



**United Nations  
Environment  
Programme**

Distr.  
GENERAL

UNEP/OzL.Pro/ExCom/80/55  
20 October 2017

ORIGINAL: ENGLISH

EXECUTIVE COMMITTEE OF  
THE MULTILATERAL FUND FOR THE  
IMPLEMENTATION OF THE MONTREAL PROTOCOL  
Eightieth Meeting  
Montreal, 13-17 November 2017

**DEVELOPMENT OF THE COST GUIDELINES FOR THE PHASE-DOWN OF HFCs IN  
ARTICLE 5 COUNTRIES: DRAFT CRITERIA FOR FUNDING  
(DECISIONS 78/3(i) AND 79/44(b))**

**Introduction**

1. The Secretariat has prepared the present document pursuant to decision 79/44 to assist the Executive Committee in developing the cost guidelines for the phase-down of HFCs in Article 5 countries for submission to the Thirtieth Meeting of the Parties in 2018, as requested by paragraph 10 of decision XXVIII/2 of the Meeting of the Parties.

**Structure of the document**

2. The document is based on the information contained in the document on the development of the cost guidelines for the phase-down of HFCs in Article 5 countries: Draft criteria for funding<sup>1</sup> submitted to the 79<sup>th</sup> meeting, and on the Executive Committee's discussions and decisions taken at the 77<sup>th</sup>, 78<sup>th</sup> and 79<sup>th</sup> meetings.

3. The document consists of two sections, the recommendation, and four annexes, as described below:

Section I: Progress in the development of the cost guidelines for the phase-down of HFCs. This section summarizes relevant decisions by the Executive Committee since the adoption of the Kigali Amendment, including those elements of decision XXVIII/2 on which the Executive Committee reached a common understanding and decided to include them in the draft template of the cost guidelines.

Section II: Areas for further discussion on the cost guidelines for the phase-down of HFCs. This section presents the elements of decision XXVIII/2 for which

<sup>1</sup> UNEP/OzL.Pro/ExCom/79/46.

a common understanding by the Executive Committee has not been reached yet, including the relevant text of decision XXVIII/2, a brief summary on the status of the discussion, and further areas for discussion at the 80<sup>th</sup> meeting.

- Recommendation: The recommendation is divided in two parts: the draft template of the cost guidelines for the phase-down of HFCs; and the additional work to inform further discussions on the cost guidelines.
- Annex I: Draft template of the cost guidelines for the phase-down of HFCs up to the 79<sup>th</sup> meeting. The draft template already includes the text of the elements of decision XXVIII/2 where common understanding by Executive Committee members has been reached. This Annex will continue to be updated pursuant to further discussions on the elements of decision XXVIII/2.
- Annex II: Decisions adopted by the Executive Committee on matters related to the Kigali Amendment.
- Annex III: Extracts from the discussions by the Executive Committee at the 78<sup>th</sup> meeting on the development of the cost guidelines for the phase-down of HFCs.
- Annex IV: Extract from the discussion on energy efficiency by the Parties of the Montreal Protocol (decision XXVIII/3) at the 39<sup>th</sup> meeting of the Open-ended Working Group (OEWG)<sup>2</sup>.

### **Section I: Progress in the development of the draft cost guidelines for the phase-down of HFCs**

4. During the 78<sup>th</sup> and 79<sup>th</sup> meetings, the Executive Committee discussed the issues raised in the documents on the development of the cost guidelines for the phase-down of HFCs in Article 5 countries: draft criteria for funding.<sup>3</sup> At the 79<sup>th</sup> meeting, the Committee noted that the recommendations contained in document UNEP/OzL.Pro/ExCom/79/46 included matters related to the cost guidelines that could be included as part of the decision, and procedural matters that would not be part of the decision. Therefore, it was necessary for the procedural aspects to be considered separately from the decision to be developed on the draft criteria for funding for the phase-down of HFCs.

5. Further to a discussion at the 79<sup>th</sup> meeting, the Executive Committee decided *inter alia* to develop guidelines for funding the phase-down of HFC consumption and production for submission to the Thirtieth Meeting of the Parties, and to finalize the guidelines as soon as possible thereafter, taking into account the views and input provided by the Parties (decision 79/44(b)).

6. In relation to the element on “consumption manufacturing sector” (paragraph 15(a) of decision XXVIII/2), the Executive Committee decided to consider approving a limited number of HFC-related projects in the manufacturing sector only, to gain experience in the incremental capital costs (ICC) and incremental operating costs (IOC) that might be associated with phasing down HFCs (decision 78/3(g)); and provided criteria to consider those proposals (decision 79/45).

---

<sup>2</sup> Bangkok, 11-14 July 2017.

<sup>3</sup> UNEP/OzL.Pro/ExCom/78/5 and Corr.1 and UNEP/OzL.Pro/ExCom/79/46.

*Enabling activities and institutional strengthening (IS)*

7. The Executive Committee discussed enabling activities and IS separately from the cost guidelines; decided to consider increasing funding for IS at a future meeting in accordance with paragraph 20 of decision XXVIII/2 (decision 78/4); and provided criteria for the consideration of enabling activities submitted by Article 5 Countries (decision 79/46).

*HFC-23 by-product control*

8. With regard to the key aspects related to HFC-23 by-product control technologies,<sup>4</sup> the Executive Committee decided *inter alia* to consider possible cost-effective options for compensation for HCFC-22 swing plants to allow for compliance with the HFC-23 by-product control obligations of the Kigali Amendment, and to request relevant governments of Article 5 countries wishing to close HCFC-22 production swing plants to submit the preliminary data to the 80<sup>th</sup> meeting. The Committee also requested the Secretariat to contract an independent consultant to undertake an evaluation of cost-effective and environmentally sustainable options of HFC-23 destruction from HCFC-22 production facilities; invited all relevant HCFC-22-producing Article 5 countries to provide to the Secretariat by 30 September 2017, on a voluntary basis, information relevant to the evaluation by the independent consultant; and invited implementing agencies to submit to the 81<sup>st</sup> meeting proposals for feasible technology demonstration for HFC-23 by-product mitigation or conversion technologies with the potential for cost-effective environmentally sustainable conversion of HFC-23 (decision 79/47).

Elements of decision XXVIII/2 on which members have a common understanding

9. At the 78<sup>th</sup> meeting, members reached a common understanding to move to the draft template of the cost guidelines the text of the elements of decision XXVIII/2 on: flexibility in implementation that enables parties to select their own strategies and priorities in sectors and technologies; the cut-off date for eligible capacity; second and third conversions; and categories eligible for incremental cost in the consumption manufacturing sector (decision 78/3(b), (c), (d) and (f)). The text for each of these elements is in the draft template of the cost guidelines contained in Annex I to the present document.

**Section II: Areas for further discussion on the cost guidelines for the phase-down of HFCs**

10. At the 78<sup>th</sup> meeting, the Executive Committee decided to continue discussing the following elements of decision XXVIII/2: sustained aggregate reductions in HFC consumption and production, eligible incremental costs (consumption manufacturing, production sector, refrigeration servicing sector, and other costs), energy efficiency, capacity building to address safety, disposal, and eligibility of Annex F substances subject to high-ambient-temperature exemptions.

Sustained aggregate reductions in HFC consumption and production<sup>5</sup>*Paragraph 19 of decision XXVIII/2*

11. Paragraph 19 of decision XXVIII/2 states: “*To request the Executive Committee to incorporate the following principle related to sustained aggregate reductions into Multilateral Fund policies: remaining eligible consumption for funding in tonnage will be determined on the basis of the starting point of national*

<sup>4</sup> UNEP/OzL.Pro/ExCom/79/48, Corr.1, Corr. 2 and Add.1.

<sup>5</sup> Information contained in paragraphs 32 to 39 of document UNEP/OzL.Pro/ExCom/78/5. Discussions by Executive Committee members are contained in paragraphs 44 to 49 of document UNEP/OzL.Pro/ExCom/78/11 and reproduced in Annex II to the present document.

*aggregate consumption less the amount funded by previously approved projects in future multi-year agreement templates for HFC phase-down plans, consistent with Executive Committee decision 35/57”.*

12. At the 78<sup>th</sup> meeting, the Executive Committee concluded that further discussion was required before paragraph 19 of decision XXVIII/2 could be included in the draft template of the cost guidelines for the phase-down of HFCs, due to the complexity involved in determining the formula by which the starting point would be calculated, including whether it would be expressed in CO<sub>2</sub> equivalents, metric tonnes, or both. It was also considered that a starting point comprising the average HFC consumption for the period 2020 to 2022 plus 65 per cent of the HCFC consumption baseline might be too high; however, basing a starting point solely on HFC consumption might be too low, as HCFC phase-out could result in additional HFC growth.

*Issues for discussion at the 80<sup>th</sup> meeting*

13. The Executive Committee may wish to continue discussing the outstanding issues related to sustained aggregate reductions in HFC consumption and production, in particular whether the text of paragraph 19 of decision XXVIII/2 should be included in the draft template of the HFCs phase-down cost guidelines, agreeing on a methodology for determining the starting point for sustained aggregate reduction for HFCs phase-down, and whether the starting point should be expressed in CO<sub>2</sub> equivalents, metric tonnes, or both. In considering an appropriate methodology for determining the starting point, the Executive Committee may wish to note that the determination of HFC baseline for Article 5 countries is based on the consumption of HFCs in particular years, depending on whether the country is in group I or group II, and the country’s HCFC baseline. The Executive Committee may wish to recall that in light of information available after the establishment of the starting point, a limited number of Article 5 countries have revised their HCFC starting point but not their baseline.

Eligible incremental costs: Consumption manufacturing sector<sup>6</sup>

*Paragraph 15(a) of decision XXVIII/2*

14. The text of paragraph 15(a) of decision XXVIII/2 on the categories eligible incremental cost in the consumption manufacturing sector has already been moved to the draft template of the cost guidelines contained in Annex I, pursuant to decision 78/3(f).

15. At the 78<sup>th</sup> meeting, the Committee also agreed to consider HFC-related investment projects to gain experience with ICC and IOC (decision 78/3(g)), and provided criteria for the submission of such projects (decision 79/45).

*Issues for discussion at the 80<sup>th</sup> meeting*

16. In light of decision 79/45, the Executive Committee may wish to consider whether additional work<sup>7</sup> is required at this time to determine cost-effectiveness thresholds and thresholds for IOC of HFC phase-down in the consumption manufacturing sector, or whether work should be done once progress on

---

<sup>6</sup> Information contained in paragraphs 41 to 87 of document UNEP/OzL.Pro/ExCom/78/5. Executive Committee discussions are in paragraphs 51 to 57 of document UNEP/OzL.Pro/ExCom/78/11 and reproduced in Annex II to the present document.

<sup>7</sup> Possible additional work discussed included a table summarizing projects approved including information on the technology used, the ICC and IOC approved, cost-effectiveness, and the lessons learned, including cases where low-GWP technologies could not be selected; collecting information on the various types of technical assistance activities that had been approved so far by the Multilateral Fund including the level of funding approved; gathering additional information by the Secretariat, in consultation with the bilateral and implementing agencies; or consulting independent experts, with terms of reference to be decided; and developing a list of major equipment items required for conversions by sector, and their likely costs (paragraph 25, document UNEP/OzL.Pro/ExCom/79/46).

the implementation of HFC stand-alone investment projects pursuant to decision 79/45 has been made. In so doing, the Executive Committee may wish to note that the availability of information to determine relevant thresholds varies by sector. As stand-alone investment projects in particular sectors (e.g., in the domestic refrigeration sector) are completed, the Executive Committee may be in a better position to determine thresholds for such sectors, thus determining cost thresholds in a stepwise manner.

17. Eligible incremental costs: Production sector<sup>8</sup>

*Paragraph 15 of decision XXVIII/2*

18. Paragraph 15, decision XXVIII/2 states: “*To request the Executive Committee, in developing new guidelines on methodologies and cost calculations, to make the following categories of costs eligible and include them in the cost calculation: Production sector (paragraph 15(b)): lost profit due to the shutdown/closure of production facilities, as well as production reduction; compensation for 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 costs of alternatives; costs of patents and designs or incremental costs of royalties; costs of converting facilities to produce low-GWP or zero-GWP alternatives to HFCs when technically feasible and cost-effective; and 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*”.

19. During the discussions at the 78<sup>th</sup> meeting on matters related to the production sector under agenda item 6(a)(i), it was recognized that although the categories included the conversion of existing or the establishment of new production facilities to produce substitutes when technically feasible and cost-effective, the Executive Committee had thus far always approved funding for the production sector on the basis of plant closure, which was considered the most cost-effective and efficient option. With regard to issues related to HFC-23 by-product control technologies, the Executive Committee took decision 79/47 as described in section I.

*Issues for discussion at the 80<sup>th</sup> meeting*

20. The Executive Committee may wish to:

- (a) Consider eligible the categories of costs listed in paragraph 15(b) of decision XXVIII/2 and to include them in the cost calculation associated with the phase-down of HFCs in the production sector; and
- (b) Discuss whether or not to request the Subgroup on the Production Sector to consider the cost guidelines for HFC phase-down in the production sector.

Eligible incremental costs: Refrigeration servicing sector<sup>9</sup>

*Paragraphs 15 and 16 of decision XXVIII/2*

21. Paragraph 15 of decision XXVIII/2 states: “*To request the Executive Committee, in developing*

<sup>8</sup> Information contained in paragraphs 88 to 95 of document UNEP/OzL.Pro/ExCom/78/5. Executive Committee discussions are in paragraphs 58 to 62 of document UNEP/OzL.Pro/ExCom/78/11 and reproduced in Annex II to the present document.

<sup>9</sup> Information contained in paragraphs 96 to 104 and Annex IV of document UNEP/OzL.Pro/ExCom/78/5. Executive Committee members’ discussions are in paragraphs 63 to 68 of document UNEP/OzL.Pro/ExCom/78/11 and reproduced in Annex II to the present document.

*new guidelines on methodologies and cost calculations, to make the following categories of costs eligible and include them in the cost calculation: Refrigeration servicing sector (paragraph 15(c)): public-awareness activities; policy development and implementation; certification programmes and training of technicians on safe handling, good practice and safety in respect of alternatives, including training equipment; training of customs officers; prevention of illegal trade of HFCs; servicing tools; refrigerant testing equipment for the refrigeration and air-conditioning sector; and recycling and recovery of HFCs”.*

22. Paragraph 16 of decision XVIII/2 states: “*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 up to 360 metric tonnes 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”.*

23. During the discussions at the 78<sup>th</sup> meeting, the refrigeration servicing sector was cited as one of the most important sectors being addressed, as it would be the most affected by the HFC phase-down in the majority of Article 5 countries. It would also be the main funding source for many Article 5 countries to meet their compliance obligations. The HFC phase-down cost guidelines should address the same priorities in this sector as those addressed by the HCFC guidelines, with some exceptions, and further consider issues such as the flammability, toxicity and cost of alternative refrigerants. This would require more in-depth analysis of the incremental costs in the sector, which should encompass existing capacity already built in ODS phase-out, synergies between HFC phase-down and HCFC phase-out, and consideration of activities already planned by the private sector as they shift to more efficient and complex systems.

24. It was recalled that at the 77<sup>th</sup> meeting, the Secretariat had proposed to prepare two documents, one covering all aspects of the refrigeration servicing sector, taking into account policy documents, case studies, monitoring and evaluation reviews, and the work undertaken in developing and implementing training and technical assistance programmes; and another covering key aspects needed when developing a set of training 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.

25. At the 79<sup>th</sup> meeting, the Committee decided to include a desk study for an evaluation of the refrigeration servicing sector in the 2017 monitoring and evaluation work programme. That evaluation has been submitted to the 80<sup>th</sup> meeting<sup>10</sup> and will focus on the challenges encountered during implementation and will draw lessons learned from such projects to inform future similar activities, including those related to the phasing down of HFCs.

#### *Issues for discussion at the 80<sup>th</sup> meeting*

26. The Executive Committee may wish to:

- (a) Consider eligible the categories of costs listed in paragraph 15(c) of decision XXVIII/2 and to include them in the cost calculation associated with the phase-down of HFCs in the refrigeration servicing sector;
- (b) Consider requesting the Secretariat to prepare a preliminary document<sup>11</sup> for [the 82<sup>nd</sup> meeting] taking into account the results of the desk study of the refrigeration servicing sector by the Senior Monitoring and Evaluation Officer (decision 79/6), in cooperation

---

<sup>10</sup> UNEP/OzL.Pro/ExCom/80/10.

<sup>11</sup> Preparation of this document was proposed in document UNEP/OzL.Pro/ExCom/77/70/Rev.1.

with bilateral and implementing agencies, on all aspects related to the refrigeration servicing sector, taking into account:

- (i) 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 the Compliance Assistance Programme established with world-recognized training and certification institutes;
- (ii) Analysis of the existing capacities in Article 5 countries with the funding approved so far for the refrigeration servicing sector and how those could be utilized for HFC phase-down; results of funded recovery, recycling and reclamation activities and their potential to reduce refrigerant emissions; and the extent of the involvement of the private sector (e.g. equipment, components and refrigerant suppliers) in introducing and adopting low-GWP technologies in the servicing sector; and
- (iii) 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.

#### Other costs<sup>12</sup>

##### *Paragraph 25 of decision XXVIII/2*

27. Paragraph 25 of decision XXVIII/2 states: “The Parties may identify other cost items to be added to the indicative list of incremental costs emanating as a result of the conversion to low-GWP alternatives”.

##### *Issues for discussion at the 80<sup>th</sup> meeting*

28. Noting that no views on the matter were expressed at the 78<sup>th</sup> meeting, the Executive Committee may wish to note that the Parties may identify other cost items to be added to the indicative list of incremental costs, meaning as a result of the conversion to low-GWP alternatives, and that such cost items would be included in the cost calculation associated with the phase-down of HFCs.

#### Energy efficiency<sup>13</sup>

##### *Paragraph 22 of decision XXVIII/2*

29. Paragraph 22 of decision XXVIII/2 states: “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.”

30. At the 78<sup>th</sup> meeting, it was proposed that the Secretariat be requested to do additional work on the various aspects of energy efficiency in the context of the HFC phase-down in order to assist the Committee

---

<sup>12</sup> Information contained in paragraph 105 of document UNEP/OzL.Pro/ExCom/78/5. Executive Committee discussions are contained in paragraphs 69 and 70 of document UNEP/OzL.Pro/ExCom/78/11 and reproduced in Annex II to the present document.

<sup>13</sup> Information contained in paragraphs 107 to 115 and Annex V of document UNEP/OzL.Pro/ExCom/78/5. Executive Committee discussions are contained in paragraphs 72 to 79 of document UNEP/OzL.Pro/ExCom/78/11 and reproduced in Annex II to the present document.

in its deliberations. The summary document prepared by the Chair at the 78<sup>th</sup> meeting based on the Executive Committee discussion contains the additional work to be undertaken (see paragraph 31 below).

31. At the 39<sup>th</sup> meeting of the OEWG, the Parties discussed the issue of energy efficiency in the context of decision XXVIII/3.<sup>14</sup> The Parties agreed to forward a draft decision to the Twenty-Ninth Meeting of the Parties for further consideration which, *inter alia* requested TEAP to assess the technology and funding requirements for Article 5 parties to maintain and/or enhance energy efficiency in the refrigeration and air-conditioning and heat-pump sectors while phasing down HFCs, as well as to develop scenarios, and to also assess capacity-building and servicing sector requirements in the refrigeration and air-conditioning and heat-pump sectors; and to assess the elements of incremental capital and operating costs for maintaining and/or enhancing energy efficiency on transitioning to low-GWP alternatives from high-GWP HFCs, drawing on international experience. This assessment would be presented to the 40<sup>th</sup> OEWG, with annual updates provided subsequently. The Ozone Secretariat was also requested to organize a workshop on energy efficiency opportunities with specific reference to the phasing down of HFCs at the commemoration of the thirtieth anniversary of the Montreal Protocol.<sup>15</sup>

*Issues for discussion at the 80<sup>th</sup> meeting*

32. The Executive Committee may wish to continue discussing how it wishes 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, taking into consideration additional relevant information, including that to be provided by the TEAP in its assessment of energy efficiency at the 40<sup>th</sup> OEWG.

33. In light of the discussions by the parties at the 39<sup>th</sup> meeting of the OEWG, the Executive Committee may wish to reconsider the summary document prepared by the Chair at the 78<sup>th</sup> meeting, which included a request to the Secretariat to:

- (a) Prepare, for the [82<sup>nd</sup> meeting], a document on issues associated with maintaining and/or enhancing the energy efficiency of low-GWP or zero-GWP replacement technologies and equipment when phasing down HFCs, including:
  - (i) Incremental costs for maintaining and/or enhancing energy efficiency in the manufacturing and servicing of refrigeration and air-conditioning equipment, including in situ manufacturing;
  - (ii) Pay-back periods and economic benefits associated with energy-efficiency improvements in the refrigeration and air-conditioning sector;
  - (iii) Possible modalities for funding, including operational modalities for co-funding with other institutions at the national and global level, in order to maintain and/or enhance energy efficiency and address associated challenges in the refrigeration and air-conditioning sector;

---

<sup>14</sup> The Technology and Economic Assessment Panel (TEAP) was requested to review energy efficiency opportunities in the refrigeration and air-conditioning and heat-pump sectors related to a transition to climate-friendly alternatives. In addition, parties had been invited to submit, on a voluntary basis, any relevant information on energy efficiency innovations in those sectors. The submissions received by the Ozone Secretariat were contained in document UNEP/OzL.Pro.WG.1/39/Inf/5. TEAP would prepare a report on the matter for consideration by the parties at their Twenty-Ninth Meeting.

<sup>15</sup> UNEP/OzL.Pro.WG.1/39/5, draft decision E of Annex I.



- (iv) Requirements for establishing minimum energy-efficiency standards, including the testing and verification of energy efficiency in equipment;
  - (v) The institutional and regulatory framework needed in Article 5 countries to support and monitor improvements in energy efficiency, including in the refrigeration and air-conditioning servicing sector;
- (b) To consider, when preparing the document, appropriate standards and directives, such as the four European Union directives for reducing greenhouse gas emissions in Europe on Energy Efficiency, Ecodesign, Energy Performance of Buildings and Industrial Emissions, to determine the best available technologies.

34. The Secretariat notes that technical experts with experience in the requirements for enhancing the energy efficiency of key components of refrigeration and air-conditioning equipment, including modification to manufacturing production lines, would be required to accomplish the tasks identified above. The Executive Committee might wish to consider allocating additional resources to the Secretariat, accordingly.

#### Capacity-building to address safety<sup>16</sup>

##### *Paragraphs 23 and 3 of decision XXVIII/2*

35. Paragraph 23 of decision XXVIII/2 states: “*To request the Executive Committee to prioritize technical assistance and capacity-building to address safety issues associated with low-GWP or zero-GWP alternatives*”.

36. Paragraph 3 of decision XXVIII/2 states: “*To recognize the importance of timely updating of international standards for flammable low-global-warming potential (GWP) refrigerants, including IEC60335-2-40, and to 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*”. (This paragraph, while not having a mandate for the Executive Committee, is related to the subject).

37. Document UNEP/OzL.Pro/ExCom/78/5 pointed out that matters related to capacity-building to address safety were being addressed in the context of the consumption manufacturing and the refrigeration servicing sectors, as well as in the document on enabling activities.<sup>17</sup> Furthermore, at the 78<sup>th</sup> meeting, the Executive Committee had no additional comments to the discussions on the matter that had already taken place. The Chair noted that the discussions on the matter would continue when the Committee considered technical assistance activities and the refrigeration servicing sector.

##### *Issues for discussion at the 80<sup>th</sup> meeting*

38. The Executive Committee may wish to consider whether matters related to capacity-building to address safety should be considered under the consumption manufacturing and refrigeration servicing sectors, or separately.

<sup>16</sup> Information contained in paragraph 116 of document UNEP/OzL.Pro/ExCom/78/5. Executive Committee discussions are contained in paragraphs 80 and 81 of document UNEP/OzL.Pro/ExCom/78/11 and reproduced in Annex II to the present document.

<sup>17</sup> UNEP/OzL.Pro/ExCom/78/6.

## Disposal<sup>18</sup>

### *Paragraph 24 of decision XXVIII/2*

39. Paragraph 24 of decision XXVIII/2 states: “To request the Executive Committee to consider funding the cost-effective management of stockpiles of used or unwanted controlled substances, including destruction”.

### *Issues for discussion at the 80<sup>th</sup> meeting*

40. Noting that no views were expressed at the 78<sup>th</sup> meeting, the Executive Committee may wish to consider whether or not to further discuss this matter at the 80<sup>th</sup> meeting.

## Eligibility of Annex F substances subject to high ambient temperature exemptions<sup>19</sup>

41. The Parties to the Montreal Protocol made available an exemption for Parties with high ambient temperature conditions where suitable alternatives do not exist for the specific sub-sector of use, as described in paragraphs 26 to 40 of decision XXVIII/2. Specifically on issues related to funding, the Parties indicated in paragraph 35 of the decision “*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.*”

### *Issues for discussion at the 80<sup>th</sup> meeting*

42. Noting that no views on the matter were expressed at the 78<sup>th</sup> meeting, the Executive Committee may wish to include the text in paragraph 35 of decision XXVIII/2 in the draft template of the cost guidelines for the phase-down of HFCs.

## Other general matters related to HFC phase-down

43. In discussing the overarching principles and timelines, the Executive Committee agreed to develop guidelines for funding the phase-down of HFC consumption and production for submission to the Thirtieth Meeting of the Parties, and to finalize the guidelines as soon as possible thereafter, taking into account the views and input provided by the Parties (decision 79/44(b)). The following overarching aspects were not agreed and they are presented as discussed in the contact group. The Executive Committee may wish to continue discussing these points at the 80<sup>th</sup> meeting or at a future meeting, noting that these points are already being applied in the context of the enabling activities and the stand-alone HFC investment activities:

- (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;
  - (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

---

<sup>18</sup> Information contained in paragraphs 117 to 124 of document UNEP/OzL.Pro/ExCom/78/5. Executive Committee discussions are contained in paragraphs 82 and 83 of document UNEP/OzL.Pro/ExCom/78/11 and reproduced in Annex II to the present document.

<sup>19</sup> Information contained in paragraphs 125-131 of document UNEP/OzL.Pro/ExCom/78/5. Executive Committee discussions are contained in paragraphs 84 and 85 of document UNEP/OzL.Pro/ExCom/78/11 and reproduced in Annex II to the present document.

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];
- (c) [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];]

44. As noted in document UNEP/OzL.Pro/ExCom/77/70/Rev.1, the implementation of the Kigali Amendment will enhance the scope and complexity of activities to be undertaken under the Multilateral Fund. This issue has been further discussed in the consolidated business plan of the Multilateral Fund for 2018-2020 submitted to the 80<sup>th</sup> meeting<sup>20</sup>.

### **Recommendation**

45. In relation to the HFC phase-down cost guidelines, the Executive Committee may wish:

#### In relation to sustained aggregate reductions in HFC consumption and production

- (a) To include paragraph 19 of decision XXVIII/2 in the relevant section of the draft template of the cost guidelines for the phase-down of HFCs;
- (b) 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 should be expressed in [CO<sub>2</sub> equivalents and/or metric tonnes];

#### In relation to eligible incremental costs

##### *Production sector*

- (c) In accordance with paragraph 15(b) of decision XXVIII/2, 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 contained in [Annex ##] to the Report of the 80<sup>th</sup> meeting of the Executive Committee:
  - (i) Lost profit due to the shutdown/closure of production facilities, as well as production reduction;
  - (ii) Compensation for displaced workers;
  - (iii) Dismantling of production facilities;
  - (iv) Technical assistance activities;

---

<sup>20</sup>UNEP/OzL.Pro/ExCom/80/16.

- (v) 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;
- (vi) Costs of patents and designs or incremental costs of royalties;
- (vii) Costs of converting facilities to produce low-GWP or zero-GWP alternatives to HFCs when technically feasible and cost-effective;
- (viii) 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;
- (ix) Consider whether to continue discussing cost guidelines for the production sector or to request the Sub-group on the Production Sector to do so and to report back to the Executive Committee once the draft guidelines have been finalized;

*Refrigeration servicing sector*

- (d) In accordance with paragraph 15(c) of decision XXVIII/2, 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 contained in [Annex ##] to the Report of the 80<sup>th</sup> meeting of the Executive Committee:
  - (i) Public-awareness activities;
  - (ii) Policy development and implementation;
  - (iii) Certification programmes and training of technicians on safe handling, good practice and safety in respect of alternatives, including training equipment;
  - (iv) Training of customs officers;
  - (v) Prevention of illegal trade of HFCs;
  - (vi) Servicing tools;
  - (vii) Refrigerant testing equipment for the refrigeration and air-conditioning sector;
  - (viii) Recycling and recovery of HFCs;

In relation to other costs

- (e) To include paragraph 25 of decision XXVIII/2 in the relevant section of the draft template of the cost guidelines for the phase-down of HFCs contained in [Annex ##] to the Report of the 80<sup>th</sup> meeting of the Executive Committee;

In relation to energy efficiency

- (f) To continue discussing how it wishes 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, after reviewing additional relevant

information, including the information provided by the TEAP in its assessment of energy efficiency at the 40<sup>th</sup> OEWG;

In relation to capacity building to address safety

- (g) To note that capacity-building to address safety is being addressed in the context of the consumption manufacturing and the refrigeration servicing sectors;

In relation to disposal

- (h) To consider whether to further discuss matters related to disposal at a future meeting; and

In relation to the eligibility of Annex F substances subject to high ambient temperature exemptions

- (i) To include paragraph 35 of decision XXVIII/2 in the relevant section of the draft template of the cost guidelines for the phase-down of HFCs contained in [Annex ##] of the Report of the 80<sup>th</sup> meeting of the Executive Committee.

46. In relation to additional activities to be completed in order to facilitate further discussion of the cost guidelines for HFC phase-down, the Executive Committee may wish:

In relation to the consumption manufacturing sector

- (a) To consider additional work to determine cost-effectiveness thresholds and thresholds for IOCs of HFC-phase-down in the consumption manufacturing sector once progress in the implementation of HFC investment projects pursuant to decision 79/45 has been made;

In relation to the refrigeration servicing sector

- (b) To request the Secretariat to prepare a preliminary document for [the 82<sup>nd</sup> meeting] taking into account the results of the desk study of the refrigeration servicing sector by the Senior Monitoring and Evaluation Officer (decision 79/6), in cooperation with bilateral and implementing agencies, on all aspects related to the refrigeration servicing sector, taking into account:
  - (i) 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 Compliance Assistance Programme had established with world-recognized training and certification institutes;<sup>21</sup>
  - (ii) Analysis of the existing capacities in Article 5 countries with the funding approved so far for the refrigeration servicing sector and how those could be utilized for HFC phase-down; results of funded recovery, recycling and reclamation activities and their potential to reduce refrigerant emissions; and the extent of the involvement of the private sector (e.g. equipment, components and refrigerant suppliers) in introducing and adopting low-GWP technologies in the servicing sector; and

---

<sup>21</sup> Preparation of this document was proposed in document UNEP/OzL.Pro/ExCom/77/70/Rev.1.

- (iii) 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 modalities.<sup>22</sup>

In relation to energy efficiency

- (c) To request the Secretariat to contract an independent consultant to:
  - (i) Prepare, for the [82<sup>nd</sup> meeting], a document on issues associated with maintaining and/or enhancing the energy efficiency of low-GWP or zero-GWP replacement technologies and equipment when phasing down HFCs, including:
    - a. Incremental costs for maintaining and/or enhancing energy efficiency in the manufacturing and servicing of refrigeration and air-conditioning equipment, including in situ manufacturing;
    - b. Pay-back periods and economic benefits associated with energy-efficiency improvements in the refrigeration and air-conditioning sector;
    - c. Possible modalities for funding, including operational modalities for co-funding with other institutions at the national and global level, in order to maintain and/or enhance energy efficiency and address associated challenges in the refrigeration and air-conditioning sector;
    - d. Requirements for establishing minimum energy-efficiency standards, including the testing and verification of energy efficiency in equipment;
    - e. The institutional and regulatory framework needed in Article 5 countries to support and monitor improvements in energy efficiency, including in the refrigeration and air-conditioning servicing sector;
  - (ii) Consider, when preparing the document, appropriate standards and directives, such as the four European Union directives for reducing greenhouse gas emissions in Europe on Energy Efficiency, Ecodesign, Energy Performance of Buildings and Industrial Emissions, to determine the best available technologies; and
- (d) To allocate US \$XXX for the preparation of the study.

---

<sup>22</sup> Preparation of this document was proposed in document UNEP/OzL.Pro/ExCom/77/70/Rev.1.

## Annex I

### **DRAFT TEMPLATE OF THE COST GUIDELINES FOR THE PHASE-DOWN OF HFCs (For discussion at the 80<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-eight Meeting. For the following elements there was a common understanding by the Executive Committee to move the relevant text to the draft cost guidelines: flexibility in implementation that enables parties to select their own strategies and priorities in sector and technologies; cut-off date for eligible capacity; second and third conversions; and eligible incremental cost (consumption manufacturing sector). The draft cost guidelines will be updated pursuant to further discussions at the 80<sup>th</sup> and future meetings on the elements of decision XXVIII/2 by the Executive Committee.

#### Draft guidelines as at the close of the 78<sup>th</sup> meeting

#### **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 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 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 in HFC consumption and production**

### **Eligible incremental cost**

#### *Consumption manufacturing sector*

5. In accordance with paragraph 15(a) of decision XXVIII/2, 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 (ICCs);
- (b) Incremental operating costs (IOCs) 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 global-warming potential;
- (e) Costs of patents and designs, and incremental costs of royalties, when necessary and cost-effective;
- (f) Costs of the safe introduction of flammable and toxic alternatives.

#### *Production sector*

#### *Refrigeration servicing sector*

#### *Other costs*

### **Energy efficiency**

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

### **Disposal**

### **Eligibility of Annex F substances subject to high ambient temperature exemptions**



## Annex II

### DECISIONS ADOPTED BY THE EXECUTIVE COMMITTEE ON MATTERS RELATED TO THE KIGALI AMENDMENT

#### Decisions adopted at the 77<sup>th</sup> meeting

*Issues relevant to the Executive Committee arising from the Twenty-eighth Meeting of the Parties to the Montreal Protocol (decision 77/59)*

1. The Executive Committee decided:
  - (a) To hold a four-day special meeting early in 2017 to address matters related to the Kigali Amendment to the Montreal Protocol arising from decision XXVIII/2 of the Meeting of the Parties, and potential additional contributions to the Multilateral Fund;
  - (b) To request the Secretariat to prepare a document containing preliminary information in response to the elements in decision XXVIII/2 of the Twenty-Eighth Meeting of the Parties that requested the Executive Committee to take action, and addressing the following issues:
    - (i) Available information on HFC consumption and production, as well as on HFC-23 by-product, including from surveys of ODS alternatives funded by the Multilateral Fund and other sources;
    - (ii) The enabling activities required to assist Article 5 countries in commencing their reporting and regulatory activities in relation to the HFC-control measures;
    - (iii) Key aspects related to HFC-23 by-product-control technologies;
    - (iv) Identification of the issues that the Executive Committee might want to consider in relation to existing HCFC phase-out activities;
    - (v) Information relevant to the development of the cost guidelines requested from the Executive Committee;
  - (c) To invite Executive Committee members of the 77<sup>th</sup> meeting to share relevant information with the Secretariat on, but not limited to, the elements listed in sub-paragraphs (b)(i) to (v) above, no later than 31 January 2017 on an exceptional basis owing to the limited time until the end of 2016;
  - (d) With respect to the intended US \$27 million fast-start contributions in 2017 from some of the non-Article 5 Parties:
    - (i) To accept, with appreciation, the additional contributions announced by a number of non-Article 5 Parties to provide fast-start support for implementation of the Kigali Amendment, noting that such funding was one-time in nature and would not displace donor contributions;
    - (ii) That the additional contributions mentioned in sub-paragraph (d)(i) above should be made available for Article 5 countries that had an HFC consumption baseline year between 2020 and 2022 and that had formally indicated their intent to ratify the Kigali Amendment and take on early HFC phase-down obligations in order to

support their enabling activities, such as capacity building and training in handling HFC alternatives, Article 4B licensing, reporting, and project preparation activities, taking into account, but not restricted to, relevant guidelines and decisions of the Executive Committee;

- (iii) To request the Secretariat to develop a document describing possible procedures for countries identified in sub-paragraph (d)(ii) above in accessing the additional fast-start contributions for enabling activities;
  - (iv) That the Treasurer would communicate with contributing non-Article 5 countries on procedures for making the additional contributions available to the Multilateral Fund for the purpose of early action in respect of the Kigali Amendment;
  - (v) That the Secretariat would report to the Executive Committee on the additional fast-start contributions received separately from the pledged contributions to the Multilateral Fund; and
- (e) To request the Secretariat to prepare an agenda for the special meeting referred to in sub-paragraph (a) above based on the issues identified in sub-paragraphs (b) to (d) above.

### **Decisions adopted at the 78<sup>th</sup> meeting**

#### *Status of additional contributions to the Multilateral Fund (decision 78/1)*

1. The Executive Committee decided:

- (a) To note the report by the Treasurer on the status of the additional contributions to the Multilateral Fund as contained in documents UNEP/OzL.Pro/ExCom/78/3 and Corr.1;
- (b) Further to note with appreciation the status of pledged additional contributions distributed among the 16 non-Article 5 Parties to provide fast-start support for implementation of the Kigali Amendment; and
- (c) To request the Treasurer to report to the Executive Committee on the additional contributions received for fast-start support separately from the other pledged contributions to the Multilateral Fund at the 79<sup>th</sup> meeting.

#### *Available information on HFC consumption and production in Article 5 countries (decision 78/2)*

2. The Executive Committee decided:

- (a) To note the report on the available information on HFC consumption and production in Article 5 countries contained in documents UNEP/OzL.Pro/ExCom/78/4 and Corr.1;
- (b) To urge bilateral and implementing agencies to work with relevant Article 5 countries to complete and submit, no later than 8 May 2017, as many ODS alternatives survey reports as possible; and
- (c) To request the bilateral and implementing agencies to return to the 81<sup>st</sup> meeting unspent balances for those surveys of ODS alternatives that had not been submitted to either the 79<sup>th</sup> or 80<sup>th</sup> meeting of the Executive Committee.

*Information relevant to the development of the cost guidelines for the phase-down of HFCs in Article 5 countries: Draft criteria for funding (decision 78/3)*

3. The Executive Committee decided:

- (a) To take note of the information relevant to the development of the cost guidelines for the phase-down of HCFCs in Article 5 countries: draft criteria for funding contained in documents UNEP/OzL.Pro/ExCom/78/5 and Corr.1;

In relation to flexibility in implementation that enables Parties to select their own strategies and priorities in sectors and technologies

- (b) To include paragraph 13 of decision XXVIII/2 in the relevant section of the draft template of the cost guidelines for the phase-down of HFCs contained in Annex I to the present report;

In relation to the cut-off date for eligible capacity

- (c) To include paragraph 17 of decision XXVIII/2 in the relevant section of the draft template of the cost guidelines for the phase-down of HFCs contained in Annex I to the present report;

In relation to second and third conversions

- (d) To include paragraph 18 of decision XXVIII/2 in the relevant section of the draft template of the cost guidelines for the phase-down of HFCs contained in Annex I to the present report;

In relation to sustained aggregate reductions in HFC consumption and production

- (e) To continue discussions on:
- (i) The methodology for determining the starting point, including whether it would be expressed in CO<sub>2</sub> equivalents, metric tonnes, or both;
  - (ii) The inclusion of paragraph 19 of decision XXVIII/2 in the relevant section of the draft template of the cost guidelines for the phase-down of HFCs;

In relation to eligible incremental costs

*For the consumption manufacturing sector*

- (f) In accordance with paragraph 15(a) of decision XXVIII/2, 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 contained in Annex I to the present report:
- (i) Incremental capital costs (ICCs);
  - (ii) Incremental operating costs (IOCs) for a duration to be determined by the Executive Committee;
  - (iii) Technical assistance activities;

- (iv) Research and development, when required to adapt and optimize alternatives to HFCs with low- or zero-global warming potential;
- (v) Costs of patents and designs, and incremental costs of royalties, when necessary and cost-effective;
- (vi) Costs of the safe introduction of flammable and toxic alternatives;
- (g) To consider 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;
- (h) To consider costs and savings related to opportunities for further avoiding HFCs in HCFC phase-out activities and how they could be addressed; and

For the other matters discussed in relation to documents UNEP/OzL.Pro/ExCom/78/5 and Corr.1

- (i) To request the Secretariat to prepare a document containing the elements of decision XXVIII/2 presented by the Chair of the Executive Committee in his written summary of discussions on agenda item 6(a), Information relevant to the development of the cost guidelines for the phase-down of HFCs in Article 5 countries, at the 78<sup>th</sup> meeting, for further consideration by the Executive Committee at its 79<sup>th</sup> meeting, including a summary of the issues pending, such as eligible incremental costs (consumption manufacturing, production sector, refrigeration servicing sector, and other costs), energy efficiency, capacity building to address safety, disposal and eligibility of Annex F substances subject to high-ambient-temperature exemptions.

*Information relevant to the development of the cost guidelines for the phase-down of HFCs in Article 5 countries: Enabling activities (decision 78/4)*

*Information relevant to the development of the cost guidelines for the phase-down of HFCs in Article 5 countries: Institutional strengthening (decision 78/4)*

4. The Executive Committee decided:

- (a) To request the Secretariat to prepare a document providing draft guidelines on enabling activities for consideration by the Executive Committee at its 79<sup>th</sup> meeting, taking into account the discussions on the matter at the 78<sup>th</sup> meeting; and
- (b) To consider increasing funding for institutional strengthening at a future meeting in accordance with paragraph 20 of decision XXVIII/2.

*Key aspects related to HFC-23 by-product control technologies (decision 78/5)*

5. The Executive Committee decided:

- (a) To take note of the key aspects related to HFC-23 by-product-control technologies contained in documents UNEP/OzL.Pro/ExCom/78/9 and Corr.1;
- (b) To note the urgency of taking action to enable Article 5 countries to meet the HFC-23 reporting and control obligations by 1 January 2020;
- (c) To reiterate, through the World Bank, its request to the Government of China that it provide to the 79<sup>th</sup> meeting reports on the status of the studies on “HFC-23 conversion/pyrolysis technologies” and on “investigation on reducing HFC-23 by-product ratio using best practices” that had been funded through the HCFC production phase-out management plan;
- (d) To invite all relevant HCFC-22 producing parties to provide to the Secretariat, on a voluntary basis, information on quantities of HFC-23 in facilities producing HCFC-22 as well as their experience in controlling and monitoring HFC-23 by-product emissions, including relevant policies and regulations and the related costs, no later than 15 May 2017;
- (e) To request the Secretariat to continue to explore whether there were HFC- or other HCFC-producing facilities in any party that generated HFC-23 emissions and to report back to the Executive Committee by 31 May 2018;
- (f) To request the Secretariat to submit an updated document of key aspects related to HFC-23 by-product control technologies to the 79<sup>th</sup> meeting, including:
  - (i) Information relevant to the cost of closure of HCFC-22 production swing plants;
  - (ii) A description of existing policies and regulations supporting the control and monitoring of HFC-23 emissions and requirements for sustaining those measures in Article 5 countries;
  - (iii) Further analysis of methods to control HFC-23 emissions based on the additional information provided by Executive Committee members and any other available information to the Secretariat, including information from the Clean Development Mechanism;
  - (iv) The current levels of HCFC-22 production and HFC-23 emissions, and information on management practices, per line, in each facility in Article 5 and non-Article 5 countries, including information on approved monitoring methodologies under the United Nations Framework Convention on Climate Change; and
  - (v) Exploration of possible options for monitoring HFC-23 emissions, such as those approved for continuous monitoring under the United Nations Framework Convention on Climate Change, including the associated costs; and
- (g) To consider the need for a desk and field study at the 79<sup>th</sup> meeting.

### **Decisions adopted at the 79<sup>th</sup> meeting**

*Status of additional contributions to the Multilateral Fund (decision 78/1(c)) (decision 79/42)*

1. The Executive Committee decided:
  - (a) To note the report by the Treasurer on the status of additional contributions to the Multilateral Fund (decision 78/1(c)) contained in documents UNEP/OzL.Pro/ExCom/79/44 and Corr.1, and as orally amended during the meeting;
  - (b) Further to note with appreciation the six non-Article 5 countries that had made payments to provide fast-start support for the implementation of the HFC phase-down: Denmark, Finland, Ireland, Italy, Luxembourg and New Zealand; and
  - (c) To request the Treasurer, at the 80<sup>th</sup> meeting, to report to the Executive Committee on the status of the additional contributions for fast-start support separately from other pledged contributions to the Multilateral Fund.

*Overall analysis of the results of the surveys of ODS alternatives (decision 74/53) (decision 79/43)*

2. The Executive Committee decided:
  - (a) To note the overall preliminary analysis of the results of the surveys of ODS alternatives (decision 74/53) contained in documents UNEP/OzL.Pro/ExCom/79/45 and Corr.1;
  - (b) To urge bilateral and implementing agencies to work with relevant Article 5 countries to complete and submit all outstanding surveys on ODS alternatives no later than 18 September 2017, noting that unspent balances of surveys not submitted to the 80<sup>th</sup> meeting had to be returned to the 81<sup>st</sup> meeting in line with decision 78/2(c); and
  - (c) To request the Secretariat to submit, to the 80<sup>th</sup> meeting, an overall analysis of the results of the surveys of ODS alternatives, updated to include all surveys submitted to the Secretariat by 18 September 2017.

*Development of the cost guidelines for the phase-down of HFCs in Article 5 countries: Draft criteria for funding (decision 78/3) (decisions 79/44 and 79/45)*

3. The Executive Committee decided:
  - (a) To note the development of the cost guidelines for the phase-down of HFCs in Article 5 countries: draft criteria for funding (decision 78/3) contained in document UNEP/OzL.Pro/ExCom/79/46;
  - (b) To develop guidelines for funding the phase-down of HFC consumption and production for submission to the Thirtieth Meeting of the Parties in 2018, and to finalize the guidelines as soon as possible thereafter, taking into account the views and input provided by the Parties;
  - (c) To agree that, in line with paragraph 11 of decision XXVIII/2 on overarching principles and timelines, the Chair of the Executive Committee would report in relation to the HFC phase-down:

- (i) To the Twenty-Ninth Meeting of the Parties on the progress of the Executive Committee in developing cost guidelines for funding HFC phase-down; and
- (ii) To future Meetings of the Parties on progress made, including on cases where Executive Committee deliberations had resulted in a change in a national strategy or a national technology choice submitted to the Executive Committee.

4. In relation to criteria for considering stand-alone investment projects pursuant to decision 78/3(g), the Executive Committee decided:

- (a) To reiterate decision 78/3(g) and to consider proposals for HFC-related stand-alone investment projects based on the following criteria:
  - (i) That the submitted projects would be considered on a case-by-case basis, should be in individual enterprises deciding to convert to mature technologies, should have broad replicability to the country or region or sector, and should take into account geographic distribution;
  - (ii) That projects must be fully implemented by no more than two years from the time of their approval, that the relevant project completion reports should be comprehensive with detailed information on the eligible incremental capital costs, incremental operating costs, any possible savings incurred during the conversion and relevant factors that facilitated implementation, and that 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;
- (b) That potential projects should be included in the bilateral and implementing agencies' 2018 to 2020 business plans for submission at the 80<sup>th</sup> meeting or subsequent business plans, as appropriate;
- (c) To consider further stand-alone investment projects on a rolling basis after the first meeting in 2019; and
- (d) That any proposal submitted and approved for funding at the 80<sup>th</sup> meeting would be funded, to the extent possible, from additional voluntary contributions provided by non-Article 5 Parties, after giving priority to enabling activities.

*Development of the cost guidelines for the phase-down of HFCs in Article 5 countries: Draft guidelines on enabling activities (decision 78/4(a)) (decision 79/46)*

5. The Executive Committee decided:

- (a) To note the development of the cost guidelines for the phase-down of HFCs in Article 5 countries: draft guidelines on enabling activities (decision 78/4(a)) contained in document UNEP/OzL.Pro/ExCom/79/47;
- (b) To approve enabling activities for Article 5 Parties on the following basis:
  - (i) Countries would be allowed the flexibility to undertake a range of enabling activities to help their national ozone units to fulfil their initial obligations with regard to HFC phase-down in line with the Kigali Amendment;

- (ii) Enabling activities could consist of, but were not limited to:
  - a. Activities to facilitate and support the early ratification of the Kigali Amendment;
  - b. Initial activities identified in paragraph 20 of decision XXVIII/2, including country-specific activities aimed at initiating supporting institutional arrangements, the review of licensing systems, data reporting on HFC consumption and production, and demonstration of non-investment activities, and excluding institutional strengthening, as addressed in decision 78/4(b);
  - c. National strategies that contained the activities in sub-paragraphs a. and b. above;
- (iii) Funding for the preparation of national implementation plans to meet initial reduction obligations for the phase-down of HFCs could be provided, at the earliest, five years prior to those obligations, after a country had ratified the Kigali Amendment and on the basis of guidelines to be approved in the future;
- (iv) Funding for stand-alone initial investment projects could be provided in accordance with the provisions of decision 79/45;
- (c) To provide funding for enabling activities referred to in paragraph (a)(ii) above prior to the preparation of the national implementation plan as specified in the table below, based on the country's HCFC baseline consumption, on the understanding that no further funding for enabling activities, including for HFC-23 activities, would be provided prior to the preparation of national implementation plans:

<b>HCFC baseline (ODP tonnes)</b>	<b>Maximum funding for enabling activities (US \$)</b>
Below 1	50,000
Between 1 and 6	95,000
Above 6 and up to 100	150,000
Above 100	250,000

- (d) That funding requests for enabling activities should meet the following requirements:
  - (i) Ratification of the Kigali Amendment by the government submitting the request or a receipt of letter from the government concerned indicating its intent to make best efforts to ratify the Kigali Amendment as early as possible;
  - (ii) The inclusion of detailed descriptions, in project proposals, of each of the enabling activities that would be undertaken, including institutional arrangements, the cost breakdown and the schedule for implementation, consistent with Executive Committee guidelines;
  - (iii) The duration of a project should be no more than 18 months, starting from the time of its approval, and balances should be returned to the Multilateral Fund within 12 months of that end date;
  - (iv) Bilateral and implementing agencies should include any funding requests for enabling activities in their business plans, which could be submitted to the 80<sup>th</sup> or



subsequent meetings, and subsequently in their work programmes or work programme amendments;

- (v) Any submission should also include a statement by both the country concerned and the relevant bilateral/implementing agency that implementation of the enabling activities would not delay implementation of HCFC phase-out projects; and
- (e) To invite bilateral and implementing agencies to submit, by the 80<sup>th</sup> meeting, funding requests for enabling activities for countries that wanted to take early action on HFCs, with any proposal considered for funding at that meeting to be funded to the extent possible from additional voluntary contributions provided by non-Article 5 Parties.

*Key aspects related to HFC-23 by-product control technologies (decision 78/5) (decision 79/47)*

6. The Executive Committee decided:

- (a) To note documents UNEP/OzL.Pro/ExCom/79/48, Corr.1, Corr.2 and Add.1 on key aspects related to HFC-23 by-product control technologies (decision 78/5);
- (b) To note with appreciation the information related to HFC-23 by-product provided by the Governments of Argentina, China, the Democratic People's Republic of Korea, Germany, India, Japan, Mexico, the Republic of Korea, the Russian Federation, the United Kingdom of Great Britain and Northern Ireland, and the United States of America; the European Union; the Secretariat of the United Nations Framework Convention on Climate Change; a fluorochemical producer; and an independent research and consulting organization;
- (c) To consider possible cost-effective options for compensation for HCFC-22 swing plants to allow for compliance with the HFC-23 by-product control obligations of the Kigali Amendment;
- (d) To request relevant governments of Article 5 countries wishing to close HCFC-22 production swing plants in their respective countries to submit the following preliminary data, for consideration by the Executive Committee at its 80<sup>th</sup> meeting:
  - (i) A list of HCFC-22 swing plants in the country:
    - a. Name;
    - b. Location;
    - c. HCFC-22 production capacity;
    - d. Schedule for closure;
    - e. Date of establishment;
    - f. Name of proprietors;
    - g. Ownership;
    - h. Emissions and ratio of HFC-23 by-product;
    - i. Maximum production of HCFC-22;

- (ii) HCFC-22 production in the last three years countrywide;
- (iii) HCFC-22 production in the last three years for each swing plant;
- (iv) Quantity of export of each plant to non-Article 5 countries;
- (v) Total number of employees in the HCFC-22 industry:
  - a. In the production sector (direct labour + overheads + maintenance);
  - b. In the packaging sectors;
- (vi) Total number of employees per HCFC-22 swing plant (one table per plant) for the last three years:
  - a. Direct labour;
  - b. Overheads;
  - c. Laboratories;
  - d. Maintenance;
  - e. Packaging;
- (vii) The raw material purchases of each HCFC-22 swing plant in the last three years:
  - a. Hydrogen fluoride (metric tonnes);
  - b. Chloroform (metric tonnes);
- (e) To request the Secretariat to contract an independent consultant to undertake an evaluation of cost-effective and environmentally sustainable options of HFC-23 destruction from HCFC-22 production facilities, to submit the report of the consultant to the 81<sup>st</sup> meeting, and to allocate a budget of up to US \$100,000 from the additional contributions to the Multilateral Fund to undertake the evaluation and prepare the report. The scope of the study would include:
  - (i) An assessment of the costs of incineration at an on-site destruction facility, based on characteristics of the facility, including destruction capacity, quantity and frequency of HFC-23 to be destroyed, the expected remaining lifetime, location, and other relevant factors, including:
    - a. Start-up costs for destruction facilities that might currently be in disuse;
    - b. Costs to install a new destruction facility if one was not currently installed;
    - c. Costs to operate a currently installed facility;
  - (ii) An assessment of the costs of incineration at an off-site destruction facility, including collection, transportation and incineration, based on the quantity of HFC-23 to be destroyed, location, and other relevant factors;

- (iii) An assessment of the cost of destroying emissions of HFC-23 by-product through irreversible transformation and other new technologies, where information was available, based on the quantity of HFC-23 to be destroyed, location, and other relevant factors;
- (iv) An assessment of the costs and measures to optimize the HCFC-22 production process to minimize the HFC-23 by-product generation rate and maximize the collection of HFC-23 by-product for destruction based on characteristics of the facility, including capacity, quantity of HFC-23 by-product generated, the expected remaining lifetime, location, and other relevant factors;
- (v) An assessment of the costs of different monitoring and verification methods;
- (vi) An assessment of how the performance and costs of different destruction technology options would vary according to local conditions and the quantity of HFC-23 by-product to be destroyed;
- (f) To invite all relevant HCFC-22-producing Article 5 countries to provide to the Secretariat, on a voluntary basis, information on the elements described in paragraph (e) above by 30 September 2017; and
- (g) To invite implementing agencies to submit to the 81<sup>st</sup> meeting proposals for feasible technology demonstration for HFC-23 by-product mitigation or conversion technologies with the potential for cost-effective, environmentally sustainable conversion of HFC-23.



### Annex III

**DISCUSSIONS BY EXECUTIVE COMMITTEE MEMBERS UNDER AGENDA ITEM 6(A)(I),  
DRAFT CRITERIA FOR FUNDING EXTRACTED FROM THE REPORT OF THE 78<sup>TH</sup>  
MEETING OF THE EXECUTIVE COMMITTEE  
(UNEP/OzL.Pro/ExCom/78/11-paragraphs 44 to 98)**

Sustained aggregate reductions in HFC consumption and production

44. The representative of the Secretariat introduced paragraphs 32 to 39 of document UNEP/OzL.Pro/ExCom/78/5.

45. There was overall agreement with the principle applied in decision XXVIII/2, whereby remaining eligible consumption for funding would be determined on the basis of the starting point of national aggregate consumption. One member said that Article 5 countries had been in favour of the inclusion of that principle because a sector- or substance-specific approach would limit the opportunities for funding, owing to the lack of flexibility. That was especially the case where new technologies were not available. She stressed that this stance was consistent with the text of decision XXVIII/2, whereby eligible consumption for funding was defined without any distinction in terms of substance or sector. Another member said that, in the context of a phase-down rather than a phase-out, limiting consumption and production reduction to particular sectors or substances would constrain a country's ability to take advantage of alternatives to HFCs that had a low-global warming potential (GWP), with considerable impact on conversion and market decisions, and indeed on the sectoral and national economy. Another member said that the phase-down of HFC was more complex than the phase-out of ODS, given the greater proportion of blends than of pure substances, requiring a more flexible approach. Another member stated that it was clear from decision XXVIII/2 that reductions were to be based on national aggregate consumption, rather than sector- or substance-specific amounts, so there was no need to incorporate that as a specific principle in the guidelines. One member stressed that the two key elements of the discussion were flexibility and sustainability.

46. There was general recognition of the complexity involved in determining the formula by which the starting point would be calculated. One member said that, in the past, for phase-out of ODS, the starting point had been the baseline of consumption, or a year close to the baseline. In the present instance, a baseline comprising the average HFC consumption for the period 2020 to 2022, plus 65 per cent of the HCFC consumption baseline, would be too high as a starting point for funding eligibility. A starting point based solely on HFC consumption, however, could be considered too low, as phase-out projects might not address all the projected growth. Further discussion was therefore required on the approach for determining the starting point.

47. One member said that, in the past, funding had been made available for phase-out of consumption of controlled substances while new enterprises were still being established, which increased consumption. The principle of sustained aggregate reduction had been established to ensure that the Multilateral Fund assisted Article 5 countries in meeting their obligations. He stated that the inclusion of HCFCs in the formula for setting the baseline confounded the matter of how the starting point might be determined, and was different from what had been done previously. It was noted that the starting point for a country should be identified at the time of the first funded reduction project. Another member said that, historically, a clear distinction between consumption in the investment and non-investment sectors had been applied for calculating funding levels, and such a distinction might prove useful if distinction by sub-sector was considered too constraining.

48. There was some discussion of whether the starting point should be defined in terms of CO<sub>2</sub> equivalent, metric tonnes or both, and it was agreed that the matter should be considered further.

49. In subsequent discussions, there was some debate on the inclusion in the draft template of the cost guidelines of paragraph 19 of decision XXVIII/2, which requested the Executive Committee to incorporate the principle that remaining eligible consumption for funding in tonnage would 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. One member said that the language of the Kigali Amendment made it clear that that principle should be included among the principles already agreed by the Parties. The Executive Committee agreed to defer further consideration of the matter to a future meeting.

Eligible incremental costs

*Consumption manufacturing sector*

51. The representatives of the Secretariat introduced paragraphs 41 to 64 of document UNEP/OzL.Pro/ExCom/78/5 regarding eligible incremental costs in the consumption manufacturing sector. Incremental capital costs (ICCs) and incremental operating costs (IOCs) were introduced separately.

52. A number of issues were raised during the discussion on ICCs, including: that the six categories of incremental costs outlined in decision XXVIII/2 would necessarily be eligible incremental costs; that more information was required in order to be able to set figures for the level of ICCs, for the duration of IOCs, and for the cost-effectiveness threshold; that the Executive Committee should consider figures based on actual incremental costs and savings, drawing on lessons learned and experience with incremental costs in phasing out HCFCs; that technology and markets for alternatives were constantly evolving and might generate new circumstances that would suggest the need to consider incremental cost calculations made too far in advance of project proposals; and that it might be wiser to create a method for calculating the level of ICCs, the duration of IOCs and the cost-effectiveness threshold, rather than setting levels for them at this point.

53. It was also pointed out that the additional information required to be able to reach a decision on eligible incremental costs could come from various sources. One source was the Secretariat, which could be asked to provide a table showing lessons learned from the conversion of HCFC technology to low-GWP alternatives (including ICCs, IOCs, cost-effectiveness of the conversions, and cases where a low-GWP alternative was available but not chosen, in order to identify barriers to the adoption of low-GWP technology). Another way of obtaining the necessary data would be to have countries submit investment projects, through bilateral and implementing agencies, for individual consideration, on the understanding that the projects approved would have to provide detailed reports on the ICCs and IOCs incurred during the conversion to the chosen low-GWP technology. The conditions for such projects could include: the country's ratification of the Kigali Amendment; only the conversion of manufacturing facilities being eligible; and the deduction of any amount of HFCs eliminated from the country's starting point for aggregate reductions.

54. During the discussion on IOCs, it was pointed out that the original purpose of IOCs was to provide incentives for early adoption of alternatives, and prevent enterprises that phased out early from being at a competitive disadvantage. One member said that the approach to IOCs in the context of HCFC phase-out was appropriate, and that there was no compelling argument for using a different approach to IOCs in the context of HFC phase-down. Clarification was requested regarding the possibility of considering energy efficiency gains as part of the calculation of IOCs. The representative of the Secretariat replied that energy efficiency had not been directly considered in previous calculations of IOCs, and was a matter for further discussion by the Executive Committee. In response to a question about how the promotion of not-in-kind technology might affect IOCs, the representative of the Secretariat explained that that would depend on the project proposed; some project proposals might have higher IOCs, and others lower IOCs. The impact of

not-in-kind technology would therefore be assessed by the Executive Committee when it considered the cost-effectiveness of each proposal.

55. During a subsequent discussion on elements for further consideration, the members of the Executive Committee continued to address the conditions for submission of investment projects in the manufacturing sector that would be used to gain experience on the ICCs and IOCs associated with HFC phase-down in Article 5 countries. They discussed whether it was necessary for the country to have already ratified the Kigali Amendment, or whether the clear communication of definite intent to ratify, with a deadline for that ratification, would be sufficient. One member suggested that the approach that had been taken at the beginning of the HCFC process in this regard should be adopted for HFC phase-down. The members also discussed the deadline for submission of the investment projects; the inclusion of certain types of technology (e.g. not-in-kind technology and manufacturing on site); the need to avoid limiting the scope of the information-gathering exercise; and whether projects that leapfrogged HFC could provide relevant information. In discussing the content of the reports from those potential investment projects, one member stressed the need to include information on energy efficiency costs and savings. With regard to the timeline for project proposals, one member pointed out that, in order to meet the submission deadline, it would be necessary to request bilateral and implementing agencies to present concept notes or proposals as quickly as possible.

Technical assistance activities

Research and development, when required to adapt and optimize low-GWP or zero-GWP

Costs of patents and designs, and incremental costs of royalties, when necessary and cost-effective

Costs of the safe introduction of flammable and toxic alternatives

56. The Chair introduced paragraphs 65 to 87 of document UNEP/OzL.Pro/ExCom/78/5.

57. It was observed that technical assistance activities had been approved on a number of occasions by the Executive Committee: through the Compliance Assistance Programme, as stand-alone activities, as part of institutional strengthening and as part of multi-year agreements. It would therefore be useful if the Secretariat could analyse the different types of activities that had been funded, as well as the types of tonnage associated with those activities, so that the Executive Committee could have a better idea of the effectiveness of the technical assistance. It was also observed that the use of new refrigerants would imply the technicians being exposed to new risks, and thus each project had to make provision for safety equipment to address the flammability and toxicity of the new refrigerants. A new approach to safety issues was required for HFCs, different from the way that HCFCs had been dealt with in the past.

*Production sector*

58. The representative of the Secretariat introduced paragraphs 88 to 95 of document UNEP/OzL.Pro/ExCom/78/5. The incremental costs eligible for funding HFC production phase-down had been agreed in paragraph 15(b) of decision XXVIII/2. Although the categories included conversion of existing production facilities to produce substitutes as well as the cost of new production facilities, the Executive Committee had thus far always approved funding for the production sector on the basis of plant closure, which was considered the most cost-effective and efficient option.

59. One member noted that, in the past, the Executive Committee had been dealing with fluorinated alternatives and said that it was time to consider other alternative technologies, as had been noted in paragraph 15(b)(v) of decision XXVIII/2, as well as the energy efficiency of all the alternatives. Other members said that it was also important to consider the issue of HFC-23 as a by-product of the production of HCFC-22 process, and several members noted that the most efficient way to address HFC-23 emissions

would be to provide sufficient funding to Article 5 countries to allow them to close down the production of HCFC-22 in their countries. It was important to remember that any other solution for addressing HFC-23 would still need to be funded by the Multilateral Fund, otherwise the Article 5 countries would find it difficult to meet their commitments under the Kigali Amendment. With respect to the production of HCFC-22 for use as feedstock, mechanisms to control HFC-23 emissions were required. However, those issues were specific to a certain type and number of plants only; the best solution for eliminating emissions of HFC-23 was to eliminate the production of HCFC-22.

60. It was suggested that the production sector should use as its starting point the elements agreed to by the Parties in paragraph 15(b) of decision XXVIII/2. Those elements could then be developed further by the Sub-group on the Production Sector. One member noted that the production of alternatives to HFCs could be an eligible cost. Other members noted that this was identified as an eligible cost in decision XXVIII/2, but stressed that the mandate of the Executive Committee was to address HFC phase-down by means of the most cost-effective option. It was proposed that the Secretariat also be asked to compile available information on costs and compensation in similar cases in the production sector.

61. Another member said, with respect to HFC-23 by-product controls, that it might be possible to explore the issue of funding for closure of HCFC-22 production swing plants that were not presently eligible for funding. That might be the most cost-effective solution for eliminating emissions of HFC-23. However, in order to take that decision it would be important to have a report by the Secretariat on the estimated costs of closing the remaining swing plants. It was suggested that the Secretariat could use as a starting point for that calculation the cost-effectiveness level established for stage I of the HCFC production phase-out management plan (HPPMP) for China, plus or minus 20 per cent.

62. Several members suggested that there was no need to reconstitute the Sub-group on the Production Sector at the present time, although that decision could be reconsidered when the Executive Committee addressed agenda item 6(c), Key aspects related to HFC-23 by-product-control technologies.

#### *Refrigeration servicing sector*

63. The representative of the Secretariat introduced paragraphs 96 to 104 and Annex IV of document UNEP/OzL.Pro/ExCom/78/5, which addressed eligible incremental costs in the refrigeration servicing sector. He recalled that phasing out ODS use in the refrigeration sector was one of the Executive Committee's priorities and that all the categories of eligible costs found in paragraph 15(c) of decision XXVIII/2 had been funded in the past as part of the refrigeration servicing sector. Many of the activities currently being implemented to phase out HCFCs in the refrigeration sector could have an impact on HFC phase-down, but, given that many of the low-GWP alternatives were classified as having some level of flammability or toxicity, Article 5 countries would need to consider strategies that focused on the safe introduction of those alternatives.

64. It was pointed out that the servicing sector was one of the most important sectors being addressed by the Executive Committee, one which was of particular importance to Article 5 countries as it would be the main sector affected by the HFC phase-down and their main funding source for meeting their compliance obligations. The HFC phase-out cost guidelines should address the same targets, with some exceptions, as those addressed by the HCFC guidelines, and build upon them to address such issues as the flammability, toxicity and cost of the alternatives. As an integrated approach was required, it would be useful to have an in-depth review of the subject by the Secretariat, although one member said that any work being requested of the Secretariat should also cover additional issues such as heating elements, heat pumps, mobile air-conditioners, supply chains, and energy efficiency and related costs.

65. One member suggested that a different approach to those costs was required for LVC countries, as had been acknowledged in paragraph 16 of decision XXVIII/2. A more in-depth analysis of the incremental costs in the servicing sector was needed, consistent with the Secretariat's observation that servicing needs



varied according to national circumstances. It should encompass existing capacity that had already been built in ODS phase-out, especially in countries with large volumes of ODS, as well as existing infrastructure in countries that were more technologically advanced, and that had servicing infrastructure. More information was also required on the recovery, recycling and reclamation of HCFCs and the investments that had been made in relation to those activities.

66. The majority of countries were on the cusp of embarking on stage III of their HPMPs and, for the majority of them, only the servicing sector remained to be addressed. Adequate funding was required to make use of low- or zero-GWP alternatives, some of which were flammable, toxic, expensive or required high-pressure systems for their use. There was also limited capacity in Article 5 countries for the use of natural refrigerants, and agreed standards were required for their use in those countries. While a similar approach could be used to that in stage II of the HPMPs, the phase-down of the HFCs was different from the phase-out of HCFCs; the alternatives were more complex and more expensive and needed additional analysis. There was also a need to leverage potential resources and reflect on the actual needs of the Article 5 countries.

67. The Secretariat should be requested to undertake supplementary analysis of past practices so that a holistic approach could be developed that addressed all the necessary elements for the servicing sector. That required a good understanding of what had been done in the past and what would be needed for the HPMPs in the future. It would also require an understanding of what activities had been planned by the private sector in Article 5 countries, as they shifted to more efficient and complex systems. The activities of the Multilateral Fund should not be looked at in isolation and the Secretariat should be asked to investigate the synergies between the activities being undertaken in the private sector and those being supported by the Multilateral Fund.

68. One member indicated that, at the 77<sup>th</sup> meeting, the Secretariat had made two useful proposals which should again be circulated to the Executive Committee. The first was to request the Secretariat to prepare a document on all aspects of the refrigeration servicing sector, taking into account previous policy documents, case studies, monitoring and evaluation reviews, and the work undertaken by bilateral and implementing agencies in developing and implementing training and technical assistance programmes. The second was a request to the Secretariat to prepare a paper, in cooperation with bilateral and implementing agencies, that covered the key aspects that needed to be included when developing a set of training 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.

#### *Other costs*

69. The Chair introduced paragraph 105 of document UNEP/OzL.Pro/ExCom/78/5 on other eligible incremental costs and said that the text of paragraph 25 of decision XXVIII/2 had been included in the proposed draft template of the cost guidelines contained in Annex I to document UNEP/OzL.Pro/ExCom/78/5.

70. There was no discussion of the matter by the Executive Committee.

#### Energy efficiency

72. The representative of the Secretariat introduced paragraphs 107 to 115 and Annex V of document UNEP/OzL.Pro/ExCom/78/5 regarding energy efficiency.

73. The Committee's mandate with respect to energy efficiency was set out in paragraphs 16 and 22 of decision XXVIII/2. During the discussion, several members emphasized the importance of staying within that set mandate. Some members questioned whether the guidance called for by the decision was to be developed for the direct financing of energy efficiency improvements or to be taken into account by

countries and agencies when phasing down HFCs. One member also mentioned that energy efficiency aspects needed to be considered in relation both to production and to consumption. Overall, there was a shared aspiration to take advantage of opportunities to maintain or enhance energy efficiency in the implementation of the HFC phase-down, with the understanding that the focus should remain on the HFC phase-down, given that Parties' legal obligations pertained thereto, and not to energy efficiency.

74. A number of members highlighted the Committee's limited experience in handling energy efficiency matters, although it was pointed out that they had, at some stage, been discussed in relation to heat exchangers. One member underscored the need to prioritize the air-conditioning sector and to thoroughly understand the technical aspects of energy efficiency before developing the cost guidance, in part to be able to determine when technology upgrades were unavoidable or simply optional. That said, it was generally recognized that the primary aim of the Multilateral Fund was not to finance energy efficiency. There were other funding mechanisms for energy efficiency, and the potential for financing or co-financing from other institutions, both national and international, should be investigated, although members acknowledged that there were challenges involved.

75. Several members expressed concern about covering incremental costs for energy efficiency, and proposed that an attempt be made to quantify economic benefits that offset the upfront cost of improved energy efficiency of appliances, such as payback periods. It was also mentioned that energy efficiency should be considered as an eligible incremental cost and not passed on to the consumer, as higher purchase costs limited the widespread adoption of new technologies. Furthermore, payback periods should not be taken into consideration, as they were not only highly dependent on a variety of factors specific to individual countries, and thus complex to calculate, but also less of a factor in the decision-making of consumers in developing countries.

76. It was also noted that industrial development in the refrigeration and air-conditioning sector was strongly affected by decisions taken under the Montreal Protocol, and that it was therefore important to incorporate energy efficiency considerations into the policies and guidelines of the Protocol.

77. One member spoke about the role played by minimum energy conservation standards in ensuring that there was a market for energy efficient air-conditioning and refrigeration equipment, along with testing and verification to ensure that products on the market met those standards. Another member, however, insisted that adoption of such standards remained voluntary, although enabling or capacity-building activities related to the adoption of such standards might be considered at some point.

78. In light of the above, it was proposed that the Secretariat be requested to do additional work on the various aspects of energy efficiency in the context of the HFC phase-down in order to assist the Committee in its deliberations. One member noted the existence of four European Union directives addressing energy efficiency, including the heating and cooling sectors, and contributing to the achievement of the European Union's targets for the reduction of greenhouse gas emissions, and suggested that the Secretariat consider them when undertaking the proposed additional work. Another member said that, in view of the Kigali Amendment, consideration of energy efficiency should be in specific relation to the expected energy efficiency of equipment with new refrigerants only.

79. Several members expressed their desire to take up the issue of energy efficiency again when discussing other matters on the agenda of the present meeting, such as enabling activities.

#### Capacity building to address safety

80. The Chair introduced paragraph 116 of document UNEP/OzL.Pro/ExCom/78/5. He noted that the issue of capacity building to address safety was specifically addressed in paragraph 23 of decision XXVIII/2, and that paragraph 3 was also of relevance.

81. The members of the Executive Committee had nothing to add to the discussions on the matter that had already taken place. The Chair noted that the discussions on the matter would continue when the Committee considered technical assistance activities and the refrigeration servicing sector.

Disposal

82. The Chair introduced paragraphs 117 to 124 of document UNEP/OzL.Pro/ExCom/78/5.

83. There was no discussion on the matter by the Executive Committee.

Eligibility of Annex F substances subject to high-ambient-temperature exemptions

84. The Chair introduced paragraphs 125 to 131 of document UNEP/OzL.Pro/ExCom/78/5. He noted that the issue of eligibility of Annex F substances subject to high-ambient-temperature exemptions was addressed in paragraph 35 of decision XXVIII/2, and that that text had been included in the proposed template contained in Annex I to document UNEP/OzL.Pro/ExCom/78/5.

85. There was no discussion on the matter by the Executive Committee.

General discussion on the matter of draft criteria for funding

86. During discussion of agenda item 6(a)(i), Draft criteria for funding, a general discussion took place on matters concerning the Kigali Amendment and the role of the Executive Committee in fulfilling its mandate pursuant to decision XXVIII/2.

87. One member said that the present discussions should contribute to the formulation of a global strategy or policy on the phase-down of HFCs, of which the present cost guidelines would constitute one part. Development of that strategy should be undertaken in a holistic and inclusive manner. Certain factors, however, were obstructing that process. For example, the Executive Committee had not been given the mandate to collect data on HFCs from non-Article 5 countries, which was not consistent with the goal of global phase-down. For the purposes of transparency, strategic decisions should be put before the Open-ended Working Group and considered in a step-by-step manner. In addition, the categorization, under the Kigali Amendment, of Article 5 countries into group 1 and group 2 according to their HFC consumption baseline years was based on their respective capabilities. The Executive Committee, however, in accepting the additional voluntary contributions of US \$27 million for fast-start action on the implementation of the Kigali Amendment for Article 5 countries that had HFC consumption baseline years from 2020 to 2022 had discriminated against group 2 countries. Finally, he said that the deliberations at the present meeting would be rendered more inclusive by relaxation of the rule that only one member from each constituency speak on any single issue. Another member expressed agreement with those viewpoints, and asked for clarification from the Secretariat whether previous offers of conditional funding had been accepted or rejected.

88. On the matter of the mandate of the Executive Committee and the inclusiveness of the process, one member stressed that the priority of the Executive Committee was to work within the mandate provided by the Meeting of the Parties to operationalize the cost guidelines and to do so in a manner that benefited all countries. Another member said that it was important to keep working in developing the cost guidelines and deciding what further information to seek from the Secretariat in preparation for the following meeting, while engaging in wider discussion on the vision framing the process.

89. On the matter of discrimination against particular categories of countries, one member said that none of the text or proposals at the present meeting had implied any discrimination against Article 5 countries on the basis of any grouping. Another member said that the process that had led to the group 1 and group 2 categorization in Kigali demonstrated the flexibility of the Parties and the principle of common

but differentiated responsibilities. Another said that membership of group 1 or group 2 simply related to the timing of their obligations, and the earlier flow of funding to countries with earlier baseline years was for practical and not discriminatory reasons.

90. On the related matter of the additional funding of US \$27 million accepted by the Executive Committee, one member said that that funding, which was additional to the regular replenishment process, was intended to facilitate early action, without specific regard to any group of countries, and was consistent with the usual practice of the Multilateral Fund of providing support to countries a few years prior to their obligations coming into force. Another member suggested that the donation of US \$27 million could be further discussed to address any possible concerns. Another member said that the decision had been taken to assist Article 5 countries with near-term needs, and should be handled in accordance with the agreement reflected in decision 77/59. One member also said that the Kigali Amendment did not differentiate between Article 5 group 1 countries and Article 5 group 2 countries with regard to access to funding.

91. Responding to the query about receiving funds outside the regular contributions to the Multilateral Fund containing conditionalities, the Chief Officer recalled that a proposed donation from the European Union containing a number of conditionalities had not been accepted by the Committee. On the other hand, the funding of US \$27 million for fast-start action by Article 5 countries that had HFC consumption baseline years from 2020 to 2022 had been accepted with appreciation by the Executive Committee.

92. With regard to the proposal for a global policy on HFCs, one member said that the Kigali Amendment had been developed to fulfil that role. The member who had initially raised the issue said that the envisioned policy should be based on global information on the current status of HFC consumption and production in various sectors, in order to inform planning for HFC phase-down. To obtain an accurate global picture, it was important to gather information on non-Article 5 countries as well as on Article 5 countries. Another member suggested that the TEAP could be a source of relevant information.

93. On the matter of the number of members in a particular constituency speaking on any specific issue, some members recalled the historical basis for that, both to maintain the balance of Article 5 and non-Article 5 representation, and to ensure consistency in the views expressed by a particular constituency. One member noted that the formation of contact groups gave all members the opportunity to express their individual opinions, while maintaining the integrity of each constituency in plenary sessions.

94. Regarding the matter of reporting to the Open-ended Working Group at each stage of the process of developing the cost guidelines, one member said that that could significantly delay the finalization of such guidelines.

95. Following an exchange of views, the Chair stressed that no party should or would be excluded from the Kigali Amendment implementation process. Historically, the ozone community had faced a number of challenges and had always arrived at solutions through a transparent, consensual dialogue. He called on members of the Executive Committee to try to find a way to overcome the difficulties they were facing in the present discussions.

96. Later in the meeting, one member reiterated the importance of gathering data on the consumption and production of HFCs, pursuant to item 5 on the agenda, but extending it to the collation of additional information from non-Article 5 countries, both in the interests of transparency and to ensure the development of strategies that were implementable. He urged the Secretariat to make appropriate efforts to gather those data.

97. Another member expressed the view that the Multilateral Fund was moving towards a more technical regime, rather than acting as a facilitator of the finance mechanism, in that the Secretariat was being asked to provide technical documentation, including through the engagement of outside consultants. Those were matters, it was again suggested, for which the expertise of the TEAP might be engaged. The

Chief Officer clarified that TEAP had its own terms of reference and undertook only work requested by the Meeting of the Parties. If the Fund Secretariat was requested to provide information additional to that available from the reports of the TEAP, then it requested that information from other sources, or engaged independent consultants or experts to obtain that information. Another member said that the members of the Executive Committee had the capability to assess the best way forward in obtaining additional information, whether through the Secretariat, or through the engagement of external expertise, or through a request to the Meeting of the Parties, or by other means.

98. One member said that the matter of energy efficiency was of generic importance and should be seen as a cross-cutting issue to be included in any consideration of other issues.



## Annex IV

### **DISCUSSIONS ON ENERGY EFFICIENCY BY THE PARTIES OF THE MONTREAL PROTOCOL AT THE 39<sup>TH</sup> OPEN-ENDED WORKING GROUP MEETING (UNEP/OzL.Pro.WG.1/39/5)**

1. Introducing item 7 of the agenda, the Co-Chair of the Open-ended Working Group recalled that by decision XXVIII/3 the parties had requested the Technology and Economic Assessment Panel to review energy efficiency opportunities in the refrigeration and air-conditioning and heat-pump sectors related to a transition to climate-friendly alternatives. In addition, parties had been invited to submit, on a voluntary basis, any relevant information on energy efficiency innovations in those sectors. The submissions received were contained in document UNEP/OzL.Pro.WG.1/39/INF/5. The Panel would prepare a report on the matter for consideration by the parties at their Twenty-Ninth Meeting in November in Montreal.
2. One representative, supported by others, requested an extension to the deadline for the submission of relevant information on energy efficiency, given the small number of parties that had submitted so far, and the challenges faced by many countries in preparing timely submissions on such a new and complex topic. The opportunity for further submissions would make available additional information and promote knowledge exchange on the matter, and give impetus and guidance to those countries that were still at an early stage in developing energy efficiency measures. Lastly, she stressed the importance of mobilizing funding to assist developing countries in that area.
3. A number of representatives urged that a workshop be organized to increase knowledge of energy efficiency opportunities in the refrigeration and air-conditioning sectors during the transition to low-GWP and zero-GWP alternatives, with co-benefits for the climate and for energy provision. Several representatives suggested widening the idea by holding a series of regional workshops to extend the knowledge-building and enabling activities to as many Article 5 parties as possible. Such an initiative would also benefit national ozone officers, who would need to develop expertise outside their traditional responsibilities under the Montreal Protocol. One representative highlighted the need for capacity-building and training of service and maintenance personnel in a field of rapidly changing technology. Another representative said that intermediate opportunities for sharing information were available, such as presentations at regional ozone network meetings. Another representative said that in order to ensure the proper level of expertise, regional seminars or forums, attended by experts and specialists, would be preferable to conventional workshops. It was important, he said, to build strong relationships with experts in order to inform strategy development and policy formulation at the national level.
4. One representative, speaking on behalf of a group of parties, said that energy efficiency was one of the most crucial challenges currently facing the planet. Given the wide scope of the matter, he continued, the Montreal Protocol should focus only on those areas that fell within its areas of expertise. The policies in place in the European Union demonstrated that there were many innovative ways of promoting energy efficiency. Regarding the requests for workshops on energy efficiency, and for more time to submit documentation as requested by decision XXVIII/3, he said that a step-wise approach should be adopted, with the Technology and Economic Assessment Panel first submitting its report to the Meeting of the Parties, in line with its mandate, before considering what further steps to take. Another representative supported that approach. One representative said that discussing energy efficiency under the aegis of the Montreal Protocol, and linking it to the Kigali Amendment, was too ambitious an expectation for the parties to the Protocol and was straying far from the Protocol's mandate.
5. Several representatives urged that a more active, flexible approach be adopted, reflecting the "spirit" of the Kigali Amendment. Energy efficiency was accorded high priority by developing countries, and a holistic, integrated approach needed to be adopted to the implementation of the Kigali Amendment, whereby the status of energy efficiency was recognized through the timely organization of workshops, as had been done for the matter of safety standards.

6. The representative of India introduced a conference room paper, submitted by India, Bahrain, Kuwait, Lebanon and Saudi Arabia, setting out a draft decision for consideration by the Working Group on issues related to financial and technical support for energy efficiency in Article 5 parties. The draft decision, he said, recognized the importance of energy efficiency for those parties and requested the Technology and Economic Assessment Panel to assess technology and funding requirements of the Article 5 parties to maintain and/or enhance energy efficiency in the refrigeration and air-conditioning and heat pump sectors while phasing down HFCs under the Kigali Amendment to the Montreal Protocol and to assess the elements of incremental capital and operating costs for maintaining and/or enhancing energy efficiency on transitioning to low-GWP alternatives from high-GWP HFCs, drawing on international experience, and requested the Technology and Economic Assessment Panel to submit the report thereon to the Open-ended Working Group at its fortieth meeting, and requested the Ozone Secretariat to organize a workshop on energy efficiency opportunities back to back with that meeting.

7. He observed that the replacement of HFC refrigerants in itself would have limited benefits for climate change, since most of the impacts on emissions arose from energy use. While previous energy efficiency improvements from the phase-out of ozone-depleting substances had been essentially treated as a technology upgrade, in the case of the Kigali Amendment the same principle could not be adopted as the subject matter was global warming. This was of particular importance to developing countries, where the use of refrigeration and air-conditioning would continue to grow, especially in high-ambient-temperature countries. The transition to low-GWP alternatives would have clear implications for energy efficiency, and there was a need to identify those aspects which could be considered in the context of the Montreal Protocol. It was emphasized that energy efficiency needed to be addressed with specific reference to the phasing down of HFCs only. In conclusion, he commended to the Working Group a document submitted to the Executive Committee at its seventy-eighth meeting, held in Montreal in April 2017, on options for improving energy efficiency in air-conditioning in buildings.

8. The representative of Rwanda introduced a conference room paper submitted by the group of African States containing a proposal for a draft decision requesting the Secretariat to organize a workshop to commemorate the thirtieth anniversary of the Montreal Protocol, including discussions on the co-benefits of climate change mitigation and ozone layer protection, and the co-benefits of the Montreal Protocol for the energy sector, including for energy security, cost savings, resilience and efficiency. She expressed the hope that the opportunities to enhance energy efficiency that had been realized in phasing out ozone-depleting substances would be replicated when phasing down HFCs. She also drew attention to the decision of the sixteenth session of the African Ministerial Conference on the Environment, held in Libreville in June 2017, to adopt policies and mechanisms to deliver safe, affordable, effective and efficient cooling technologies in order to implement the Kigali Amendment. She added that she fully supported the proposals put forward by India and others and looked forward to working together with them. She was flexible on the timing of the proposed workshop, and suggested that it could set the stage for further workshops in the future.

9. Several representatives expressed support for the proposals contained in the two conference room papers. All the representatives who took the floor recognized the crucial importance of realizing opportunities to improve standards of energy efficiency in the process of implementing the provisions of the Kigali Amendment, and the need for more information on possible ways forward. Several drew attention to Sustainable Development Goal 7, on access to energy, including the target of doubling the global rate of improvement in energy efficiency by 2030. The implementation of both the Kigali Amendment and the Paris Agreement on climate change would put countries on the path to sustainable development.

10. Several representatives highlighted the negative impacts of high levels of energy consumption on both national economies and greenhouse gas emissions; in some cases, refrigeration and air-conditioning accounted for as much as 50 per cent of electricity consumption in buildings. In other countries refrigeration and air-conditioning accounted for 75 per cent of total energy consumption.



11. Some representatives called for work to be carried out on the implications of work on energy efficiency for National Ozone Units, and the support they could be given through the Multilateral Fund, or other sources of financial assistance, and the general need for capacity-building assistance for Article 5 parties. Several representatives highlighted the cost implications of the installation of new equipment even if the equipment had lower energy running costs thereafter, and the need for investment in training of servicing technicians and in increasing public awareness. Some representatives observed that information needed to be made available not only on possible ways forward but on what other institutions were doing.

12. Some representatives recalled that the topic had been discussed on many occasions in the debates on the Kigali Amendment. The decision accompanying the adoption of the Amendment incorporated a number of references to energy efficiency, including support for low-volume-consuming countries and a request to the Executive Committee of the Multilateral Fund to include energy efficiency improvements in its guidelines.

13. Several representatives argued that the proposed workshop, which was included in both draft decisions, should be held as soon as possible, preferably back to back with the Twenty-Ninth Meeting of the Parties in November 2017 rather than waiting for the fortieth meeting of the Open-ended Working Group in 2018. This would help advance understanding of the issues; additional workshops could be organized to follow up the initial one. One representative highlighted the value of a workshop, as opposed to a report, in allowing for questions and dialogue; she viewed them as complementary and mutually supportive.

14. Other representatives, however, observed that the Open-Ended Working Group could only forward draft decisions to the Meeting of the Parties for approval; it did not possess the power to take decisions itself, and it would therefore be impossible to agree to organize the workshop in November. There were also budgetary constraints. In any case, it would be preferable to decide the way forward in the light of the report the Technology and Economic Assessment Panel was scheduled to produce for discussion at the Twenty-Ninth Meeting of the Parties.

15. In terms of participation in the workshop, some representatives suggested that policymakers, as well as technical experts, should be invited, as the development of appropriate regulations and building codes was an important part of the discussion. Others suggested that researchers and representatives of industry, including the power sector, and of relevant multilateral institutions, should be included. Others requested the inclusion of a discussion on potential sources of funding. One representative stated that she hoped the process of determining the agenda for the workshop would be open and transparent, and would draw on expertise beyond that present in the Technology and Economic Assessment Panel. Some representatives drew attention to the need for the workshop to be conducted in all United Nations languages.

16. One representative queried the suggestion that the Technology and Economic Assessment Panel should be requested to assess the technology and funding requirements for energy efficiency improvements in Article 5 parties, and argued that funding needs could only be assessed once parties had decided the appropriate way forward. Another representative, however, observed that the Panel had been asked to assess mitigation scenarios for HFC phase-down before the Kigali Amendment had been adopted, so this was not unprecedented. It had been clearly agreed that energy efficiency improvements were a crucial element in implementing the Kigali Amendment.

17. Responding to the discussions, the representative of India stressed the need for action to follow the gathering of information. Accepting that improvements in energy efficiency had always been a feature of previous transitions, he observed that this process nevertheless involved accelerating the normal technology development cycle and always implied up-front costs. It was of course right for the Executive Committee to consider the issue, but it should do so in the context of policy objectives agreed by the parties.

18. The Co-Chair suggested that an appropriate way forward would be for the proposers of the two draft decisions to discuss together how their proposals could be merged, and then to discuss the draft decision with other interested parties. The meeting could then resume discussion of the topic.

19. Subsequently, the representative of India reported that the proposers of the two draft decisions had agreed to merge their proposals into one draft decision, as contained in a revised conference room paper. The revised draft decision requested the Technology and Economic Assessment Panel to assess capacity-building and servicing sector requirements in the refrigeration and air-conditioning and heat pump sectors, and also requested the Ozone Secretariat to organize a workshop on energy efficiency opportunities with specific reference to the phasing down of HFCs at the time of the Twenty-Ninth Meeting of the Parties and the commemoration of the thirtieth anniversary of the Montreal Protocol.

20. Several representatives urged the parties and the Secretariat to show flexibility in organizing the proposed workshop in conjunction with the Twenty-Ninth Meeting of the Parties in Montreal in November 2017, and also requested any interested donors to assist with the funding of the proposed workshop. Several other representatives said that the Secretariat could only organize such a workshop if mandated through a decision of the Meeting of the Parties; the Open-ended Working Group had no mandate to request the Secretariat to undertake such action. Consequently, a workshop in Montreal at the time of the Twenty-Ninth Meeting of the Parties would need to be organized and funded outside the mandated activities of the Secretariat. The Executive Secretary of the Ozone Secretariat confirmed that the organization of the proposed workshop under the aegis of the Montreal Protocol could only be undertaken as mandated by the Meeting of the Parties.

21. The Working Group agreed to forward the revised draft decision, as set out in section E of annex I to the present report, to the Twenty-Ninth Meeting of the Parties for further consideration.