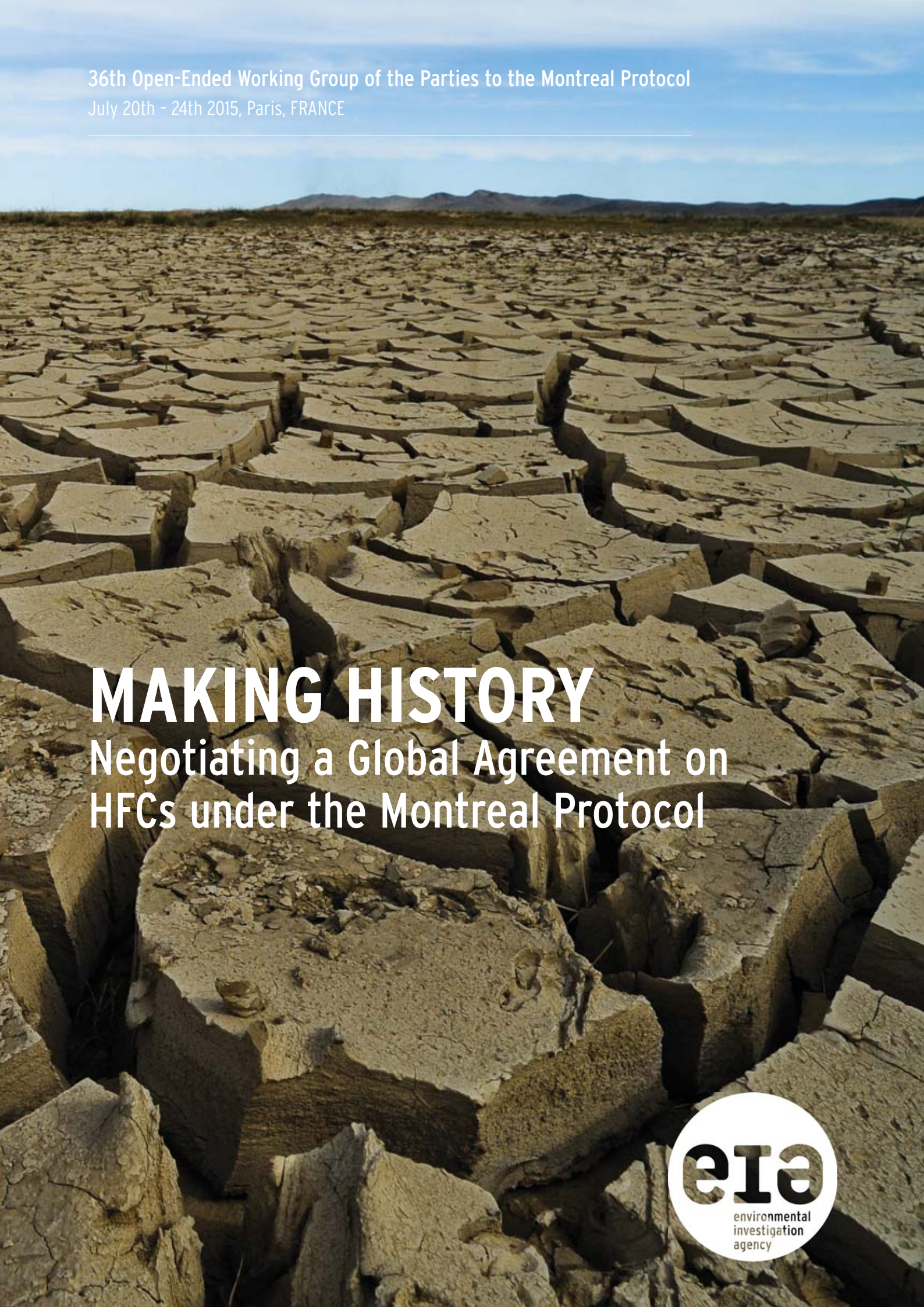
36th Open-Ended Working Group of the Parties to the Montreal Protocol

July 20th - 24th 2015, Paris, FRANCE



MAKING HISTORY

Negotiating a Global Agreement on HFCs under the Montreal Protocol

environmental investigation agency

ABOUT EIA

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 groundbreaking 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.

ACKNOWLEDGEMENTS

Report design by: www.designsolutions.me.uk

JULY 2015

© Environmental Investigation Agency 2015

No part of this publication may be reproduced in any form or by any means without permission in writing from the Environmental Investigation Agency.

This report was produced by the London and Washington, D.C. offices of the Environmental Investigation Agency (EIA). EIA is solely and entirely responsible for the contents of this report.

INTRODUCTION

The Parties to the Montreal Protocol have a vital role to play in the greatest challenge of our time – climate change. In the build up to the Climate Change Conference in Paris in December 2015, the Montreal Protocol can provide critical momentum for the climate negotiations under the United Nations Framework Convention on Climate Change (UNFCCC) by reaching agreement in Dubai this November to regulate the production and consumption of hydrofluorocarbons (HFCs) under the Montreal Protocol.



COVER IMAGE:
Drought ©Asian Development Bank 2012

HFCs are included among the seven greenhouse gases (GHG) targeted by the UNFCCC but are primarily used as replacements for ozone-depleting substances (ODS) controlled under the Montreal Protocol. Despite their ostensible regulation under the Kyoto Protocol, over the past 25 years HFC emissions have grown from essentially non-existent to nearly two per cent of all GHGs. Emissions of HFCs continue to grow faster than any other GHG and their growth is predicted to accelerate in the future.[1] The Parties to the Montreal Protocol have a unique opportunity to lead the global community in the fight against climate change by taking responsibility for the production and consumption of HFCs.

At the 36th Open-Ended Working Group (OEWG), Parties have four amendment proposals to consider, offering a diverse range of options to phase down the production and consumption of HFCs.[2] Together with the Conference Room Paper submitted by the Africa States at the 35th OEWG,[3] these proposals have been submitted on behalf of 95 governments representing approximately 3.5 billion people – roughly half the world's population.

The proposals build on previous proposals and numerous declarations from the Parties urging action on HFCs under the Montreal Protocol.[4] They have been buttressed by workshops and reports from the Technical and Economic Assessment Panel (TEAP) reaffirming that technically proven, environmentally sound and cost-effective alternatives to HFCs exist in most sectors and are available to the Parties in order to replace HFCs.[5] If an ambitious amendment is adopted swiftly, it could prevent the consumption of more than 100 billion tonnes of carbon dioxide equivalent (CO_2e) HFCs by 2050,[6] providing 10 times more climate mitigation than the Kyoto Protocol achieved from 1990-2012.[7]

EIA calls on the Parties to form a contact group at the 36th OEWG to begin negotiations on the text of an amendment to phase down the production and consumption of HFCs to be adopted at the 27th Meeting of the Parties to the Montreal Protocol in Dubai (27th MoP). In order to facilitate those discussions, EIA is providing the Parties with this briefing which highlights the key differences among the proposals and the consequences of those distinctions for the regulation of HFCs under the Montreal Protocol.



Lake Fryxell © Joe Mastroianni 2002

CORE ELEMENTS OF AN HFC PHASE-DOWN

In addition to finance and technology transfer which are at the heart of the Montreal Protocol's success, historically there have been three core elements of production and consumption phase-outs under the Montreal Protocol, namely the baseline, reduction schedule and grace period for Parties operating under Article 5 ("A5 Parties"). An additional element of importance is the final step of the reduction schedule since all amendment proposals to date are proposing a phase-down, and not a phase-out, of HFCs.

Baseline

Although the reference years and percentages are different, all four proposals use some combination of HFCs and hydrochlorofluorocarbons (HCFCs) to calculate the baseline (on a CO_2e basis). For Parties not operating under Article 5 ("non-A5 Parties"), there is convergence on a methodology that relies on recent HFC production and consumption coupled with some percentage of HCFCs and the starting points are similar. For A5 Parties, the methodologies applied to the baseline vary more widely. Current HFC consumption in A5 Parties is estimated by TEAP to be approximately 705 million tonnes (Mt) CO_2e. According to EIA's calculations, the baselines in the four proposals range from 846 Mt CO_2e in the North America (NA) Proposal to over 2,400 Mt CO_2e in the India Proposal, a more than three-fold increase in HFC consumption. Parties should avoid setting the baseline too high in order to prevent unnecessary growth in HFC production and consumption in advance of the reduction schedule.

Reduction Schedule

Since the first HFC amendment proposals were made in 2009, significantly more information is now available to the Parties to inform their consideration of reduction schedules. For both non-A5 and A5 Parties, TEAP has outlined a number of mitigation scenarios, the scenarios for non-A5 Parties being particularly conservative.[8] Indeed, the European Union (EU) has already adopted an HFC phase-down for its 28 Member States that is far more ambitious than TEAP's MIT-2 scenario for non-A5 Parties.[9] TEAP's MIT-3 scenario for A5 Parties is challenging but achievable with a large-scale transition to currently available low-GWP technologies in new equipment.

It should be noted however that a transition to GWP 300 in place of truly low-GWP alternatives will ultimately result in resumed growth of HFC consumption (in CO_2e terms) over time due to the growth in demand for refrigeration and air-conditioning (AC) in A5 Parties.[10]

Grace Period

Throughout the history of the Montreal Protocol, non-A5 Parties have implemented control measures to reduce their production and consumption of controlled substances in advance of A5 Parties. This grace period is one way in which the Montreal Protocol implements the principle of common but differentiated responsibilities, the rationale being to allow time for replacement technologies to develop before being transferred to A5 Parties. In the past, however, the long grace period often meant that A5 Parties were offered outdated and unsustainable technologies no longer in demand in non-A5 Parties. Since A5 Parties are still primarily relying on HCFCs, there is an opportunity for A5 Parties to 'leapfrog' dead-end HFC technologies and undertake a one-time transition from HCFCs to low-GWP alternatives. To do this, the grace period needs to be limited in order to prevent a massive growth in the uptake of HFC technologies in A5 Parties concomitant with the HCFC phase-out. In addition, it is necessary to implement an early HFC phase-down in non-A5 Parties that expands the commercialisation and market penetration of low-GWP technologies, to allow for their swift adoption in A5 Parties at reduced costs.

COMPARISON OF PROPOSED HFC AMENDMENTS

Proposals for non-A5 parties

Using HFC consumption data from the June 2015 TEAP report *Decision XXXVI/9 Task Force Report – Additional Information on Alternatives to Ozone-Depleting Substances* and HCFC consumption data from the Ozone Secretariat website,[11] EIA has analysed the four proposals submitted by: Canada, Mexico and the United States (the "North America proposal" or "NA proposal"); Kiribati, Marshall Islands, Mauritius, Micronesia, Palau, Philippines, Samoa and Solomon Islands (the "Islands proposal"); the European Union (the "European Union proposal" or "EU proposal"); and from India (the "India proposal").

BELOW:
UNEP Executive Director Achim Steiner warns that the climate change impacts of HFCs may offset the benefits of the Montreal Protocol's work on ODS.



© IISD 2015

FIGURE 1: COMPARISON OF HFC CONSUMPTION IN NON-A5 PARTIES IN THE PROPOSED HFC AMENDMENTS TO THE MONTREAL PROTOCOL

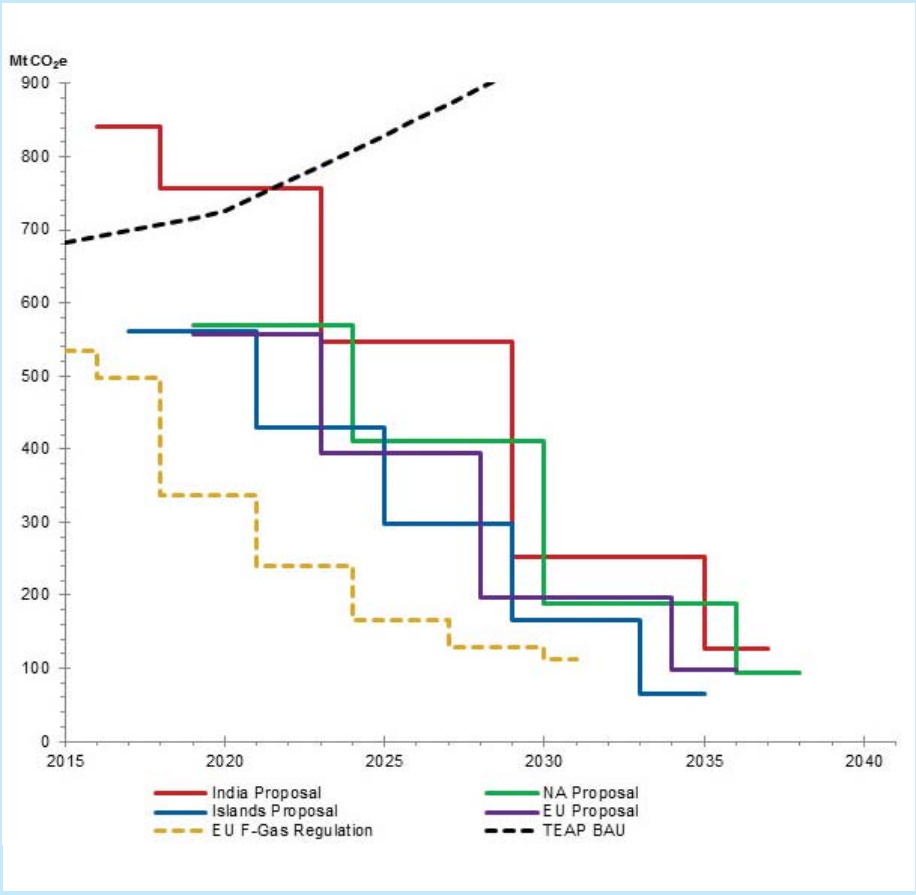


Figure 1 compares HFC consumption in the four proposed non-A5 Parties' reduction schedules and includes the 2014 EU F-Gas Regulation as a frame of reference. Table 1 outlines the basic components of the four proposals and calculates cumulative HFC consumption reductions from 2015-2040, based upon TEAP business-as-usual (BAU) data extrapolated to 2040.[12]

As Figure 1 shows, the proposed level of ambition for non-A5 Parties is lower than unilateral measures already being implemented in these countries. In April 2014, the EU and its 28 Member States, which together constitute a majority of non-Article 5 Parties, adopted the EU F-Gas Regulation, which sets out to achieve a 79 per cent reduction in HFC consumption by 2030 from current levels. The reduction schedule was based on a thorough technical analysis that determined the swift adoption of safe and cost-effective alternatives, in particular natural refrigerants, was feasible.[13] Translated to all non-A5 Parties, the EU F-Gas Regulation would result in a reduction of more than 17.8 $GtCO_2e$ in HFC consumption during the 2015-2040 period.

In addition, it is unclear why all four proposals include a significant HCFC component in the baseline, in particular the EU and India proposals. Allowable HCFC consumption for non-A5 Parties is currently just 10 per cent of the baseline, although many countries have already achieved complete phase-out. Given that all non-A5 Parties recognise the need to reduce HFC emissions, the assumption that all remaining HCFC use will transition to HFCs (and is therefore required in the baseline) is misguided. Most, if not all, current HCFC consumption in non-A5 Parties is dedicated to servicing installed equipment, which should not be replaced with high-GWP HFCs at end-of-life.

Recommendations for non-A5 Parties:

- non-A5 Parties should demonstrate leadership through an ambitious reduction schedule for HFCs, starting within two years of an agreement under the Montreal Protocol;

TABLE 1: BASIC ELEMENTS OF THE NON-A5 PROPOSALS AND POTENTIAL HFC CONSUMPTION REDUCTIONS

ISLANDS	NORTH AMERICA	PROPOSAL	EUROPEAN UNION	INDIA
100% HFC (2011-2013) + 10% of the HCFC baseline	100% HFC (2011-2013) + 75% HCFC (2011-2013)	**Baseline**	100% HFC (2009-2012) + 45% "Allowable" HCFC (2009-2012)	100% HFC (2013-2015) + 25% HCFC (2013-2015)
660 Mt CO_2e	632 Mt CO_2e	**Calculated Baseline**	656 Mt CO_2e	842 Mt CO_2e
2017 – 85% 2021 – 65% 2025 – 45% 2029 – 25% 2033 – 10%	2019 – 90% 2024 – 65% 2030 – 30% 2036 – 15%	**Reduction Schedule**	2019 – 85% 2023 – 60% 2028 – 30% 2034 – 15%	2016 – 100% 2018 – 90% 2023 – 65% 2029 – 30% 2035 – 15%
15.4 Gt CO_2e	13.4 Gt CO_2e	**HFC Consumption Reductions from BAU 2015-2050 (HFC-23 Excluded)**	14.3 Gt CO_2e	11.9 Gt CO_2e

- the HCFC component on the non-A5 baseline should be limited to a small fraction of allowable or actual HCFC consumption under the current HCFC phase-out schedule;
- all non-A5 Parties should take ambitious unilateral steps to address HFCs and demonstrate the efficacy of low-GWP HFC-free technologies, particularly in the refrigeration and AC sectors.

Proposals for A5 parties

Figure 2 compares the four proposed A5 Parties' schedules against the new MIT-3 scenario outlined in the June 2015 TEAP report. According to TEAP, MIT-3 assumes that bans on the use of certain high-GWP chemicals enter into force in new manufacturing as of 2020, with an average GWP of replacement refrigerants of 300 for both the commercial refrigeration and the stationary AC sectors. The scenario assumes a six-year manufacturing conversion period and HFC consumption data are only available from TEAP up to 2030. Data provided for foams is also taken into account, based on previous TEAP assessments.[14]

The EU proposal differs significantly from the other amendment proposals for A5 Parties, as it envisages a freeze of the combined climate impacts of HFC and HCFC consumption (i.e. on a CO_2e basis), while maintaining the existing HCFC phase-out schedule. This means that as HCFCs are phased out, there is room for a certain amount of HFC growth up to the combined freeze level. For the purposes of the graph, the EU proposal assumes that HCFCs are phased out strictly according to the schedule.

As can be seen in Figure 2, all four proposals are achievable under the MIT-3 scenario as far as 2030 (the date to which TEAP modelled MIT-3).

The Islands and NA proposals put forward steps that are close to the MIT-3 scenario, while the EU and India proposals are much closer to the BAU scenario. Both the EU and India proposals rely on the future establishment of a reduction schedule for the HFC phase-down, with the EU proposal requiring Parties to agree a schedule by 2020 and the India proposal allowing A5 Parties to determine national steps five years in advance of each five-year period. To the extent reduction schedules are to be established at a future date, those reductions schedules should be governed by criteria on technical feasibility as well as cost-effectiveness considerations, with the primary objective being to minimise HFC emissions. EIA does not support nationally determined steps, as it would add considerable complexity for the implementation of the phase-down under the Multilateral Fund (MLF) and uncertainty in terms of consumption reductions and costs. Substantial

FIGURE 2: HFC AMENDMENT PROPOSALS FOR A5 PARTIES, COMPARED TO TEAP MIT-3 SCENARIO

The shaded area shows expected HFC consumption under the TEAP MIT-3 scenario with the refrigeration and air-conditioning sector divided into the specific HFCs likely to be used, namely HFC-134a (domestic refrigeration and mobile air-conditioning), R-404A/R-507 (commercial, industrial and transport refrigeration), and R-410A/R-407C (stationary air-conditioning).

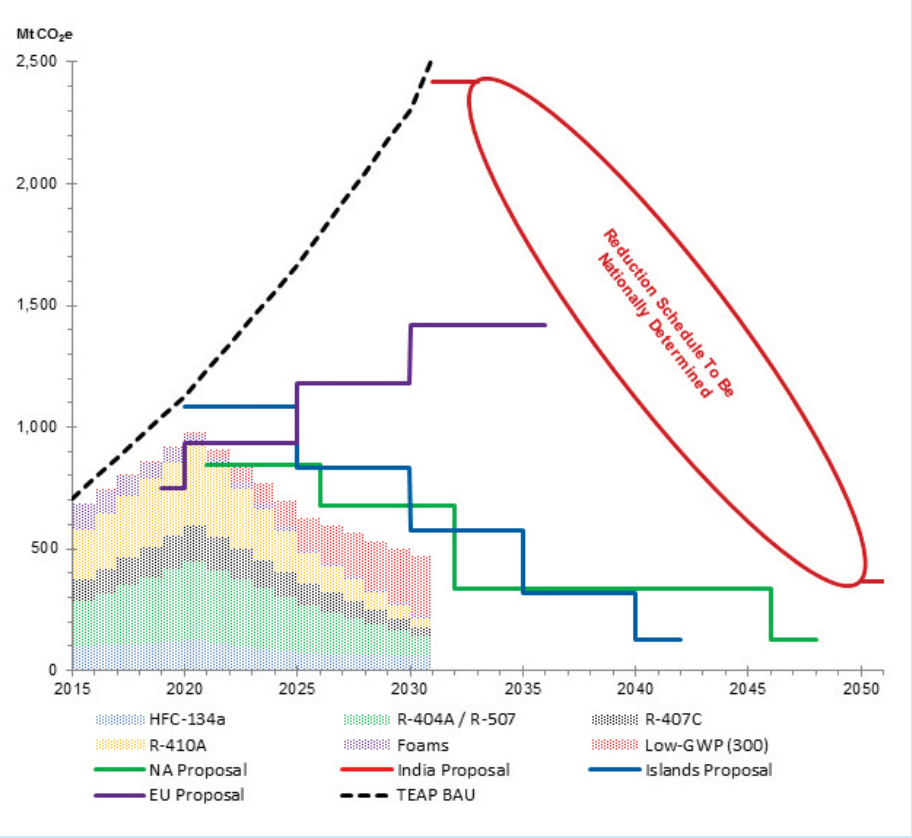


TABLE 2: BASIC ELEMENTS OF THE A5 PROPOSALS AND POTENTIAL HFC CONSUMPTION REDUCTIONS

ISLANDS	NORTH AMERICA	PROPOSAL	EUROPEAN UNION	INDIA
100% HFC (2015-2017) + 65% HCFC (Baseline)	100% HFC (2011-2013) + 75% HCFC (2011-2013)	**Baseline**	**Consumption:** 100% HFCs (2015-16) + 100% HCFCs (2015-16) **Production:** 100% HFC (2009-2012) + 70% HCFC (2009-2012)	100% HFC (2028-2030) + 32.5% HCFC (2028-2030)
1,277 Mt CO_2e	846 Mt CO_2e	**Calculated Consumption Baseline**	1,422 Mt CO_2e	2,420 Mt CO_2e
2020 – 85% 2025 – 65% 2030 – 45% 2035 – 25% 2040 – 10%	2021 – 100% 2026 – 80% 2032 – 40% 2046 – 15%	**Reduction Schedule**	**Consumption:** Freeze of combined HCFC and HFC CO_2e consumption in 2019. Reduction schedule to be agreed by 2020 **Production:** 2019 – 100% 2040 – 15% Reduction steps to be agreed by 2020	2031 – 100% Nationally Determined Reduction Schedule 2050 – 15%
81.7 Gt CO_2e	82.4 Gt CO_2e	**HFC Consumption Reductions from BAU 2015-2050 (HFC-23 Excluded)**	[57.1 Gt CO_2e][15]	[32.6 Gt CO_2e][16]

FIGURE 3: ISLANDS PROPOSAL TO THE MONTREAL PROTOCOL - HFC PHASE-DOWN

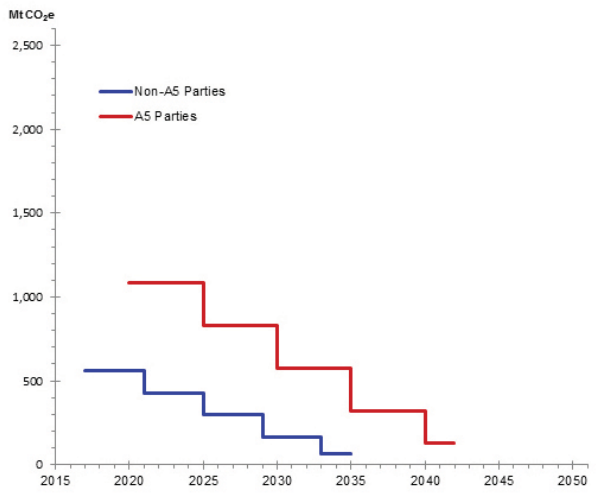
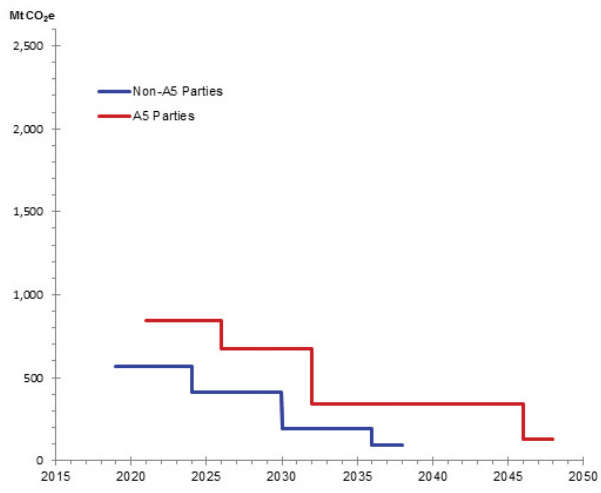


FIGURE 4: NORTH AMERICA PROPOSAL TO THE MONTREAL PROTOCOL - HFC PHASE-DOWN



ISLANDS PROPOSAL

- The phase-down schedule in A5 Parties coincides with the remaining reduction steps in the HCFC phase-out.
- Excludes HFC-23 by-product from the HFC baseline for A5 Parties.
- Varying grace periods for A5 Parties of 3-7 years.

NORTH AMERICA PROPOSAL

- Ambiguous on whether HFC-23 produced as a by-product of HCFC-22 production is counted toward A5 Parties' baseline.[17]
- Varying grace periods for A5 Parties of 2-10 years.

Figs 3-6 compare HFC production and consumption under the A5 and non-A5 schedules for each of the four amendment proposals, with key elements of each proposal outlined below. For the purposes of the graphs, HFC production in A5 and non-A5 Parties is assumed to be equivalent to TEAP's estimate of HFC consumption in A5 and non-A5 Parties.

flexibility on a national level already exists under the process of national phase-out management plans (HPMP).

The four proposals contain large variations in the grace period offered to A5 Parties, ranging from two to 15 years. Given the proliferation of low-GWP technologies, A5 Parties are in the position to jump directly to low-GWP technologies, such as natural refrigerants, in almost all sectors. A short grace period will enable A5 Parties to capitalise on this opportunity, rather than transitioning to high-GWP HFCs that will entail a second costly transition further down the road. Opportunities to leapfrog HFCs can be maximised by aligning the HFC phase-down with the HCFC phase-out reduction targets (i.e. in 2020, 2025 and 2030) so that a coordinated sectoral approach within the MLF can be taken.

EIA urges Parties to ensure that HFC production is phased down in line with HFC consumption to avoid exacerbating illegal trade. TEAP should consider in more detail the proportion of HFC production that is located in A5 and non-A5 Parties, and whether differentiated schedules will result in total HFC production being reduced in line with total HFC consumption.

Recommendations for A5 Parties:

- the grace period for A5 Parties should be short in order to promote leapfrogging of HFCs to low-GWP technologies;
- the HFC phase-down steps should be aligned with the accelerated HCFC phase-out steps in order to allow a coordinated approach under the MLF and to maximise leapfrogging;
- HFC production should be phased down in line with HFC consumption to avoid creating opportunities for illegal trade in HFCs;
- clear criteria should be established to govern any future negotiations of reduction schedules;
- consumption reduction steps should closely follow the TEAP MIT-3 scenario (i.e. relying on low-GWP technologies identified by TEAP as available for use in A5 Parties).

FIGURE 5: INDIA PROPOSAL TO THE MONTREAL PROTOCOL - HFC PHASE-DOWN

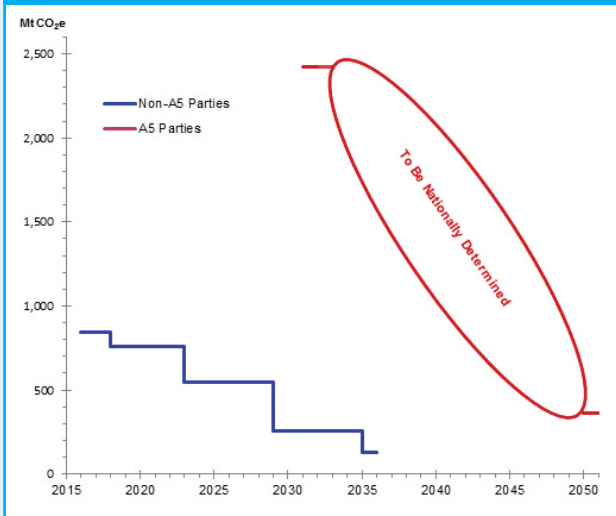
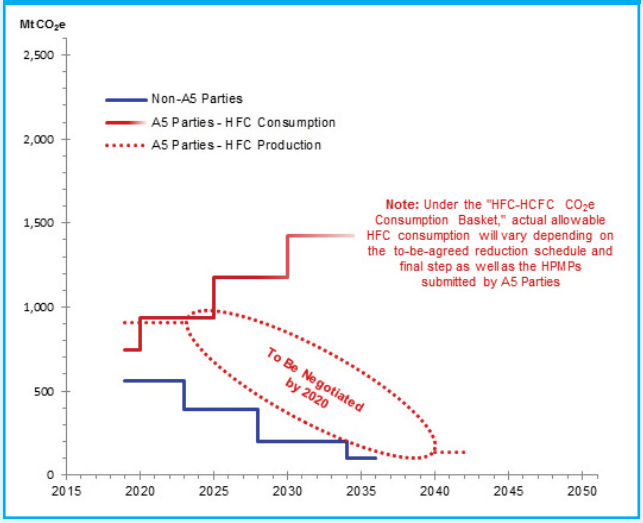


FIGURE 6: EUROPEAN UNION PROPOSAL TO THE MONTREAL PROTOCOL - HFC PHASE-DOWN



INDIA PROPOSAL

- No action by A5 Parties until 2031.
- Encourages unrestricted HFC growth through 2030 coupled with funding for full conversion costs.
- Introduces new concept of nationally determined reduction steps.
- Ambiguous on whether HFC-23 produced as a by-product of HCFC-22 production is counted toward A5 Parties' baseline.[18]
- Grace period for A5 Parties of 15 years.

EU PROPOSAL[19]

- Only proposal with differing consumption/production schedules.
- Leaves A5 Parties' reduction schedule to future negotiation.
- Ambiguous on whether HFC-23 produced as a by-product of HCFC-22 production is counted toward A5 Parties' baseline.[20]

CONSIDERATION OF EXEMPTIONS

Some Parties have put forward the concepts of essential use nominations and "exceptional measures" as a response to concerns that low-GWP alternatives to HFCs will not be available in all sectors and for all Parties as needed, particularly countries with high ambient temperature conditions. While both of these concepts have been utilised by the Montreal Protocol, other tools are available to alleviate these concerns and it is not necessary to include such measures within the adopted amendment at this time.[24]

TEAP's most recent reports have made clear that technically proven, environmentally sound and cost-effective low-GWP alternatives to HFCs have been commercialised in most sectors.[25] This contrasts sharply with the lack of available alternatives to CFCs in nearly every sector at the time the Montreal Protocol was agreed in 1987 that led to the inclusion of an exemption process within the CFC phase out.[26]

In addition, the proposed control measures for HFCs are a phase-down,



WANTED BY INTERNATIONAL LAW:

FUGITIVE HFC-23 BY-PRODUCT EMISSIONS

Since 2009, EIA has been at the vanguard of the international campaign to end fugitive HFC-23 by-product emissions by calling for mandatory destruction through national measures or through an agreement under the Montreal Protocol.[21] Three of the four proposals would mandate the near-complete destruction of HFC-23 in all Parties beginning sometime between 2017 and 2019.[22] Only the India Proposal fails to include provisions mandating HFC-23 destruction.[23]

EIA believes there is no policy reason to delay the imposition of control measures on all Parties to destroy HFC-23 by-product emissions and therefore urges the Parties to adopt 2017 as the start date within the agreed amendment text, as proposed in the Islands Proposal. The Amendment should also mandate public disclosure to the Montreal Protocol of destruction verification reports.

Industrial pollution © shutterstock 2015

not a phase-out, with all four proposals anticipating some HFC use indefinitely into the future, varying from 10 to 15 per cent of the baseline. In practice, this portion of the HFC baseline is a built-in exemption that is larger than the essential-use exemptions relied upon by Parties during the CFC phase out.[27]

It is also possible for Parties to take a "wait and see" approach and address the issue of essential use exemptions as the HFC phase-down progresses, as was done with the accelerated HCFC phase-out agreement.[28] In this way, the Parties will not stifle technological progress by relieving the regulatory pressure of the Montreal Protocol, which has almost always resulted in alternatives being made available before the Parties needed to resort to an exemption process.

For these reasons, EIA urges the Parties to adopt an amendment that does not contain essential use exemptions or exceptional measures at this time but leaves the issue open for discussion in the future.

FUNDING THE FUTURE

The MLF is the most successful global environmental financial mechanism in history and has effectively implemented the principle of common but differentiated responsibilities. However, new challenges that will result from the Montreal Protocol tackling HFCs will require innovative improvements to the financial mechanism to maximize the climate benefits of an HFC phase-down.

Given the MLF's track record of success, EIA believes that changes to Article 10 of the Protocol should be approached with caution. For example, in EIA's view, the changes put forward in the India Proposal would greatly increase the funding required of the MLF without a commensurate increase in the environmental benefits delivered. However, with the incorporation of climate considerations under the Montreal Protocol, Parties should adapt the MLF to promote energy efficient solutions. Addressing energy efficiency in refrigeration and AC equipment can double CO_2e emissions savings resulting from an HFC phase-down.[29]

In addition, Parties should request the Executive Committee of the MLF to review its existing policies and procedures to determine how to provide additional incentives for and remove barriers to the uptake of low-GWP and not-in-kind HFC-free technologies. Training and capacity-building to ensure safe handling of natural refrigerants, the revision of antiquated standards and codes and adequate pilot and demonstration projects also need to be fully addressed, particularly in the servicing sector.[30]

EIA also believes it is in the best interest of all Parties and the climate to provide financial and technical support to those Article 5 Parties seeking to reduce their HFC production and consumption in advance of the phase-down schedule. Forty countries proposed to transition from HCFCs to low-GWP alternatives faster than the reduction

TABLE 3: COSTS OF MANUFACTURING CONVERSION (TEAP MIT-3)

SECTOR	Manufacturing Conversion		Costs (US$ million)		Costs (US$/tCO2e)	
	kt	Mt CO2e	Low End	High End	Low End	High End
REFRIGERATION						
Domestic (HFC-134a)	12.2	15.9	85.7	110.1	5.39	6.92
Commercial (HFC-404A + HFC-507)	38.9	153.7	156	273	1.01	1.78
Industrial (HFC-404A + HFC-507)	3.7	14.6	14.9	26	1.02	1.77
Transport (HFC-404A + HFC-507)	1.3	5.1	7.9	10.5	1.53	2.03
AIR-CONDITIONING						
Stationary (HFC-410A)	113.9	218.8	1,253.8	1,481.8	5.73	6.77
Stationary (HFC-407C)	36.4	59.1	401.4	474.4	6.79	8.02
Mobile (HFC-134a)	34.2	44.5	137.2	342.9	3.08	7.69
TOTAL	**241**	**512.04**	**$2,057**	**$2,719**	**$5.39**	**$6.92**

schedule in Stage 1 of the HCFC phase-out. An HFC Amendment should be able to accommodate the desire of A5 Parties to achieve a transition to low-GWP alternatives in a single step through the HCFC phase-out. By leapfrogging high-GWP HFCs and through an early transition into no- and low-GWP alternatives, donor countries will decrease the cost of financial assistance through the MLF in the long term while providing much-needed additional climate mitigation in the short term.

In its June 2015 report, TEAP provides cost estimates for the MIT-3 scenario, assuming a six-year manufacturing conversion (see Table 3).[31] According to TEAP, approximately 241,038 tonnes of refrigerant require conversion in the manufacturing sector at an estimated total cost of US$ 2-2.7 billion, which spread over six years would mean an amount of US$1,200 ± 170 million per triennium.[32] Considering the GWP of the refrigerants concerned, this results in costs per CO_2 tonne ranging between US$1-8, representing extremely cost-effective climate mitigation. The cost effectiveness of reducing HFC emissions, per CO_2 tonne, will become still more cost-effective when combined with HFC emissions reductions from the servicing sector.

CONCLUSION

The growing number of governments submitting amendment proposals and conference room papers in 2015 is indicative of the growing sentiment among the Parties to the Montreal Protocol that the time has come to control HFCs. Moreover, outside of the Montreal Protocol, world leaders have repeatedly called for an HFC phase-down under the Montreal Protocol. The international chorus of countries can no longer be ignored. The Parties must give proper consideration in a contact group formed at the 36th OEWG to lay the groundwork for the adoption of an amendment at the 27th MoP.



Polar bear © Ondrej Prosicky 2014

REFERENCES

1. Intergovernmental Panel on Climate Change (IPCC), Fifth Assessment Report: Climate Change 2013 - The Physical Science Basis, (2013) at Ch. 8.3.2.4.2, available at: https://www.ipcc.ch/pdf/assessment-report/var5/vwg1/vWG1AR5_vChapter08_FINAL.pdf.
2. All four proposals are available at: http://conf.montreal-protocol.org/meeting/oewg/oewg-36/presession/SitePages/Home.aspx.
3. The CRP submitted on behalf of African States is available at: http://conf.montreal-protocol.org/meeting/oewg/oewg-35/crps/SitePages/Home.aspx.
4. The first amendment proposal to control HFC production and consumption under the Montreal Protocol was submitted by Micronesia (Federated States of) and Mauritius in 2009. At least two amendment proposals to control HFCs under the Montreal Protocol have been submitted every year since. From 2009 – 2011, a growing number of Parties signed declarations in support of regulating HFCs under the Montreal Protocol. See e.g. Report of the 21st Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, Declaration on High-GWP Alternatives to ODSs, (8 Nov. 2009) (signed by 39 Parties), available at: http://ozone.unep.org/Meeting_Documents/mop/21mop/MOP-21-8E.pdf; Report of the 22nd Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, Declaration on the global transition away from hydrochlorofluorocarbons (HCFCs) and chlorofluorocarbons (CFCs), (12 Nov. 2010) (signed by 91 Parties), available at: http://ozone.unep.org/Meeting_Documents/mop/22mop/MOP-22-9E.pdf; Report of the 23rd Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, Bali Declaration on Transitioning to Low Global Warming Potential Alternatives to Ozone Depleting Substances, (25 Nov. 2011) (signed by 105 Parties), available at: http://conf.montreal-protocol.org/meeting/mop/23mop/report/English/MOP-23-11-COP-9-7E.pdf.
5. TEAP has published two comprehensive reports on the availability of alternatives to high-GWP HFCs in the 9 months preceding the 36th OEWG. See e.g. Technology and Economic Assessment Panel, Report of Technology and Economic Assessment Panel: Decision XXVI/9 Task Force Report Additional Information to Alternatives on Ozone-Depleting Substances (Volume 3) (June 2015) [hereinafter "TEAP June 2015 Report"], available at: http://conf.montreal-protocol.org/meeting/oewg/oewg-36/presession/Background%20Documents%20are%20available%20in%20English%20only/TEAP_Task-Force-XXVI-9_Report-June-2015.pdf; Technology and Economic Assessment Panel, Report of Technology and Economic Assessment Panel: Decision XXV/5 Task Force Report Additional Information to Alternatives on ODS (Final Report) (Oct. 2014) [hereinafter "TEAP October 2014 Report"], available at: http://conf.montreal-protocol.org/meeting/mop/cop10-mop26/presession/Background%20Documents%20are%20available%20in%20English%20only/TEAP_Task%20Force%20XXV5-October2014.pdf. On the margins of the 35th OEWG in Bangkok in April 2015, the Ozone Secretariat hosted a two-day Workshop on Hydrofluorocarbon Management. See Report of the workshop on hydrofluorocarbon management – technical issues (6 May 2015), available at: http://conf.montreal-protocol.org/meeting/workshops/hfc_management-02/report/English/Workshop-8-2%20Add-1E.pdf.
6. The NA Proposal estimates that, if adopted by the Parties, it would reduce or avoid 90 – 111.5 Gt CO2-e emissions from BAU by 2050. The EU proposal estimates that, if adopted by the Parties, it would reduce or avoid 79 Gt CO2-e emissions (excluding HFC-23 emission reductions) from BAU by 2050. EIA's internal analysis of the Islands Proposal suggest that, if adopted by the Parties, it would reduce or avoid approximately 100 Gt CO2-e emissions from BAU by 2050.
7. The combined amount of emissions reduced or avoided from 1990 levels by 2012 under the Kyoto Protocol is approximately 10 Gt CO2-e, of which approximately 5 Gt CO2-e represent reduced emissions and another 5 Gt CO2-e represent avoided emissions growth. 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).
8. See TEAP October 2014 Report, supra; TEAP June 2015 Report, supra.
9. Compare Regulation (EU) No 517/2014 of the European Parliament and of the Council of 16 April 2014 on Fluorinated Greenhouse Gases, Annex V with TEAP October 2014 Report, supra, at pp. 56-65.
10. See TEAP June 2015 Report, supra, at pp. 33-38, 57-63.
11. See Ozone Secretariat, Data Reporting, available at: http://ozone.unep.org/en/data_reporting.php.
12. See TEAP June 2015 Report.
13. See Öko-Recherche, Preparatory Study for a Review of Regulation (EC) No 846/2006 on Certain Fluorinated Greenhouse Gases, (Sept. 2011) ,available at: http://ec.europa.eu/clima/policies/f-gas/docs/2011_study_en.pdf.
14. See TEAP October 2014 Report, pp. 53-55, 62-65
15. For purposes of this calculation for the EU proposal, in which the reduction schedule and final step are to be negotiated by 2020, the maximum allowable HFC CO2e consumption was assumed for each year under the freeze minus the maximum allowable HCFC CO2e consumption under the HCFC phase-out. HFC reductions would increase on agreement of a reduction schedule and final step but the extent of those HFC reductions is unknown at this time.
16. For purposes of this calculation for the India proposal, in which the reduction schedule is to be nationally determined, the maximum allowable HFC consumption was assumed up to the final step in 2050. HFC reductions would increase once reduction schedules have been nationally determined but the extent of those HFC reductions is unknown at this time.
17. The NA Proposal includes all HFCs in Annex F—including HFC-23 listed in Annex F, Group II—in the baseline calculations in Article 2J (for non-A5 Parties) and Article 5 para. 8 qua. (for A5 Parties). The Montreal Protocol defines production as follows: "'Production' means the amount of controlled substances produced, minus the amount destroyed by technologies to be approved by the Parties and minus the amount entirely used as feedstock in the manufacture of other chemicals. The amount recycled and reused is not to be considered as 'production'." Montreal Protocol at Art. 1(5). As such, HFC-23 produced but not destroyed could inadvertently be counted toward a Party's production baseline. Consumption is defined by the Montreal Protocol as follows: "'Consumption' means production plus imports minus exports of controlled substances." Montreal Protocol at Art. 1(6). Thus Parties producing but not destroying HFC-23 could attempt to argue that HFC-23 should be included in their production and consumption baselines. The baselines for non-A5 and A5 Parties in the India Proposal and EU proposal also include HFC-23 in their baseline calculations.
18. Like the NA Proposal and EU proposal, the India Proposal could be interpreted to include all HFCs—including HFC-23—in the production and consumption baselines for all Parties. See supra note 17.
19. For purposes of the figure on the EU proposal, it is assumed that HFC production matches HFC consumption in non-A5 and A5 Parties, respectively, for illustrative purposes. This assumption should be subject to further research, not just for the EU proposal but all proposals, in order to ensure that global HFC production does not exceed global HFC consumption under any HFC phase-down.
20. Like the NA Proposal and India Proposal, the EU proposal includes all HFCs—including HFC-23—in the production and consumption baselines for all Parties. See supra note 17.
21. As early as 2006, EIA began drawing international attention to the perverse incentive to produce HCFC-22 in order to generate HFC-23 CDM credits. See EIA, Turning up the Heat (Aug. 2006), available at: http://www.eia-international.org/wp-content/uploads/Turning-up-the-the-Heal-FINAL_JAN-10-2007-low-res.pdf. Since 2009, EIA has called on Parties to mandate the destruction of HFC-23 under the Montreal Protocol. See EIA, Montreal Protocol in 2010: Maximizing Climate Benefits from Ozone Protection (Nov. 2010), available at: http://eia-international.org/wp-content/uploads/Maximizing-Climate-Benefits-from-Ozone-Protection.pdf.
22. The Islands Proposal calls for mandatory HFC-23 destruction in 2017 while the NA proposal and EU proposal call for mandatory HFC-23 destruction in 2018 and 2019, respectively.
23. Rather than mandating HFC-23 destruction, the India Proposal states that "[e]missions of HFC-23 and its by-production during production of HCFC-22 to be addressed on priority because of its high-GWP. Comprehensive R&D efforts should be undertaken to make use HFC-23 for converting it in a useful product(s)." India Proposal at Annex at ¶2(xiii).
24. See UNEP Ozone Secretariat, Montreal Protocol provisions and experience addressing policy-related challenges (June 2015) (providing a brief history of the use of Essential Use Exemptions and other exceptional measures under the Montreal Protocol), available at: http://conf.montreal-protocol.org/meeting/oewg/oewg-36/presession/SitePages/Home.aspx.
25. See e.g. TEAP October 2014 Report; TEAP June 2015 Report.
26. See K.M. Sarma & S.O. Andersen, Protecting the Ozone Layer: The United Nations History (UNEP 2002), pp. 98, 187-233, 381-90 (reviewing the state of alternatives to CFCs at the time the Montreal Protocol was signed in 1987); E. Parson, Protecting the Ozone Layer: Science and Strategy (Oxford Univ. Press 2003), pp. 173-96 (same); R.E. Benedick, Ozone Diplomacy: New Directions in Safeguarding the Planet (2d. ed. Harvard Univ. Press 1998), pp. 16-17. 98-135 (same).
27. Essential-Use Exemptions for CFCs have been largely limited to meter-dosed inhalers (MDIs) which comprise only a fraction of global CFC consumption across all sectors. See TEAP, Volume 1 Progress Report (June 2015) at pp. 22 – 27 (review the history and current status of Essential-Use Exemptions for MDIs), available at: http://conf.montreal-protocol.org/meeting/oewg/oewg-36/presession/SitePages/Home.aspx; see also UNEP Ozone Secretariat, Essential-Use Information – Submissions By Parties (up-to-date) (data detailing the history of exemptions across all sectors and chemicals regulated by the Montreal Protocol), available at: http://ozone.unep.org/en/essential_use_information.php.
28. See Report of the 19th Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, Decision XIX/6 – Adjustments to the Montreal Protocol with regard to Annex C, Group I, substances (hydrochlorofluorocarbons) (Sept. 2007) at ¶12 ("To agree to address the possibilities or need for essential use exemptions, no later than 2015 where this relates to Article 2 Parties, and no later than 2020 where this relates to Article 5 Parties").
29. See Nihar Shah *et al.*, Energy Efficiency Benefits in Implementing Low Global Warming Potential Refrigerants in Air Conditioning (some preliminary results), (presented in April 2015 at the 35th OEWG in Bangkok, Thailand), at Slide 15, available at: http://conf.montreal-protocol.org/meeting/oewg/oewg-35/pubs/SitePages/Home.aspx.
30. Strengthening the Multilateral Fund to Maximise Climate Benefits under the HCFC phase-out and a potential HFC phase-down regime. Report from Environmental Investigation Agency and Centre for Science and Environment workshop, Bangkok, April 2015. http://conf.montreal-protocol.org/meeting/oewg/oewg-35/pubs/Observer%20Publications/EIA%20CSE%20Note%20from%20Workshop%20on%20Strengthening%20MLF%20to%20maximize%20Climate%20Benefits.pdf
31. See TEAP June 2015 Report, supra, at pp. 61-63.
32. See TEAP June 2015 Report, supra, at pp. 63-64.

ENVIRONMENTAL INVESTIGATION AGENCY (EIA)

EIA - LONDON

62/63 Upper Street
London N1 0NY, UK
Tel: +44 (0) 20 7354 7960
Fax: +44 (0) 20 7354 7961
email: ukinfo@eia-international.org

www.eia-international.org

EIA - WASHINGTON, DC

PO Box 53343
Washington, DC 20009 USA
Tel: +1 202 483-6621
Fax: +1 202 986-8626
email: info@eia-global.org

www.eia-global.org