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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Eighty-first Meeting
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**DEVELOPMENT OF THE COST GUIDELINES FOR THE PHASE-DOWN OF HFCs IN
ARTICLE 5 COUNTRIES: DRAFT CRITERIA FOR FUNDING
(DECISIONS 78/3(i), 79/44(b)) AND 80/76(b))**

Background

1. Subsequent to the adoption of the Kigali Amendment and its related decision XXVIII/2, the Executive Committee considered documents containing Information relevant to the development of the cost guidelines for the phase-down of HFCs in Article 5 countries: draft criteria for funding, submitted to the 78th, 79th, and 80th meetings.¹

2. As a result of the discussions, the Executive Committee has developed a draft template of the cost guidelines for the phase-down of HFCs, and has decided to include the text related to the following elements of decision XXVIII/2 into the draft template: flexibility in implementation that enabled parties to select their own strategies and priorities in sectors and technologies; cut-off dates for eligible capacity; second and third conversions; sustained aggregate reductions; categories of eligible incremental cost for the production, consumption manufacturing and refrigeration servicing sectors; and eligibility of Annex F substances subject to high-ambient-temperature exemption. The Executive Committee also agreed not to include text on “other costs”² in the template.

3. In relation to the element on “consumption manufacturing sector”, the Executive Committee also 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 approved criteria to consider those proposals (decision 79/45). To date, one such project has been approved³ and additional 13 project proposals⁴ have been submitted to the 81st meeting.

¹ UNEP/OzL.Pro/ExCom/78/5 and Corr.1, UNEP/OzL.Pro/ExCom/79/46 and UNEP/OzL.Pro/ExCom/80/55, respectively.

² Paragraph 25 of decision XXVIII/2 on “other costs” states that “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”.

³ UNEP/OzL.Pro/ExCom/80/32.

⁴ Proposals were submitted by the Governments of Argentina, China, Colombia, Dominican Republic, Ecuador, Egypt, Islamic Republic of Iran, Jordan, Lebanon, Mexico and Zimbabwe.

4. In relation to the refrigeration servicing sector, the Executive Committee also requested the Secretariat to prepare a preliminary document for the 82nd meeting, in cooperation with bilateral and implementing agencies, on all aspects related to the refrigeration servicing sector that support the HFC phase-down (decision 80/76(c)). In this regard, the Secretariat had preliminary discussions with bilateral and implementing agencies at the Inter-agency coordination meeting,⁵ and decided to convene a meeting for an in-depth discussion on this matter with experts from the agencies in Montreal on 29-30 May 2018.

5. As of the conclusion of the 80th meeting, the following elements of decision XXVIII/2 were still under discussion: methodology for determining the starting point for sustained aggregate reductions in HFC consumption and production; eligible incremental costs (refrigeration servicing sector); energy efficiency, capacity building to address safety, and disposal. The Committee decided *inter alia* to continue to use the draft template of the cost guidelines for the phase-down of HFCs and the list of outstanding elements for further discussion, contained in Annexes XXVIII and XXIX, respectively to the report of the 80th meeting,⁶ as the working documents for discussion at the 81st meeting and future meetings, noting that additional elements could be added as required (decision 80/76(b)).

6. Pursuant to decision 80/76(b), the Secretariat has prepared this document, which contains the following two annexes:

- (a) Annex I presents the draft template of the cost guidelines for the phase-down of HFCs in Article 5 countries, which includes the text related to the elements of decision XXVIII/2 agreed by the Executive Committee⁷; and
- (b) Annex II presents the outstanding issues for further discussion⁸: issues related to the cost guidelines; additional work to be requested to the Secretariat in relation to the manufacturing sector and energy efficiency; and other general matters related to HFC phase-down. Appendix I to this Annex contains the Conference Room Paper related to energy efficiency submitted by the Government of Austria at the 80th meeting.

Observations for consideration by the Executive Committee

Energy efficiency

7. The Executive Committee may wish to note that at their Twenty-ninth Meeting,⁹ the Parties discussed the Technology and Economic Assessment Panel (TEAP) report on Information submitted by parties on energy efficiency opportunities in the refrigeration and air-conditioning sector (in response to decision XXVIII/3). Annex III to the present document contains the summary of the deliberations by the Parties on this matter, should the Executive Committee wish to consider them during its discussion on the cost guidelines.

8. The Executive Committee may also wish to note that the Parties adopted decision XXIX/10 on Issues related to energy efficiency (in relation to maintaining and/or enhancing energy efficiency in the refrigeration, air-conditioning and heat-pump sectors) while phasing down HFCs, which *inter alia* requested:

- (a) TEAP to assess technology options and requirements (challenges to their uptake; their long-term sustainable performance and viability, their environmental benefits in terms of

⁵ Montreal, 6-8 March 2018.

⁶ UNEP/OzL.Pro/ExCom/80/59.

⁷ Annex XXVIII of UNEP/OzL.Pro/ExCom/80/59.

⁸ Annex XXIX of UNEP/OzL.Pro/ExCom/80/59.

⁹ Montreal, Canada, 20 - 24 November 2017.

carbon dioxide equivalents), capacity-building and servicing sector requirements, and related capital and operating costs;

- (b) TEAP to provide an overview of the activities and funding provided by other relevant institutions, as well as definitions, criteria and methodologies used in addressing energy efficiency while phasing down HFCs, as well as those related to low-global warming potential (GWP) and zero-GWP HFC alternatives including on different financing modalities;
- (c) TEAP to prepare a final report for consideration by the 40th Open-ended Working Group (OEWG) meeting, and thereafter an updated final report to be submitted to the Thirtieth Meeting of the Parties taking into consideration the outcome of the workshop described in paragraph (d) below; and
- (d) The Ozone Secretariat to organize a workshop on energy efficiency opportunities while phasing down HFCs at the 40th OEWG meeting.

9. The TEAP report in response to decision XXIX/10 is expected to be available at the Ozone Secretariat website, approximately three weeks before the 81st meeting.

Report from the Executive Committee to the Parties to the Montreal Protocol

10. The terms of reference of the Executive Committee *inter alia* require the Executive Committee to report annually to the Meeting of the Parties. Paragraph 11 of decision XXVIII/2 also requested the Chair to report back to the Meeting of the Parties on the progress of the Executive Committee in developing cost guidelines for funding HFC phase-down.

11. Accordingly, the Draft report of the Executive Committee to the Thirtieth Meeting of the Parties to the Montreal Protocol has been submitted to the 81st meeting.¹⁰ The attention of the Executive Committee is drawn to Section I of the draft report, which presents a comprehensive description of all policy matters related to the Kigali Amendment; to Annex I, which lists all the documents considered and all the decisions taken in relation to matters arising from the Kigali Amendment;¹¹ and to Annex II, which contains the cost guidelines agreed to date.

Recommendation

12. The Executive Committee may wish:

- (a) To note the document on Development of the cost guidelines for the phase-down of HFCs in Article 5 countries: draft criteria for funding, contained in document UNEP/OzL.Pro/ExCom/81/53;
- (b) [To request the Secretariat to provide to the 82nd meeting a summary of the Parties' deliberations at the 40th meeting of the Open-Ended Working Group (OEWG) and the Thirtieth Meeting of the Parties in relation to the Technology and Economic Assessment

¹⁰ UNEP/OzL.Pro/ExCom/81/56. The report will be updated to reflect the decisions taken at the 81st meeting. The Thirtieth Meeting of the Parties, will be held in Quito, Ecuador, from 5 to 9 November 2018.

¹¹ The policy matters include: additional contributions to the Multilateral Fund; 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; information relevant to the development of the cost guidelines requested from the Executive Committee: Draft criteria for funding the phase-down of HFCs; enabling activities required to assist Article 5 countries in commencing their reporting and regulatory activities in relation to the HFC-control measures and institutional strengthening; key aspects related to HFC-23 by product-control technologies.

Panel (TEAP) report on issues related to energy efficiency in response to decision XXIX/10;]

- (c) To move the following text to the draft template of the cost guidelines as contained in Annex I of the present document:

In relation to sustained aggregate reductions in HFC consumption and production

- (i) 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 [CO₂ equivalent and/or metric tonnes]
- (ii) [add text for production]

In relation to eligible incremental costs

Refrigeration servicing sector

- (iii) [Consideration of paragraph 16 of decision XXVIII/2.]

In relation to energy efficiency

- (iv) [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 40th OEWG meeting;]

In relation to capacity building to address safety

- (v) [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

- (vi) [To consider whether to further discuss matters related to disposal at a future meeting;]

- (d) In relation to additional activities to be completed in order to facilitate further discussion of the cost guidelines for HFC phase-down, in accordance with decision 80/76(b):

In relation to the consumption manufacturing sector

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

In relation to energy efficiency

- (ii) [To request the Secretariat to contract an independent consultant to:
- a. To prepare, for the [83rd 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;
 - 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;
 - vi. 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
- b. To allocate US \$XX for the preparation of the study; and
 - c. To consider the Conference Room Paper submitted by the Government of Austria to the 80th meeting (Appendix to Annex II of the present document)];
- (e) In relation to other general matters related to HFC phase-down:
- (i) [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:
 - a. Ratification, acceptance, or accession to the Kigali Amendment;
 - b. Establishment of an agreed starting point for a sustained aggregate reduction in HFC consumption and production, on the understanding that any phase-down of HFCs resulting from any project that might be approved by the Executive Committee would be deducted from the country's starting point;

- (ii) [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;]
- (iii) [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].]

Annex I

DRAFT TEMPLATE OF THE COST GUIDELINES FOR THE PHASE-DOWN OF HFCs (As of the 80th 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. These draft cost guidelines contain elements agreed at the 78th and 80th meetings and will be updated pursuant to further discussions at the 81st and future meetings of the Executive Committee.

Draft guidelines

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-global warming potential (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

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

Eligible incremental cost

Consumption manufacturing sector

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

- (a) Incremental capital costs (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 GWP;
- (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

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

- (a) Lost profit due to the shutdown/closure of production facilities, as well as production reduction;
- (b) Compensation for displaced workers;
- (c) Dismantling of production facilities;
- (d) Technical assistance activities;
- (e) Research and development related to the production of low-GWP or zero-GWP alternatives to HFCs with a view to lowering the costs of alternatives;
- (f) Costs of patents and designs or incremental costs of royalties;
- (g) Costs of converting facilities to produce low-GWP or zero-GWP alternatives to HFCs when technically feasible and cost-effective;
- (h) Costs of reducing emissions of HFC-23, a by-product from the production process of

HCFC-22, by reducing its emission rate in the process, destroying it from the off-gas, or by collecting and converting it to other environmentally safe chemicals; such costs should be funded by the Multilateral Fund to meet the obligations of Article 5 Parties specified under the Amendment.

Refrigeration servicing sector

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

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

Energy efficiency

Capacity building to address safety

Disposal

Eligibility of Annex F substances subject to high ambient temperature exemptions

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

Annex II

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

I. IN RELATION TO THE COST GUIDELINES

Sustained aggregate reductions

- (a) To use the following methodology [to be proposed by the Executive Committee] for determining the starting point for sustained aggregate reduction in HFC consumption and production, noting that the starting point should be expressed in [[CO₂ equivalent] and/~~or~~ [metric tonnes]]
- (b) [add text for production]

Eligible incremental cost

Refrigeration servicing sector

- (c) [Consideration of paragraph 16 of decision XXVIII/2.]

Energy efficiency

- (d) [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 40th OEWG meeting;]

Capacity building to address safety

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

Disposal

- (f) [To consider whether to further discuss matters related to disposal at a future meeting.]

II. ADDITIONAL WORK TO BE REQUESTED TO THE SECRETARIAT¹²

In relation to the consumption manufacturing sector

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

¹² Contained in paragraph 46 of document UNEP/OzL.Pro/ExCom/80/55.

In relation to energy efficiency

- (b) [To request the Secretariat to contract an independent consultant to:
 - (i) Prepare, for the [82nd 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;
- (c) To allocate US \$XXX for the preparation of the study; and]
- (d) To consider the Conference Room Paper submitted by the Government of Austria to the 80th meeting (Appendix to the present Annex).

III. OTHER GENERAL MATTERS RELATED TO HFC PHASE-DOWN¹³

- (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 HFCs resulting from any project that might be approved by the Executive Committee would be deducted from the country's starting point;

¹³ As contained in paragraph 43 of document UNEP/OzL.Pro/ExCom/80/55.

- (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];]

Appendix

TEXT FOR DISCUSSION RELATED TO THE 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))

(A Conference Room Paper submitted by the Government of Austria to the 80th meeting)

Energy Efficiency

1. The Executive Committee may wish to consider the following elements when requesting the Secretariat to do additional work on energy efficiency as proposed by the Government of Austria based on the summary document prepared by the Chair at the 78th meeting.

- (a) Prepare, for the [81st 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) Inventory of energy efficiency activities already undertaken and /or funded by GEF and GCF and implementing agencies, in the refrigeration, heat-pump, and air-conditioning and production sectors; including typical level of funding, co-financing committed Pay-back periods and economic benefits associated with energy-efficiency and estimate or range of cost effectiveness;
 - (ii) Cost guidance, methodologies, processes, monitoring, verification associated with energy efficiency interventions of other institutions, especially GEF and GCF;
 - (iii) Identification of costs for maintaining and/or enhancing energy efficiency in the manufacturing and servicing of refrigeration and air-conditioning equipment, including in situ manufacturing;
 - (iv) Possible modalities for funding, including operational modalities for co-funding and/or cooperation/coordination with other institutions at the national and global level, in order to maintain and/or enhance energy efficiency and address associated challenges and address associated challenges in the production sector and the refrigeration and air-conditioning sectors;
 - (v) Examples of minimum energy-efficiency standards and labelling, including the Requirements for establishing them and ensuring the testing and verification of energy efficiency in equipment;
 - (vi) 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; and
- (b) To consider, when preparing the document, appropriate standards, such as LEED and BREEAM, and directives, such as the four European Union directives for reducing greenhouse gas emissions in Europe on Energy Efficiency, Eco-design, Energy Performance of Buildings and Industrial Emissions, to determine the best available technologies.

Annex III

EXTRACT FROM THE DISCUSSION ON ENERGY EFFICIENCY BY THE PARTIES OF THE MONTREAL PROTOCOL (DECISION XXVIII/3) AT THE TWENTY-NINTH MEETING OF THE PARTIES (UNEP/OzL.Conv.11/7-UNEP/OzL.Pro.29/8)

Report by the TEAP on information submitted by parties on energy efficiency opportunities in the refrigeration and air-conditioning sector

83. The Co-Chair said 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 relating to a transition to climate-friendly alternatives, including not-in-kind options.

84. The co-chairs of the energy efficiency working group, Roberto Peixoto and Ashley Woodcock, gave a presentation on the Panel's report. A summary of the presentation prepared by the presenters is set out in section C of annex VI to [document UNEP/OzL.Pro.29/8].

85. In the ensuing discussion, a number of representatives expressed appreciation for the Panel's work, especially given the time and resource constraints faced. Several said that the initial report was a useful framework for identifying core issues and as a starting point for addressing further, more specific, issues relating to energy efficiency, while taking account of the various areas of interest and priorities of parties.

86. A number of representatives, while acknowledging that the report had been developed in accordance with the mandate provided in decision XXVIII/3, said that the content was too general and that it lacked sufficient detail on practical alternatives, including for high-ambient-temperature applications. One said that the inclusion of policy, regulatory and information opportunities and financial and related incentives as broad areas within the report fell outside the purview of the Montreal Protocol; the focus should rather be on technical solutions and ensuring that new technologies were energy efficient, readily available, commercially viable and environmentally friendly, and also recognized safety concerns. A technical workshop dealing with such matters would be beneficial. Another said that parties operating under paragraph 1 of Article 5 needed specific information that enabled them to set goals, develop strategies and take decisions on matters relating to energy efficiency. A third representative said that, when assessing which alternative technological solutions to adopt, the most telling indicator was energy efficiency, which implied the development of forms of technology that were more efficient than those currently available. Such a focus would stimulate competition between manufacturers and promote innovation, widening technology choices.

87. Looking ahead, one representative said that further information was needed on how to maintain and enhance the energy efficiency of low-global-warming-potential alternatives, in line with paragraph 22 of decision XXVIII/2. It would be useful to complement the Panel's work, resources and capacity with additional expertise to support future work on the matter, which could be done through the creation of a Panel task force on energy efficiency, with the intention of tapping into the best available knowledge to inform the work of the parties, without creating an additional financial burden. Several other representatives expressed support for the proposal.

88. One representative said that further consideration should be given to the role of proper installation and maintenance to ensure that installed equipment continued to operate at or close to design efficiency, and further analysis should be undertaken of the co-benefits from energy efficiency, including the economic benefits to be reaped from reduced energy consumption. Another evoked the value to be gained in modifying the energy mix to give greater prominence to renewable sources. Another representative said that the principle of extended producer responsibility should also be taken into account when considering energy efficiency, and the importance of training be given greater attention. One representative said that it was crucial to maintain energy efficiency during the transition to alternative technologies.

89. One representative said that his country, along with various partners, had co-sponsored a workshop on air-conditioning technology, at which presentations had highlighted technological options that promoted energy efficiency. The matter of energy efficiency was complex and contained many elements that were often considered to be outside the scope of the Montreal Protocol, making it important for parties to discuss and attempt to reach agreement on the areas of focus and the types of interventions related to energy efficiency that could be considered under the Protocol, while not straying from its mandate or the parties' areas of expertise.

90. One representative, speaking on behalf of a group of countries, said that it would be useful to have additional information in a number of areas to help parties to assess their potential for energy efficiency, including components and their design; the planning and design of cooling systems; the potential benefits of alternative systems; and the reduction of leakage through improved maintenance. Other issues of relevance to energy efficiency that were worthy of further consideration included the role of external factors, such as climate conditions; the role of enabling policies, such as green procurement and energy service companies; and product labelling. Parties also needed to consider what data they needed to supply to enable the Panel to make more informed decisions in the future, and what contributions could be made by other organizations operating in the field.

91. The co-chairs of the energy efficiency working group responded to the issues raised during the discussion. Mr. Woodcock said that the working group had sought to remain within the spirit of decision XXVIII/3 during its deliberations. It was acknowledged that the report was a relatively safe first step in a new area, for both the parties and for the Panel. The Panel could undertake further work on more detailed scenarios, dependent upon the mandate given by the parties. On the matter of co-benefits, the relationship between energy efficiency and other benefits was not always straightforward, as in a case where increased demand for energy-efficient products reduced their price, further boosting demand and consequently increasing energy consumption. He agreed about the benefits to be gained from proper maintenance practices. In response to a question about extended producer responsibility, he said that, while producers needed to be held to account, they were generally keen to improve efficiency and to drive technological innovation.

92. Mr. Peixoto said that many projects were currently testing alternatives for high-ambient-temperature conditions with energy efficiency as a parameter, and the results of those tests were becoming available, adding to the store of knowledge on the matter. In response to a question about lower energy efficiency levels in parties operating under paragraph 1 of Article 5, he said that factors included the absence of specific regulations establishing minimum energy performance, and the cost of more efficient equipment.

93. The parties took note of the information provided.