC Amendment and *supra* note 1, North American 2011 HFC Amendment with 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). Based on their own internal emissions growth projections, the North American countries estimate the North American 2011 HFC Amendment will prevent 88 Gt CO<sub>2</sub>-eq. of HFC emissions through 2050. See *supra* note 1, North American 2011 HFC Amendment at *Benefits of Phasing Down HFCs Under the Montreal Protocol*.

<sup>3</sup> The combined amount of emissions reduced or avoided from 1990 levels by 2012 under the Kyoto Protocol is approximately 10 Gt CO<sub>2</sub>-eq per year. 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].

<sup>4</sup> 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).

<sup>5</sup> 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).

<sup>6</sup> To date, the MLF has spent US\$2.9 billion to phase out ODSs in developing countries preventing 135 Gt CO<sub>2</sub>-eq. emissions from 1990-2010—costing approximately US\$0.02 per CO<sub>2</sub>-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 that 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 CO<sub>2</sub>-eq. tonne).

<sup>7</sup> See Oko-Recherche GmbH, *Preparatory Study for the Review of Regulation (EC) No 842/2006 on Certain Fluorinated Gases*, at 53 (Sept. 2010).

<sup>8</sup> 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).

<sup>9</sup> 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.

<sup>10</sup> 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](http://unfccc.int/files/kyoto_protocol/application/pdf/g77_china_financing_1.pdf) (proposing a UNFCCC financial mechanism based on the MLF).

<sup>11</sup> 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).