February 27, 2012

The ADP invited Parties and accredited observer organizations to submit to the Secretariat, by 1 March 2013, information, views and proposals on actions, initiatives and options to enhance ambition, including through the workplan on enhancing mitigation ambition, with a particular focus on 2013. In their submissions on actions, initiatives and options to enhance ambition, Parties may wish to give consideration to the following aspects:

(a) Mitigation and adaptation benefits, including resilience to the impacts of climate change;
(b) Barriers and ways to overcome them, and incentives for actions;
(c) Finance, technology, and capacity-building to support implementation.

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The Environmental Investigation Agency's submission on ADP Work Stream 2 on pre-2020 ambition

The Environmental Investigation Agency (EIA) welcomes this opportunity to provide its views and input on actions, initiatives and options to enhance mitigation ambition in the context of the on-going work of the Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP) on pre-2020 mitigation ambition (Workstream 2). We understand that the submissions received by the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat will form the basis of the Technical Paper to be published before the 38th session of the SBSTA in June 2013 and have therefore appended a number of key academic publications to help inform the Secretariat's work to the annex of this document.

The Environmental Investigation Agency

EIA is an independent campaigning organisation committed to bringing about change that protects the natural world from environmental crime and abuse. As part of our work, we have undertaken ground breaking investigations into the illegal trade in ozone depleting substances (ODS) and have been closely involved in the international ozone and climate negotiations for well over a decade. We are also a member of the Climate and Clean Air Coalition (CCAC).

EIA's climate mitigation campaign is primarily focused on HFCs (hydrofluorocarbons), third generation gases produced by chemical producers in response to the phase-out of ozone-depleting CFCs and HCFCs under the Montreal Protocol. Used in refrigeration and air-conditioning, these super greenhouse gases (so-called because their Global Warming Potentials [GWP] are often thousands of times higher than CO_2) are the fastest growing source of greenhouse gas emissions.

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The Gigatonne Gap – the global climate system edges closer to the brink

United Nations Environment Programme's (UNEP) *Emissions Gap Report 2012* shows that there is a gap of between 8-13 gigatonnes of CO_2-equivalent emissions ($GtCO_2e$) between the emissions reductions required to limit global temperature rise to 2 degrees centigrade by 2020 and Parties' current pledges. This represents a sizeable increase compared even to UNEP's 2011 report, which estimated the gap to be between 6-11 $GtCO_2e$.[1] What is more, as noted by UNEP, the gap is likely to be at the high end of the estimated range: "*There is increasing uncertainty that conditions currently attached to the high end of country pledges will be met and in addition there is some doubt that governments may agree to stringent international accounting rules for pledges. It is therefore more probable than not that the gap in 2020 will be at the high end of the 8 to 13 $GtCO_2e$ range*."[2] UNEP estimates the technical potential for reducing emissions by 2020 to be about 17 ± 3 $GtCO_2e$ at marginal costs below US$ 50-100/t CO_2e reduced.[3]

At the UNFCCC inter-sessional meeting in Bangkok in autumn 2012, three general ways of increasing the level of mitigation ambition were proposed, including "*[r]ecognising additional supplementary actions and initiatives undertaken at sub-national, national and international levels*." One of the actions listed under this approach was "*[r]educing production and use of HFCs under the Montreal Protocol.*"[4] At Bangkok and subsequently at COP 18 in Doha, a number of Parties gave their strong backing to this approach.[5] Against this backdrop, the European Union proposed formalising a set of International Cooperative Initiatives (ICIs) that "*have demonstrable potential, in addition to existing pledges, to close the emissions gap between now and 2020.*"[6] These ICIs are meant to be additional activities that countries can execute in the near term to close the "gigatonne gap" before the new legal framework is negotiated in 2015, and implemented in 2020. Of all the options to tackle climate change, addressing HFCs under the Montreal Protocol is the most tangible prospect for immediate, cost-effective action to achieve significant additional reductions.[7]

HFCs – Understanding the problem

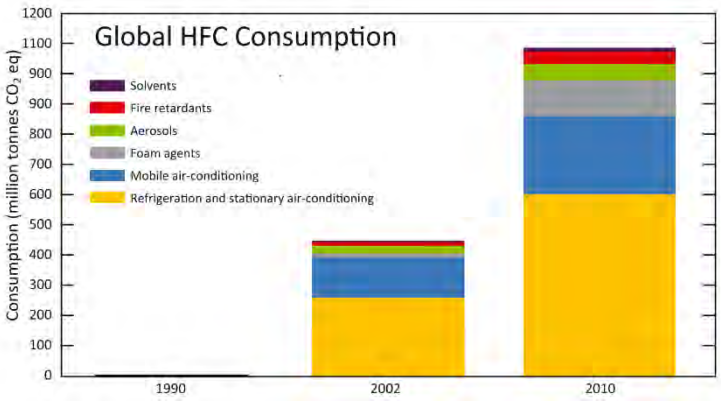


Figure 1: Estimated global HFC consumption in million tonnes CO_2 equivalent for 1990, 2002 and 2010. [F1]

Hydrofluorocarbons (HFCs) are man-made fluorinated gases (F-gases) developed and commercialised to replace CFCs, HCFCs and other chemicals that deplete the ozone layer. Unlike CFCs and HCFCs, HFCs do not destroy ozone; however, they are powerful greenhouse gases (GHGs), with global warming potentials hundreds and thousands of times more powerful than carbon dioxide (CO_2).[8] HFCs are primarily used in refrigeration, air conditioning, foam blowing, aerosols, fire protection and solvents and as indicated by Figure 1 their consumption increased significantly after 1990 and is projected to continue to rise. However, climate-friendly alternative refrigerants and technologies are available, and are being developed, which means that HFCs can be phased-out over time.[9]

HFCs currently represent around 1% of global GHG emissions.[10] Although their contribution to climate forcing is still relatively small, it is expected to soar in the coming decades, with emissions of HFCs increasing at a rate of 10-15% per year.[11] Unless action is taken, global HFC emissions could reach 5.5–8.8 $GtCO_2e$ per year in 2050, equivalent to 9–19% of projected global CO_2 emissions under

a business-as-usual scenario.[12] This increase could even be as high as 28–45% compared with projected CO_2 emissions in a 450ppm CO_2 stabilization scenario. A large share of the increase will take place in developing countries, where emissions are projected to be as much as 800% greater than developed countries' emissions by 2050. [13]

By 2050, the accumulation of HFCs in the atmosphere is expected to increase radiative forcing by up to 0.4 W m^2 relative to 2000. This increase could constitute as much as one-fifth to one-quarter of the expected increase in radiative forcing due to the build-up of CO_2 since 2000, according to some scenarios as indicated in Figure 2. [14]

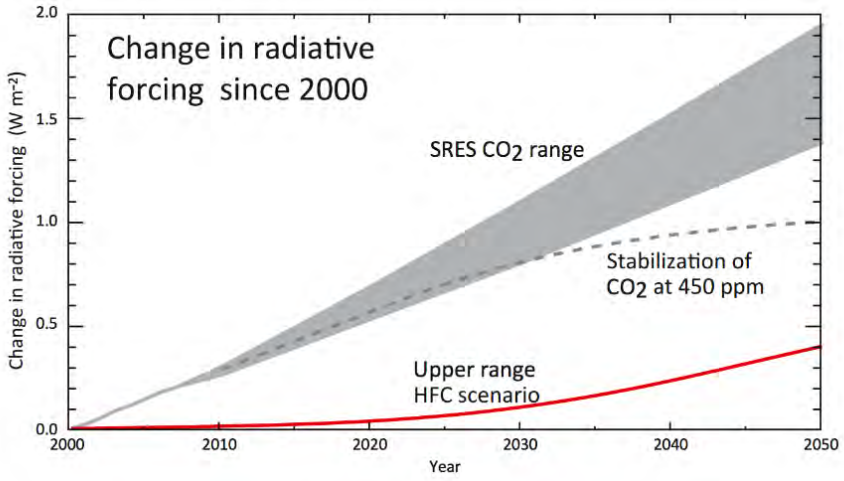


Figure 2: Comparative projected radiative forcing caused by HFCs and CO_2 over time (2000-2050). [F2]

Montreal Protocol HFC Proposals

Although established to eliminate ozone depleting substances and to restore the ozone layer, through its on-going phase-out of CFCs and HCFCs, the Montreal Protocol has already done more to mitigate global warming than all other international efforts combined.[15] However, these achievements in terms of climate benefits could be offset by the projected growth in HFC emissions, which have been commercialized due to the Montreal Protocol, over the coming decades unless action is taken to curb their use now.[16]

Proposals to amend the Montreal Protocol to regulate production and use of HFCs have been filed every year since 2009 by Micronesia, and by Canada, Mexico and the United States. [17] Since that time, and despite the formal support of over half of the Parties to the Montreal Protocol for action to regulate HFCs, progress on the so-called "Amendment Proposals" has been repeatedly blocked.

The countries blocking the Amendment Proposals frequently invoke the UNFCCC as being a more appropriate forum to discuss HFCs. However, while it is true that HFC *emissions* are included in the Kyoto basket of greenhouse gases, *production and consumption* are not. In fact, there is a clear legal imperative for their production and consumption to be dealt with under the Montreal Protocol as HFCs were introduced as a direct result of the phase-out of ODS in the exact sectors that previously used them, and the Montreal Protocol is obligated to prevent any "adverse effects" being caused by the phase-out of ODS.[18] Moreover, the Amendment Proposals clearly state in its text that "[t]his Amendment is not intended to have the effect of excepting hydrofluorocarbons from the scope of the commitments contained in Articles 4 and 12 of the United Nations Framework Convention on Climate Change and in Articles 2, 5, 7 and 10 of its Kyoto Protocol that apply to "greenhouse gases not controlled by the Montreal Protocol." Each party to this Amendment shall continue to apply the provisions of the United Nations Framework Convention on Climate Change and its Kyoto Protocol identified above to HFCs as long as those provisions, respectively, remain in force with respect to such party".[19]

HFC-23 by-product emissions during HCFC-22 manufacture are expected to rise rapidly over the next 25 years as indicated in Figure 3. The Amendments proposed by Canada, Mexico and the US would provide an estimated **avoided emissions of 2.2 $GtCO_2e$ by 2020 and 85 $GtCO_2e$ by 2050, with an additional 11.3 $GtCO_2e$ from HFC-23 by-product control**. [20] With anticipated gains in energy efficiency factored in to reflect technological improvements historically associated with the phase-out of CFCs and HCFCs, **the potential mitigation could increase significantly**.

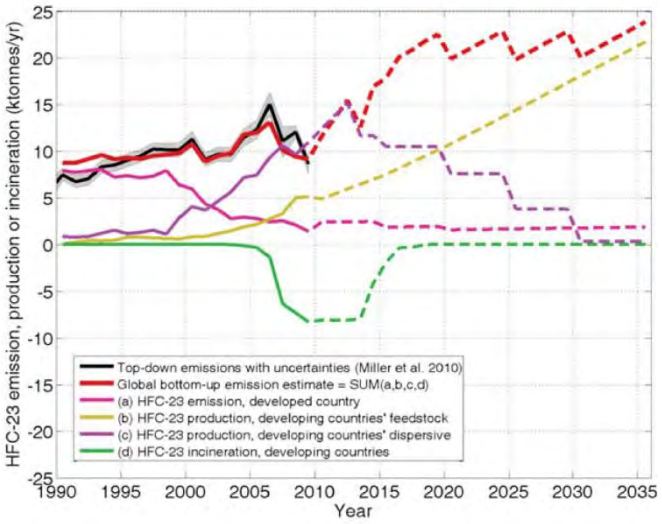


Figure 3: Bottom-up HFC-23 (a) emissions for developed countries; (b, c, d) production and incineration for developing countries against global bottom-up estimate (i.e. a+b+c+d) [F3]

HFCs are different from most other GHGs because they are intentionally produced and have been developed and commercialised as a direct result of the Montreal Protocol phase-out of ozone depleting substances. They are only used in approximately 200 industrial sectors and for nearly all of these sectors, they can be replaced with low-GWP alternatives or not-in-kind technologies.[21] Additionally, the Amendment Proposals give ample time for developing new alternatives for those few sub-sectors where alternatives are not commercially available. The Proposals specifically state that additional monies will be provided to the Montreal Protocol's funding mechanism, the Multilateral Fund, to pay the incremental costs incurred by Article 5 countries of an HFC phase-down. [22]

The Montreal Protocol is the Best Forum for a Phase-out of HFCs

The Montreal Protocol is uniquely positioned to adopt and implement a phase-out of HFCs. It has the technical, scientific and financial institutions in place, with a proven track record of phasing-out HFC precursors from the exact same industrial sectors that currently use HFCs. Moreover, the fluorocarbon industry has indicated its support for an HFC phase-down. [23]

The Parties to the UNFCCC should formally encourage the Montreal Protocol to phase out HFCs. The Montreal Protocol is the most successful environmental accord in history. It also has universal membership and has reduced a staggering 98% of 97 different chemicals responsible for ozone depletion.[24] However, rapidly rising HFC emissions resulting from these phase-outs will largely negate their positive climate benefit, unless action is taken to phase-out HFCs.
Although the Montreal Protocol is the unwitting cause of the increase in HFCs, it also holds the solution for controlling and phasing out these gases. Under the Montreal Protocol all Parties have accepted firm reduction commitments. It is also exemplary in its application of the legal principle of common but differentiated responsibilities by including provisions such as financial and technical assistance and allowing developing countries ("Article 5 Parties") "grace periods" (usually 10 years) to implement mandated phase-out schedules after developed countries ("non-Article 5 Parties"), in recognition of developed countries' larger historical contribution to ozone depletion and developing countries' right to continued growth and development. Amendment Proposals for an HFC phase-down propose a similar step-by-step schedule as indicated in Figure 4.

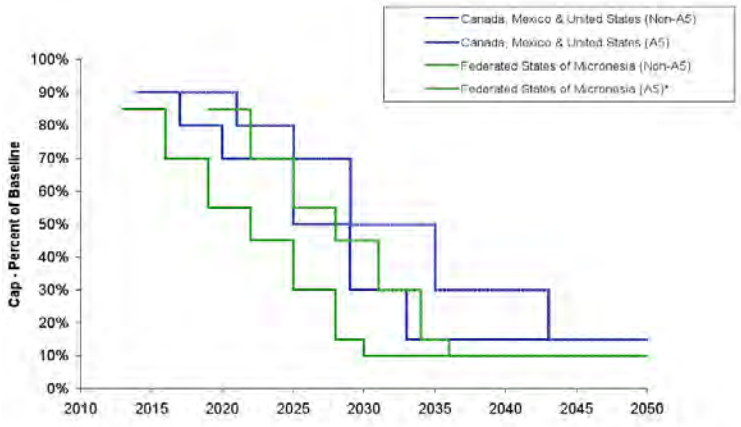


Figure 4: Figure 5: Proposed schedule for phase-down of HFCs in Article 5 and Non-Article 5 countries as per the amendment proposals from North America (Canada, Mexico and United States) and Federated States of Micronesia. [F4]

The Montreal Protocol contains the necessary supporting bodies to ensure policy decisions are based on sound science. Indeed, its actions are based on best scientific and economic information, and rely extensively on the Technology and Economic Assessment Panel (TEAP), Technical Options Committees (TOCs) and the Scientific Assessment Panel (SAP).[25] These expert groups provide the Parties with up-to-date information upon which to enact HFC phase-outs.

To better respond to available data and achieve its goals, the Montreal Protocol also has a unique 'adjustment' mechanism allowing the Parties to revise and accelerate phase-out schedules without formal amendment.[26] Adherence to commitments is also aided by flexibility in implementation, for while timelines for phase-downs are specific, the manner in which these targets are achieved is not, which permits Parties to meet commitments in a fashion best suited to their circumstances.[27]

The Montreal Protocol also aids technology transfer to developing countries, helping industry replace chemicals and equipment, reorganizing production processes and stimulating the redesign of products.[28] It plays a critical role in enhancing the capacity for building and development, as well as facilitating proliferation of chemical substitutes and alternative technologies.

Finally, and importantly, the Montreal Protocol provides incremental funding for developing countries to meet compliance and addresses the differences in responsibility through the Multilateral Fund (MLF) as exemplified in the phase-out of ODS in developing countries. The MLF covers incremental costs incurred as a result of actions to phase down consumption and production,[29] and would similarly be available to aid developing countries in financing a phase-down of HFCs.

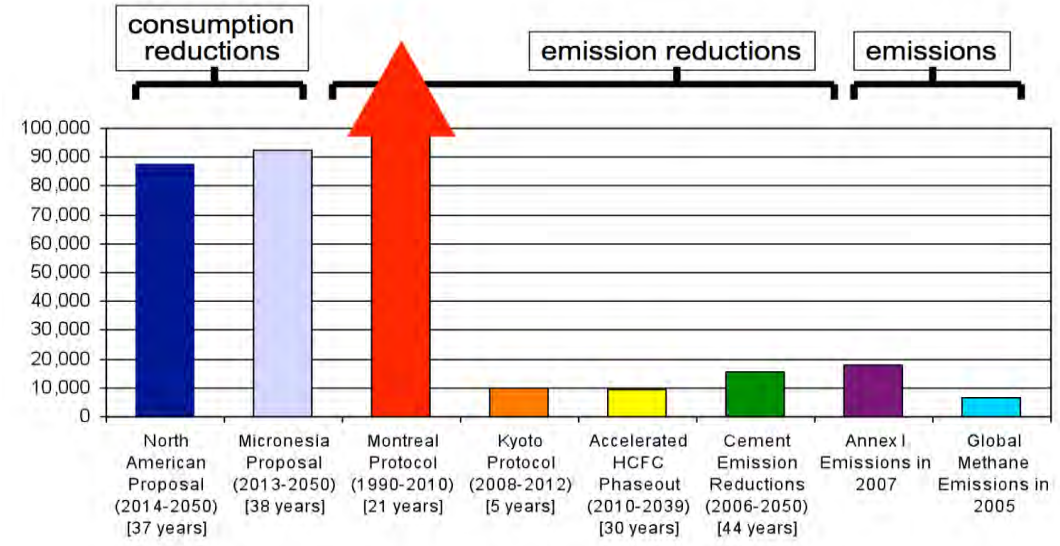


Figure 6: Potential emissions reductions benefits from the amendment proposals vis-à-vis other actual/ projected emissions. Units on the vertical axis are in $MMTCO_2e$ [F5]

The Next Steps for 2013

- **Enhanced cooperation between climate and ozone negotiators.** Technical experts from the Ozone Secretariat and other Montreal Protocol bodies such as TEAP and SAP should be invited to provide input and evidence at workshops focussing on pre-2020 ambition throughout 2013. The Climate and Clean Air Coalition might also provide a useful forum for more in-depth discussions in parallel to UNFCCC meetings.

- **Concrete action items must be established that come into effect immediately.** It must be clearly understood by Parties that the publication of the UNFCCC Secretariat's Technical Paper on enhancing short-term mitigation ambition is only the first step in a process. At the second session of the ADP (ADP 2) in Bonn in April 2013, Parties must establish a process that will translate the information contained in the report into concrete policy actions and result in real outcomes (including identification of actions which can be taken with immediate effect, elaboration of a strategy with milestones up to 2020 specifying projected emissions savings at each stage of the process).

- **A COP decision to urge the Montreal Protocol to undertake a global phase-down of the production and consumption of HFCs**. A COP decision at COP 19 in Warsaw must urge the Montreal Protocol to undertake a global phase-down of the production and consumption of HFCs, recognising that emissions of these substances will remain covered by the UNFCCC.

- **A high level statement calling for the Montreal Protocol to immediately begin a phase-down of HFCs.** At the extraordinary climate change summit in 2014 (announced by UN Secretary-General Ban Ki-moon at Doha), world leaders must call for the Montreal Protocol to immediately institute a global phase-down of HFCs at MOP 26.

Conclusion

The UNFCCC acknowledges in its preamble "that the global nature of climate change calls for the widest possible cooperation by all countries and their participation in an effective and appropriate international response."[30] Any real prospect for arresting global warming will require use of all available international resources and mechanisms. A phase-down of the super greenhouse gases, HFCs, would prevent the release of 2.2 Gt CO_2e by 2020 and almost 100 Gt CO_2e by 2050.[31] World leaders at the Rio+20 summit[32] and the G8 summit[33], expressed their support for a phase-down in HFC consumption and production in 2012 in recognition of the urgency of the issue. This phase-down can and should begin immediately under the auspices of the Montreal Protocol. This action would in no way diminish the UNFCCC's ability or authority to regulate HFC emissions, but rather create a parallel and reinforcing process to those efforts. However, failure to act on this opportunity will undermine the very objective for which the UNFCCC was established, that is "to achieve…stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."

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[2] Ex. 1 at 3.

[3] Ex. 1 at 4.

[4] Ad Hoc Working Group on the Durban Platform for Enhanced Actions, *Summary of roundtable on workstream 2: Note by the Co-Chairs*, 26 September 2012, ¶18, at 4, *available at* http://unfccc.int/files/documentation/submissions_from_parties/adp/application/pdf/adp_rt_workstream2_26092012.pdf.

[5] *See* Earth Negotiations Bulletin, Vol. 12 No. 554, Bangkok Climate Talks Highlights (September 5, 2012), *available at* http://www.iisd.ca/download/pdf/enb12554e.pdf for a summary of relevant ADP interventions at Bangkok in September 2012; *see also* United Nations Framework Convention on Climate Change, *Submissions from Parties to the ADP (2012)*, *available at* https://unfccc.int/bodies/awg/items/6656.php.

[6] Letter from EU to Messrs Mauskar and Dovland, *Response to Joint Message: Workstream on Enhancing pre-2020 Mitigation Ambition (*October 17, 2012), p.2, *available at* *http://unfccc.int/files/documentation/submissions_from_parties/adp/application/pdf/adp_eu_workstream2_17102012.pdf*

[7] Environmental Investigation Agency (EIA), *Closing the Emissions Gap: Time to phase out HFCs* (2012), *available at* *http://eia-global.org/PDF/EIA_Montreal_Protocol_briefing_1112.pdf* attached hereto as Exhibit 2.

[8] For example, GWPs of some HFCs are: HFC-125= 3500; HFC-134a= 1430; HFC-143a= 4470. *See* Velders, et al., *The large contribution of projected HFC emissions to future climate forcing*, 106 PROC. NAT'L. ACAD. SCI. 10949, 10952 (2009), *available at* *http://www.pnas.org/content/early/2009/06/19/0902817106* attached hereto as Exhibit 3.

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[10] UNEP (2011), *HFCs: A Critical Link in Protecting Climate and the Ozone Layer* attached hereto as Exhibit 9.

[11] Ex. 9 at 19.

[12] Ex. 9 at 20.

[13] *See* Ex. 3 at 10952.

[14] Ex. 9 at 10.

[15] Velders et al. (2007), *The importance of the Montreal Protocol in protecting climate*, PNAS March 20, 2007 vol. 104 no. 12 4814-4819, *available at* http://www.pnas.org/content/104/12/4814.full attached hereto as Exhibit 10.

[16] Ex. 3 at 10952.

[17] EPA, Summary Points: North American HFC Submission to the Montreal Protocol, http://www.epa.gov/ozone/downloads/HFC%20Amendment%20Summary%202012.pdf.

[18] Vienna Convention for the Protection of the Ozone Layer, *opened for signature* Mar. 22, 1985, 1513 ("*To this end the Parties shall … [a]dopt appropriate legislative or administrative measures and co-operate in harmonizing appropriate policies to control, limit, reduce or prevent human activities under their jurisdiction or control should it be found that these activities have or are likely to have adverse effects resulting from modification or likely modification of the ozone layer …*").

[19] UNEP, Note by the Secretariat, Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, Thirty-second meeting, Bangkok, July 23-27 2012, *Proposed amendment to the Montreal Protocol submitted by Canada, Mexico and the United States of America* (May 11, 2012), *available at* http://conf.montreal-protocol.org/meeting/oewg/oewg-32/presession/PreSession%20Documents/OEWG-32-6E.pdf attached hereto as Exhibit 11.

[20] Environmental Protection Agency, Stratospheric Protection Division Office of Atmospheric Programs Office of Air and Radiation (June 2012), *Benefits of Addressing HFCs under the Montreal Protocol, available at* http://www.epa.gov/ozone/downloads/Benefits%20of%20Addressing%20HFCs%20Under%20the%20Montreal%20Protocol,%20June%202012.pdf attached hereto as Exhibit 12.

[21] *See* Ex. 4.

[22] "Establishes provisions for developed country (non-Article 5) and developing country (Article 5)…Makes eligible for funding under the Montreal Protocol's Multilateral Fund the phasedown of HFC production and consumption as well as the reduction of HFC-23 byproduct emissions." *See Twenty-Fourth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer*, Geneva, *November 12-16 2012, Proposed amendment to the Montreal Protocol submitted jointly by Canada, Mexico and the United States of America*, p.9, *available at* http://conf.montreal-protocol.org/meeting/mop/mop-24/presession/PreSession%20Documents/MOP-24-6E.pdf.

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[25] *See* Montreal Protocol on Substances That Deplete the Ozone Layer, opened for signature Sept. 16, 1987, 26 I.L.M. 1550, Art. 5. (1989) (as amended 32 I.L.M. 84) (1992), at Art. 6; *see, also* First Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, Helsinki, Fin., May 2-5, 1989, of the First Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, at Decision I/3.

[26] See *id*. at Art. 2 ¶9.

[27] *See id.* at Arts. 2A-2I.

[28] *See id*. at Art. 10 ¶¶ 6-7.

[29] *See* Secretariat of the Multilateral Fund for the Implementation of the Montreal Protocol, *About The Multilateral Fund-Overview, available at* http://www.multilateralfund.org/default.aspx.

[30] UNFCCC (1992), *available at* http://unfccc.int/resource/docs/convkp/conveng.pdf.

[31] Ex. 12.

[32] "We recognize that the phase-out of ozone-depleting substances is resulting in a rapid increase in the use and release of high global warming potential hydrofluorocarbons to the environment. We support a gradual phase-down in the consumption and production of hydrofluorocarbons." *available at* http://www.uncsd2012.org/thefuturewewant.html.

[33] Press Release, Leaders of the Group of Eight, *Camp David Declaration* (May 19, 2012), *available at* http://www.whitehouse.gov/the-press-office/2012/05/19/camp-david-declaration.

FIGURES

[F1] UNEP (2011), *HFCs: A Critical Link in Protecting Climate and the Ozone Layer*, p.16, *available at* http://www.unep.org/dewa/portals/67/pdf/HFC_report.pdf

[F2] *Id.* at 11.

[F3] Miller, B. R. and Kuijpers, L. J. M., (2011) Projecting future HFC-23 emissions, Atmos. Chem. Phys., 11, 13259-13267 attached hereto as Exhibit 14.

[F4] Presentation at the 30th Open-Ended Working Group of the Parties to the Montreal Protocol in Geneva, June 15-18, 2010 by Canada, Mexico and the United States of America, p. 6, *available at* http://ozone.unep.org/Meeting_Documents/oewg/30oewg/conf-ngos/NA%20HFC%20Proposal%20OEWG%20Side%20Event.June15.2010.pdf

[F5] *Id.* at 12.

Exhibit List

Exhibit 1: UNEP, *The Emissions Gap Report 2012* (2012).

Exhibit 2: Environmental Investigation Agency, *Closing the Emissions Gap: Time to phase out HFCs* (2012).

Exhibit 3: Velders, et al., *The large contribution of projected HFC emissions to future climate forcing* (2009).

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Exhibit 5: German Environment Agency (Umweltbundesamt), *Avoiding Fluorinated Greenhouse Gases: Prospects for Phasing Out* (2011)

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Exhibit 11: *Proposed amendment to the Montreal Protocol submitted by Canada, Mexico and the United States of America* (2012).

Exhibit 12: Environmental Protection Agency, Stratospheric Protection Division Office of Atmospheric Programs Office of Air and Radiation , *Benefits of Addressing HFCs under the Montreal Protocol* (2012).

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