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EXECUTIVE COMMITTEE OF  
THE MULTILATERAL FUND FOR THE  
IMPLEMENTATION OF THE MONTREAL PROTOCOL  
Ninety-first Meeting  
Montreal, 5-9 December 2022  
Item 11(a)(ii) of the provisional agenda<sup>1</sup>

**DEVELOPMENT OF THE COST GUIDELINES FOR THE PHASE-DOWN OF HFCs  
IN ARTICLE 5 COUNTRIES: DRAFT CRITERIA FOR FUNDING  
INCLUDING CONSIDERATION OF OPERATIONALIZING  
PARAGRAPH 24 OF DECISION XXVIII/2**

**Introduction**

1. Since their Twenty-eighth Meeting, the Parties to the Montreal Protocol have requested the Executive Committee *inter alia*:

- (a) To develop within two years guidelines for financing the phase-down of hydrofluorocarbon (HFC) consumption and production, including cost-effectiveness thresholds, and to present those guidelines to the Meeting of the Parties for the Parties' views and input before their finalization (decision XXVIII/2);<sup>2</sup> and
- (b) To continue its work on developing guidelines for financing the phase-down of HFC consumption and production; to provide an update on progress on the elements as part of the annual report of the Executive Committee to the Meeting of the Parties; and to present the draft guidelines developed to the Meeting of the Parties for the Parties' views and input before their finalization (decision XXX/4).<sup>3</sup>

<sup>1</sup> UNEP/OzL.Pro/ExCom/91/1

<sup>2</sup> Decision XXVIII/2 related to the amendment phasing down HFCs includes several elements that pertain to the operation of the Multilateral Fund, and thus are for the consideration of the Executive Committee.

<sup>3</sup> Decision XXX/4: Progress by the Executive Committee of the Multilateral Fund in the development of guidelines for financing the phase-down of HFCs.

2. Immediately after the adoption of the Kigali Amendment, the Executive Committee:
  - (a) At its 77<sup>th</sup> meeting, started discussing matters related to the phase-down of HFCs in Article 5 countries,<sup>4</sup> and at its 78<sup>th</sup> meeting, adopted a draft template of the cost guidelines (see also Annex I to the present document);
  - (b) At its 80<sup>th</sup> meeting, decided *inter alia* to continue using the draft template of the cost guidelines for HFC phase-down and the list of outstanding elements as working documents for future discussions, agreeing that the template could be further developed. The working document containing a list of outstanding elements as at the 84<sup>th</sup> meeting is included in Annex II to the present document by way of reference to previous discussions, while the updated list of outstanding issues is contained in table 1 below; and
  - (c) Continued discussions on matters related to the phase-down of HFCs at each of its meetings until the 84<sup>th</sup> meeting,<sup>5</sup> followed by a 27-month-long hiatus due to the COVID-19 pandemic.

3. The Executive Committee continued its deliberations on the cost guidelines for the phase-down of HFCs in Article 5 countries at the in-person part II of the 89<sup>th</sup> meeting.<sup>6</sup> The contact group established to discuss the matter held discussions on the cost-effectiveness thresholds, the starting point for HFC phase-down, and disposal-related issues, but did not reach conclusions. Subsequently, the Executive Committee agreed to continue discussions at its 90<sup>th</sup> meeting, based on the working texts prepared by the Secretariat that outlined the members' proposals.<sup>7</sup>

4. At the 90<sup>th</sup> meeting, the contact group achieved progress in its discussion of the cost-effectiveness thresholds for some manufacturing sectors and on the issue of disposal, as detailed in the relevant sub-sections below. The group remained inconclusive regarding the starting point for sustained aggregate reductions in HFC consumption and production, and the duration and level of incremental operating costs (IOCs). Accordingly, the Executive Committee agreed to pursue at the 91<sup>st</sup> meeting its consideration of the unresolved issues relating to the development of the cost guidelines for the phase-down of HFCs in Article 5 countries, based on working documents on the starting point for sustained aggregate reductions in HFC consumption and production and the cost-effectiveness thresholds,<sup>8</sup> presented in Annex III and Annex IV, respectively, to the present document.

5. The present summary of the progress of discussions on HFC phase-down cost guidelines thus far can be complemented by related discussions in documents UNEP/OzL.Pro/ExCom/82/66 (starting point), UNEP/OzL.Pro/ExCom/89/10/Rev.1 and UNEP/OzL.Pro/ExCom/89/10/Add.1 (cost-effectiveness thresholds), UNEP/OzL.Pro/ExCom/91/61 (servicing sector), and UNEP/OzL.Pro/ExCom/91/66 (disposal).<sup>9</sup> It consists of the following sections:

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<sup>4</sup> UNEP/OzL.Pro/ExCom/77/70/Rev.1 (Issues relevant to the Executive Committee arising from the Twenty-eighth Meeting of the Parties to the Montreal Protocol).

<sup>5</sup> UNEP/OzL.Pro/ExCom/78/5 and Corr.1, UNEP/OzL.Pro/ExCom/79/46, UNEP/OzL.Pro/ExCom/80/55, UNEP/OzL.Pro/ExCom/81/53, UNEP/OzL.Pro/ExCom/82/67, UNEP/OzL.Pro/ExCom/83/43 and UNEP/OzL.Pro/ExCom/84/66.

<sup>6</sup> UNEP/OzL.Pro/ExCom/89/6.

<sup>7</sup> Contained in Annex II (cost-effectiveness thresholds), Annex III (disposal) and Annex IV (starting point) to document UNEP/OzL.Pro/ExCom/89/16.

<sup>8</sup> Paragraph 176 and Annexes XXIII and XXIV of document UNEP/OzL.Pro/ExCom/90/40.

<sup>9</sup> Available in the 91<sup>st</sup> meeting portal under related agenda items as main or background documents.

- I. Progress made and outstanding issues in the development of cost guidelines for the phase-down of HFCs
- II. Recommendation

### I. Progress made and outstanding issues in the development of cost guidelines for the phase-down of HFCs

6. Table 1 summarizes the status of discussions on the cost guidelines for the phase-down of HFCs in Article 5 countries as of the 90<sup>th</sup> meeting and lists additional actions on outstanding issues that could be taken at the present meeting for the consideration of the Executive Committee.

**Table 1. Status of discussions on the HFC phase-down cost guidelines as at the 90<sup>th</sup> meeting**

Elements of decision XXVIII/2	Paragraph	Status	Further actions
<i>Discussed</i>			
Flexibility in implementation that enabled Parties to select their own strategies and priorities in sectors and technologies	13	Text included in the draft template.*	None
Cut-off dates for eligible capacity	17	Text included in the draft template.*	None
Second and third conversions	18	Text included in the draft template.*	None
Other costs	25	Agreement not to include text in the draft template. <sup>10</sup>	None
Eligibility of Annex F substances subject to high-ambient-temperature exemptions	35	Text included in the draft template.*	None
<i>Under discussion</i>			
Sustained aggregate reductions in consumption and production	19	Text included in the draft template.* Document on key considerations for developing a methodology for establishing the starting point for sustained aggregate reductions in consumption and production considered at the 82 <sup>nd</sup> meeting (UNEP/OzL.Pro/ExCom/82/66). Element discussed at the 89 <sup>th</sup> and 90 <sup>th</sup> meetings; working text produced for the 91 <sup>st</sup> meeting (Annex III to the present document).	To agree on a methodology for establishing the starting point for sustained aggregate reductions, taking into consideration document UNEP/OzL.Pro/ExCom/82/66 and the working text contained in Annex III.
Eligible incremental costs	15		
Consumption	15(a)	Text on categories of eligible costs	To continue discussions on

<sup>10</sup> Parties to the Montreal Protocol may identify other items to be added to the indicative list of incremental costs emanating from conversion to low-GWP alternatives.

Elements of decision XXVIII/2	Paragraph	Status	Further actions
manufacturing sector		<p>included in the draft template.*</p> <p>An analysis of and information on the incremental capital costs (ICCs) and IOCs and their duration, and the cost-effectiveness of investment projects in relevant manufacturing sectors and sub-sectors (UNEP/OzL.Pro/ExCom/89/10/Rev.1) and results of completed HFC stand-alone investment projects (UNEP/OzL.Pro/ExCom/89/10/Add.1) produced for the 89<sup>th</sup> meeting.</p> <p>Agreement on cost-effectiveness thresholds for some manufacturing sectors reached at the 89<sup>th</sup> and 90<sup>th</sup> meetings and a relevant working text produced for the 91<sup>st</sup> meeting (Annex IV to the present document).</p>	<p>establishing cost-effectiveness thresholds, IOCs and their duration in manufacturing sectors, taking into consideration documents UNEP/OzL.Pro/ExCom/89/10/Rev1 and UNEP/OzL.Pro/ExCom/89/10/Add.1 and the working text contained in Annex IV.</p>
Production sector	15(b)	<p>Text on categories of eligible costs included in the draft template.*</p>	<p>To agree that the Sub-group on the Production Sector would consider, on a case-by-case basis, compensation for compliance-related control obligations for the production sector once official reporting of HFC production had been submitted by Article 5 countries.</p>
Refrigeration servicing sector	15(c)	<p>Text on categories of eligible costs included in the draft template.*</p> <p>A preliminary document on all aspects related to the refrigeration servicing sector that support HFC phase-down considered at the 82<sup>nd</sup> meeting (UNEP/OzL.Pro/ExCom/82/64).</p> <p>Analysis of the level and modalities of funding for HFC phase-down in the refrigeration servicing sector discussed at the 88<sup>th</sup>, 89<sup>th</sup>, and 90<sup>th</sup> meetings (UNEP/OzL.Pro/ExCom/88/72, UNEP/OzL.Pro/ExCom/89/8 and Add.1).</p> <p>The analysis reissued for the 91<sup>st</sup> meeting (UNEP/OzL.Pro/ExCom/91/61).</p>	<p>To consider levels and modalities of funding for the refrigeration servicing sector based on documents UNEP/OzL.Pro/ExCom/82/64 and UNEP/OzL.Pro/ExCom/91/61.</p> <p>Issue to be discussed under agenda item 11(a)(i).</p>
Energy efficiency	22	<p>At the 80<sup>th</sup> meeting, the text on energy efficiency was removed from the cost guidelines to be discussed separately.</p> <p>Energy efficiency discussed under a separate agenda item between the 83<sup>rd</sup> and 90<sup>th</sup> meetings, to be continued at the 91<sup>st</sup> meeting.</p>	<p>To consider whether to include in the cost guidelines any decisions made with regard to energy efficiency under agenda item 11(b).</p>
Capacity building to address safety	23	<p>Text included in the draft template.*</p>	<p>To continue discussing safety-related details of capacity building jointly with discussions on the refrigeration servicing sector (decision 81/67(c))</p>

Elements of decision XXVIII/2	Paragraph	Status	Further actions
			under agenda item 11(a)(i).
Disposal	24	<p>Discussion of the synthesis report on the pilot ODS disposal projects (UNEP/OzL.Pro/ExCom/82/21) initiated at the 82<sup>nd</sup> meeting.</p> <p>Synthesis report describing best practices and ways to consider operationalizing paragraph 24 of decision XXVIII/2 (UNEP/OzL.Pro/ExCom/89/9) discussed at the 89<sup>th</sup> and 90<sup>th</sup> meetings.</p> <p>The Executive Committee provided flexibility for Article 5 countries to include in their HCFC phase-out management plans (HPMPs) or Kigali HFC implementation plans (KIPs) activities related to the environmentally sound management of used or unwanted controlled substances, including disposal, taking into account paragraphs 19 to 24 of document UNEP/OzL.Pro/ExCom/89/9 and lessons learned from previous ODS disposal projects. The Committee also requested the Secretariat to develop criteria for a funding window for preparing inventories of banks of used or unwanted controlled substances and developing plans for their collection, transport and disposal, and requested that deliberations on this item continue in the context of discussions of HFC phase-down cost guidelines (decision 90/49).</p>	To continue its deliberations on operationalizing paragraph 24 of decision XXVIII/2, including implementation of decision 90/49(c), in the context of the discussion of the cost guidelines for the phase-down of HFCs in Article 5 countries.

\*Annex I to the present document

Methodology for determining the starting point for sustained aggregate reductions

7. In response to decision 81/67(e), the Secretariat prepared document UNEP/OzL.Pro/ExCom/82/66, “Key considerations for developing a methodology for establishing the starting point for sustained aggregate reductions for the consumption and production sectors under the Kigali Amendment.” Section IV of the document sets out key considerations that informed the discussions of the contact group on the cost guidelines in the margins of the 82<sup>nd</sup>, 83<sup>rd</sup>, and 84<sup>th</sup> meetings.<sup>11</sup>

8. The issues discussed by the contact group included the unit of measurement, possible options for determining the starting point, the inclusion in the starting point of HFCs contained in pre-blended polyols, the inclusion of the HFC phase-down tail (20 per cent for Article 5 group 1 countries and 15 per cent for Article 5 group 2 countries), and whether sustained reductions from the starting point should be accounted

<sup>11</sup> These key considerations included: the starting point as a combination of different groups of substances; the time of establishment of the starting point; the need to ensure that the methodology to determine the starting point is equitable to all Article 5 countries; whether starting points should be based on pure HFCs only or on pure HFCs and HFC blends; measurement of HFC starting points in tonnage, CO<sub>2</sub> equivalent, and/or both, possible options for determining the starting point vis a vis the HFC baseline, the import and export of controlled substances contained in pre-blended polyols; the role of the starting point in the servicing sector; and the starting point for the production sector.

on a substance-by-substance basis. In addition, at the 82<sup>nd</sup> meeting, the Executive Committee agreed to consider, during the development of cost guidelines for the phase-down of HFCs in Article 5 countries, how an enterprise's interim use of high-global-warming-potential (GWP) technology that was not the approved low-GWP technology should be treated in relation to a country's starting point for sustained aggregate reductions in HFC consumption (decision 82/55).

9. At its 89<sup>th</sup> meeting, the Executive Committee discussed the units of measurement and a methodology for determining the starting point for sustained reductions of HFCs and requested the Secretariat to prepare for the 90<sup>th</sup> meeting various scenarios in relation to the possible units of measurement and methodologies that might be used in determining the starting point.

10. At the 90<sup>th</sup> meeting, the Secretariat presented the requested information. The Executive Committee continued its discussions on the starting point for sustained aggregate reductions in HFC consumption and production without reaching a conclusion. Annex III to the present document presents the working text that was discussed by the Executive Committee.

11. Discussions regarding key considerations for developing a methodology for establishing the starting point for sustained aggregate reductions for the consumption and production sectors under the Kigali Amendment will continue at the 91<sup>st</sup> meeting in light of document UNEP/OzL.Pro/ExCom/82/66 and Annex III.

#### Eligible incremental costs for the consumption manufacturing sector

12. Preliminary discussions on cost-effectiveness thresholds for the phase-down of HFCs in the consumption manufacturing sector started at the 78<sup>th</sup> meeting and continued at the 79<sup>th</sup> meeting. During the discussions, members noted *inter alia* that the cost-effectiveness thresholds for the phase-out of CFCs and HCFCs were not necessarily applicable to HFCs, that there was limited experience at the Fund in phasing out HFCs in certain sectors, and that the associated incremental costs might differ from the costs associated with phasing out other controlled substances. Accordingly, the Executive Committee considered that additional information was required to reach a decision on the eligible incremental costs and agreed to consider approving a limited number of stand-alone HFC investment projects.

13. In line with decisions 78/3(g)<sup>12</sup> and 79/45,<sup>13</sup> at its 80<sup>th</sup>, 81<sup>st</sup>, and 82<sup>nd</sup> meetings, the Executive Committee approved 10 stand-alone HFC investment projects in the domestic and commercial refrigeration manufacturing sectors.<sup>14</sup>

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<sup>12</sup> The Executive Committee considered approving a limited number of HFC-related projects in the manufacturing sector only, without prejudice to different kinds of technology, no later than at the first meeting of 2019, to allow the Committee to gain experience in the ICCs and IOCs that might be associated with phasing down HFCs in Article 5 countries, on the understanding: that any Article 5 country that submitted a project should have ratified the Kigali Amendment or submitted a formal letter indicating the government's intention to ratify the Amendment; that no further funding would be available until the instrument of ratification had been received by the depositary at the Headquarters of the United Nations in New York; and that any amount of HFC reduced as a result of the project would be deducted from the starting point.

<sup>13</sup> Decision 79/45(a) states that projects submitted under decision 78/3(g) would be considered on a case-by-case basis, should be in individual enterprises deciding to convert to mature technologies, have broad replicability to the country or region or sector, take into account geographic distribution, and must be fully implemented by no more than two years from the time of their approval; the relevant project completion reports should be comprehensive with detailed information on the eligible ICCs, IOCs, any possible savings incurred during the conversion and relevant factors that facilitated implementation; and any remaining funds would be returned to the Multilateral Fund no later than one year after the date of project completion as per the project proposals.

<sup>14</sup> Projects at a total value of US \$13,397,249 (plus agency support costs) were approved in Argentina, Bangladesh, China, the Dominican Republic, Jordan, Lebanon, Mexico (two), Thailand and Zimbabwe to phase down 1,090 mt (1.63 million CO<sub>2</sub>-eq tonnes) of HFCs.

14. Additional discussions were held at the 83<sup>rd</sup> meeting, where one member proposed that the cost-effectiveness thresholds be established through appropriate methodology, taking into account relevant information, decisions of the Executive Committee, and results of the implementation of stand-alone HFC investment projects;<sup>15</sup> and at the 84<sup>th</sup> meeting, where the Executive Committee requested the Secretariat to prepare for the 86<sup>th</sup> meeting an analysis of and information on the ICCs and IOCs and their duration in the consumption manufacturing sector (decision 84/87(a)). At the 84<sup>th</sup> meeting, recognizing the valuable information to be gained from HFC-related stand-alone investment projects in preparing the cost guidelines for the phase-down of HFCs, the Executive Committee also decided to consider proposals for such projects up to the 87<sup>th</sup> meeting, in accordance with the criteria set out in decisions 78/3(g), 79/45, and 81/53,<sup>16</sup> and prioritizing projects in the stationary air-conditioning (AC), commercial refrigeration, and mobile AC sectors (decision 84/53).

15. At the 89<sup>th</sup> meeting, the Secretariat presented document UNEP/OzL.Pro/ExCom/89/10/Rev.1, containing a summary of the ICCs, IOCs, and the cost-effectiveness of investment projects approved in particular for the refrigeration and air-conditioning (RAC) and foam manufacturing sectors; and document UNEP/OzL.Pro/ExCom/89/10/Add.1, presenting a preliminary analysis of the ICCs and IOCs incurred in the completed conversions of HFC-consuming enterprises. As no additional reports from completed projects approved pursuant to decision 78/3(g) have been received by the Secretariat, no update has been produced to the document.

16. At the 89<sup>th</sup> and 90<sup>th</sup> meetings, the contact group established to discuss the matter agreed that in the interim, cost-effectiveness thresholds would be used at US \$13.76/kg for the domestic refrigeration sector, and at US \$9.00/kg for the rigid polyurethane (PU) foam sector, with special consideration for small and medium-sized enterprises (SMEs), while the cost-effectiveness of projects in the flexible PU foam, integral skin, extruded polystyrene foam, aerosol, fire extinguisher, metered-dose inhaler, solvent, and mobile AC sectors would be considered on a case-by-case basis.

17. The group did not reach conclusions regarding the appropriate cost-effectiveness thresholds for projects in the stationary AC manufacturing domestic and commercial sub-sectors, and whether these should be considered together or separately. Additionally, there was a common understanding to exercise special consideration for small enterprises in commercial refrigeration manufacturing, but additional information on a definition of what constituted a “small enterprise” in the sector was required; in addition, the group had not yet agreed on a cost-effectiveness threshold for the sector. Annex IV to the present document presents the working text as discussed by the Executive Committee at its 90<sup>th</sup> meeting.

18. Discussions on the cost-effectiveness thresholds and IOCs and their duration for the consumption manufacturing sector will continue at the 91<sup>st</sup> meeting, taking into account the analysis contained in documents UNEP/OzL.Pro/ExCom/89/10/Rev.1 and UNEP/OzL.Pro/ExCom/89/10/Add.1 and the working text contained in Annex IV.

#### Eligible incremental costs for the production sector

19. The Executive Committee agreed to include in the draft template of the cost guidelines for the phase-down of HFCs for the production sector, the categories of costs listed in sub-paragraph 15(b) of decision XXVIII/2 (decision 80/76(a)(iii)), as reflected in Annex I to the present document. In addition, at the 88<sup>th</sup> meeting, the Sub-group on the Production Sector considered under “Other matters” the development

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<sup>15</sup> A draft text to reflect this proposal was included in the working document of the contact group, contained in Annex XIV of document UNEP/OzL.Pro/ExCom/83/48 and in Annex II to the present document.

<sup>16</sup> To invite bilateral and implementing agencies to prepare and present project proposals for conversion to alternatives to HFCs and promotion of new technologies, for submission up to and including the 84<sup>th</sup> meeting, especially in sectors and regions that were not covered by projects approved up to and including the 81<sup>st</sup> meeting; and that those projects about which concerns had been expressed at the 81<sup>st</sup> meeting could be resubmitted only if those specific concerns had been addressed.

of HFC production sector guidelines. It was agreed that while it would be important for the Sub-group to eventually consider the issue, usually there would have been some official reporting by Article 5 countries before requesting the Secretariat to prepare a background document, and it was therefore suggested that the issue be revisited once there had been such reporting by the Parties concerned.

20. The Sub-group on the Production Sector would consider compensation for compliance-related control obligations for the production sector on a case-by-case basis once official reporting of HFC production had been submitted by Article 5 countries.

#### Eligible incremental costs for the refrigeration servicing sector

21. Extensive discussions on matters related to the phase-down of HFCs in the refrigeration servicing sector were initiated at the 80<sup>th</sup> meeting. At its 82<sup>nd</sup> meeting, the Executive Committee considered a preliminary document UNEP/OzL.Pro/ExCom/82/64 on all aspects related to the refrigeration servicing sector that support the HFC phase-down, prepared in response to decision 80/76(c).<sup>17</sup> During the discussions, members identified activities required in the refrigeration servicing sector beyond those already implemented under HCFC phase-out, including: building capacity on risk assessment and management of flammable refrigerants; activities in the assembly and installation sub-sector; enhancing and/or maintaining energy efficiency during installation and servicing; and ensuring reclamation of a wider variety of refrigerants, given the possibility of larger quantities of blends for disposal.

22. At the 83<sup>rd</sup> meeting, the Executive Committee requested the Secretariat to prepare, for the 85<sup>th</sup> meeting, a document providing analysis of the level and modalities of funding for HFC phase-down in the refrigeration servicing sector, in light of the information provided in document UNEP/OzL.Pro/ExCom/82/64 and guidance provided by the Executive Committee, including the flexibility that Article 5 countries have in implementing their servicing sector activities in line with their national circumstances and the planned and ongoing activities in their HPMPs (decision 83/65(b)). At its 84<sup>th</sup> meeting, the Executive Committee further requested the Secretariat to take into account in its analysis the opportunities for integrated implementation of HCFC phase-out and HFCs phase-down in the refrigeration servicing sector (decision 84/86(b)(ii)).

23. The analysis was accordingly prepared for the 86<sup>th</sup> meeting<sup>18</sup> but due to the COVID-19 pandemic, it was first discussed at the 88<sup>th</sup> meeting, and subsequently at the 89<sup>th</sup> and 90<sup>th</sup> meetings.

24. The discussions on the levels and modalities of funding for the refrigeration servicing sector will continue at the 91<sup>st</sup> meeting under agenda item 11(a)(i) in light of documents UNEP/OzL.Pro/ExCom/82/64 and UNEP/OzL.Pro/ExCom/91/61. The results of these deliberations are expected to provide guidance in finalizing plan formulation to 68 countries that have so far received funding for the preparation of stage I of their KIPs. One country has already submitted its KIP for consideration at the 91<sup>st</sup> meeting.<sup>19</sup>

#### Energy efficiency

25. Matters related to energy efficiency were first discussed in the contact group on the cost guidelines for the phase-down of HFCs, established in the margins of the 81<sup>st</sup> meeting, but since the 83<sup>rd</sup> meeting, they

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<sup>17</sup> To prepare a preliminary report taking into account previous policy documents, case studies, monitoring and evaluation reviews, and work undertaken in developing and implementing training and technical assistance programmes; analysis of the existing capacities in Article 5 countries funded under the refrigeration servicing sector and how those capacities could be utilized for HFC phase-down; and the minimum information needed for the development of training and competency-based certification programmes and modules for service technicians and customs officers for the transition to alternatives.

<sup>18</sup> UNEP/OzL.Pro/ExCom/86/89, UNEP/OzL.Pro/ExCom/88/72, UNEP/OzL.Pro/ExCom/89/8 and Add.1, respectively, discussed in detail in paragraphs 1-6 of document UNEP/OzL.Pro/ExCom/91/61.

<sup>19</sup> UNEP/OzL.Pro/ExCom/91/48



have been included under a separate agenda item. Once the Executive Committee has finished its deliberations, it may wish to consider whether to include in its cost guidelines for the phase-down of HFCs in Article 5 countries any decisions adopted on energy efficiency.

### Disposal

26. Discussions on disposal in the context of the HFC cost guidelines started at the 79<sup>th</sup> meeting,<sup>20</sup> and continued at the 82<sup>nd</sup> meeting, when the Executive Committee considered the synthesis report on the completed pilot ODS disposal projects.<sup>21</sup> Further consideration of this matter continued in the contact groups on the cost guidelines, and at the 84<sup>th</sup> meeting the Secretariat was requested to prepare a synthesis report describing best practices and ways for the Executive Committee to consider operationalizing paragraph 24 of decision XXVIII/2, taking into account the final report on the evaluation of the pilot demonstration projects on ODS disposal and destruction<sup>22</sup> and the synthesis report on pilot ODS disposal projects; other relevant projects implemented under the HPMPs; lessons learned from existing infrastructure; policies that could be used to establish the cost-effective management of stockpiles of used or unwanted controlled substances; external funding opportunities; and existing disposal programmes and partnerships (decision 84/87(b)).

27. The requested synthesis report was prepared and considered at the 89<sup>th</sup> meeting and subsequently deferred to the 90<sup>th</sup> meeting, when the Executive Committee decided to provide flexibility to Article 5 countries to include in their HPMPs and KIPs activities related to the environmentally sound management of used or unwanted controlled substances, including disposal, taking into account paragraphs 19 to 24 of document UNEP/OzL.Pro/ExCom/89/9 and lessons learned from previous ODS disposal projects. The Committee also decided to request the Secretariat to develop criteria for a funding window to provide Article 5 countries with assistance to prepare an inventory of banks of used or unwanted controlled substances and to develop a plan for the collection, transport and disposal (including consideration of recycling, reclamation and cost-effective destruction) of such substances, and to continue its deliberations on operationalizing paragraph 24 of decision XXVIII/2 of the Twenty-Eighth Meeting of the Parties in the context of the discussion of the cost guidelines for the phase-down of HFCs in Article 5 countries (decision 90/49).

28. In response to decision 90/49(c), the Secretariat is submitting to the 91<sup>st</sup> meeting document UNEP/OzL.Pro/ExCom/91/66, containing criteria for a funding window to provide Article 5 countries with assistance to prepare an inventory of banks of used or unwanted controlled substances and to develop a plan for the collection, transport and disposal (including consideration of recycling, reclamation and cost-effective destruction) of such substances.

29. At the 91<sup>st</sup> meeting, the Executive Committee will continue its discussion on operationalizing paragraph 24 of decision XXVIII/2 of the Twenty-Eighth Meeting of the Parties, including implementation of sub-paragraph (c) of decision 90/49 in the context of the discussion of the cost guidelines for the phase-down of HFCs in Article 5 countries.

## **II. Recommendation**

30. The Executive Committee may wish:

- (a) To note document UNEP/OzL.Pro/ExCom/91/62 on the development of the cost guidelines for the phase-down of HFCs in Article 5 countries: Draft criteria for funding

<sup>20</sup> UNEP/OzL.Pro/ExCom/79/14 and decision 79/18(e)

<sup>21</sup> UNEP/OzL.Pro/ExCom/82/21

<sup>22</sup> UNEP/OzL.Pro/ExCom/84/11 and Corr.1

including consideration of operationalizing paragraph 24 of decision XXVIII/2; and

- (b) To continue its deliberations on the cost guidelines for the phase-down of HFCs in Article 5 countries in light of document UNEP/OzL.Pro/ExCom/91/62.

## Annex I

### DRAFT TEMPLATE OF THE COST GUIDELINES FOR THE PHASE-DOWN OF HFCs (As of the 90<sup>th</sup> meeting)

#### Background

1. The present Annex contains the draft cost guidelines for the phase-down of HFCs based on the relevant elements of decision XXVIII/2 agreed by the Parties at their Twenty-Eighth Meeting. These draft cost guidelines contain elements agreed at the 78<sup>th</sup> and 80<sup>th</sup> meetings of the Executive Committee, and will be updated pursuant to further discussions at future meetings of the Executive Committee.

#### Draft cost guidelines for the phase-down of HFCs

#### **Flexibility in implementation that enables Parties to select their own strategies and priorities in sectors and technologies**

2. Article 5 countries will have flexibility to prioritize HFCs, define sectors, select technologies and 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.

#### **Cut-off date for eligible capacity**

3. The cut-off date for eligible capacity is 1 January 2020 for those Parties with baseline years from 2020 to 2022, and 1 January 2024 for those Parties with baseline years from 2024 to 2026.

#### **Second and third conversions**

4. To apply the following principles for second and third conversion projects:

- (a) First conversions, in the context of a phase-down of HFCs, are defined as conversions to low-GWP or zero-GWP alternatives of enterprises 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;
- (b) 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 first conversions;
- (c) Enterprises that convert from HCFCs to high-GWP HFCs, after the date of adoption of the Amendment, under HCFC phase-out management plans 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 first conversions;
- (d) Enterprises that convert from HCFCs to high-GWP HFCs with their own resources before 2025 under the Amendment will be eligible to receive funding from the Multilateral Fund to meet agreed incremental costs in the same manner as enterprises eligible for first conversions; and
- (e) 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.

### **Sustained aggregate reductions**

5. The remaining eligible consumption for funding in tonnage will be determined on the basis of the starting point of national aggregate consumption less the amount funded by previously approved projects in future multi-year agreement templates for HFC phase-down plans.

### **Eligible incremental costs**

#### *Consumption manufacturing sector*

6. To make the following categories of costs eligible and to include them in the cost calculation associated with the phase-down of HFCs in the consumption manufacturing sector:

- (a) Incremental capital costs;
- (b) Incremental operating costs for a duration to be determined by the Executive Committee;
- (c) Technical assistance activities;
- (d) Research and development, when required to adapt and optimize alternatives to HFCs with low or zero GWP;
- (e) Costs of patents and designs, and incremental costs of royalties, when necessary and cost-effective; and
- (f) Costs of the safe introduction of flammable and toxic alternatives.

#### *Production sector*

7. To make the following categories of costs eligible and to include them in the cost calculation associated with the phase-down of HFCs in the production sector:

- (a) Lost profit due to the shutdown/closure of production facilities, as well as production reduction;
- (b) Compensation for 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 costs of alternatives;
- (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; and
- (h) Costs of reducing 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 it to other environmentally safe chemicals; such costs should

be funded by the Multilateral Fund to meet the obligations of Article 5 Parties specified under the Amendment.

*Refrigeration servicing sector*

8. To make the following categories of costs eligible and to include them in the cost calculation associated with the phase-down of HFCs in the refrigeration servicing sector:

- (a) Public awareness activities;
- (b) Policy development and implementation;
- (c) Certification programmes and training of technicians on safe handling, good practices and safety in respect of alternatives, including training equipment;
- (d) Training of customs officers;
- (e) Prevention of illegal trade of HFCs;
- (f) Servicing tools;
- (g) Refrigerant testing equipment for the refrigeration and air-conditioning sector; and
- (h) Recycling and recovery of HFCs.

**Energy efficiency**

**Capacity building to address safety**

**Disposal**

**Eligibility of Annex F substances subject to high-ambient-temperature exemption**

9. That amounts of Annex F substances that are subject to the high-ambient-temperature exemption are not eligible for funding under the Multilateral Fund while they are exempted for that Party.



## Annex II

### **OUTSTANDING ISSUES FOR FURTHER DISCUSSION BY THE EXECUTIVE COMMITTEE ON THE COST GUIDELINES FOR THE PHASE-DOWN OF HFCs**

**(The text contained in this Annex is as of the 84<sup>th</sup> meeting and has not been updated, except for the numbering of reference documents and the text in bold in section III)**

Note by the Secretariat: The outstanding issues for further discussion by the Executive Committee are presented in the following three parts:

- I. In relation to the cost guidelines
- II. Additional work to be requested from the Secretariat
- III. Other general matters related to HFC phase-down

A reference to the documents prepared by the Secretariat to discuss each subject has been included.

#### **I. IN RELATION TO THE COST GUIDELINES**

##### **Sustained aggregate reductions**

*(Reference documents: UNEP/OzL.Pro/ExCom/82/66)*

- (a) To use the following methodology [to be proposed by the Executive Committee] for determining the starting point for sustained aggregate reduction in HFC consumption and production, noting that the starting point should be expressed in [[CO<sub>2</sub>-equivalent] and/or [metric tonnes]];
- (b) [add text for production];
- (c) [When determining the starting point for aggregate reduction in HFC consumption, the following approach will be followed with regard to the import and export of HFCs contained in pre-blended polyols, which had not been counted as consumption under Article 7 of the Montreal Protocol:
  - (i) [Paragraph about internal production of pre-blended polyols];
  - (ii) To request Article 5 countries to report under the country programme implementation report imports and exports of HFCs contained in pre-blended polyols;
  - (iii) To request Article 5 countries that wished to seek assistance for the phase-out of imports of HFCs contained in pre-blended polyols to include in the starting point for aggregate reduction in HFC consumption the amount of HFC imported contained in polyol systems during the years used as reference to determine the starting point; and
  - (iv) To request Article 5 countries that export HFC contained in pre-blended polyols to deduct from the starting point for aggregate reduction in HFC consumption the amount of HFC exported contained in polyol systems during the years used as reference to determine the starting point.]

### **Eligible incremental costs**

#### *Consumption manufacturing sector*

(Reference documents: *UNEP/OzL.Pro/ExCom/89/10/Rev.1 and UNEP/OzL.Pro/ExCom/89/10/Add.1*)

- (d) [To continue discussing the cost guidelines for the phase-down of HFCs in Article 5 Parties, *inter alia* including establishment of cost-effectiveness thresholds, through an appropriate methodology in relation to consumption manufacturing sector, taking into account relevant information, decisions of the Executive Committee and results from the implementation of stand-alone HFC investment projects in all sectors of HFCs];

#### *Refrigeration servicing sector*

(Reference documents: *UNEP/OzL.Pro/ExCom/82/64, UNEP/OzL.Pro/ExCom/91/61*)

- (e) [Consideration of paragraph 16 of decision XXVIII/2, [including consideration of maintaining energy efficiency in the servicing/end-user sector]]; [It is proposed to delete this paragraph as this issue is already being discussed separately under agenda item 13(b) on Matters related to the Kigali Amendment to the Montreal Protocol: Energy efficiency]

### **Energy efficiency**

Note: This item is being considered outside the cost guidelines for the phase-down of HFCs.

### **Capacity building to address safety**

Note: This item is being addressed under the refrigeration servicing sector.

### **Disposal**

(Reference documents: *UNEP/OzL.Pro/ExCom/82/21, UNEP/OzL.Pro/ExCom/91/66*)

- (f) To consider, at the 84<sup>th</sup> meeting, the matter of disposal of controlled substances, in light of the final report on the evaluation of pilot demonstration projects on ODS disposal and destruction to be submitted by the Senior Monitoring and Evaluation Officer;

## **II. ADDITIONAL WORK TO BE REQUESTED FROM THE SECRETARIAT<sup>1</sup>**

### In relation to the consumption manufacturing sector

(Reference documents: *UNEP/OzL.Pro/ExCom/89/10/Rev.1 and UNEP/OzL.Pro/ExCom/89/10/Add.1*)

- (a) [The Executive Committee decided to consider at a future meeting to request the Secretariat to undertake additional work, including to determine cost-effectiveness thresholds and thresholds for incremental operational costs for HFC-phase-down activities in the consumption manufacturing sector once progress in the implementation of HFC investment projects has been made;]

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<sup>1</sup> As contained in paragraph 46 of document UNEP/OzL.Pro/ExCom/80/55



### III. OTHER GENERAL MATTERS RELATED TO HFC PHASE-DOWN <sup>2</sup>

- (a) To agree on the following prerequisites for an Article 5 country to access Multilateral Fund funding other than for enabling activities for the phase-down of HFC consumption and production:
  - (i) Ratification, acceptance, or accession to the Kigali Amendment; and
  - (ii) Establishment of an agreed starting point for a sustained aggregate reduction in HFC consumption and production, on the understanding that any phase-down of HFCs resulting from any project that might be approved by the Executive Committee would be deducted from the country's starting point;
- ~~(b) [To agree that institutions and capacities in Article 5 countries developed with Multilateral Fund assistance for the phase-out of ODS should be used to the extent possible for the phase-down of HFCs]; and~~ **This text has been incorporated into the guidelines for the preparation of the Kigali HFC Implementation Plans for Article 5 countries noted by the Executive Committee at its 87<sup>th</sup> meeting (decision 87/50(h)); therefore, the text can be removed.**

[To agree that the existing policies and guidelines of the Multilateral Fund [where applicable] for funding the phase-out of ODS would be applicable to the funding of HFC phase-down [unless decided otherwise] [as long as agreed upon] by the Executive Committee [taking into account in particular decision XXVIII/2].]

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<sup>2</sup> As contained in paragraph 43 of document UNEP/OzL.Pro/ExCom/80/55



### Annex III

## WORKING TEXT ON THE STARTING POINT FOR SUSTAINED AGGREGATE REDUCTIONS IN HFC CONSUMPTION AND PRODUCTION

(Annex XXIV to document UNEP/OzL.Pro/ExCom/90/40)

### Methodology for determining the starting point for sustained aggregate reductions

1. In response to decision 81/67(e), the Secretariat prepared document UNEP/OzL.Pro/ExCom/82/66, “Key considerations for developing a methodology for establishing the starting point for sustained aggregate reductions for the consumption and production sectors under the Kigali Amendment.” Section IV of the document set out a number of key considerations that informed the discussions of the contact group on the cost guidelines in the margins of the 82<sup>nd</sup>, 83<sup>rd</sup>, and 84<sup>th</sup> meetings. The issues discussed by the contact group included, *inter alia*:

(a) The unit of measurement, where some members proposed to use metric tonnes (mt) to reflect the actual amount of HFCs consumed or produced, others proposed the use of CO<sub>2</sub>-equivalent tonnes as best suited to measure the environmental impact of the phase-down activities, while others yet suggested using both units at first and making a definitive decision about which one to use once the pros and cons of each approach had been ascertained;[

- preference for mt as that is how we understand costs and consistent with thresholds;
- keep track separately of lower GWP alternatives that are phased in under projects funded by MLE;
- preference for CO<sub>2</sub>e as the obligations are in CO<sub>2</sub>e;
- keep track of both but note that costs are tied to mt;
- don't know what end-point is if in mt;
- second and third conversion is an important issue;
- preference for both initially;
- need to be consistent units between starting point and funding/cost effectiveness;
- provide incentive for final conversion;
- reductions to count toward compliance; use simpler approach]

(b) Possible options for determining the starting point, where it was proposed to use the HFC baseline including the HFC and HCFC components, the HFC component, or an intermediate value between the two. It was also proposed that Article 5 countries could choose as the starting point the HFC consumption from a number of previous years (e.g., the last year or the average of the last three years) or the year when the first HFC investment project had been approved by the Executive Committee;[

- add 5-10% of HFC consumption during the baseline years to account for growth;
- Secretariat to present data of 2019-2021 CP data to compare CO<sub>2</sub>e and mt;

- choose best years before the pandemic;
- consider other years where data is available]

- ~~(a)~~(c) The inclusion in the starting point of HFCs contained in imported pre-blended polyols, and the exclusion of HFCs contained in exported pre-blended polyols, on the understanding that such consumption would be monitored and controlled by Article 5 countries;
- ~~(b)~~(d) The exclusion of the HFC phase-down tail (i.e., 20 per cent for Article 5 group 1 countries and 15 per cent for Article 5 group 2 countries) from the starting point as the phase-out of that consumption was not mandated by the Montreal Protocol. While there was no consensus, some members indicated that deducting the consumption associated with the tail would imply that the starting point would be based on the HFC baseline for compliance, which would include the totality of the HFC and HCFC components; and
- ~~(e)~~(e) Whether sustained reductions from the starting point should be accounted on a substance-by-substance basis. Different views were expressed, including that the starting point should be one unique number, and that reductions should be made by substance, but only for the most commonly used HFCs.

Annex IV

WORKING TEXT ON THE COST-EFFECTIVENESS THRESHOLDS  
(Annex XXIII to document UNEP/OzL.Pro/ExCom/90/40)

Cost-effectiveness (CE) thresholds for the CFC and HCFC phase-out

Sector	National ODS phase-out plans (UNEP/OzL.Pro/ExCom/16/20 para. 32)			HPMPs (decisions 60/44, 62/13 and 74/50)			TEAP (ExMOP 3)	Agreed CE (US \$/kg)
	Baseline substance	Main alternatives introduced	CE threshold (US \$/kg)	Baseline substance	Main alternatives introduced	CE threshold (US \$/kg)		
Domestic refrigeration (refrigerant and PU foam panel components)	CFC-12	HFC-134a R-600a	13.76	n.a.	n.a.	n.a.	8-10 [13.76] (Canada)	13.76
	CFC-11	HCFC-141b cyclopentane		HCFC-141b	Cyclopentane	7.83*,**		
<b>RAC domestic</b>							7-9	
Commercial refrigeration (refrigerant and PU foam panel components)	CFC-12	HFC-134a	15.21	HCFC-22	HFC-32, R-290, HFC-134a, CO <sub>2</sub> , NH <sub>3</sub> , cascade systems	15.21*	10-15	[15.21] [*] [49] [18**] [*] plus special consideration for small enterprises [<20 mt?]
	CFC-11	HCFC-141b cyclopentane water		HCFC-141b	Cyclopentane, water, MF, methylal, HFC-245fa, reduced HFOs			
<b>RAC transportation and industrial</b>							10-15	
Rigid PU foam (including PU foam panel in commercial refrigeration)	CFC-11	HCFC-141b cyclopentane water	7.83	HCFC-141b	Cyclopentane, water, MF, methylal, HFC-245fa, reduced HFOs	7.83*,**	7-9	9**
Flexible PU foam	CFC-11	HCFC-141b cyclopentane water	6.23	HCFC-141b	Cyclopentane, water, MF, methylal, HFC-245fa, reduced HFOs	6.23*,**	7-9	case-by-case
Integral skin	CFC-11	HCFC-141b cyclopentane water	16.86	HCFC-141b	Cyclopentane, water, MF, methylal, HFC-245fa, reduced HFOs	16.86*,**	7-9	case-by-case
XPS foam	CFC-12	HFC-134a	8.22	HCFC-22/ HCFC-142b	HC, CO <sub>2</sub>	8.22*,**	7-9	case-by-case
Aerosol	CFC-12/ CFC-11	HC	4.40	HCFC-22/ HCFC-141b	HC, HFC-134a, HFC-152a, perchloroethylene, HFO		4-6	case-by-case
Fire extinguishing	Halon	ABC dry powder CO <sub>2</sub>	1.48	HCFC-123	No projects approved yet	case-by-case	3-5	case-by-case

Sector	National ODS phase-out plans (UNEP/OzL.Pro/ExCom/16/20 para. 32)			HPMPs (decisions 60/44, 62/13 and 74/50)			TEAP (ExMOP 3)	Agreed CE (US \$/kg)
	Baseline substance	Main alternatives introduced	CE threshold (US \$/kg)	Baseline substance	Main alternatives introduced	CE threshold (US \$/kg)		
Solvent	CFC-113	Heat cleaning, aqueous cleaning,	19.73	HCFC-141b	Iso-paraffin	case-by-case		case-by-case
Solvent	TCA	trichlorethylene, HC, others	38.50	n.a	n.a	n.a		case-by-case
Metered dose inhaler (MDI)	CFC-12/ CFC-11	HFC-134a	n.a	n.a	n.a	n.a		case-by-case
Mobile AC	CFC-12	HFC-134a	n.a	n.a	n.a	n.a	4-6	case-by-case
Stationary AC (domestic AC manufacturing)	n.a	n.a	n.a	HCFC-22	R-410A, HFC-32, R-290	case-by-case	11-15 Stationary AC	[11]
[Stationary AC (commercial)]								[11] (US) [ease-by-ease] [15.21 – 18**] (India)
Other refrigeration and AC manufacturing (heat pumps, transport, chillers, industrial)	CFC-11/ CFC-12 (chillers)	HFC-134a/ HFC-123 (chillers)	n.a	HCFC-22	R-410A, HFC-32, R-290, CO <sub>2</sub> , NH <sub>3</sub> , cascade systems	case-by-case		

\* Funding of up to a maximum of 25 per cent above the cost-effectiveness threshold will be provided for projects when needed for the introduction of low-GWP [non-HFC] alternatives (decision 60/44(f)(iv)).

\*\* For SMEs in the foam sector with consumption of less than 20 mt, the maximum would be up to 40 per cent above the cost-effectiveness threshold (decision 74/50(c)(iii)).