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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Seventy-seventh Meeting
Montreal, 28 November - 2 December 2016

**ISSUES RELEVANT TO THE EXECUTIVE COMMITTEE ARISING FROM THE
TWENTY-EIGHTH MEETING OF THE PARTIES TO THE MONTREAL PROTOCOL**

Note from the Secretariat*

Background

1. The Parties to the Montreal Protocol have been discussing an amendment to the Montreal Protocol to phase down the consumption and production of hydrofluorocarbons (HFCs) since the 29th meeting of the Open-Ended Working Group, with the submission of a joint proposal from the Governments of the Federated States of Micronesia and Mauritius¹ to amend the Montreal Protocol to control HFCs. The Parties considered a proposal from the Federated States of Micronesia² and a second proposal jointly submitted by the Governments of Canada, Mexico and the United States of America at twenty-second Meeting of the Parties³.

*The information summarized in this Note was extracted from the reports of the 27th and the 3rd extraordinary meetings of the Parties to the Montreal Protocol, issued by the Ozone Secretariat. The information related to the 28th meeting (where the Kigali Amendment and the terms of reference for the study on the 2018–2020 replenishment of the Multilateral Fund were agreed), has been extracted from the draft report (L.1) and the conference room papers (9 to 11), as the report by the Ozone Secretariat had not yet been finalized at the time of issuing the present document UNEP/OzL.Pro/ExCom/77/70. The Note by the Secretariat has been revised to reflect factual information and data; the changes introduced are highlighted for ease of reference; deletions are not shown.

¹ OEWG-29/8.

² UNEP/OzL.Pro.22/6*.

³ UNEP/OzL.Pro.22/5*.

2. Those governments continued to submit proposals to amend the Montreal Protocol in respect of an HFC phase-down **for consideration by the Parties** each subsequent year. At the 27th meeting of the Parties⁴ in addition to the submissions by those Governments⁵, **the Parties also considered proposals from** the Government of India⁶, and the European Union and its member States **to** amend the Montreal Protocol on Substances that Deplete the Ozone Layer in respect of an HFC phase-down⁷.

3. At the 3rd extraordinary meeting of the Parties⁸ and at the 28th meeting of the Parties⁹, the four proposals to amend the Montreal Protocol in respect of an HFC phase-down were **considered** by the respective Governments.

4. Procedural and substantive discussions on the proposed amendment to the Montreal Protocol were undertaken by the Parties from the time they were first submitted. At their 27th meeting, the Parties adopted the Dubai pathway on HFCs (decision XXVII/1) and decided *inter alia* to work within the Montreal Protocol to adopt an HFC amendment in 2016 by first resolving challenges by generating solutions during Montreal Protocol meetings in the contact group on the feasibility and ways of managing HFCs; to recognize the progress made at their 27th Meeting on the challenges identified in the mandate of the contact group agreed at the resumed 38th meeting of the Open-ended Working Group (OEWG), on the feasibility and ways of managing HFCs, including development of a common understanding on issues related to flexibility of implementation, second and third stage conversions, guidance to the Executive Committee, enabling activities for capacity-building and the need for an exemption for high-ambient-temperature countries; and to recognize that further progress still needed to be made, in particular with respect to other challenges identified in the contact group's mandate, for example conversion costs, technology transfer and intellectual property rights.

5. At their 3rd extraordinary meeting, the Parties *inter alia* endorsed the solutions to the challenges identified in the Dubai Pathway¹⁰, as a basis for discussion at the resumed 38th meeting of the OEWG and the 28th meeting of the Parties, attached as Annex I to the present document¹¹.

6. At their 28th meeting, the Parties to the Montreal Protocol, mindful of their obligation under the Vienna Convention for the Protection of the Ozone Layer to take measures to protect human health and the environment against adverse effects resulting or likely to result from human activities which modified or were likely to modify the ozone layer, and conscious of the potential climatic effects of emissions of these substances; and acknowledging that special provisions were required to meet the needs of Article 5 countries, agreed to amend the Montreal Protocol (i.e., the Kigali Amendment) and *inter alia* included obligations respecting consumption and production under Article 2J on HFCs.

⁴ Dubai, United Arab Emirates, 1–5 November 2015.

⁵ The Governments of Kiribati, Marshall Islands, Mauritius, Palau, Philippines, Samoa and Solomon Islands joined in the proposal submitted by the Federated States of Micronesia.

⁶ UNEP/OzL.Pro.27/6.

⁷ UNEP/OzL.Pro.27/7.

⁸ Vienna, Austria, 22 and 23 July 2016.

⁹ Kigali, Rwanda, 10–14 October 2016.

¹⁰ UNEP/OzL.Pro.ExMOP.3/7.

¹¹ Annex I is included given the additional context and details provided; however, those solutions were superseded by decisions taken by the Parties at their 28th meeting.

7. With regard to HFC consumption in Article 5 Parties, it was agreed that¹²:

- (a) The HFC consumption baseline (and production baseline, where applicable) for Bahrain, India, Iran, Iraq, Kuwait, Oman, Pakistan, Qatar, Saudi Arabia, and the United Arab Emirates would be calculated as the average levels of consumption of HFC¹³ for 2024, 2025, and 2026, plus sixty-five per cent of their HCFC baseline consumption, **expressed in CO₂ equivalents**, with the following phase-down schedule:
- (i) 2028 to 2031: 100 per cent of baseline;
 - (ii) 2032 to 2036: 90 per cent of baseline;
 - (iii) 2037 to 2041: 80 per cent of baseline;
 - (iv) 2042 to 2046: 70 per cent of baseline;
 - (v) 2047 and thereafter: 15 per cent of baseline;
- (b) The HFC consumption baseline (and production baseline, where applicable) for all Article 5 countries not included in paragraph (a) above, would be calculated as the average levels of consumption of HFC for 2020, 2021, and 2022, plus sixty-five per cent of their HCFC baseline consumption, **expressed in CO₂ equivalents**, with the following phase-down schedule:
- (i) 2024 to 2028: 100 per cent of baseline;
 - (ii) 2029 to 2034: 90 per cent of baseline;
 - (iii) 2035 to 2039: 70 per cent of baseline;
 - (iv) 2040 to 2044: 50 per cent of baseline;
 - (v) 2045 and thereafter: 20 per cent of baseline; and
- (c) The above-mentioned paragraphs would apply to calculated levels of production and consumption save to the extent that an exemption for countries with high ambient temperatures applies based on criteria decided by the Parties.

8. The Parties also agreed to provisions to limit HFC-23 by-product emissions.

9. The Parties at their 28th meeting also **adopted decision XXVIII/2 related to the amendment phasing down HFCs, which** requested the Executive Committee to *inter alia* develop, within two years of the adoption of the Kigali Amendment, guidelines for financing the phase-down of HFC consumption and production in Article 5 Parties, including cost-effectiveness thresholds; review the rules of procedure of the Executive Committee with a view to building in more flexibility for Article 5 Parties; and present the guidelines and the rules to the Parties for comments before they were finalized. Article 5 countries would have flexibility to elaborate and implement their strategies, to prioritize HFCs and sectors, to select

¹² Text of the amendment can be found at: http://conf.montreal-protocol.org/meeting/mop/mop-28/final-report/English/Kigali_Amendment-English.pdf

¹³ Including (numbers in parenthesis are the global-warming-potential values): HFC-134 (1,100); HFC-125 (3,500); HFC-134a (1,430); HFC-143 (353); HFC-143a (4,470); HFC-152 (53); HFC-152a (124); HFC-227ea (3,220); HFC-23 (14,800); HFC-236cb (1,340); HFC-236ea (1,370); HFC-236fa (9,810); HFC-245ca (693); HFC-245fa (1,030); HFC-32 (675); HFC-365mfc (794); HFC-41 (92); HFC-43-10mee (1,640).

technologies/alternatives, and to meet agreed HFC obligations based on their needs and national circumstances, following a country-driven approach.

Additional contribution to the Multilateral Fund

10. Prior to the 28th meeting of the Parties, a press release issued by the White House of the United States of America on 22 September 2016¹⁴ announced the intent of 16 donor countries (i.e., non-Article 5 Parties) to provide US \$27 million in 2017 to assist Article 5 countries through fast-start support for implementation if an ambitious HFC amendment with a sufficient early freeze date was adopted in 2016. This contribution would be one-time, and would not replace donor contributions going forward. Complementing the additional funding from donor countries, a group of 19 philanthropists announced their intent to provide US \$53 million to Article 5 countries to support improvements in energy efficiency. For the benefit of the Executive Committee, the text of the press release is attached as Annex I to the present document; the Secretariat has included a brief report on each of the foundations extracted mainly from their respective web sites.

11. In the margins of the meeting of the 38th resumed OEWG, the Government of the United States of America organized a side event on “making the most of US \$53 million in philanthropic funding for energy efficiency”. The key presentation at the event indicated that the grant funding in 2017 can support: development of well-formulated policies for countries to implement to cut energy waste and minimize electricity shortfalls; targeted, high-impact pilot projects for emerging, cost-effective, low-carbon, super-efficient cooling solutions; data collection, feasibility studies and market assessments required to enable scaling up efficiency financing; and other technical assistance as requested by Article 5 countries. It was also indicated that this philanthropic funding may encourage new investment in energy efficiency, e.g., the announcement by the World Bank to make available US \$1 billion for energy efficiency in urban areas by 2020 that could include support for the development and deployment of high-efficiency cooling technologies that also use climate-friendly refrigerants.

Scope of the Note from the Secretariat

12. This “Note from the Secretariat” is being submitted to seek guidance from the Executive Committee on a way forward to address the decisions by the Parties to the Montreal Protocol on the Kigali Amendment with regard to HFCs, in particular the request to the Executive Committee to develop guidelines for financing the phase-down of HFC consumption and production, as well as ways to address the potential additional contribution to the Multilateral Fund from donor countries (US \$27 million) and, possibly, from foundations (up to US \$53 million); to assist Article 5 countries in implementing the amendment to phase down HFCs and improving energy efficiency. While every effort was made to comprehensively address all issues raised in the decisions by the Parties at their 28th meeting, the Secretariat was unable to do so given the limited time available. For example, issues related to disposal of controlled substances and regular consultations on safety standards are not explicitly addressed.

13. The Note from the Secretariat consists of the following parts:

Part I *HFC consumption in Article 5 countries*

Presents an overview of aggregated HFC consumption in Article 5 countries, distributed by sector and subsector for the period 2010 to 2030, based on the report prepared by TEAP Task Forces under decisions XXV/5 and XXVI/9. It also presents information on the surveys on ODS alternatives funded by the Multilateral Fund.

¹⁴ Available at <https://www.whitehouse.gov/the-press-office/2016/09/22/leaders-100-countries-call-ambitious-amendment-montreal-protocol-phase>.

Part II *Elements of guidelines for financing the phase-down of HFCs and production*

Presents each component of the decision adopted by the Parties to the Montreal Protocol on financing the phase-down of HFC drawing on the existing cost guidelines for stage I and II of the HCFC phase-out management plans (HPMPs) as adopted in decisions 60/44 and 74/50; including comments, specific issues, and suggested actions that the Executive Committee may wish to consider.

Part III *Potential additional contribution from donor countries and foundations*

Proposes a way forward to operationalize the process, in case the Executive Committee agrees to receive the additional contributions to the Multilateral Fund, including the role of the Treasurer; identifies specific quick-start actions that may be funded from these additional contributions to assist Article 5 countries in implementing the amendment to phase down HFCs and improving energy efficiency¹⁵.

Part IV *Summary of possible actions by the Executive Committee*

Presents a summary of potential actions the Executive Committee may wish to consider with regard to the HFC phase down as contained in the Note from the Secretariat.

14. In considering this note, the Executive Committee may wish to recall that the Parties to the Montreal Protocol also adopted¹⁶ the terms of reference for the study on the 2018–2020 replenishment of the Multilateral Fund and requested the Technology and Economic Assessment Panel (TEAP) to prepare a report for submission to the 29th meeting of the Parties (through the OEWG at its 39th meeting). In preparing the report, TEAP will take into account, *inter alia*, relevant decisions agreed up to the 78th meeting of the Executive Committee, insofar as those decisions would necessitate expenditure by the Fund during the 2018–2020 period; the need to allocate resources to enable Article 5 parties to meet and/or maintain compliance with Articles 2A–2E, 2G, 2H, 2I and 2J of the Protocol; and the need for additional resources to carry out initial activities related to the phase-down of HFCs listed under Annex F and controlled under Article 2J.

Part I HFC consumption and production in Article 5 countries

15. Although a few Article 5 countries have been including consumption or production data for the most commonly used HFCs in their country programme data reports or HPMPs under implementation, there is limited information of HFC consumption or production under the Multilateral Fund. However, aggregate consumption of HFCs has been made available to the Parties to the Montreal Protocol through the reports prepared by the TEAP Task Forces under decisions XXV/5 and XXVI/9. Based on these reports, HFC consumption in Article 5 countries is estimated to increase from 284,326 metric tonnes (mt) in 2015 to 1,021,216 mt in 2030 under a business as usual scenario, with over 95 per cent of the consumption in the refrigeration and air-conditioning sector.

16. The TEAP Task Force reported a total production of 314,515 mt of HFCs in 2015, consisting of 98,500 mt of HFC-125; 71,000 mt of HFC-32; 17,000 mt of HFC-143a and 126,000 mt of HFC-134a. As a reference, the Executive Committee may wish to note that HCFC baseline for production in Article 5 countries amounted to 501,266 mt (with the production of one country amounting to 430,962 mt).

17. As a reference, the Executive Committee may wish to note that HCFC baseline for consumption in Article 5 countries amounted to 540,485 mt, with one country consuming 292,656 mt (i.e., over 54 per cent of the aggregated consumption). Over 99 per cent of the consumption was by three HCFCs:

¹⁵ While not explicitly directed to the Executive Committee, the Parties also adopted decision XXVIII/3 on energy efficiency.

¹⁶ Decision XXIII/5.

HCFC-22, representing the only HCFC used by all Article 5 countries (395,413 mt); HCFC-141b (108,098 mt); and HCFC-142b (33,133 mt).

18. Table 1 contains the aggregated HFC consumption in Article 5 countries by substance and sector from 2010 to 2030.

Table 1. HFC consumption in Article 5 countries by substance and sector

HFC	HFC consumption (mt)					Per cent of total				
	2010	2015	2020	2025	2030	2010	2015	2020	2025	2030
RAC										
HFC-134a	54,393	74,524	100,162	127,267	161,107	43.5%	27.3%	21.9%	18.2%	16.5%
R-410A	40,975	106,661	192,770	284,682	364,845	32.8%	39.1%	42.1%	40.8%	37.3%
R-407C	16,543	55,278	101,216	174,433	285,500	13.2%	20.3%	22.1%	25.0%	29.2%
R-404A	6,543	18,202	31,982	55,964	83,845	5.2%	6.7%	7.0%	8.0%	8.6%
R-507	6,543	18,202	31,982	55,964	83,845	5.2%	6.7%	7.0%	8.0%	8.6%
Total RAC	124,996	272,867	458,111	698,309	979,142	100.0%	100.0%	100.0%	100.0%	100.0%
Foam										
HFC-134a	478	3,364	5,669	11,280	15,225	35.0%	31.6%	30.5%	35.1%	37.2%
HFC-152a	478	3,364	5,669	11,280	15,225	35.0%	31.6%	30.5%	35.1%	37.2%
HFC-245fa	354	2,172	3,840	4,986	5,504	25.9%	20.4%	20.6%	15.5%	13.4%
HFC-365mfc/ HFC-227ea	55	1,758	3,428	4,546	5,020	4.0%	16.5%	18.4%	14.2%	12.3%
Total foam	1,365	10,659	18,606	32,091	40,974	100.0%	100.0%	100.0%	100.0%	100.0%
MDI										
HFC-134a	700	800	900	1,000	1,100	100.0%	100.0%	100.0%	100.0%	100.0%
Total MDI	700	800	900	1,000	1,100	100.0%	100.0%	100.0%	100.0%	100.0%
Total by HFC										
HFC-134a	55,571	78,688	106,731	139,547	177,432	43.7%	27.7%	22.3%	19.1%	17.4%
R-410A	40,975	106,661	192,770	284,682	364,845	32.2%	37.5%	40.4%	38.9%	35.7%
R-407C	16,543	55,278	101,216	174,433	285,500	13.0%	19.4%	21.2%	23.8%	28.0%
R-404A	6,543	18,202	31,982	55,964	83,845	5.1%	6.4%	6.7%	7.7%	8.2%
R-507	6,543	18,202	31,982	55,964	83,845	5.1%	6.4%	6.7%	7.7%	8.2%
HFC-152a	478	3,364	5,669	11,280	15,225	0.4%	1.2%	1.2%	1.5%	1.5%
HFC-245fa	354	2,172	3,840	4,986	5,504	0.3%	0.8%	0.8%	0.7%	0.5%
HFC-365mfc/ HFC-227ea	55	1,758	3,428	4,546	5,020	0.0%	0.6%	0.7%	0.6%	0.5%
Grand total	127,061	284,326	477,617	731,400	1,021,216	100.0%	100.0%	100.0%	100.0%	100.0%
Total RAC	124,996	272,867	458,111	698,309	979,142	98.4%	96.0%	95.9%	95.5%	95.9%
Total foam	1,365	10,659	18,606	32,091	40,974	1.1%	3.7%	3.9%	4.4%	4.0%
Total MDI	700	800	900	1,000	1,100	0.6%	0.3%	0.2%	0.1%	0.1%

19. The reports by the TEAP also provide an estimate of the HFC consumption by subsectors as shown in Table 2.

Table 2 Distribution of HFC consumption in Article 5 countries by sector and subsector

Total	Substance	HFC consumption (mt)				
		2010	2015	2020	2025	2030
Domestic	HFC-134a	12,941	13,329	15,333	18,242	21,634
Commercial	HFC-134a	2,743	5,089	9,356	11,910	15,018
Commercial	R-404A	5,672	15,696	27,753	48,912	74,142
Commercial	R-507	5,672	15,696	27,753	48,912	74,142
Industrial	HFC-134a	720	1,320	2,255	3,730	6,074
Industrial	R-404A	300	1,566	3,133	5,485	7,606
Industrial	R-507	300	1,566	3,133	5,485	7,606
Transport	HFC-134a	544	1,075	1,982	2,608	3,104
Transport	R-404A	572	941	1,096	1,568	2,098

Total	Substance	HFC consumption (mt)				
		2010	2015	2020	2025	2030
Transport	R-507	572	941	1,096	1,568	2,098
SAC	HFC-134a	1,091	2,315	4,556	5,849	7,087
SAC	R-410A	40,975	106,661	192,770	284,682	364,845
SAC	R-407C	16,543	55,278	101,216	174,433	285,500
MAC	HFC-134a	36,354	51,396	66,680	84,928	108,190
Foam	HFC-134a	478	3,364	5,669	11,280	15,225
Foam	HFC-152a	478	3,364	5,669	11,280	15,225
Foam	HFC-245fa	354	2,172	3,840	4,986	5,504
Foam	HFC-365mfc/ HFC-227ea	55	1,758	3,428	4,546	5,020
MDI	HFC-134a	700	800	900	1,000	1,100
Total		127,061	284,326	477,617	731,400	1,021,216
Manufacturing						
Domestic	HFC-134a	11,234	12,812	14,610	17,323	20,540
Commercial	HFC-134a	2,617	4,779	8,726	10,874	13,551
Commercial	R-404A	4,608	10,402	15,515	26,206	38,395
Commercial	R-507	4,608	10,402	15,515	26,206	38,395
Industrial	HFC-134a	406	650	1,040	1,663	2,661
Industrial	R-404A	119	807	1,266	1,986	2,218
Industrial	R-507	119	807	1,266	1,986	2,218
Transport	HFC-134a	321	551	948	964	981
Transport	R-404A	439	621	579	830	1,145
Transport	R-507	439	621	579	830	1,145
Air conditioning	HFC-134a	862	1,587	2,923	3,072	3,229
Air conditioning	R-410A	34,583	82,577	134,702	178,540	206,625
Air conditioning	R-407C	6,107	26,645	43,128	69,810	112,998
MAC	HFC-134a	25,061	32,577	40,822	52,100	66,495
Foam	HFC-134a	478	3,364	5,669	11,280	15,225
Foam	HFC-152a	478	3,364	5,669	11,280	15,225
Foam	HFC-245fa	354	2,172	3,840	4,986	5,504
Foam	HFC-365mfc/ HFC-227ea	55	1,758	3,428	4,546	5,020
MDI	HFC-134a	700	800	900	1,000	1,100
Total		93,587	197,295	301,125	425,481	552,669
Servicing						
Domestic	HFC-134a	1,707	517	723	919	1,094
Commercial	HFC-134a	126	310	630	1,036	1,467
Commercial	R-404A	1,064	5,294	12,238	22,706	35,747
Commercial	R-507	1,064	5,294	12,238	22,706	35,747
Industrial	HFC-134a	314	670	1,215	2,067	3,413
Industrial	R-404A	181	760	1,867	3,499	5,389
Industrial	R-507	181	760	1,867	3,499	5,389
Transport	HFC-134a	223	524	1,034	1,644	2,123
Transport	R-404A	133	320	517	738	953
Transport	R-507	133	320	517	738	953
Air conditioning	HFC-134a	229	728	1,633	2,777	3,858
Air conditioning	R-410A	6,392	24,084	58,068	106,142	158,220
Air conditioning	R-407C	10,436	28,633	58,088	104,623	172,502
MAC	HFC-134a	11,293	18,819	25,858	32,828	41,695
Total		33,474	87,031	176,492	305,919	468,547
Grand total						
RAC		124,996	272,867	458,111	698,309	979,142
Foam		1,365	10,659	18,606	32,091	40,974
MDI		700	800	900	1,000	1,100
Total		127,061	284,326	477,617	731,400	1,021,216

Total	Substance	HFC consumption (mt)				
		2010	2015	2020	2025	2030
Manufacturing						
RAC		91,522	185,836	281,619	392,390	510,595
Foam		1,365	10,659	18,606	32,091	40,974
MDI		700	800	900	1,000	1,100
Total		93,587	197,295	301,125	425,481	552,669
Servicing						
RAC		33,474	87,031	176,492	305,919	468,547
Total		33,474	87,031	176,492	305,919	468,547
RAC manufacturing		91,522	185,836	281,619	392,390	510,595
RAC servicing		33,474	87,031	176,492	305,919	468,547
RAC total		124,996	272,867	458,111	698,309	979,142

20. The Secretariat notes that:

- (a) The data presented in the above tables is extracted from one of the few reports available on the aggregated levels of HFC consumption in Article 5 countries by substance and their distribution by sector and subsectors¹⁷;
- (b) The data would be updated based on the surveys on ODS alternatives funded by the Multilateral Fund¹⁸ for 127¹⁹ of the 144 Article 5 countries²⁰ and other surveys under current implementation;
- (c) There is an increase in alternative technologies that are becoming commercially available in local markets in Article 5 countries (i.e., HFC-32, CO₂, NH₃, and HFOs as refrigerant and as foam blowing agents), where further optimization and commercialization could impact the future demand for HFCs.

¹⁷ The Secretariat notes that other reports on HFC consumption and production have been prepared such as “Future atmospheric abundances and climatic forcing from scenarios of global and regional hydrofluorocarbon (HFC) emissions”, Velders, Fahey, Daniel, Andersen, McFarland. Atmospheric Environment 2015.

¹⁸ In response to paragraph 4 of decision XXVI/9 on additional funding to conduct inventories or surveys on ODS alternatives, the Executive Committee decided inter alia that the scope of the surveys was to obtain data (where available) and estimates of ODS alternatives currently in use by sector and subsector, as well as forecasts of the ODS alternatives most commonly used; requested the Secretariat to prepare a format for preparation of the surveys; and to provide an overall analysis of the results at the first meeting in 2017 (decision 74/53).

¹⁹ Afghanistan; Albania; Algeria; Angola; Antigua and Barbuda; Argentina; Armenia; Bahrain; Barbados; Burundi; Benin; Bangladesh; Bahamas; Bosnia and Herzegovina; Bhutan; Burkina Faso; Bolivia (Plurinational State of Bolivia); Botswana; Brunei Darussalam; Belize; Cape Verde; Chad; Chile; Cook Islands; Cameroon; Comoros; Colombia; Costa Rica; Cuba; Djibouti; Dominican Republic; Democratic Republic of Congo; Democratic People’s Republic of Korea; Ecuador; El Salvador; Equatorial Guinea; Eritrea; Ethiopia; Fiji; Micronesia; Gabon; Gambia; Guinea-Bissau; Georgia; Ghana; Grenada; Guatemala; Guinea; Guyana; Honduras; India; Islamic Republic of Iran; Iraq; Cote D’Ivoire; Jamaica; Jordan; Kenya; Cambodia; Kiribati; Kuwait; Kyrgyzstan; Lao People’s Democratic Republic; Lebanon; Lesotho; Libya; Liberia; Madagascar; Mauritius; Marshall Islands; Former Yugoslav Republic of Macedonia; Maldives; Mexico; Mali; Malawi; Montenegro; Republic of Moldova; Mongolia; Morocco; Mozambique; Myanmar; Namibia; Nauru; Nepal; Niger; Nicaragua; Congo; Nigeria; Niue; Oman; Pakistan; Panama; Paraguay; Peru; Philippines; Papua New Guinea; Rwanda; Samoa; Saudi Arabia; Senegal; Seychelles; Sierra Leone; Solomon Islands; Sri Lanka; Saint Lucia; Sao Tome and Principe; Sudan; Suriname; Swaziland; Thailand; Turkmenistan; Timor Leste; Togo; Tonga; Zimbabwe; Trinidad and Tobago; Palau; Tunisia; Turkey; Tuvalu; Uganda; Tanzania; Uruguay; Vanuatu; Venezuela (Bolivarian Republic of); Viet Nam; Serbia; and Zambia.

²⁰ The 17 Article 5 countries that did not request assistance for conducting a survey of ODS alternatives are: Brazil; Central African Republic; China; Dominica; Egypt; Haiti; Indonesia; Malaysia; Mauritania; Qatar; Saint Kitts and Nevis; Saint Vincent and the Grenadines; Somalia; South Africa; South Sudan; Syria Arab Republic; and Yemen.

21. In the margins of the 28th Meeting of the Parties, the Climate and Clean Air Coalition (CCAC) hosted a side event²¹ on the surveys of HFCs that have been conducted in 14 Article 5 countries²². During the side event, the Secretariat was invited to make a presentation on the format for the preparation of surveys on ODS alternatives. During the presentation, the Secretariat *inter alia* emphasized the need for the surveys on ODS alternatives that have been funded through the Multilateral Fund to be submitted early in 2017 so that the Secretariat could provide an overall analysis of the results of the surveys for consideration of the Executive Committee at its first meeting in 2017, in line with decision 74/53(h).

22. The Executive Committee may wish to note that the country programme data report format currently used by Article 5 countries to report their consumption (and production data when applicable) at by sector, would be reviewed on the basis of the outcome of the surveys of ODS alternatives and the discussions on the HFC amendment (decision 76/7(d)).

Secretariat's comments

23. In the context of the 2015 progress reports of the implementing agencies submitted to the 77th meeting²³, the Executive Committee has been invited to consider whether it wishes to request the relevant implementing agencies assisting the 127 Article 5 countries that received assistance from the Multilateral Fund for their surveys of ODS alternatives to take appropriate action to complete and submit all of the surveys by January 2017.

24. With regard to the 17 Article 5 countries that did not request assistance for conducting a survey of ODS alternatives, the Executive Committee may wish to invite the Governments of those countries, through the relevant lead implementing agency assisting them in the implementation of stage II (if already approved) or stage I of their HPMPs, to provide, on a voluntary basis, consumption and production (where applicable) data for alternatives to ODS (in particular HFCs) that they may have already collected, so that the Secretariat can include that data in the overall analysis of the results of the surveys for the consideration of the Executive Committee by its first meeting in 2017.

Part II Elements of guidelines for financing the phase-down of HFCs

25. The Parties to the Montreal Protocol requested the Executive Committee to develop guidelines for financing the phase-down of HFCs and production, and identified specific elements to be included in these guidelines, as listed below.

Cut-off date of installation of HFC-based manufacturing capacity

26. The Parties agreed that the cut-off date for the installation of HFC-based manufacturing capacity to be eligible to receive funding from the Multilateral Fund to meet their agreed incremental costs would be the first year of their HFC baseline for compliance²⁴.

²¹ Kigali, Rwanda, 14 October 2016. Presentations made at the side event can be found at: <http://conf.montreal-protocol.org/meeting/mop/mop-28/events-publications/SitePages/Home.aspx>.

²² Of the 14, six surveys have been completed (Bangladesh, Chile, Colombia, Ghana, Indonesia, Nigeria) and eight are underway (Bahamas, Cambodia, Jordan, Kyrgyzstan, Maldives, Mongolia, South Africa, Viet Nam).

²³ UNEP/OzL.Pro/ExCom/77/13 (UNDP); UNEP/OzL.Pro/ExCom/77/14 (UNEP); UNEP/OzL.Pro/ExCom/77/15 (UNIDO); and UNEP/OzL.Pro/ExCom/77/16 (World Bank).

²⁴ 1 January 2024 for Bahrain, India, Islamic Republic of Iran, Iraq, Kuwait, Oman, Pakistan, Qatar, Saudi Arabia, and the United Arab Emirates; and 1 January 2020 for all other Article 5 Parties.

Sustained aggregate reductions in HFC consumption and production

27. The Parties agreed that the remaining HFC consumption (measured in tonnes) eligible for funding under the Multilateral Fund would be determined on the basis of the starting point of the national aggregate consumption less the amount funded by previously approved projects in future multi-year-agreement HFC phase-down plans, in line with decision 35/57²⁵.

Secretariat's comments

28. The Secretariat draws the attention of the Executive Committee to the criteria for funding HCFC phase-out in the consumption sector in Article 5 countries (related to stage I of the HPMPs) agreed under decision 60/44, where for those Article 5 countries that submit projects in advance of their assessed baseline, the starting points for aggregate reduction in HCFC consumption would be established at the time of submission of either the HCFC investment project or the HPMP, whichever was submitted first to the Executive Committee. Article 5 countries were also allowed to choose between the most recent reported HCFC consumption under Article 7 of the Montreal Protocol at the time of the submission of the HPMP and/or the investment project, and the average of consumption forecast for 2009 and 2010 in determining such starting points. In addition, the Executive Committee also agreed to adjust the starting points in cases where calculated HCFC baselines based on reported Article 7 data were different from the calculated starting point based on the average consumption forecast for 2009-2010 in stage I of the HPMP.

Multiple staged conversions of HFC-based manufacturing enterprises

29. The Parties agreed to apply the following principles in regard to multiple staged conversions of HFC-based manufacturing enterprises:

- (a) Enterprises that would convert to low- or zero-GWP alternative technologies that have not received direct or indirect support, in part or in full, from the Multilateral Fund, including enterprises that converted to HFCs with their own resources, would be eligible to receive funding from the Multilateral Fund to meet their agreed incremental costs;
- (b) Enterprises that had already converted to HFCs when phasing out ODS (mainly CFCs and/or HCFCs), would be eligible to receive funding from the Multilateral Fund to meet agreed incremental costs for a subsequent conversion to low- or zero-GWP alternatives;
- (c) Enterprises that would convert from HCFCs to high-GWP HFCs, after 15 October 2016 (i.e., the date when the Kigali Amendment was adopted) under HPMPs already approved by the Executive Committee, would be eligible to receive funding from the Multilateral Fund to meet agreed incremental costs for a subsequent conversion to low- or zero-GWP alternatives;

²⁵ The Executive Committee agreed *inter alia* that further funding must be predicated on a commitment by the country to achieve sustainable permanent aggregate reductions in consumption and production, as relevant. In implementing this provision, the Executive Committee believes that all Article 5 countries should be treated equally. The Executive Committee also acknowledged that some future years' reported consumption may go above or below the levels that result from the agreed calculation, but if consumption numbers go above the resulting levels, such increases in consumption would not be eligible for funding. It is further noted that the resulting numbers represent maximum residual ODS that the Fund will pay to reduce, and that existing Fund guidance related to eligibility of projects would be maintained in all respects.

- (d) Enterprises that had converted from HCFCs to high-GWP HFCs with their own resources before 2025 under the Kigali amendment would be eligible to receive funding from the Multilateral Fund to meet agreed incremental costs for a subsequent conversion to low- or zero-GWP alternatives; and
- (e) Enterprises that would convert from HFCs to lower-GWP HFCs with the assistance of the Multilateral Fund when no other alternatives were available would be eligible to receive funding from the Multilateral Fund to meet agreed incremental costs for a subsequent conversion to low- or zero-GWP alternatives if necessary to meet the final HFC phase-down step²⁶.

Eligible incremental costs of HFC phase-out projects

30. The Parties agreed to request the Executive Committee, in developing new guidelines on methodologies and cost calculations, to make the following categories of costs eligible and to include them in the cost calculation:

Enabling activities

- (a) Capacity-building and training for handling HFC alternatives in the servicing, manufacturing and production sectors;
- (b) Institutional strengthening;
- (c) Article 4B licensing (e.g., training of customs officers and other enforcement officers on *inter alia* policies, regulations, import/export licensing and quota systems, preventing illegal trade of HFCs in support of the phase-down of HFCs);
- (d) Reporting (e.g., data reporting under Article 7 of the Montreal Protocol and under the progress report);
- (e) Development of national strategies; and
- (f) Demonstration projects.

Secretariat's comments

31. Since the inception of the Multilateral Fund in 1991, the Executive Committee has approved funding for enabling activities in support of the phase-out of controlled substances in Article 5 countries. Enabling activities had included *inter alia* development of ODS legislation, policies and regulations including the establishment of import/export licensing and quota systems; support to Customs departments to control import and export of controlled substances through continuous training of customs and enforcement officers; and provision of equipment that allowed the identification of controlled substances. The initial projects were mainly approved individually. This provided the Multilateral Fund with experience in capacity building, training and technical assistance activities and their associated costs which provided a basis for subsequent consideration of such activities in broader refrigeration servicing and national phase-out plans. In the refrigeration servicing sector, enabling activities included training programmes for refrigeration servicing technicians on refrigerant leakage control, prevention and maintenance operations; development of code of good refrigeration servicing practices and its

²⁶ Fifteen per cent of the HFC baselines by 1 January 2047 for Bahrain, India, Islamic Republic of Iran, Iraq, Kuwait, Oman, Pakistan, Qatar, Saudi Arabia, and the United Arab Emirates; and 20 per cent of the HCFC baseline by 1 January 2045 for all other Article 5 Parties.

incorporation into the curricula of technical schools; establishment of refrigeration associations; and procurement and distribution of basic equipment and tools required in good service practices. As the phase out of controlled substances under the Montreal Protocol progressed, enabling activities were incorporated into sectoral and national phase out plans including HPMPs.

32. A significant achievement of enabling activities in Article 5 countries has been the universal ratification of the Vienna Convention for the Protection of the Ozone Layer²⁷, the Montreal Protocol on Substances that Deplete the Ozone Layer²⁸, and the four amendments to the Montreal Protocol. Enabling activities had extensively contributed to the continuous compliance with the Montreal Protocol provisions by all Article 5 countries²⁹, and to reductions on consumption and production of controlled substance well in advanced of the phase out control targets established under the Montreal Protocol. As a result, the levels of consumption and production baselines for compliance, and hence associated phase-out costs, had been lower than would have been in the absence of the enabling activities.

33. Based on the 25 years of the operation of the Multilateral Fund, implementation of sound enabling activities in Article 5 countries as early as feasible would allow for a sustainable, cost-effective and successful phase-down of HFC consumption and production in Article 5 countries and potentially reduce demand of HFCs during the base year as agreed in the Kigali Amendment to the Montreal Protocol.

34. The Secretariat notes *inter alia*:

- (a) Article 5 countries would be required to strengthen their policy and regulatory infrastructures and review, update and/or develop legislation as required, including import/export licensing and quota systems, facilitating the early ratification of the Kigali Amendment;
- (b) Reporting consumption and production of HFCs controlled under the Kigali Amendment would need to be initiated, noting that harmonized customs codes for these substances have not yet been established;
- (c) Data collection, verification and reporting methodologies and approaches would need to be further developed, noting that HFC consumption and production data would need to be reported in CO₂-equivalent tonnes (rather than in tonnage), that several of the HFCs controlled under the Kigali Amendment are used in blends rather than pure substances, and that emissions of HFC-23 would need to be addressed;
- (d) Sound programmes for customs and enforcement officers addressing the obligations under the Kigali Amendment would need to be developed and included in the training programmes implemented in all Article 5 countries;

²⁷ In 2009, the Vienna Convention became the first Convention of any kind to achieve universal ratification.

²⁸ The Montreal Protocol includes an adjustment provision that enables the Parties to respond to new scientific information and agree to accelerate the reductions required on chemicals already covered by the Protocol. These adjustments are then applicable to all countries that ratified the Protocol. Since its initial adoption, the Montreal Protocol has been adjusted six times. Specifically, the Second, Fourth, Seventh, Ninth, Eleventh and Nineteenth meetings of the Parties adopted, in accordance with the procedure laid down in paragraph 9 of Article 2 of the Montreal Protocol, certain adjustments and reductions of production and consumption of the controlled substances listed in the Annexes of the Protocol. These adjustments entered into force, for all the Parties, on 7 March 1991, 23 September 1993, 5 August 1996, 4 June 1998, 28 July 2000 and 14 May 2008, respectively.

²⁹ Since the ratification of the Montreal Protocol, there have been a few countries that have been found to be in non-compliance with the Protocol. However, with the assistance of the Multilateral Fund, those Parties returned to compliance within a defined period.

- (e) HFCs are more extensively used in refrigeration and air-conditioning applications as compared to HCFCs. Alternative technologies to HFCs for several applications that are becoming commercially available in Article 5 countries are mildly flammable or flammable; and their introduction would require adoption of (national or international) standards, revision of code of practices, revision to regulations and/or technical norms, and enforcement and awareness of such standards;
- (f) Programmes for refrigeration technicians in all Article 5 countries would need to be extensively revised to address the issue of flammability of refrigerants being phased in, noting that training programmes have a direct impact on reduction of emission of refrigerants into the atmosphere and on reduction on energy consumption based on improved energy efficiency in well-maintained and well-serviced refrigeration and air-conditioning equipment; and
- (g) Early introduction, adaption and/or optimization of low-GWP alternative technologies to markets prevailing in Article 5 countries could avoid the replacement of HCFC-based technologies with high-GWP HFC-based technologies, thus reducing the future consumption and production of HFCs.

35. The experience under the Multilateral Fund has shown that assistance from bilateral and implementing agencies has contributed extensively to the implementation of enabling activities in Article 5 countries, in particular the assistance provided through the UNEP Compliance Assistance Programme (CAP). The Executive Committee might wish to invite UNEP CAP to include in the agendas of network meetings beginning in 2017 issues related to enabling activities needed in Article 5 countries to address both HCFCs and HFCs, and encourage the Secretariat and the bilateral and implementing agencies to attend those meetings and engage in the discussions. Network meetings should be supported with the participation of experts that could address issues of relevance to Article 5 countries (e.g., Customs codes, data reporting under the Montreal Protocol, good servicing practices handling flammable refrigerants, policy development on energy efficiency and climate change).

Institutional strengthening (IS) (eligible costs)

36. The Parties agreed to request the Executive Committee:

- (a) To increase IS support in light of new commitments related to HFCs under this amendment;
- (b) To consider funding the cost-effective management of stockpiles of used or unwanted controlled substances, including their destruction; and
- (c) To prioritize technical assistance and capacity building to address safety issues associated with low-GWP or zero-GWP alternatives.

Secretariat's comments

37. At its 74th meeting the Executive Committee considered the document on the Review of funding of institutional strengthening (IS) projects³⁰ (decision 61/43(b))³¹. In preparing the document the Secretariat took into consideration the Executive Committee's rules and policies for the funding of IS; previous documents on IS; discussions with implementing agencies regarding issues that were identified when reviewing requests for the renewal of IS projects submitted by Article 5 countries; and bilateral consultations with individual agencies dealing with IS projects.

38. Based on the document, the Executive Committee decided, *inter alia*, to approve all IS projects and renewals at a level 28 per cent higher than the historically agreed level, with a minimum level of IS funding of US \$42,500 per year; to continue support for compliance with the Montreal Protocol; and to address the challenges related to the phase-out of HCFCs in line with the objectives of decision XIX/6 and the transition to alternatives that minimized environmental impact. The Executive Committee also decided to review IS, including funding levels, at the first Executive Committee meeting in 2020 (decision 74/51).

39. The Executive Committee may wish to note that the draft monitoring and evaluation work programme for the year 2017³² submitted by the Senior Monitoring and Evaluation Officer to the 77th meeting proposes to undertake an evaluation of the IS projects as a result of the Kigali Amendment to the Montreal Protocol. The draft work programme makes reference to the request by the Parties to the Montreal Protocol to the Executive Committee to increase IS support in light of new commitments related to HFCs. The evaluation would also assess the importance of further strengthening institutional structures to ensure proper use of climate friendly-alternatives to HFCs, including through the updating of safety codes and standards, capacity-building and the training and certification of technicians in developing countries. The evaluation will *inter alia* identify issues faced by Article 5 countries in implementing IS; the roles and responsibilities of the National Ozone Units and other stakeholders; the relationship with project management units established under HPMP; and funding related issues. The evaluation is expected to provide lessons learned that could be used for further development of the institutional capacity in the countries for addressing the phase-down of HFCs.

HFC production sector (eligible costs)

- (a) Lost profit due to shutdown/closure of the production facilities as well as production reduction;
- (b) Compensation to displaced workers;
- (c) Dismantling of production facilities;
- (d) Technical assistance activities;
- (e) Research and development related to the production of low-GWP or zero-GWP alternatives to HFCs with a view to lowering the cost of alternatives;

³⁰ UNEP/OzL.Pro/ExCom/74/51.

³¹ The Executive Committee decided to maintain funding for IS support at current levels, and to renew IS projects for the full two-year period from the 61st meeting, taking into account decisions 59/17 and 59/47(b) that allowed Article 5 Parties to submit their IS projects as stand-alone projects or within their HCFC phase-out management plans (HPMPs), and to review continued IS funding at those levels at the first meeting of the Executive Committee in 2015 (decision 61/43(b)).

³² UNEP/OzL.Pro/ExCom/77/10.

- (f) Costs of patents and designs or incremental costs of royalties;
- (g) Costs of converting facilities to produce low-GWP or zero-GWP alternatives to HFCs when technically feasible and cost-effective;
- (h) Costs of reducing the rate of emissions of HFC-23 as a by-product of the production process of HCFC-22, destroying HFC-23 from off-gas, or collecting HFC-23 and converting it to other environmentally safe chemicals, under the Multilateral Fund to meet the compliance obligations under the Kigali Amendment.

Secretariat's comments

40. The Executive Committee may wish to note that the Sub-group on the Production Sector will meet in the margins of the 77th meeting to discuss, *inter alia*, draft HCFC production sector guidelines³³. The Sub-group will consider issues on the calculation of compensation for eligible HCFC production facilities which are similar to the issues to be addressed for the HFC phase-down including: funding on the basis of closure, conversion to HCFC/HFC alternatives or other products, and/or redirection to feedstock, whichever is feasible and more cost-effective, taking into account decision XIX/6, foreign ownership, exports to non-Article 5 countries, and production for feedstock uses; providing incentives, as appropriate, for early phase-out of HCFC production and/or providing disincentives for HCFC production that would be phased out later; and dismantling old HCFC producing plants. The outcomes of the Sub-group will be submitted to the 77th meeting.

41. Control obligations related to destruction of a by-product that may be emitted during the production of a controlled substance have not been previously considered by the Executive Committee; therefore, there is limited experience available related to the technology for such controls and associated costs under the Multilateral Fund. Moreover, the Secretariat notes that by-product emissions of HFC-23³⁴ may continue to be generated as HCFC-22 production continues, , therefore timely assistance to Article 5 Parties to implement HFC-23 emission controls may facilitate substantial climate benefits. The progress report and verification on the HCFC production phase-out in China submitted to the 77th meeting included information on the level of emissions due to HFC-23 and measures taken by the Government to incinerate those emissions. With funding provided under the HPPMP, research and a study on HFC-23 conversion/pyrolysis technologies and an investigation on reducing HFC-23 by-product ratio using best practices were undertaken. The Executive Committee may wish to consider requesting the Government of the China through the World Bank to provide to the Secretariat information on the studies and investigation of HFC-23 disposal technologies and HFC-23 reductions that have been conducted. In addition, as HFC-23 emission controls at HCFC-22 production facilities have been implemented in a number of countries, the Executive Committee may wish to consider inviting such countries to submit to the Secretariat information on their experience. The Executive Committee may wish to further request the Secretariat to develop a preliminary document covering key aspects related to HFC-23 by-product control technologies and associated costs for consideration at the first meeting in 2017.

HFC manufacturing sector (eligible costs)

- (a) Incremental capital costs;
- (b) Incremental operating costs for a duration to be determined by the Executive Committee;
- (c) Technical assistance activities;

³³ UNEP/OzL.Pro/ExCom/77/SGP/2.

³⁴ HFC-23 has a GWP of 14,800.

- (d) Research and development, when required to adapt and optimize low-GWP or zero-GWP alternatives to HFCs;
- (e) Costs of patents and designs, and incremental costs of royalties, when necessary and cost-effective; and
- (f) Costs of safe introduction of flammable and toxic alternatives.

Secretariat's comments

42. Through the Multilateral Fund, over 450 projects had been approved for the replacement of CFC-12 used in the manufacturing of domestic and/or commercial refrigeration equipment, resulting in the phase-in of approximately 24,000 mt of HFC-134a. Based on the HFC consumption in Article 5 countries (shown in Table 1), consumption of HFC-134a used for manufacturing domestic and commercial refrigerators would be over 24,000 mt by 2020.

43. The technology for a cost-effective and sustainable conversion of domestic and commercial refrigeration manufacturing enterprises from HFC-134a to isobutane has been well established in Article 5 countries since 1995. Early conversion of these enterprises will contribute to a reduction in HFC-134a consumption used for manufacturing and a reduction in demand for servicing the equipment in future years (i.e., 15 to 20 years, which is the expected useful life of this type of equipment).

Servicing sector (eligible costs)

44. The Parties agreed to request the Executive Committee to increase, in relation to the servicing sector, the funding available under decision 74/50 above the amounts listed in that decision for Parties with total HCFC baseline consumption of up to 360 mt when needed for the introduction of alternatives to HCFCs with low-GWP and zero-GWP alternatives to HFCs, and maintaining energy efficiency also in the servicing/end-user sector, and to include:

- (a) Certification programmes and training of technicians on the safe handling, good practice and safety of alternatives, including training equipment;
- (b) Refrigerant testing equipment for the RAC sector;
- (c) Recovery and recycling of HFCs;
- (d) Provision of service tools for refrigeration service technicians;
- (e) Public-awareness activities;
- (f) Policy development and implementation;
- (g) Training of customs officers;
- (h) Prevention of illegal trade of HFCs.

Secretariat's comments

45. The funding level approved to enable Article 5 countries with total HCFC consumption of up to 360 mt to phase out all HCFCs used in the servicing sector is shown in Table 3; while the level of funding for all other Article 5 countries is calculated at US \$4.80/kg of HCFC used in the servicing sector, in line with decision 74/50.

Table 3. Level of funding for the refrigeration servicing sector in low-volume consuming countries

Consumption (mt)*	Total funding (US \$)**
>0 <15	587,500
15 <40	750,000
40 <80	800,000
80 <120	900,000
120 <160	950,000
160 <200	1,000,000
200 <320	1,600,000
320 <360	1,800,000

(*) Level of HCFC baseline consumption in the refrigeration servicing sector.

(**) Represents the maximum funding eligible.

46. Based on ODS phase out programmes already approved, the refrigeration servicing sector contributes to a large extent to the reduction in consumption of controlled substances, and emissions into the atmosphere; and ensures that refrigeration and air-conditioning equipment operate in optimal conditions thus reducing the energy consumption. Therefore the refrigeration servicing sector should be addressed in a more holistic, robust and comprehensive manner.

47. Most of the service technicians are currently servicing refrigeration and air-conditioning systems based on HCFC-22, HFC and other refrigerants. The phase out of CFCs and HCFCs favoured the introduction of new alternative refrigerants (pure or in blends) into the market, several of which are flammable and/or toxic. Servicing activities for the mobile air-conditioning (MAC) sector previously implemented during the CFC phase-out would need to be re-introduced to reduce emissions of HFC-134a refrigerants in the MAC sector through good service practices (i.e., leakage identification and control) and recovery and recycling operations during servicing and maintenance.

48. Given the introduction of flammable refrigerants and blends, more comprehensive and intensive training programmes for different types of applications and skill levels of technicians should be developed and should be provided to all technicians trained under the Multilateral Fund. The curricula of training courses for technicians should be reviewed and incorporated into the training centres and vocational schools. The introduction of technician certification schemes in all activities funded through the Multilateral Fund should be assessed and made mandatory.

49. The Executive Committee may wish to request the Secretariat to work with bilateral and implementing agencies to address all aspects related to the refrigeration servicing sector, taking into account previous policy documents, case studies, and monitoring and evaluation reviews, the extensive work undertaken by bilateral and implementing agencies in developing and implementing training programmes, in particular the partnership that UNEP CAP has established with world-recognized training and certification institutes³⁵, and present a preliminary report to the first meeting of the Executive Committee in 2017.

³⁵ UNEP CAP partnerships with includes *inter alia* Green Customs Initiative (GCI); World Customs Organization (WCO); Air Conditioning, Heating, and Refrigeration Institute (AHRI); Air Conditioning and Refrigeration European Association (AREA); American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE); Bundesfachschule Kälte-Klima-Technik (BFS); Federation of European Heating, Ventilation and Air Conditioning Associations (REHVA); International Institute of Refrigeration (IIR).

Energy efficiency (eligible costs)

50. The Parties agreed to request the Executive Committee to develop cost guidance associated with maintaining and/or enhancing the energy efficiency of low-GWP or zero-GWP replacement technologies and equipment, when phasing down HFCs, while taking note of the role of other institutions addressing energy efficiency, when appropriate.

Secretariat's comments

51. Energy efficiency³⁶ of refrigeration and air-conditioning equipment³⁷ has been incorporated into the context of the Montreal Protocol under decision XIX/6, where Parties were requested to promote the selection of alternatives to HCFCs that minimize environmental impacts, in particular impacts on climate, while achieving HCFC phase-out. The Parties also agreed that the Executive Committee would give priority to cost-effective projects and programmes which focus on, *inter alia*: substitutes and alternatives that minimize other impacts on the environment, including on the climate, taking into account GWP, energy use and other relevant factors. Energy efficiency was further emphasized with the Kigali Amendment to the Montreal Protocol.

52. The energy consumption of refrigeration and air-conditioning equipment forms a significant portion of total energy consumption in households and commercial operations. In addition to the choice of refrigerants³⁸, nominal energy efficiency of refrigeration and air-conditioning equipment can be enhanced through *inter alia* improvement in the overall product design; the design of each of the main components of the equipment (e.g., compressor, evaporator, and/or condenser, fans, or expansion devices); modification of the manufacturing processes of each component of the equipment; and introduction of controls to enhance the performance of the equipment. Manufacturers of equipment offer systems with different levels of energy efficiency³⁹.

53. Broadly, improvement on energy efficiency of any given equipment may be associated with a potential increase in cost of the equipment (e.g., due to a more complex design, additional material, and/or additional controls), but would save energy costs over the lifetime of the equipment.

54. The environmental impact and economic savings associated with the operation of more energy efficient equipment would need to be assessed. As the Multilateral Fund only covers the incremental cost for replacing the refrigerant, there is limited experience in determining costs associated with converting production lines to improve the energy efficiency of the refrigeration and air-conditioning equipment being manufactured, or the cost-benefit of improved energy efficiency.

³⁶ Energy efficiency is typically measured as the energy efficiency ratio (EER) of cooling output to energy input at standard operating conditions. Seasonal energy efficiency ratio (SEER) (a variant of EER) represents performance in a typical year's weather in a given location, thus providing a better assessment of energy efficiency at the local level. Energy efficiency of refrigeration equipment is typically measured in terms of energy efficiency index (EEI) or electricity consumption per unit of storage volume (kWh/ m³).

³⁷ Including *inter alia* domestic refrigerators, commercial refrigerators, mobile air-conditioners, all types of stationary air-conditioning equipment, industrial and broad commercial applications.

³⁸ Based on the Multilateral Fund Climate Impact Indicator, a tool to assesses the impact on the climate associated with the conversion of HCFC-22 refrigeration and air-conditioning manufacturing enterprises, the alternative refrigerants introduced (mainly, R-410A, HFC-32 and to a less extent HC-290 and NH₃) have marginal gains or losses with regard to greenhouse gas emissions.

³⁹ For example energy efficiency ratio of air-conditioners ranges from 2.69 to 6.67, which implies a reduction in energy consumption of over 60 per cent ("Cooling the Planet: Opportunities for Deployment of Superefficient Room Air Conditioners", Shah, Nihar, Paul Waide, and Amol A. Phadke. 2013, Lawrence Berkeley National Laboratory Report, LBNL-6164E (Table E-1).

55. Policies and regulations that promote energy-efficient performance of refrigeration and air-conditioning equipment, coupled with an improvement in the maintenance and servicing, could contribute extensively to mitigating climate change. However, implementing such initiatives at the country level are limited due to *inter alia* policy/regulatory and institutional barriers favouring such initiatives and sending the proper signals to markets; lack of information, and/or assessment of the cost-benefit ratio of introducing highly energy-efficient equipment at the national level; financial barriers; and technical barriers.

56. Measures that may be implemented to address these barriers and facilitate transition to energy-efficient technologies as listed in Table 4.

Table 4. Options for energy efficiency improvement in refrigeration and air-conditioning applications

Aspects	Options for energy efficiency improvement*
Product life-cycle	
Product design	<ul style="list-style-type: none"> • Energy efficient heat exchangers • Redesigned compressor and variable speed drives for compressors (e.g., inverter) • Design improvements on fan's aerodynamic shroud and mounting • Other system component modification (e.g., expansion valve modification, controls) • Stand-by load reduction • Product design using low energy efficient, low-GWP refrigerants
Manufacturing process	<ul style="list-style-type: none"> • Training on production process to produce energy efficient equipment • Product testing equipment
Installation and maintenance	<ul style="list-style-type: none"> • Good practices in installation of air-conditioning equipment (e.g. tightly sealed joints) • Good maintenance and service practices(e.g. periodic cleaning of heat exchangers) • Periodic operations and maintenance checks • Equipment servicing through qualified and trained technicians • Leakage detection equipment for larger capacity equipment
Industry/national level	
Integrated regulatory standards and policies	<ul style="list-style-type: none"> • Policies promoting energy efficiency and climate friendly refrigerant standards • Integrated housing finance policies for adoption of energy efficient equipment for existing and new buildings • Policies for energy efficient and climate friendly technologies in cold chain and tourism application • Policies to develop incentive programmes for utility companies to encourage the use of energy efficient equipment • Bulk government or other procurement programs for energy efficient equipment using low/zero GWP refrigerants
Strengthening standards	<ul style="list-style-type: none"> • Integrated energy efficiency standards in a range of end-use applications • Introduction of standards and labelling programmes
Training and capacity building	<ul style="list-style-type: none"> • Innovative and cost-effective training programmes for service technicians (e.g., adjusting controls, improved equipment repair quality, maintenance advice to users)

(*)This list is indicative and is based on select experiences of the Secretariat on such projects.

57. Given the complexity of the issue related to the conversion of refrigeration and air-conditioning lines for the improving the energy efficiency of the equipment being manufactured; the policy, technical and costs barriers prevailing in Article 5 countries restricting the introduction of high energy efficient equipment, and the limited experience currently available under the Multilateral Fund, the Executive Committee may wish to request the Secretariat to prepare a preliminary document covering key aspects related to the energy efficiency of refrigeration and air-conditioning equipment for consideration at the first meeting in 2017.

Strategic planning under the Kigali Amendment

58. The implementation of the Kigali Amendment of the Montreal Protocol enhances the scope and complexity of activities undertaken by the Multilateral Fund including its Executive Committee, the implementing agencies, and the Secretariat and the Treasurer. As discussed in the document on the Review of the operation of the Executive Committee⁴⁰ submitted to the 77th meeting, the number of meetings of the Executive Committee might be impacted as the Executive Committee begins to address guidelines for the HFC phase down as requested by the Parties to the Montreal Protocol. The Executive Committee might need to consider an approach for its own operation, for example, it could consider to return for a limited time to the project-by-project approach so that investment projects for phasing out HFCs in sectors and subsectors where cost-effective and sustainable alternatives are established in Article 5 countries⁴¹ to maximize the climate benefit of early phase-out, or gain experience with the implementation of HFC activities in other sectors (e.g., phase-out of R-404A or energy efficiency), as was done for the CFC phase-out prior to the 1999 freeze period. The Executive Committee may need to consider focussing on greater oversight of the initial stage of the HFC-phase-down both from the project review perspective as well as from the monitoring, evaluation and finance matters. Similarly, there may a need for considering changes for the additional work of the implementing agencies, the Secretariat and the Treasurer to accommodate the increasing work load for the HFC phase-down, noting that HCFC phase out activities would continue to be under implementation, as well as the possible need for different expertise.

59. Therefore, the Executive Committee may wish to consider discussions on strategic planning and structural changes to accommodate the HFC phase down under the Kigali Amendment to the Montreal Protocol.

Part III Potential additional contributions to the Multilateral Fund

60. Following the issuance of the press release on 22 September 2016 on the intent of donor countries provide additional funding to the Multilateral Fund and the foundations to provide funding for energy efficiency⁴², one of the foundations⁴² requested a conference call with the Secretariat on 30 September 2016, to explore the possible routing of a portion of the funding that could be provided by the foundations to the Multilateral Fund. During those discussions, representatives of said foundation explained that their funding would be earmarked for the energy efficiency of air-conditioning and refrigeration equipment and that it should be deployed in 2017. Should a decision be made to route the funding from the foundations through the Multilateral Fund, the legal details would need to be sorted out, including the mechanism to send funds to the Multilateral Fund.

61. In response to questions, the Secretariat provided *inter alia* the following information:

- (a) Specific amounts of pledged contributions (not additional funds) could be set aside by the Executive Committee for a specific purpose. Examples included the envelope for initial funding for methyl bromide demonstration projects, or the demonstration projects for low-GWP alternatives to HCFC approved after decision XIX/6 on the accelerated phase-out of HCFCs;

⁴⁰ UNEP/OzL.Pro/ExCom/77/71.

⁴¹ Stage II of the HPMP for Jordan submitted to the 77th meeting included a project for the conversion of HFC-134a used as a refrigerant in the manufacturing of commercial refrigeration equipment (UNEP/OzL.Pro/ExCom/77/51).

⁴² The conference call was requested by Climateworks, with the participation of the Hewlett Foundation and the Children's Investment Fund Foundation.

- (b) Under the Multilateral Fund, energy efficiency is not currently an incremental cost but could become one with an amendment to phase down HFCs;
- (c) One-off funds could probably be accepted by the Executive Committee without recourse to the meeting of the Parties, noting that the Executive Committee reports to the Parties to the Montreal Protocol each year;
- (d) Additional funding had been offered to the Multilateral Fund in the recent past. After giving due consideration to this donation, the Executive Committee decided not to accept it because of the conditions that were attached to it by the donors;
- (e) A grant agreement between UNEP as the Treasurer of the Multilateral Fund and the foundations(s) would be required to receive funds as counterpart contribution additional to the trust Fund (a separate trust fund would only be required in the case of continuing contributions). Funds would be transferred from the Treasurer to an implementing agency that has a fiduciary responsibility. The accounts of the Multilateral Fund would include information on the contributions by the foundations;
- (f) The use of funds from the foundations would be reported using the Multilateral Fund reporting mechanisms, unless it was considered as counterpart funding to cover non-incremental costs not considered under the Multilateral Fund (e.g., the chiller projects where energy savings achieved once the new equipment was installed were higher than the cost of the equipment). As the Executive Committee does not monitor or report on counterpart funds, the implementing agency (if they were selected to assist in the implementation of the projects) would report to the foundations on the use of funds.
- (g) The 77th meeting of the Executive Committee would take place in November/early December 2016, and would include an agenda item on issues arising from the 28th meeting of the Parties. As part of the agenda item, the Secretariat would provide members with the White House press release, information on the 19 foundations, and information on the telephone conference.

62. Another telephone conference was requested by the Children's Investment Fund Foundation, as several foundations were preparing to scale up technical assistance and support to countries to implement the phase-down of HFCs. As this work would build on the successful strategy to phase out CFCs, the foundation was interested in finding an evidence review of those interventions, in order to identify lessons that could inform donor efforts in implementing this new generation of policies and programmes. The telephone conference was held on 8 October 2016, during which the Secretariat briefly explained the operation of the Multilateral Fund and the various evaluations that the Multilateral Fund has conducted since its inception in 1991. A set of documents related to the Multilateral Fund, including evaluations of the financial mechanism, were sent to the foundation.

Secretariat's comments

63. With regard to the additional contribution from donor countries and/or foundations, the Executive Committee would need to consider first whether or not it would accept those contributions. Once a decision is adopted on this matter, and assuming the contributions would be accepted, the US \$27 million from donor countries could be used for initiating enabling activities in the context of the Kigali Amendment in Article 5 countries as previously described. With respect to the additional contributions from donor countries to the Multilateral Fund, the Secretariat notes that those contributions would be additional to the regular contributions made by those countries to the replenishment of the Multilateral Fund.

64. The Executive Committee may wish to consider using the methodology for providing funding to Article 5 countries for the development of their HPMPs (based on their HCFC baseline) as a basis for determining the funding levels for enabling activities to implement an ambitious HFC phase down. The indicative funding for enabling activities at the country level is shown in Table 5.

Table 5. Indicative funding levels for enabling activities in Article 5 countries

HCFC baseline (ODP tonnes)	Number of countries	Funding per country (US \$)*
< 0.4	17	43,600
>0.4 < 6.0	39	92,650
>6.0 < 90.0	64	163,500
>90.0 < 1,150	21	212,550
>1,150	4	218,000

(*) Including 9 per cent agency support costs. For Article 5 countries with consumption below 0.4 ODP tonnes, the funding proposed of US \$40,000 is US \$10,000 higher than that provided for the development of their HPMPs, given the challenges faced by very small-consuming Parties.

65. The Executive Committee may also wish to note that 17 Article 5 countries did not request funding for surveys on ODS alternatives and consider funding for such surveys (at similar levels agreed for all countries). The indicative funding for conducting surveys on ODS alternatives at the country level is shown in Table 6.

Table 6. Indicative funding levels for conducting surveys on ODS alternatives in Article 5 countries

HCFC baseline (ODP tonnes)	Number of countries	Funding per country (US \$)*
< 6.0	5	43,600
>6.0 < 20.0	1	76,300
>20.0 < 150.0	4	119,900
>150.0 < 1,000	5	141,700
>1,000	2	On case-by case

(*) Including 9 per cent agency support costs.

66. Remaining balances from the contributions could be used to develop and translate a set of comprehensive training modules for customs officers (one module) and on good service practices for refrigeration and air conditioning technicians, including proper handling of flammable and toxic refrigerants and a certification scheme (several modules specific to each type of equipment (e.g., domestic refrigerators, stand-alone commercial refrigerators, mobile air-conditioning, different types of stationary air-conditioning), with the assistance from world-renowned training and certification institutes. These would be the standard training modules that would be used in Article 5 countries and by all bilateral and implementing agencies assisting Article 5 countries. Implementation modalities (e.g., nominal fees to be charged for each individual trained at the country level, operation and maintenance at the country level) would need to be developed.

67. In the event that the Executive Committee agrees on the above-mentioned approach, it would have to:

- (a) Request the Secretariat to develop, together with the bilateral and implementing agencies, a document listing enabling activities that could be implemented in Article 5 countries, describing the objective, scope, funding requirements and implementation timeframe of those activities, for consideration at the first meeting of the Executive Committee in 2017;
- (b) Request bilateral and implementing agencies to submit funding requests for enabling activities addressing HFC phase-down in Article 5 countries as listed in Table 5 and funding request for surveys on ODS alternatives as listed in Table 6 under their

respective amendments to their work programmes to the first meeting of the Executive Committee in 2017; and

- (c) Request the Secretariat in collaboration with bilateral and implementing agencies to prepare a document covering key aspects for the development of a set of specific modules for customs officers and refrigeration and air-conditioning service technicians that would be used for training programmes provided under the Multilateral Fund in Article 5 countries, including costs and implementation modalities, for consideration at the first meeting of the Executive Committee in 2017.

68. In case the US \$53 million contributions or some portion thereof from the foundations would be managed under the Multilateral Fund, a set of investment- and non-investment type of projects could be proposed to address specific aspects related to energy efficiency of refrigeration and air-conditioning equipment. On this basis, the Executive Committee may wish to request the Secretariat in collaboration with bilateral and implementing agencies to submit to the first meeting in 2017 (in the context of the update of the 2016-2018 business plan):

- (a) A list of concept energy efficient investment projects that would demonstrate specific aspects of improved energy efficient systems, including domestic refrigerators; unitary commercial refrigerators; different size/type of air-conditioners; stand-alone components (e.g., compressors, heat exchangers); application of commercial refrigeration (supermarkets), covering the range of Article 5 countries in terms of their level of consumption, and their geographic and climatic locations. Due consideration should be given to opportunities for developing products with very low GHG emission levels and high energy efficiency impact *inter alia* improvement in manufacturing operations and testing of innovative low emission equipment, e.g., solar power based refrigeration and air-conditioning equipment; vapor absorption systems using waste heat and other innovative cooling approaches; and
- (b) A list of non-investment concept enabling activities to identify the key barriers to introduction of high energy efficient refrigeration and air-conditioning equipment in Article 5 Parties with and without manufacturing enterprises; integrated good service and maintenance practices and energy efficiency enhancement, through innovative and cost-effective fast-track deployment options; standards and labeling programmes for energy efficient equipment along with low GWP criteria; integrated programmes for adoption of super energy efficient refrigeration and air-conditioning systems with existing national programmes, including co-ordination and capacity building on energy efficiency for National Ozone Offices and on refrigerants for national energy efficiency agencies; targeted outreach programmes on success stories on energy efficient policies implemented in different countries; harmonization of more stringent energy efficiency standards in some regions, with mutual recognition of test laboratories and energy efficiency metrics; and bulk government procurement or utility incentive programmes for energy efficient equipment along with low GWP refrigerants.

69. In order to facilitate discussions by the Executive Committee on how those contributions to the Multilateral Fund could be accepted, the Secretariat requested advice from the Treasurer of the Multilateral Fund on the minimum requirements to be fulfilled by the donor countries so that their contributions could be received and managed under the Multilateral Fund, as well as by the foundations, should a decision be taken to route their donations through the Multilateral Fund.

70. In its response, the Treasurer welcomed the development involving the donor Parties and the possibility of donations from the foundations, and was prepared to provide treasury services for this funding mechanism. The new enterprise resource-planning system, Umoja, facilitates flexible recording and tracking in line with the funding agreement that would be signed with each donor.

71. Such funding arrangements are a “one-off” contribution from various donors and earmarked for a specific purpose. Contributions would therefore be treated as an earmarked voluntary contribution in accordance with the UN financial regulation and rules, as well as other applicable policies and procedures. Such funding could be managed by applying either one of two frameworks; the first is the “multiple grants⁴³” framework, which treats each donor contribution separately with respective revenue and expense reports. The second is the “pooled grant⁴⁴” framework, where all the contributions are administered as one grant and a combined revenue and expense report is prepared for all donors. Both options provide for disbursements to implementing agencies. The Treasurer would recommend the “pooled grant” framework as the fund is targeted to a common purpose by all the donors involved, and it is easy to administer and more cost effective⁴⁵.

72. The modalities for receiving the additional contributions would be as follows:

- (a) For donor countries, an exchange of letters between the donor and the Treasurer would constitute the agreement. The template letter from the Treasurer to the donor country is contained in Annex III to the present note;
- (b) For the foundations (i.e., non-contributing parties), voluntary contribution would be supported by a donor agreement between the donor (i.e., the foundation) and the Treasurer of the Fund. The agreement would establish the conditions under which the contribution is being received and administered, as well as the relevant commitments regarding reporting to the donor. Annex IV to the present document includes a draft agreement between the foundations and the Treasurer.

73. The Treasurer will provide services by *inter alia*: receiving contributions from donors, depositing the contributions to a bank account, and providing official receipt/acknowledgment as required by the financial rules; recording the contributions separately from the assessed contributions of the Fund; creating “pass through” grants to implementing agencies and disbursing them as per the Executive Committee’s instructions; receiving expense reports from the implementing agencies annually and recording them against the appropriate grants; maintaining controls in the system to ensure compliance with the conditions of the donations received and ensuring that funds are channelled to the approved projects/programmes; coordinating the audit of the financial resources by the UN Board of Auditors; and providing ad hoc and annual audited financial reports to the Executive Committee and to donors. According to guidelines issued by the UN Controller, administration of additional extra-budgetary

⁴³ This applies where each donor requires a separate financial report showing how the contribution is expended in accordance to the funding agreement. Each donor’s contribution is separately budgeted. The contributions cannot be pooled to be expended together even if it is to finance the same project. This framework entails more administrative processes and administrative costs.

⁴⁴ A pooled grant pools together contributions from different donors into one grant; therefore disbursements to implementing agencies are not linked to a specific donor. The funds can be spent under different projects and programmes as approved by the appropriate authority. A consolidated financial report of revenue and expenses is prepared for the use of all donors contributing to the pool. Although, in principle, the “pooled grant” framework does not allow tracking the utilization of funds by each specific donor, it is still possible to use the Umoja funded programme structure to overcome this situation.

⁴⁵ The use of the “Pooled grant” framework avoids issues related to cash insufficiency attributed to delayed or scheduled contributions. The overall cash flow under the main grant contributes towards uninterrupted operations as opposed to the use of “multiple grants” where the utilization of funds is dependent on the cash received from the specific donor.

resources that leads to increased administrative cost requires negotiation of an appropriate fee (which has not yet been proposed by the Treasurer).

74. The Executive Committee has considered the use of funds from sources other than the Multilateral Fund in the past⁴⁶. It set aside funds for a special funding facility with funds returned from a project funded by the Multilateral Fund as concessional loan. In the process of considering the funding facility, due consideration was given with respect to the legal, structural, and administrative aspects of receiving funding from other sources. A proposal for the mobilization of financing from sources other than the Multilateral Fund for maximizing climate benefits was considered at the 24th and 25th Meetings of the Parties^{47,48}; however, no consensus was reached due largely to legal issues related to addressing climate issues in the Montreal Protocol and the need for contributions to be used to meet the compliance obligations of Article 5 Parties. At the 70th meeting, the Executive Committee considered a plan for a voluntary contribution of 3 million Euros from the European Commission to maximize the climate benefits from the HCFC phase-out. However, concerns were expressed about the conditions associated with receiving such a grant, and no consensus was reached on accepting the contribution.

75. In addition to the options for receiving the additional contributions from donor countries and foundations proposed by the Treasurer, the Executive Committee could also consider the funding facility that has already been established.

Part IV Summary of actions by the Executive Committee

76. There are several policy matters that may need to be addressed with respect to guidance on addressing the Kigali Amendment to the Montreal Protocol and potential additional contributions to the Multilateral Fund. This would entail the preparation of a number of documents by the Secretariat in cooperation with the bilateral and implementing agencies. One-off projects associated with the potential additional contributions would need to be considered and possibly approved as demonstration/investment projects or work programme activities. The additional workload for the Executive Committee might merit a special meeting to address only matters relating to the Kigali Amendment and the potential additional contributions because the standard annual workload of the Executive Committee requires to two full meetings per year. The current terms of reference of the Executive Committee allow the Committee flexibility to hold two or three meetings annually⁴⁹.

77. Based on the discussion contained in the present Note by the Secretariat, the Executive Committee may wish to:

- (a) Note the Note from the Secretariat on Issues relevant to the Executive Committee arising from the Twenty-eighth Meeting of the Parties to the Montreal Protocol contained in document UNEP/OzL.Pro/ExCom/77/70;
- (b) Hold a special meeting early in 2017 to address matters relating to the Kigali Amendment to the Montreal Protocol and potential additional contributions to the Multilateral Fund;

⁴⁶ The Multilateral Fund receives additional contributions from the Government of Canada for administrative purposes.

⁴⁷ Geneva, Switzerland, 12 to 16 November 2012.

⁴⁸ Bangkok, Thailand, 21 to 25 October 2013.

⁴⁹ Paragraph 8 of the terms of reference of the Executive Committee as modified by decisions IX/16, XVI/38 and XIX/11 of the Parties to the Montreal Protocol.

- (c) With respect to elements of guidelines for the phase-down of HFCs:
- (i) Request the Secretariat to prepare a preliminary document, in cooperation with bilateral and implementing agencies, on all aspects related to the refrigeration servicing sector, taking into account previous policy documents, case studies, and monitoring and evaluation reviews, the work undertaken by bilateral and implementing agencies in developing and implementing training and technical assistance programmes, in particular the partnership that UNEP CAP has established with world-recognized training and certification institutes, for consideration at the first meeting in 2017;
 - (ii) Request the Secretariat to prepare a preliminary paper, in cooperation with bilateral and implementing agencies, covering key aspects for the development of a set of specific modules for customs officers and refrigeration and air-conditioning service technicians that would be used as the basis for training programmes provided under the Multilateral Fund in Article 5 countries, including costs and implementation modalities, for consideration at the first meeting in 2017.
 - (iii) Request the Secretariat to prepare a preliminary document covering key aspects for improving the energy efficiency of refrigeration and air-conditioning equipment manufactured in Article 5 countries; policy, technical and costs barriers prevailing in Article 5 countries for the introduction of high energy efficient refrigeration and air-conditioning equipment and feasible solutions for overcoming the barriers, for consideration at the first meeting in 2017;
 - (iv) Request the Government of China, through the World Bank, to provide to the Secretariat information on the studies and investigation of HFC-23 disposal technologies and HFC-23 reductions using best practices that had been funded through the HCFC production phase-out management plan; to invite other Governments to provide, on a voluntary basis, information on their experience in controlling HFC-23 by-product emissions; and further request the Secretariat to develop a preliminary document covering key aspects related to HFC-23 by-product control technologies and associated costs for consideration at the first meeting in 2017;
 - (v) Invite UNEP CAP to include on the agendas of regional network meetings of ozone officers beginning in 2017 issues related to the ratification of the Kigali Amendment to the Montreal Protocol, and enabling activities addressing both the phase out of HCFCs and the phase down of HFCs, with the participation of experts that could address issues of relevance to Article 5 countries, and encourage the Secretariat and the bilateral and implementing agencies to attend those meetings and engage in the discussions;
 - (vi) Invite the 17 Article 5 countries that had not yet received assistance to conduct surveys on ODS alternatives from the Multilateral Fund to provide, on a voluntary basis, through the relevant lead implementing agency assisting them in the implementation of stage II (if already approved) or stage I of their HPMPs, consumption and production (where applicable) data for alternatives to ODS (in particular HFCs) that they may have already collected, so that the Secretariat can include that data in the overall analysis of the results of the surveys for the consideration of the Executive Committee by its first meeting in 2017;

- (vii) Consider adding an agenda item to the first meeting in 2017 on strategic planning and structural changes to accommodate the Kigali Amendment to the Montreal Protocol;
- (d) With respect to additional contributions to the Multilateral Fund from donor countries and from foundations:
 - (i) Accept, with appreciation, the voluntary contributions from non-Article 5 Governments in the amount of [US \$27 million] for initiating activities to address the phase-down of HFC consumption and production in Article 5 countries;
 - (ii) Accept, with appreciation, the possible voluntary contributions from foundations in the amount of [US \$53 million] for projects to demonstrate various aspects of energy efficiency of refrigeration and air-conditioning manufacturing equipment in Article 5 countries;
 - (iii) Agree that the additional contribution to the Multilateral Fund as indicated in sub-paragraph (d)(i) above would be a one-off contribution for the purpose of initiating enabling activities to address the ambitious phase-down of HFC consumption and production in Article 5 countries under the Kigali Amendment to the Montreal Protocol;
 - (iv) Agree that the additional contribution to the Multilateral Fund as indicated in sub-paragraph (d)(ii) above would be a one-off contribution for investment projects and technical assistance programmes to demonstrate various aspects of energy efficiency of refrigeration and air-conditioning manufacturing equipment in the context of the Kigali Amendment to the Montreal Protocol;
 - (v) Agree that the existing guidelines and criteria of the Multilateral Fund related to *inter alia* project review, administrative costs, monitoring, and reporting requirements would apply to all projects funded through the additional contributions from non-Article 5 countries and potential contributions from foundations indicated in sub-paragraphs (d)(i) and (d)(ii) above;
 - (vi) Invite non-Article 5 countries that agreed to provide additional contributions to the Multilateral Fund as indicated in sub-paragraph (d)(i) above, to send a letter of intent to the Treasurer of the Multilateral Fund indicating the amount of their contributions and the purpose;
 - (vii) Invite potential foundations that agreed to provide additional contributions to the Multilateral Fund as indicated in sub-paragraph (d)(ii) above to send a letter of intent to the Treasurer of the Multilateral Fund indicating the amount of their contributions and the purpose;
 - (viii) Request the Treasurer to manage the additional contributions from non-Article 5 countries and potential contributions from foundations indicated in sub-paragraphs (d)(i) and (d)(ii) above, in accordance with its Agreement with the Executive Committee and *inter alia*:
 - a. Send invoices to non-Article 5 countries once the letters of intent from those countries had been received;

- b. Prepare draft agreements between each foundation contributing to the Multilateral Fund and the Executive Committee that would be needed for the Treasurer to receive and invoice contributions;
 - c. Agree on a nominal fee amounting to [US \$] for the Treasurer to managing the additional contributions to the Multilateral as indicated in sub-paragraph (d)(i) and (d)(ii) above;
 - d. Report to the Executive Committee on the additional contributions received separately from the Status of contributions to the Multilateral Fund to the first meeting in 2017;
- (ix) Decide on whether the Executive Committee wishes to use the special funding facility to receive the additional contributions to the Multilateral as indicated in sub-paragraphs (d)(i) and (d)(ii) above;
 - (x) Request the Secretariat to develop, in cooperation with the bilateral and implementing agencies, a document listing enabling activities that could be implemented in Article 5 countries, describing the objective, scope, funding requirements and implementation timeframe of those activities, for consideration at the first meeting of the Executive Committee in 2017;
 - (xi) Request bilateral and implementing agencies to submit funding requests for enabling activities addressing HFC phase-down in Article 5 countries and funding request for surveys on ODS alternatives for the Article 5 countries that had not received funding from the Multilateral Fund under their respective amendments to their work programmes to the first meeting in 2017; and
 - (xii) Request the Secretariat, in cooperation with bilateral and implementing agencies, to submit to the first meeting in 2017, for potential funding from contributions from the foundations, a list of concept energy efficient investment projects that would demonstrate specific aspects of improved energy efficient systems, including *inter alia* domestic refrigerators; unitary commercial refrigerators; different size/type of air-conditioners and chillers; stand-alone components; application of commercial refrigeration (supermarkets), covering the range of countries in terms of their level of consumption, and their geographic location and climatic condition; and a list of non-investment concept enabling activities to identify key barriers to introduction of high energy efficient refrigeration and air-conditioning equipment in Article 5 countries with and without manufacturing enterprises; integrated good service and maintenance practices and energy efficiency enhancement; standards and labeling programmes for energy efficient equipment along with low-GWP criteria applied therein; integrated programmes for adoption of super energy efficient refrigeration and air-conditioning systems with existing national programmes, including co-ordination and capacity building on energy efficiency for National Ozone Offices and on refrigerants for national energy efficiency agencies; targeted outreach programmes on success stories on energy efficient policies implemented in different countries; harmonization of more stringent energy efficiency standards in some regions, with mutual recognition of test laboratories and energy efficiency metrics; and bulk government procurement or utility incentive programmes for energy efficient equipment using low-GWP refrigerants.

Annex I

SOLUTIONS TO THE CHALLENGES IDENTIFIED IN THE DUBAI PATHWAY AS AGREED BY THE THIRD EXTRAORDINARY MEETING OF THE PARTIES⁵⁰

1. At their Third extraordinary meeting, the Parties to the Montreal Protocol endorsed the solutions to the challenges identified in the Dubai Pathway as shown below as a basis for discussion at the resumed 38th meeting of the OEWG and the 28th meeting of the Parties.

- (a) *Challenge 1:* The 37th meeting of the OEWG had reached the conclusion that the challenge was broad in scope and many of the issues arising under it could be dealt with in connection with the other challenges. The special situation of developing countries can be dealt with during the discussion of the amendment proposals;
- (b) *Challenge 2:* The text of the agreed solutions is presented in Table 1 below. The OEWG agreed that the items in brackets should be taken up while negotiating the amendment and resolved prior to adoption of an amendment to the Montreal Protocol. The patents for the production sector covered both process and application patents.

Table 1. Vienna solutions for challenges on funding issues and flexibility of implementation

Issue	Description
Overarching principles and timelines	To maintain the Multilateral Fund as the financial mechanism, with sufficient additional financial resources to be provided by non-Article 5 parties to offset costs arising out of agreed HFC obligations for Article 5 parties. Article 5 parties will have flexibility to prioritize HFCs, define sectors, select technologies/alternatives, and elaborate and implement their strategies to meet agreed HFC obligations, based on their specific needs and national circumstances, following a country-driven approach. The Executive Committee shall incorporate the principle in the above-mentioned paragraph in relevant guidelines and in its decision making process. To request the Executive Committee to develop, within one year after the adoption of the HFC amendment, guidelines for financing the phase-down of HFC consumption and production, including cost-effectiveness thresholds.
Guidance to the Executive Committee on incremental costs	
Consumption manufacturing sector	In developing new guidelines on methodologies and cost calculations, the following categories of costs will be eligible and included in the cost calculation: incremental capital costs; incremental operating costs; technical assistance activities; research and development when required to adapt and optimize low-global-warming-potential (GWP) or zero-GWP alternatives to HFCs; costs of patents and designs, and incremental cost of royalties, when necessary and cost-effective; cost of safe introduction of flammable and toxic alternatives. The incremental operating costs referenced above, including their possible duration noting the proposal for a duration of at least 5 years, would be negotiated in the context of an amendment.
Production sector	In developing new guidelines on methodologies and cost calculations, the following categories of costs will be eligible and included in the cost calculation: lost profit due to shutdown/closure of the production facilities as well as production reduction; compensation to displaced workers; dismantling of production facilities; technical assistance activities; research and development related to the production of low-GWP or zero-GWP alternatives to HFCs with a view to lowering the cost of

⁵⁰ Vienna, Austria, 22 and 23 July 2016. These solutions were superseded by decision XXVIII/2. In addition, the Parties adopted decision XXVIII/3 (energy efficiency) and XXVIII/4 (regular consultations on safety standards).

Issue	Description
	alternatives; costs of patents and designs or incremental cost of royalties; costs of converting facilities to produce low-GWP or zero-GWP alternatives to HFCs when technically feasible and cost effective; reduction of emissions of HFC-23, a by-product from the production process of HCFC-22, by reducing its emission rate in the process, destroying it from the off-gas, or by collecting and converting to other environmentally safe chemicals, should be funded by the Multilateral Fund, to meet the obligations of Article 5 countries specified under the HFC amendment.
Servicing sector	<p>In developing new guidelines on methodologies and cost calculations, the following categories of costs will be eligible and included in the cost calculation: public awareness activities; policy development and implementation; certification programmes and training of technicians in safe handling, good practices and the safety of alternatives, including training equipment; training of customs officers; preventing illegal trade of HFCs; servicing tools; refrigerant testing equipment for the refrigeration and air-conditioning sectors; recycling and recovery of HFCs; [additional import costs]; [incremental cost of refrigerants for mobile air-conditioning servicing/recharging]⁵¹.</p> <p>To increase the funding available under decision 74/50 up to a maximum of x per cent above the amounts listed in that decision for Parties with total HCFC baseline consumption up to 360 mt when needed for the introduction of alternatives to HCFC with low-GWP and zero-GWP, and maintaining energy efficiency in the servicing/end-user sector.</p>
Cut-off date for eligible capacity	The meeting of the Parties that will decide the amendment will decide on the cut-off date.
Energy efficiency	To request the Executive Committee to develop cost guidance associated with maintaining and/or enhancing the energy efficiency of low-GWP or zero-GWP replacement technologies and equipment, when phasing down HFCs, while taking note of the role of other institutions addressing energy efficiency, when appropriate.
Institutional strengthening	To direct the Executive Committee to increase institutional strengthening support in light of new commitments related to HFCs.
Disposal	To consider funding the cost-effective management of stockpiles of used or unwanted controlled substances, including destruction.
Capacity-building to address safety	To request the Executive Committee to prioritize technical assistance and capacity building to address safety issues associated with low-GWP or zero-GWP alternatives
Cost of importing alternatives	[Additional cost of importing alternative substance (of payment support) should be supported] ⁶ .
Other activities	The Parties may identify other cost items to be added to the indicative list emanating as a result of the conversion to low-GWP alternatives.

- (c) *Challenge 3:* The OEWG noted that the availability of alternatives was being addressed under other challenges and particularly in the context of exemptions, and agreed on the following specific language for the safety and flammability issues to address barriers in international safety standards: “Parties recognize the importance of timely updating of international standards for flammable low-GWP refrigerants including IEC60335-2-40 and support promoting actions that allow safe market introduction, as well as manufacturing, operation, maintenance and handling of zero-GWP or low-GWP refrigerant alternatives to HCFCs and HFCs.” It also agreed to “conduct periodic reviews

⁵¹ To be taken up while negotiating the amendment and resolved prior to adoption of an amendment to the Montreal Protocol.

of alternatives using the criteria set out in paragraph 1 (a) of decision XXVI/9”, with Parties to further discuss the issue at the OEWG 38;

- (d) *Challenge 4:* The OEWG agreed that the solution to this challenge was agreed at the 27th meeting of the Parties and reconfirmed at the 37th meeting of the OEWG, as reflected in Table 2 below. Some parts of the flexibility issue are also being addressed under the second challenge, on funding issues and flexibility of implementation.

Table 2. Solutions to challenges regarding funding issues and flexibility in implementation

Challenges	Solutions
Overarching principles and timelines	<p>The Parties agree to revise within one year after the adoption of the amendment, procedures, criteria and guidelines of the Multilateral Fund.</p> <p>Revise the rules of procedure of the Executive Committee with a view to building in more flexibility for Article 5 parties.</p> <p>The Chair of the Executive Committee must report back to the meeting of the Parties on the progress made in accordance with this decision, including on cases where Executive Committee deliberations have resulted in a change in the national strategy or the national technology choice submitted to the Executive Committee.</p>
Principles on second and third conversions	<p>That first conversions are defined as conversions of enterprises to low-GWP or zero-GWP alternatives that have never received any direct or indirect support, in part or in full, from the Multilateral Fund, including enterprises that converted to HFCs with their own resources.</p> <p>That enterprises that have already converted to HFCs in phasing out CFCs and/or HCFCs will be eligible to receive funding from the Multilateral Fund to meet agreed incremental costs in the same manner as enterprises eligible for 1st conversions.</p> <p>That enterprises that convert from HCFCs to high-GWP HFCs, after the adoption of an HFC amendment, under HPMPs already approved by the Executive Committee, will be eligible to receive funding from the Multilateral Fund for a subsequent conversion to low-GWP or zero-GWP alternatives to meet agreed incremental costs in the same manner as enterprises eligible for 1st conversions.</p> <p>That enterprises that convert from HCFCs to high-GWP HFCs with their own resources before the freeze date of HFC phase-down will be eligible to receive funding from the Multilateral Fund to meet agreed incremental costs in the same manner as enterprises eligible for 1st conversions.</p> <p>To agree that enterprises that convert from HFCs to lower-GWP HFCs with Multilateral Fund support when no other alternatives are available will be eligible to receive funding from the Multilateral Fund for a subsequent conversion to low-GWP or zero-GWP alternatives if necessary to meet the final HFC phase-down step.</p>
Sustained aggregate reductions	<p>Remaining consumption tonnage eligible for funding will be determined on the basis of the starting point of the national aggregate consumption less the amount funded by previously approved projects in future multi-year agreement templates for HFC phase-down plans (consistent with decision 35/57).</p>
Enabling activities	<p>Enabling activities will be supported by the Multilateral Fund in any HFC phase-down agreement: capacity-building and training for handling HFC alternatives in the servicing sector, the manufacturing and production sectors; institutional strengthening; Article 4b on licensing; reporting; demonstration projects; and developing national strategies.</p>

- (e) *Challenge 5:* The solution with regard to the exemption for high-ambient-temperature (HAT) countries was as agreed at the 37th meeting of the OEWG, as reflected in annex III of the report of the respective meeting⁵². It was also agreed: to allow for exemptions, such as for essential uses and critical uses, in any HFC amendment; to consider mechanisms for such exemptions in 20XX including multi-year exemption mechanisms; and to provide information and guidance to the Technology and Economic Assessment Panel (TEAP) for its periodic review of sectors where exemptions may be required.
- (f) *Challenge 6:* Parties acknowledge the linkage between the HFC and HCFC reduction schedules relevant to sectors and the preference to avoid transitions from HCFC to high-GWP HFC, and are willing to provide flexibility if no other technically proven and economically viable alternatives are available. Parties also acknowledge these linkages with respect to certain sectors, in particular industrial process refrigeration, and the preference to avoid transitions from HCFCs to high-GWP HFCs, and are willing to provide flexibility if no other alternatives are available in cases where: HCFC supply may be unavailable from existing allowable consumption, stocks as well as recovered/recycled material, and if it would allow for a direct transition at a later date from HCFCs to low-GWP or zero-GWP alternatives. Flexibility measures will be provided in relation to the HCFC phase-out relevant to certain sectors, in particular the industrial process refrigeration subsector in order to avoid double conversions”;
- (g) *Challenge 7:* Non-party trade provisions for all countries enter into force five years after the freeze date for Article 5 parties;
- (h) *Challenge 8:* This challenge has not yet been concluded, and it would be best to further address it during the negotiations on an HFC amendment, where greater clarity will be achieved regarding the approach that would be taken under the Montreal Protocol in accordance with the amendment.

⁵²The Parties agreed on a new exemption available to Parties with HAT conditions where suitable alternatives do not exist for the specific sub-sector of use. The exemption *inter alia* applies to the multi-split air conditioner for commercial and residential use, split ducted air conditioner (residential and commercial), and ducted commercial packaged (self-contained) air-conditioner sub-sectors in Parties: with an average of at least two months per year over 10 consecutive years with a peak monthly average temperature above 35 degrees Celsius; and that have formally notified use of this exemption by notifying the Ozone Secretariat no later than one year before the HFC freeze or other initial control obligation, and every four years thereafter should it wish to extend the exemption; any party operating under the high ambient temperature exemption shall report separately production and consumption data for the sub-sectors to which a high ambient temperature exemption applies; amounts of Annex F substances that are subject to the HAT exemption are not eligible for funding under the Multilateral Fund while they are exempted for that Party; that the Implementation Committee and the meeting of the Parties should, for 2025 and 2026, defer the consideration of the HCFC compliance status of any party operating under a high ambient temperature exemption in cases where it has exceeded its allowable consumption or production levels due to its HCFC-22 consumption or production for the sub-sectors above-mentioned on the condition that the Parties concerned follow the phase-out schedule for consumption and production of HCFCs for other sectors, and the Party has formally requested a deferral through the Ozone Secretariat. The countries operating under the high ambient temperature exemption are: Algeria, Bahrain, Benin, Burkina Faso, Central African Republic, Chad, Cote d'Ivoire, Djibouti, Egypt, Eritrea, Gambia, Ghana, Guinea, Guinea-Bissau, Islamic Republic of Iran, Iraq, Jordan, Kuwait, Libya, Mali, Mauritania, Niger, Nigeria, Oman, Pakistan, Qatar, Saudi Arabia, Senegal, Sudan, Syria, Togo, Tunisia, Turkmenistan, and United Arab Emirates.

Annex II

THE WHITE HOUSE OFFICE OF THE PRESS SECRETARY SEPTEMBER 22, 2016

Leaders from 100+ Countries Call for Ambitious Amendment to the Montreal Protocol to Phase Down HFCs and Donors Announce Intent to Provide \$80 Million of Support

Today, the United States hosted a gathering of countries in New York to provide a boost of momentum to the upcoming international negotiations to adopt an amendment to the Montreal Protocol to phase down the potent greenhouse gases known as hydrofluorocarbons (HFCs). The event highlighted two significant announcements:

- First, more than 100 countries called for securing an ambitious amendment with an “early freeze date.” This group includes the United States, Argentina, Chile, Colombia, all 28 countries in the European Union, all 54 countries in Africa, and several island states that are the most vulnerable to the impacts of climate change. Complementing this announcement, more than 500 companies and organizations and hundreds of sub-national governments called upon world leaders to take strong action on HFCs.
- Second, a group of donor countries and philanthropists announced their intent to provide \$80 million in support to help countries in need of assistance (i.e., Article 5 countries) implement an ambitious amendment and improve energy efficiency. The philanthropic component of this is the largest-ever private grant made for energy efficiency in this sector.

HFCs are factory-made chemicals that are primarily used in air conditioning, refrigeration, and foam insulation, and they can be hundreds to thousands of times more potent than carbon dioxide in contributing to climate change. If left unchecked, global HFC emissions could grow to be equivalent to 19 per cent of total carbon dioxide emissions in 2050. There are alternative refrigerants available that have comparable performance to HFCs but with significantly reduced climate-changing properties.

Securing an ambitious amendment to the Montreal Protocol to phase down HFCs could avoid up to 0.5°C of warming by the end of the century, making a major contribution to the Paris Agreement goal to limit global temperature rise to well below 2°C. Countries agreed last November to “work within the Montreal Protocol to an HFC amendment in 2016,” and they have subsequently worked intensively during a series of negotiations this year toward consensus on the terms of such an amendment. Next month, countries will gather at the Montreal Protocol meeting of the Parties in Rwanda for final negotiations on the amendment.

Launch of the Coalition to Secure an Ambitious HFC Amendment

At an event today hosted by Secretary of State John Kerry, senior government officials representing over 100 governments released the “New York Declaration of the Coalition to Secure an Ambitious HFC Amendment.” The declaration calls for adopting an ambitious HFC phasedown amendment at the upcoming meeting of the Parties with an early freeze date for Article 5 countries, in addition to an early first reduction step for non-Article 5 countries.

In addition to the broad support for an ambitious amendment overall, the commitment for an “early freeze date” is a key element for achieving a strong climate outcome. The freeze date is the year when countries stop increasing the production and consumption of HFCs and begin the process of phasing them down, and it is therefore critical to achieving the emissions reductions associated with an amendment.

New Finance Announcements

In tandem with the declaration for an ambitious amendment, a group of donor countries and philanthropists announced their intent to provide \$80 million in assistance to Article 5 countries to implement an amendment and improve energy efficiency.

A group of 16 donor countries – consisting of the United States, Japan, Germany, France, the United Kingdom, Italy, Canada, Australia, the Netherlands, Switzerland, Sweden, Norway, Denmark, Finland, Ireland, and New Zealand – announced their intent to provide \$27 million in 2017 to the Montreal Protocol Multilateral Fund to provide fast-start support for implementation if an ambitious amendment with a sufficient early freeze date is adopted this year. Such funding is one-time in nature and will not displace donor contributions going forward.

Complementing the funding announced by donor countries today, the following group of 19 philanthropists announced their intent to provide \$53 million to Article 5 countries to support improvements in energy efficiency: Barr Foundation; Bill Gates; Children's Investment Fund Foundation; ClimateWorks Foundation; David and Lucile Packard Foundation; Heising-Simons Foundation; Hewlett Foundation; John D. and Catherine T. MacArthur Foundation; Josh and Anita Bekenstein; John and Ann Doerr; Laura and John Arnold; Oak Foundation; Open Philanthropy Project; Pirojsha Godrej Foundation; Pisces Foundation; Sandler Foundation; Sea Change Foundation; Tom Steyer; and Wyss Foundation. This support reflects a strong recognition from private philanthropists of the dual benefits associated with taking advantage of the transition to HFC alternatives to also improve energy efficiency.

Together, this funding will enable Article 5 countries to begin developing programs to track and reduce HFCs and help their consumers and businesses realize the net economic benefits from energy efficiency as they transition to HFC alternatives. Today's announcement from philanthropists represents the single largest private grant ever made in this sector for energy efficiency. Based on our own experience in the United States, this scale of investment could yield billions of dollars in economic benefits for Article 5 countries and help to offset any upfront costs associated with transitioning past HFCs.

Technical Progress

Demonstrating that in addition to galvanizing support for an ambitious amendment and providing new resources, the United States is also committed to addressing technical questions associated with phasing down HFCs, the U.S. Department of Energy (DOE) today published the results of a testing program to evaluate the performance of HFC alternatives in rooftop air conditioning units in high ambient temperatures. The testing program was launched in response to questions over whether HFC alternatives can perform well in hot and extremely hot temperatures. The results demonstrate that several viable replacements exist for both HCFC-22 and HFC-410A – two of the most common refrigerants used today – and that these potential replacements perform just as well at high temperatures as today's refrigerants. The testing program was conducted at Oak Ridge National Laboratory (ORNL), and guided by a panel of prominent technical experts from Brazil, China, Egypt, India, Italy, Japan, Kuwait, Peru, Saudi Arabia, the United States, the United Nations Environment Programme (UNEP), and the United Nations Industrial Development Organization (UNIDO). The new report can be found [here](#).

Last year, ORNL conducted a similar testing program for mini-split air conditioning units. The results of that testing program can be found [here](#).

Call to Action from Companies and Sub-National Governments

Building on the announcements in New York today, more than 500 national and international companies and organizations and hundreds of sub-national governments are also calling – individually and/or through their associations – for an ambitious amendment to the Montreal Protocol and have issued the following statement:

By avoiding up to 0.5°C of warming by the end of the century, a Montreal Protocol hydrofluorocarbon (HFC) phasedown amendment is one of the most significant steps the world can take now to deliver on the goals of the Paris Agreement. Today, we call upon world leaders to adopt in October an ambitious amendment to the Montreal Protocol, including an early first reduction step for Article 2 countries and a freeze date for Article 5 countries that is as early as practicable, and we declare our intent to work to reduce the use and emissions of high-global-warming-potential HFCs and transition over time to more sustainable alternatives in a manner that maintains or increases energy efficiency.

Signatories of the statement include the following companies, organizations, and associations: 3M; Air-Conditioning, Heating, and Refrigeration Institute (AHRI); Airgas; The Alliance for Responsible Atmospheric Policy; Arkema; Aspen Skiing Company; Aveda; Ben & Jerry's Homemade Inc.; Berkshire Hathaway Energy; BioAmber Inc.; Brazilian Association for HVAC-R (ABRAVA); Business for Innovative Climate & Energy Policy (BICEP); CA Technologies; Cap & Seal Co.; Catalyst Paper; Ceres; CH2M; The Chemours Company; Daikin U.S. Corporation; Danfoss; Dell Inc.; The Dow Chemical Company; DSM; Dynatemp International; Eileen Fisher; Emerson Climate Technologies; Environmental Entrepreneurs (E2); European Partnership for Energy and the Environment (EPEE); Falcon Safety Products; Gap Inc.; General Mills; Godrej Group; Golden Refrigerant; Hewlett Packard Enterprise; Honeywell; Hudson Technologies; ICP Adhesives & Sealants, Inc.; Ingersoll Rand; The Japan Refrigeration and Air Conditioning Industry Association (JRAIA); Johnson Controls; Lapolla Industries, Inc.; Lennox International; Mexichem; Microsoft; Midwest Refrigerants; Mission Pharmacal Company; National Refrigerants; Nike; Red Bull; Refrigerants Australia; Refrigerants, Naturally!; Rheem Manufacturing Company; RM2; SEVO Systems, Inc.; shecco america; Solvay; Symantec; Tri Global Energy; True Refrigeration; Unilever; and Virginia Mason Health System.

These companies include producers of the chemicals, manufacturers of equipment that use HFCs, and end-users, which demonstrates that companies throughout the HFC supply chain support strong global action on HFCs.

Signatories of the aforementioned statement also include ICLEI USA, which represents hundreds of sub-national governments; Atlanta Mayor Kasim Reed, Mayors' National Climate Action Agenda Member and Compact of Mayors Member; Boston Mayor Martin J. Walsh, C40 Vice-Chair and Mayors' National Climate Action Agenda Member; Los Angeles Mayor Eric Garcetti, C40 Vice-Chair and Mayors' National Climate Action Agenda Co-Founder; Phoenix Mayor Greg Stanton, Mayors' National Climate Action Agenda Member; San Jose Mayor Sam Liccardo, Mayors' National Climate Action Agenda Member; and Seattle Mayor Ed Murray, C40 Member and Mayors' National Climate Action Agenda Member.

Name	Barr Foundation
Website	https://www.barrfoundation.org/
Type	Endowed private foundation
About	Mission is to invest in human, natural, and creative potential, serving as thoughtful stewards and catalysts.
Operated since/ year founded	1987
Assets	\$1.6 billion
Location of headquarters	Boston Harbor, Boston , United States of America
Geographic reach	Principal geographic focus is the Northeast United States of America. Some global activities.
Grant making area	Arts & Creativity, Climate, Education. In terms of climate, it focuses on the two areas that produce the most greenhouse gas emissions: energy and transport. While Barr’s primary focus is to help catalyze and advance climate solutions and leadership across the Northeast region in ways that can spur broader action, from time to time it also engage in targeted national and global efforts where it sees significant opportunities to contribute to impact.
Total grants since inception	US \$710 million: typically awards around \$60 million in grants annually.
Governance	The Barr Foundation is governed today by a board comprising the founding trustees and the president. Together they provide strategic direction and fiscal oversight for the Foundation’s affairs.
CEO	James E. Canales
Employees	25
Financial information	https://www.barrfoundation.org/about
Contact	info@barrfoundation.org
Other information	Blog post related to HFC funding: https://www.barrfoundation.org/blog/19-funders-pledge-53-million-to-expand-energy-efficiency

Name	Bill and Melinda Gates Foundation
Website	www.gatesfoundation.org
Type	Private foundation
About	Guided by the belief that every life has equal value, the Bill & Melinda Gates Foundation works to help all people lead healthy, productive lives. In developing countries, it focuses on improving people’s health and giving them the chance to lift themselves out of hunger and extreme poverty. In the United States, it seeks to ensure that all people—especially those with the fewest resources—have access to the opportunities they need to succeed in school and life. The foundation awards the majority of its grants to U.S. 501(c)(3) organizations and other tax-exempt organizations.
Operated since/ year founded	2000
Assets	US \$ 39.6 billion: \$4.2 billion granted in 2015
Location of headquarters	Seattle, Washington, United States of America
Other locations	Washington, D.C., India, China; Europe and London, United Kingdom; Ethiopia; Nigeria; South Africa.
Geographic reach	Global
Grant making area	Global Development Program, Global Health Program, Global Policy and Advocacy, United States Program
Total grants since inception	\$36.7 billion (Dec 2015)
Governance	Bill Gates (Co-Chair) and Melinda Gates (Co-chair)
CEO	Sue Desmond-Hellmann
Employees	1,376
Annual report	http://www.gatesfoundation.org/Who-We-Are/Resources-and-Media/Annual-Reports
Financial information	http://www.gatesfoundation.org/Who-We-Are/General-

	Information/Financials
Contact	http://www.gatesfoundation.org/Who-We-Are/General-Information/Contact-Us
Other	The foundation believes that climate change is a major issue facing all of us, particularly poor people in developing countries, and we applaud the work that others are doing to help find solutions in this area. While we do not fund efforts specifically aimed at reducing carbon emissions, many of our global health and development grants directly address problems that climate change creates or exacerbates (http://www.gatesfoundation.org/Who-We-Are/General-Information/Foundation-FAQ)

Name	Children's Investment Fund Foundation
Website	https://ciff.org/
Type	Non profit. Registered as a UK charity
About	CIFF supports bold ideas for children to survive and thrive, today and in the future. It believes that investing in children has the power to trigger big social and economic changes. Areas of work include children and adolescents' health and nutrition, child protection, early learning and smart ways to slow down and stop climate change. The foundation was established in 2004 and follows a rigorous business-like approach to philanthropic funding. CIFF works with a wide. It has a range of partners including governments, non-governmental organizations, other philanthropies, businesses and many others. Partnerships are critical because it will take the combined efforts of the many to tackle the challenges faced by many children, their families and their communities every day. Programmes are designed to build on ideas and leadership on the ground, adding value with technical expertise and a distinctive evidence-based approach.
Operated since/ year founded	2004
Assets	US \$4.6 billion
Location of headquarters	London, United Kingdom (Other locations: Nairobi and New Delhi)
Geographic reach	Global
Grant making area	Nutrition, health, climate change, early learning, deworming, humanitarian. In the area of climate change it is working towards transformational change in energy systems, cities and land use, as well as the phasing out of HFCs. It has provided US \$22.2 million in grants for work on fluorinated gases to Institute for Governance & Sustainable Development and the Environmental Investigation Agency.
Total grants since inception	\$878 million (Dec 2015)
Governance	The Board of trustees is responsible for the oversight and governance of the Children's Investment Fund Foundation. They review and update strategy and areas of activity, including consideration of grant-making, governance, risk management and reserves policies, and endowment investments performance. A Finance, Audit and Investments Committee acts as a sub-committee of the Board of Trustees to provide expert advice in relation to financial and investment matters.
CEO	Kate Hampton
Employees	51-200
Annual report	Annual report at https://ciff.org/about-us/annual-report-2015/
Financial information	Annual report at https://ciff.org/about-us/annual-report-2015/
Contact	General enquiries: info@ciff.org
Other information	The Board of Trustees has developed an investment strategy for the endowment which aims to maintain and increase the value of the endowment to be able to support charitable grant disbursements of at least \$200 million in 2016. With effect from 22 September 2015, the Board resolved that investments in the following companies or entities are prohibited: Tobacco manufacturing and marketing; Food companies which do not commit to adopting the International Code of Marketing Breast Milk Substitutes;

	Companies that derive more than 10 per cent of revenue from extracting fossil fuels, excluding natural gas; Companies that derive more than 10 per cent of revenue from extracting natural gas, unless they have adopted a business strategy and plan to cut emissions to limit climate change to 2 degrees Celsius.
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Name	ClimateWorks Foundation
Website	http://www.climateworks.org/
Type	Non profit
Funding source	Core funders — The William and Flora Hewlett Foundation, KR Foundation, the John D. and Catherine T. MacArthur Foundation, the Oak Foundation.
About	The ClimateWorks Foundation supports public policies that prevent dangerous climate change and promote global prosperity. ClimateWorks collaborates with others to limit annual global greenhouse gas emissions to 44 billion metric tons by the year 2020 (25 percent below business-as usual projections) and 35 billion metric tons by 2030 (50 percent below projections). These ambitious targets require the immediate and widespread adoption of smart energy and land use policies. ClimateWorks and its network of affiliated organizations promote these policies in the regions and sectors responsible for most greenhouse gas emissions. Using the power of collaboration, ClimateWorks Foundation mobilizes philanthropy to solve the climate crisis and ensure a prosperous future. ClimateWorks helps leading funders come together to be more strategic, efficient, and effective in their response to global climate change.
Operated since/ year founded	2008
Location of headquarters	San Francisco, California
Geographic reach	Global
Governance	Governed by a board of directors that includes leaders of philanthropic, academic, and business institutions active in efforts to tackle climate change (Hewlett foundation, Packard Foundation, Oak Foundation, Stanford University, and Center for American Progress).
Grant making area	Clean power, Oil, energy efficiency, forest and land use, non-CO ₂ mitigation, cross cutting strategies. Project grants fund global, regional, and transnational strategies that ClimateWorks develops, implements, and monitors. Makes grants to organizations and initiatives in the regions that hold the highest potential for greenhouse gas abatement: China, Indonesia, the European Union, Latin America, and the United States. ClimateWorks also funds global and transnational strategies, such as initiatives that support international climate policies, reduce emissions from aircraft and marine vessels, address fluorinated gases (F-gases) globally, and increase sustainable finance. It has provided grants to the Environmental Investigation Agency and Institute for Governance and Sustainable Development.
Total grants since inception	In total, during first six years, awarded 868 grants to 227 grantees, totaling \$799,152,683 (http://www.climateworks.org/portfolios/grants-database/)
CEO	Charlotte Pera
Employees	43
Annual report	http://www.climateworks.org/report/annual-reports/
Contact	http://www.climateworks.org/contact-us/

Name	David and Lucile Packard Foundation
Website	https://www.packard.org/
Type	Family foundation
About	The David and Lucile Packard Foundation works with partners around the world for social, cultural, and environmental change designed to improve the lives of children, families, and communities. Learn more about the Foundation.

Operated since/ year founded	1964
Assets	\$6.7 billion
Location of headquarters	Los Altos, California, United States of America
Geographic reach	Global
Grant making area	Conservation and science (sub-programs are climate, land; oceans; science) population and reproductive health; children, families and communities; local grant making. The climate sub-program covers energy, land use and innovation.
Total grants since inception	US \$307 million in 2015 (827 grants) https://review.packard.org/2015/foundation-overview#year
Governance	Board of Trustees
CEO	Carol Larson
Employees	About 120
Learning reports	https://www.packard.org/what-were-learning/resource-type/report/
Financial reports	https://www.packard.org/about-the-foundation/how-we-operate/investments-finance/financial-statements/
Contact	https://www.packard.org/contact-us/
Other	<p>The Packard Foundation is deeply committed to reducing greenhouse gas emissions because global climate change uniquely undermines everything it cares about as an organization. It has made a bold, multi-year investment toward efforts aimed at mitigating climate change that far exceeds any other program pledge the Foundation has made in its 50-year history.</p> <p>To push the climate effort further and faster, the Foundation is launching a strategic initiative to inspire innovative, new approaches for reducing greenhouse gas emissions and mitigating dangerous climate change. In November 2014, the Foundation engaged other donors and experts at a unique forum for disruptive thinking, strategic exploration, and collegial exchange. Climate leaders and experts provided strategic input and refinement to the initiative during a session facilitated by Context Partners, a social innovation design firm who developed 20 climate mitigation prize concepts for discussion. The goal is to foster systematic innovation in the development of new climate mitigation strategies that attract the involvement of other funders and NGOs. See:</p> <p>https://www.packard.org/about-the-foundation/50th-anniversary/commitment-halt-climate-change/</p>

Name	Heising-Simons Foundation
Website	https://www.heising-simons.org/
Type	Private family foundation
About	<p>The Heising-Simons Foundation is a family foundation based in Los Altos, California. The Foundation works with its many partners to advance sustainable solutions in climate and clean energy, enable groundbreaking research in science, enhance the education of our youngest learners, and support human rights for all people.</p> <p>The Foundation does not accept unsolicited proposals.</p>
Operated since/ year founded	2007
Assets	\$303 million
Location of headquarters	Los Altos, California, United States of America
Grant making area	Climate & clean energy; community; education; human rights; science. The goal of the Foundation's Climate and Clean Energy program is to provide support for policy analysis to hasten the transition to a zero-carbon energy future and to develop market-driven solutions to protect fisheries and oceans.
Total grants since inception	US \$205 million.
Governance	Board of Trustees
CEO	Ms. Deanna Gomby
Employees	24
Audited statement (location)	https://www.heising-simons.org/about/financials/
Contact	https://www.heising-simons.org/contact/

Other	In 2015 there were 13 grants for Climate and Clean Energy which amounted to \$5,325,000 (12.4% of total grants for 2015)
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Name	William and Flora Hewlett Foundation
Website	http://www.hewlett.org/ See also: http://glasspockets.org/glasspockets-gallery/who-has-glass-pockets/the-william-and-flora-hewlett-foundation
Type	Private family foundation
About	The Foundation's programs have ambitious goals that include: helping to reduce global poverty, limiting the risk of climate change, improving education for students in California and elsewhere, improving reproductive health and rights worldwide, supporting vibrant performing arts in our community, advancing the field of philanthropy, and supporting disadvantaged communities in the San Francisco Bay Area.
Operated since/ year founded	1966
Assets	US \$9 billion
Location of headquarters	Menlo Park, California, United States of America
Geographic reach	Global
Grant making area	The Hewlett Foundation helps people build measurably better lives. Grantees are working to reduce poverty in the developing world, curb carbon emissions that lead to climate change, and improve education for students in California and elsewhere, among many other valuable goals. The five key areas covered are: Education, Environment (including climate change), Global Development and Population Program, Performing Arts Program, Effective Philanthropy Group. See http://hewlett.org/programs
Total grants since inception	US \$4.16 billion (2000 to 2013)
Governance	Board of Directors that always includes four members of the Hewlett family and between five and eleven other leaders drawn from philanthropy, government, business, education, and civil society, in accordance with its bylaws.
CEO	Larry Kramer
Employees	113
Annual report	http://hewlett.org/about-us/annual-reports
Audited statement (location)	http://hewlett.org/about-us/financials
Contact	http://www.hewlett.org/contact/
Other	Provided Climate works a total of US \$49,298,000 in grants, US \$3 million to Shakti Sustainable Energy Foundation for Indian NGOs to, amongst other things, to promote replacement of HFCs (illustrative example). See also http://hewlett.org/blog that includes an article by Kramer on the Montreal Protocol and HFCs.

Name	John D. and Catherine T. MacArthur Foundation
Website	https://www.macfound.org/
Type	Private family foundation
About	MacArthur is one of the nation's largest independent foundations. Organizations supported by the Foundation work in about 50 countries. In addition to Chicago, MacArthur has offices in India, Mexico, and Nigeria. MacArthur works work on a small number of big bets that strive toward transformative change in areas of profound concern, including the existential threats of climate change and nuclear risk, the challenges in the U.S. of criminal justice reform and in Nigeria of more effective and legitimate government services, and bringing more financial capital to the social sector.
Operated since/ year founded	1970
Assets	US \$6.47 billion
Location of headquarters	Chicago, United States of America (Offices in India, Mexico and Nigeria)
Geographic reach	Global

Grant making area	Climate solutions; criminal justice; impact investments; nuclear challenges. MacArthur develops grant making strategies designed to meet very specific goals. The majority of its grants are to organizations identified by staff.
Total grants since inception	US \$5.5 billion (US \$231.4 million in 2015)
Governance	Board of Directors
CEO	Ms. Julia Stasch
Employees	51-200
Annual report	https://www.macfound.org/about/annual-reports/
Audited statement (location)	https://www.macfound.org/about/financials/
Contact	https://www.macfound.org/about/contact/
Other	

Name	Josh and Anita Bekenstein
Type	Individual/family philanthropist
About*	Josh Bekenstein currently serves as a co-chair on the Board of Directors of New Profit Inc., a Boston-based venture philanthropy fund and as a member on the Board of Trustees of the Pan-Mass Challenge, an annual bike-athon that crosses the Commonwealth of Massachusetts to raise money for the Dana-Farber Cancer Institute, where Bekenstein serves as chairman of the Board of Trustees. Bekenstein co-chaired Dana-Farbers “Mission Possible” campaign that hit its goal to raise \$1 billion a year early in September 2009. Bekenstein also chairs the board of Be The Change, is a board member of City Year, Opportunity Nation, and New Leaders. He also contributes to Horizons for Homeless Children, Year Up, Teach for America, Kipp Schools, and Boston Children’s Hospital
Other	https://www.bridgespan.org/insights/library/remarkable-givers/profiles/josh-bekenstein/josh-and-anita-bekenstein-focus-their-philanthropy

*Source: Wikipedia

Name	John and Ann Doerr
Type	Individual/family philanthropist
About	John Doerr takes a venture capitalist approach to philanthropy that mirrors the approach to his career. Doerr is particularly interested in education, and the environment. He has signed the “Giving Pledge” a campaign to encourage the wealthy people of the world to contribute their wealth to philanthropic causes set up by the Bill and Melinda Gates Foundation
Other	http://glasspockets.org/philanthropy-in-focus/eye-on-the-giving-pledge/profiles/doerr

Name	Laura and John Arnold Foundation
Website	http://www.arnoldfoundation.org/
Type	Private foundation
About	The core objective is to improve the lives of individuals by strengthening our social, governmental, and economic systems.
Operated since/ year founded	2008
Assets	US \$1.8 billion
Location of headquarters	Houston, Texas, United States of America
Geographic reach	Appears to be mostly United States of America
Governance	Co-chairs
CEO	Laura & John Arnold (Co-Chairs)
Grant making area	Criminal justice, education, evidence-based policy and innovation, research integrity, new initiatives, sustainable public finance.
Total grants since inception	US \$617,6322,898

Employees	50
Geographic reach	United States of America

Name	Oak Foundation
Website	http://oakfnd.org/
Type	Private foundation
About	The Foundation comprises a group of philanthropic organizations based in various countries around the world. Oak Foundation commits its resources to address issues of global, social and environmental concern, particularly those that have a major impact on the lives of the disadvantaged.
Operated since/ year founded	1983
Assets	US \$47,556,882 (2013)
Location of headquarters	Geneva, Switzerland (offices in Europe, Africa, India and North America)
Geographic reach	Global (grants to 40 countries)
Grant making area	Seven thematic programmes: child abuse, environment, housing and homelessness, international human rights, issues affecting women, learning differences and special interest. There are also two country-based programmes in Denmark and Zimbabwe, as well as work that combines the different thematic programme areas in India and Brazil. Sub thematic areas in the environment include: climate change, marine conservation, wildlife conservations.
Total grants since inception	In 2015 Oak Foundation made 326 grants to 308 organisations in 39 countries amounting to US \$216.88 million including US \$39.87 million to address the Environment (including grants for Climateworks, and the, European Climate Foundation.
Governance	Board of Trustees
CEO	Ms. Kathleen Cravero-Kristoffersson
Employees	51-200
Annual report	http://oakfnd.org/content/8418

Name	Open Philanthropy Project
Website	http://www.openphilanthropy.org/
Type	Project
About	The Open Philanthropy Project is a collaboration between Good Ventures and GiveWell in which we identify outstanding giving opportunities, make grants, follow the results, and publish our findings. The Project is not, itself, an organization. The Open Philanthropy Project's mission is to give as effectively as it can and share our findings openly so that anyone can build on our work. Through research and grant making, it hopes to learn how to make philanthropy go especially far in terms of improving lives.
Operated since/ year founded	2014
Location of headquarters	San Francisco, California, United States of America
Geographic reach	No general geographic focus
Grant making area	United States policy, Global Catastrophic Risks, Scientific Research
Total grants since inception	US \$56,046,449
CEO	Ms. Cari Tuna (President)
Employees	22
Contact	http://www.openphilanthropy.org/get-involved/contact-us
Other	See http://www.openphilanthropy.org/about/press-kit#The_basics

Name	Pirojsha Godrej Foundation
Website	http://www.godrejgoodandgreen.com/
Type	Public charitable trust (India)
About	Commitment towards building a more inclusive and greener India - Godrej Good & Green. By 2020, it aspires to create a more employable Indian

	workforce, build a greener India, and innovate for 'good' and 'green' products.
Operated since/ year founded	1972
Governance	Pirojsha Godrej
Location of headquarters	Mumbai, India
Geographic reach	India
Grant making area	Carbon neutrality, reduction in energy consumption, water, increase use of renewal energy, zero waste to landfill.
Other	The Foundation owns a fourth of the shares in Godrej & Boyce Manufacturing Co Ltd, which is the holding company for the Godrej Group, and has stakes in companies like Godrej Properties and Godrej Consumer Products. The dividends Godrej & Boyce distributes form the operating budgets for all the trusts: In the year ended March 2013, it generated a budget of Rs 22 crore. “Unlike other foundations where public shareholders are also made to pay for philanthropic activities, at Godrej, profits from only the family-owned shares are used,” says Adi Godrej. In other words, the trusts are entirely financed by the family. Read more: http://forbesindia.com/article/philanthropy-awards-2013/the-godrej-foundation-in-charity-the-trust/36631/1#ixzz4MJzaOtvj

Name	Pisces Foundation
Website	http://piscesfoundation.org/
Type	Private foundation
About	The Pisces Foundation supports organizations working to advance environmental education; improve the stewardship of water resources; and reduce global climate change. It support environmental literacy because we believe it yields a range of important benefits to people and communities today—and is an indispensable building block of an environmentally sustainable future. It works to forge new approaches and solutions to protect water resources because the threats posed by increasing demand and pollution put at risk safe and sufficient water for people and the environment. And it supports efforts to reduce global warming because without a stable climate our health, communities, and our economy are threatened by profound impacts.
Operated since/ year founded	2006
Assets	US \$40,276,285
Location of headquarters	San Francisco, United States of America
Geographic reach	Global
Grant making area	Environmental education; water resources; climate and energy. Recent grants to : Institute for Governance and Sustainable Development; International Council for Clean Transportation; Energy Foundation: Centre for Climate and Energy Solutions; European Climate Foundation,
Total grants since inception	US \$7,743,633 in 2014
Governance	Robert and Randi Fisher (Trustees)
CEO	David Beckman (President)
Employees	9
Contact	http://piscesfoundation.org/contact/

Name	Sandler Foundation
Website	http://www.sandlerfoundation.org/
Type	Private foundation
About	Invests in strategic organizations and exceptional leaders that seek to improve the rights, opportunities and well-being of others, especially the most vulnerable and disadvantaged.
Operated since/ year founded	1991..
Assets	US \$919,716,566

Location of headquarters	San Francisco, United States of America
Governance	Herb Sandler (Principal Officer)
Grant making area	Advancing policy change; and supporting innovative scientific research; improving health. Sandler Foundation has been a major environmental funder.
Total grants since inception	US \$ 750 million
Employees	Less than 10
Geographic reach	Mostly United States of America
Other	A January 2015 article in Inside Philanthropy, entitled “The Sandler Way: Where Big Philanthropy Meets the Art of Common Sense” summarizes the Foundation’s grant-making philosophy. See http://www.insidephilanthropy.com/home/2015/1/27/the-sandler-way-where-big-philanthropy-meets-the-art-of-comm.html

Name	Sea Change Foundation
Website	http://www.seachange.org/
Type	Private foundation
About	Sea Change Foundation is dedicated to achieving meaningful social impact through leveraged philanthropy that addresses the most pressing problems facing the world today. The Foundation's initial focus is addressing the serious threats posed by global climate change.
Operated since/ year founded	2006
Assets	US \$167.9 million (2013)
Location of headquarters	San Francisco, United States of America
Geographic reach	Mostly United States of America
Grant making area	Climate change education,
Total grants since inception	US \$40-50 million per year
Governance	Stephen Colwell, Executive Director Sandra Doyle, Program Strategist Satkartar Khalsa, Program Strategist Clifford Chen, Program Strategist
Other	Empty website. Information obtained from http://www.insidephilanthropy.com/fundraising-for-climate-change/sea-change-foundation-grants-for-climate-change.html and 990-PF tax return.

Name	Tom Steyer
Type	Individual
About	Steyer is a proponent of alternative energy, as well as a strong believer in philanthrocapitalism, and directs his giving toward projects and institutions that promote environmental sustainability, and are also working toward commercial viability, primarily funding research and policy centres at the universities, and engaging in political advocacy. Cofounder of the Advanced Energy Economy Institute (https://www.aee.net/aei) : A non-profit educational organization promoting greater public understanding of advanced energy and its economic potential Source: http://www.insidephilanthropy.com/wall-street-donors/thomas-steyer.html
Grant making area	Examples of contributions (environment) include: US \$40 million to create The TomKat Center for Sustainable Energy; US \$7 million to create the Steyer-Taylor Center for Energy Policy & Finance; US \$2.2 million dollars in grants in 2013 to eight renewable energy projects; US \$25 million to Yale to establish the Energy Science Institute.

Name	Wyss Foundation
Website	http://wyssfoundation.org/
Type	Private foundation

About	The Wyss Foundation was founded to establish and sponsor informal partnerships between non-governmental organizations and the United States government to place large swathes of land under permanent protection in the American West. It is currently dedicated to finding innovative, lasting solutions in areas from conservation and education to economic opportunity and social justice.
Operated since/ year founded	1998
Assets	US \$2.1 billion
Location of headquarters	Portland, Oregon, United States of America
Geographic reach	Global; main focus is Western United States of America
Governance	Hansjörg Wyss
Grant making area	Environmental protection and scientific research: Land, communities, discoveries
Total grants since inception	US \$350 million
Employees	10
Contact	http://wyssfoundation.org/contact/
Other	

Annex III

**DRAFT AGREEMENTS TO RECEIVE ADDITIONAL CONTRIBUTIONS BY THE
MULTILATERAL FUND**

Draft agreement with donor countries

Reference: ML 32MFL

[Date]

Your Reference:

Subject: [Country] voluntary contribution to the Trust Fund of the Multilateral Fund

I refer to your message of [DATE] and extend my sincere gratitude to the Government of [COUNTRY], (referred to herein as “The Donor”) for its additional contribution (“Contribution”) of US \$xxxxx towards the Trust Fund of the Multilateral Trust Fund (referred to herein as the “MLF”).

I would like to inform you that the Executive Committee of the MLF has accepted the above referenced Contribution and requested the United Nations Environment Programme (UNEP), as Treasurer of the MLF, to receive and administer the Contribution in accordance with the United Nations Financial Regulations and Rules.

Within the scope of the UN applicable regulations, rules and business processes, and consistent with the guidelines of the Executive Committee, the Treasurer, through the MLF Secretariat, shall submit progress and financial reports associated with the project(s) to the Donor. The project(s) will be charged with a programme support cost following the policies and guidelines of the Executive Committee.

The Contribution shall be subject exclusively to the internal and external auditing procedures provided for in the UN Financial Regulations and Rules. Should an Audit Report of the United Nations Board of Auditors contain observations relevant to the Contribution, such information will be made available to the Donor.

The pledge letter and this letter constitute the Agreement between The Donor and UNEP (hereinafter referred to as the “Agreement”). The terms and conditions may be further amended through an exchange of letters between The Donor and UNEP, in consultation with the Executive Committee. The letters exchanged to this effect shall become an integral part of the Agreement.

Payment of the Contribution to the MLF’s account will be construed as the Donor’s understanding and concurrence to the above stipulations.

Please find attached an invoice for the Contribution with the banking details to facilitate the funds transfer.

Any communication regarding the implementation of this Agreement can be addressed as follows: Programmatic issues to [MLF] and Financial/Administrative issues to [Treasurer of the MLF].

Yours sincerely,

UNEP

cc. ExCom.....
MLF Secretariat.....

Annex IV

PRELIMINARY DRAFT DONOR AGREEMENT BETWEEN [THE DONOR] AND THE UNITED NATIONS ENVIRONMENT PROGRAMME [UNEP] (PRESENTED FOR REFERENCE ONLY)

WHEREAS _____ (hereinafter referred to as the “Donor”) has decided to make a contribution (hereinafter referred to as the “Contribution”) to the Multilateral Fund (hereinafter referred to as “MLF”)

WHEREAS UNEP, as the Treasurer of the Multilateral Fund, is prepared to receive and administer the contribution for [the phase down of the HFC management *fill in purpose of contribution*]

RECALLING the Executive Committee decision (specify here) to accept the Contribution,

NOW THEREFORE, UNEP and the Donor hereby agree as follows:

Article I. The Contribution

1. The Donor shall, in accordance with the schedule of payments set out below, contribute to MLF the amount of USD (amount in letters), USD (amount in numbers). The contribution shall be deposited in the MLF bank account making reference to code “32 MLF” for voluntary contributions to the Multilateral Fund.

<u>Schedule of payments</u>	<u>Amount</u>
[upon signature of the agreement e]	[specify amount]

2. The value of the payment, if made in a currency other than United States dollars, shall be determined by applying the United Nations operational rate of exchange in effect on the date of payment. Should there be a change in the United Nations operational rate of exchange prior to the full utilization of the Contribution, the value of the balance of funds still held at that time will be adjusted accordingly. If, in such a case, a loss in the value of the balance of funds is recorded, UNEP shall inform the MLF, who shall inform the Donor with a view to determining whether any further financing could be provided by the Donor.

3. The above schedule of payments takes into account the requirement that the payments shall be made in advance of the implementation of planned activities.

4. UNEP as the Treasurer of the MLF shall receive and administer the Contribution in accordance with the United Nations Financial Regulations and Rules and the provisions of the 2004 Agreement between the Executive Committee and UNEP as the Treasurer, as amended.

Article II. Utilization of the Contribution

1. The implementation of the responsibilities of the Executive Committee shall be dependent on receipt in the MLF bank account of the contribution in accordance with the schedule of payment as set out in Article I, paragraph 1, above.

2. If the payments referred to in Article I, paragraph 1, above are not received in accordance with the payment schedule, or if the additional financing required in accordance with paragraph 2 above is not forthcoming from the Donor or other sources, the activities to be implemented under this agreement may be reduced or suspended by the Executive Committee accordingly.

3. Any interest income attributable to the contribution shall be credited to the MLF bank account and shall be utilized in accordance with established Executive Committee policies and procedures.

Article IV. Administration and reporting

1. UNEP shall provide to the MLF, who shall provide to the Donor financial reports prepared in accordance with UNEP accounting reporting procedures. The MLF shall provide the substantive progress, final and summary reports, every year, the status of progress, including the substantive and financial reports, for the duration of the Agreement; and within six months after the date of completion or termination of the Agreement, a final report summarizing activities and impact of activities as well as financial data.

Article V. Administrative and support services

1. In accordance with the decisions and directives of Executive Committee, the contribution shall be charged (for the programme support cost incurred by the MLF Implementing Agencies).

Article VI. Equipment

1. Ownership of equipment, supplies and other properties financed from the contribution shall vest in the recipient country]

Article VII. Auditing

1. The contribution shall be subject exclusively to the internal and external auditing procedures provided for in the United Nations Financial Regulations and Rules. Should an Audit Report of the United Nations Board of Auditors contain observations relevant to the contributions, such information shall be made available to the Donor.

Article VIII. Advertisement of the Contribution

1. The Donor shall not use the UN/UNEP or MLF name or emblem, or any abbreviation thereof, in connection with its business or otherwise without the express prior written approval of the Executive Committee and/or UNEP in each case. In no event will authorization be granted for commercial purposes, or for use in any manner that suggests an endorsement by the UN/UNEP of [the Donor], its products or services.

2. The Donor acknowledges that it is familiar with the UN/UNEP's and the NLF's ideals and objectives and recognizes that their names and emblems may not be associated with any political or sectarian cause or otherwise used in a manner inconsistent with the status, reputation and neutrality of the UN/UNEP.

3. The Executive Committee will report on the contribution to its meeting of the Parties in accordance with its regular procedures regarding contributions. Other forms of recognition and acknowledgement of the contribution are subject to consultations between the Parties, but the manner of such recognition and acknowledgement shall always be consistent with the United Nations Rules and Regulations to that effect.

Article IX. Completion of the Agreement

1. The MLF shall notify the Donor when all activities supported by the donor under this agreement have been completed.
2. Notwithstanding the completion of the activities, UNEP, as the Treasurer, shall continue to hold unutilized payments until all commitments and liabilities incurred have been satisfied.
3. If the unutilized payments prove insufficient to meet such commitments and liabilities, the Executive Committee shall notify the Donor and consult with the Donor on the manner in which such commitments and liabilities may be satisfied.
4. Any payments that remain unexpended after such commitments and liabilities have been satisfied shall be credited to the MLF trust fund (code 40MFL)

Article X. Termination of the Agreement

1. This Agreement may be terminated by the Parties. The Agreement shall cease to be in force 30 (thirty) days after either of the Parties have given notice in writing to the other Party of its decision to terminate the Agreement.
2. Notwithstanding termination of all or part of this Agreement, UNEP, as the Treasurer, shall continue to hold unutilized payments until all commitments and liabilities incurred under this agreement up to the date of termination have been satisfied.
3. Any payments that remain unexpended after such commitments and liabilities have been satisfied shall be credited to the MLF trust fund.

Article XI. Amendment of the Agreement

1. The Agreement may be amended through an exchange of letters between the Parties. The letters exchanged to this effect shall become an integral part of the Agreement.

Article XII. Settlement of Disputes

1. The Parties shall use their best efforts to settle amicably any dispute, controversy or claim arising out of, or relating to this Agreement or the breach, termination or invalidity thereof. Where the parties wish to seek such an amicable settlement through conciliation, the conciliation shall take place in accordance with UNCITRAL Conciliation Rules then obtaining, or according to such procedures as may be agreed between the parties.
2. Any dispute, controversy or claim between the Parties, unless settled amicably under the preceding paragraph within (60) sixty days after receipt by one Party of the other Party's request for the amicable settlement, shall be referred by either party to arbitration in accordance with the UNCITRAL Arbitration Rules then obtaining. The arbitral tribunal shall have no authority to award punitive damages. The parties shall be bound by any arbitration award rendered as a result of such arbitration as the final adjudication of any such controversy, claim or dispute.

Article XIII. Privileges and Immunities

1. Nothing in this Agreement shall be deemed a waiver, express or implied, of any of the privileges and immunities of the United Nations, including UNEP.

Article XIV. Entry Into Force

This Agreement shall enter into force upon signature of the agreement and shall remain effective until [date] unless terminated earlier pursuant to Article X above.

IN WITNESS WHEREOF, the undersigned, being duly authorized thereto, have signed the present Agreement in the English language in two copies.

For the Donor:
(Name)

For UNEP:
(Name)

(Title)
(Date)

(Date)
