

## **TEAP Decision XXXI/1 Replenishment Task Force Report: Assessment of the funding requirements for the replenishment of the Multilateral Fund for 2021-2023**

*TEAP Replenishment Task Force Responses to OEWG-42 Co-Chairs' compilation of comments submitted by parties*

### **INTRODUCTION**

The present note provides the Technology and Economic Assessment Panel (TEAP) Replenishment Task Force (RTF) responses, including clarifying annexes, to the consolidated comments received from the parties to the Montreal Protocol on Substances that Deplete the Ozone Layer on the assessment of the funding requirement for the replenishment of the Multilateral Fund for the Implementation of the Montreal Protocol (MLF) for the period 2021-2023. The assessment had been prepared by the RTF, established by the TEAP in response to decision XXXI/1 of the Thirty-First Meeting of the Parties, and is set out in Volume 3 of the May 2020 TEAP RTF report and its corrigendum.<sup>1</sup>

The assessment of the funding requirements for the 2021-2023 MLF Replenishment was presented by the co-chairs of the RTF to the Open-ended Working Group of the parties to the Montreal Protocol at its forty-second meeting (OEWG-42) which, owing to the coronavirus disease (COVID-19) pandemic, was dedicated to discussing this matter alone, on the understanding that all other items listed in the agenda of that meeting will be discussed at a future meeting to be organized as appropriate at a later stage. The online meeting comprised three substantially identical technical sessions held on 14, 15 and 16 July 2020 to accommodate the different world time zones.

A dedicated online forum was established by the Ozone Secretariat in advance of the meeting to enable parties to submit comments on the RTF report including questions, suggestions for additional information, general considerations as well as any other comments. The online forum was open for submission of party comments well in advance of the online meeting, from 8 June 2020 to 6 July 2020 (round 1); and after the online meeting, from 17 July 2020 to 1 August 2020 (round 2). All comments received from parties during those two rounds were compiled by the co-chairs of OEWG-42 in the following sections of the present note. Comments and questions submitted by parties during the online sessions including through the chat box of the online platform were addressed by the task force during the meeting.

Under each of the following sections, comments are set out in alphabetical order of the parties' names. All comments are presented as received from parties, without formal editing by the Secretariat, with the exception of a few edits made by the Secretariat, when applicable, to improve readability. Introductory and final comments included in parties' submissions, not directly related to substantive issues in the report, have been removed by the Secretariat for brevity and ease of readability.

The RTF has responded to comments in the sequence presented by the OEWG-42 Co-Chairs' compilation and corresponding to the report chapters, as below. In order to better clarify questions from Parties, especially the ones related to modeling steps, the RTF has added information on the HFC phasedown estimates in annexes to this note.

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<sup>1</sup> [http://conf.montreal-protocol.org/meeting/owwg/owwg-42/presession/Background-Documents/TEAP\\_decision\\_XXXI-1\\_replenishment-task-force-report\\_may2020.pdf](http://conf.montreal-protocol.org/meeting/owwg/owwg-42/presession/Background-Documents/TEAP_decision_XXXI-1_replenishment-task-force-report_may2020.pdf).  
[http://conf.montreal-protocol.org/meeting/owwg/owwg-42/presession/Background-Documents/TEAP\\_decision\\_XXXI-1\\_replenishment-task-force-report\\_may2020-corrigendum.pdf](http://conf.montreal-protocol.org/meeting/owwg/owwg-42/presession/Background-Documents/TEAP_decision_XXXI-1_replenishment-task-force-report_may2020-corrigendum.pdf).

- Section A presents RTF responses to general comments received from the parties, including general considerations, cross-cutting and policy issues as well as comments received on the introduction of the RTF report (chapter 1).
- Sections B-E include RTF responses to submitted comments that are specific to the respective chapters of the RTF report dealing with:
  - Estimated funding for HCFC phase-out (chapter 2);
  - Estimated funding for HFC phase-down (chapter 3);
  - Estimated funding for HFC production sector and HFC-23 by-product emission mitigation (chapter 4); and
  - Funding requirements for institutional strengthening and standard activities for the 2021-2023 replenishment period (chapter 5).
- Annexes A-C provide additional information related to the RTF estimated funding requirement for HFC phase-down.

## A. GENERAL COMMENTS

### CUBA (round 2)

1. The group of Article 5 low-consumption countries comprises a significant number of countries with generally low-income that have to dispose of significant resources that are not available to fulfill their commitments in the Protocol, and that the actions financed by the protocol focus on activities of refrigeration and maintenance services in the RAC sector. For those countries, the activities to be carried out are many, varied, covering all sectors of the economy and the resources allocated for the development of its activities for the elimination of HCFCs and now for HFCs have been and are totally insufficient.

*RTF: Comment noted.<sup>2</sup>*

2. We propose that for the reposition of the HPMP for the period 2021 to 2023, the funds allocated to these previously underprivileged low-consumption countries be increased substantially and allow them to fulfill their commitments to eliminate HCFCs and reduce HFCs as is their wish and they have been expressing their political will.

*RTF: Comment noted. The RTF, as directed by the parties, took into consideration the special needs of low-volume consuming countries (LVCs) and very low-volume consuming countries (VLVCs) and included a scenario that considers additional funding for LVCs for HFC phasedown, as expressed in the concept of “Maintain and Build” discussed in the report.*

3. Several Article 5 parties have cumulative reductions greater than those they wish or correspond to the needs of their society and development, these reductions really being due to unfavorable economic situations and blockages, so the activity plans used for the calculation base may be underestimated and should be elevated.

*RTF: Comment noted. Any change in the way the RTF approached the Decision XXXI/1 terms of reference (TOR) must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

4. It is important to understand the availability of lower GWP alternatives in the market accessible to Article 5 parties due to their very high costs and availability for them. Although these lower GWP alternatives are available and accessible to consumers and technicians in many A2 parties, they are not accessible in A5 countries. Accessibility is vital in promoting the use of lower GWP options. This should be considered when setting funds to achieve the reductions in the established deadlines, or that leads to increased resources to be financed by the FMPM in low-consumption countries.

*RTF: Comment noted.*

5. This delegation supports the Article 5 group’s proposal for the creation of the necessary funds to cover an increasing number of independent projects aimed at HFC replacement, in accordance with paragraph 4 of decision XXX/5.

*RTF: Comment noted. As per the TOR, the RTF has suggested opportunities to address stand-alone projects as early as in the 2021-2023 period.*

6. This delegation takes into account the international economic situation brought into crisis by COVID-2019 and which is expected to last several years, with special emphasis on developing countries and their ability to respond to the needs of the RAC sector as well as the great

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<sup>2</sup> The RTF indicates “comment noted” in those cases where a comment or statement is provided with no clarifying question requested or where a comment requests changes or additional tasks to the RTF that would first need to be discussed in a meeting of the parties.

importance of these activities that define the actions of the countries to achieve compliance with their commitments, all of which reveals the need to increase the necessary funds for institutional strengthening for low-consumption countries that guarantee compliance with the terms of elimination of HCFCs and HFCs decline according to the schedule. Thus, we support to accept and include the alternative given by the working group so that funding for the strengthening increases from 50% to 100% with respect to the level.

*RTF: Comment noted. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

#### **GERMANY on behalf of the EUROPEAN UNION (round 1)**

7. We appreciate the extensive information provided in the replenishment report, which is useful for starting the evaluation and facilitation of a replenishment agreement between A5 and non-A5 countries. However, the estimates of the RTF still contain some assumptions and methodologies that would benefit from further clarification and some of the issues identified in the replenishment study TOR but which have not been addressed. We also believe that more clarity on the compliance needs, the associated costs and cost effectiveness in relation to the impact and gains, including of HFC activities, will be useful in order to better assess the funding needs.

*RTF: Comment noted. Please refer to additional information contained in the annexes to this document, which provides further clarification on the RTF estimated funding requirement for the HFC phasedown.*

8. When assessing the funding requirements for the next replenishment, we believe that it is important to distinguish between funding directly related to compliance (Art. 10) and funding for extended commitments not directly related to compliance. The latter would allow some flexibility in the timing of funding.

*RTF: Comment noted. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

9. According to the TEAP's report, 90% of the countries are showing good progress and have already managed to comply with their 2023 HCFC targets and 78% of all A5s already comply with the 2025 HCFC targets; 16% of the A5s have already achieved the total phase-out of HCFCs.

This shows that the bulk of the RTF proposals refers to extended commitments beyond 2023 or strategic proposals, apart from the direct funding to comply with the 2023 targets.

*RTF: Comment noted. As stated in the report, the estimates are based on business planning so the targets have not yet been achieved. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

10. The benefits of early action on HFC were highlighted to us ahead of Kigali Amendment and we would hope that the TEAP could provide us with more detailed information. Specifically, we would like to point out that alternative technologies are already being deployed in A5 countries, also independently of any assistance from multilateral funding. This means that an autonomously driven process for HCFC phase-out and HFC phase-down is taking place that is helpful for the transition and on which we should build further. This could maybe be reflected and considered in the report.

*RTF: Comment noted, and the RTF also notes the information considered in its modeling as well as information provided in section 3.9 of the report. Any change in the way the RTF*

*approached the TOR must be first discussed and agreed among Parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

11. The EU sees it as important that more countries ratify the Kigali Amendment and it is important that we proceed in a courageous way that motivates all Parties to ratify the Amendment. In general, we would like the TEAP to provide a better analysis of possible future gains - both for the environment and in terms of future replenishments of the MLF - as a result of early control in terms of HFC phase-down and HCFC phase-out.

In doing so, it is also important to make a clear distinction between the objectives of activities, whether funded under the HPMP or the KPMP, and the need to multiply the benefits in an integrated perspicacious manner and avoid any duplication of efforts.

*RTF: Comment noted. The RTF can consider this further, with the discussion and agreement of parties, and present in a supplementary report.*

12. We would ask the RTF to maintain the utmost possible transparency of benefits and costs associated with the various interrelated activities throughout the report. This will help, among other things, to better differentiate the portion of non-investment and supporting activities that pertains to HFC and HCFC-related activities. This also means giving clarity on cost-effectiveness for ODS, kg and CO<sub>2</sub>eq, for the different substances (HCFC, HFC, HFC 23).

*RTF: Comment noted, and the RTF has provided additional information in the annexes to this document that may be helpful to understand the HFC phasedown estimates in the report. The RTF can consider this further, with the discussion and agreement of parties and to the extent data is available to the RTF, and present in a supplementary report.*

13. The total estimate of the RTF breaks down into several lower and higher end scenarios ranging between **376.7 million USD and 808.9 million USD**. It is quite difficult to grasp what the assumptions are behind the methodology used and why and how these elements were chosen.

We suggest that the RTF should apply a similar discounting approach as that applied by TEAP during the last replenishment, where it was possible to reduce the range by a further 17% **because that had been found to be the average reduction in approved funding at ExCom compared to the original amounts estimated in the business plans.**

In addition, it would be helpful if the RTF could indicate for each funding scenario the percentage of the funding needed for extended commitments and for compliance-related activities, differentiated for reaching the 2023 and for reaching the 2025 targets.

*RTF: Comment noted. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers changes to be presented in a supplementary report.*

14. The RTF has assumed a number of **policies and pieces of advice, e.g. the “maintain and build” concept, which have not yet been discussed nor decided on**. Parties need to make further progress in their discussions and deliberations before agreeing on such far-reaching policies

*RTF: Comment noted. The “Maintain and Build” concept was introduced based on the TOR request to take into consideration the special needs of LVCs and VLVCs. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

15. ExCom discussed the **operationalisation of decision XXX/5 on servicing sector activities in LVCs** in the context of the HPMPs (Dec. 83/62) and not the KPMPs. There is already a format for proposal and the integration with HPMP is more cost effective than a single standing activity as proposed by the RTF.

*RTF: Comment noted. Document ExCom 84/65 on “Parallel and/or Integrated HCFC and HFC activities in the servicing sector”<sup>3</sup> suggests the potential to integrate HFC phase-down activities with HPMP in the servicing sector. This concept of integration can be investigated for all A5 countries that may benefit from this integration, especially in sectors such as servicing.*

*For countries in Brackets A to D (non-LVC countries), and in the absence of HFC guidelines, servicing sector funding was estimated based on cost-effectiveness figures as per HPMPs. Activities in the servicing sector should benefit from this integration and coordination by maintaining the experience, expertise and capacity. Nevertheless, the RTF has not investigated the cost of integration for non-LVCs countries, but calculated the estimated funding for the servicing sector as a “stand-alone” activity with a cost-effectiveness factor of US\$ 4.80/kg, as per current HCFC guidelines.*

*The RTF’s consultations with countries in Bracket E (LVCs), identified the needs to provide support to implement the Kigali Amendment as early as possible, by overcoming barriers and filling the gaps in assistance that they identified. The RTF provided some options in section 3.4.2. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

16. Similarly, the opportunities for **early activities to address the high growth rate of HFCs** are primarily linked to HPMPs and not the KPMPs, especially where such activities target technology demonstrations, e.g. in the A/C sector, see also ExCom doc. 84/65.

*RTF: Comment noted.*

17. To provide figures on **cost-effectiveness for ODS, kg and CO<sub>2</sub>eq** for HCFC-reductions as well as CO<sub>2</sub>eq and kg for HFC-reductions for all different elements assessed in the study, i.e. HPMPs, production, HFCs, HFC-23, or tonnage addressed in the different activities.

*RTF: Comment noted. The RTF has provided additional information in the annexes to this document related to the estimated funding requirement for the HFC phasedown.*

18. The RTF has not considered the predictable appearance of **the unused, returned funds and cost reductions following negotiation, submission delays** that the MLF experiences on a permanent basis.

*RTF: Comment noted.*

19. Even though the **RTF has not considered the changing global scenario due to COVID-19 in its assessment** due to lack of information and guidance, there is an obvious impact that cannot be ignored, in both A5 and Non-A5 countries and this needs a constructive discussion among parties regarding how to proceed.

*RTF: Comment noted.*

20. We need to react to the negative impact of the pandemic and maintain the effectiveness of the ozone infrastructure, **its institutional landscape and highly qualified work force**. This will retain the high level of response and avoid unnecessary losses and higher costs in the future and is indispensable in safeguarding environmental benefits. At the same time implementation and delivery will be affected and resources have to be wisely spent.

*RTF: Comment noted. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

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<sup>3</sup> UNEP/OzL.Pro/ExCom/84/65



21. Where RTF proposes investment and non-investment activities and costs in the report, to mention and indicate:
- (a) The degree that proposals are directly related to compliance in 2025 or are extended commitments or not necessary for compliance.
  - (b) whether the parties have already taken a decision on the activities in the ExCom or whether this is a proposal by the RTF
  - (c) the cost effectiveness of proposed activities expressed in USD/kg, USD/tCO<sub>2</sub> and/or USD/t ODP where relevant
  - (d) the direct impact and benefits of proposed activities on climate expressed in tCO<sub>2</sub> and/or for the Ozone Layer in t ODP and other environmental impact where relevant
  - (e) if reductions are sustained and absolute, or relative in its nature with a possibility of future growth.

This information could be provided in an overview list in the Annex to the report.

*RTF: Comment noted. The RTF notes that some additional information in the annexes to this note related to the estimates for HFC phasedown. The RTF could consider the other suggestions, however, any change in the way RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

22. Could the RTF provide an overview in the Annex listing the range of HCFC/HFC consumption per capita in relation to the gross income per capita sorted for V/LVCs and the remaining A5 (for accessible data).

*RTF: The comment is noted. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report..*

#### **GERMANY on behalf of the EUROPEAN UNION (round 2)**

23. In the meetings it became clear, that the report leaves many questions unanswered and several fundamental comments were made on the proposals and methodologies applied. It will take a tremendous effort, to deal with all the parties' questions and comments. Therefore, we believe that merely answering each question without comprehensively adjusting the proposals and methodologies will not be sufficient. In order to prepare the facts and groundwork for negotiations on the next replenishment, the methodology used to measure the actual needs to achieve compliance must be fundamentally improved to answer the numerous questions and comments in particular with regard to the HFC-part.

*RTF: The RTF is responding to questions to clarify information on its report to the best of its ability, The Task Force will require guidance from the parties before making possible revisions to the analysis. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

#### **INDIA (round 2)**

24. The replenishment of the Multilateral fund for the period 2021 – 2023 is happening at a time when two regulatory regimes will overlap - the HCFC phase-out regime and the beginning of the implementation of the Kigali Amendment to the Montreal Protocol for phase-down of HFCs. As a result, the Replenishment Task Force report becomes an important base for the discussion on sufficient and additional funding for the triennium to meet the Montreal Protocol obligations by Article 5 Parties. The TOR of the RTF reflect the comprehensive scope of coverage. The Replenishment task Force may please clarify as to how sufficient additional financial resources

have been proposed to be allocated for Article 5 parties allowing the joint implementation of HPMP and the actions / activities under the Kigali Amendment to the Montreal Protocol by the Article 5 parties. These include consumption sector, production sector, HFC 23 obligations, servicing sector and enabling activities. The provision of sufficient additional financial resources was an agreed finance solution under Decision XVIII/2.

*RTF: Comment noted. The RTF recognises that the issue of parallel integration is under discussion at the ExCom, so the RTF will continue to follow those discussions and decisions. Parties may discuss and agree to provide additional guidance to the RTF for consideration and presentation in a supplementary report. Based on the guidance in the TOR, the RTF summarised four options outlined in Table ES-2. The estimated funding by Group is found in various tables throughout the report (e.g., Table 3-6 for HFC transitions for each country bracket). Details regarding the calculations for the estimating funding requirements can be found throughout the report. The RTF notes that additional information is provided in the annexes to this document related to the estimated funding requirement for the HFC phasedown. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

#### **JAPAN (round 1)**

25. We think that there are a lot of uncertain aspects in the current estimation for the funding requirement by TEAP. Are you planning to re-estimate the funding requirement after finalizing the cost guideline for HFC although at this moment we cannot foresee when exactly it will be finalized? If so, please provide us some information on the future schedule.

*RTF: The cost guidelines for HFCs, among other issues, remain under discussion in the Executive Committee (ExCom) (i.e., cost implications of parallel or integrated implementation of HCFC phase-out, cost guidelines for HFC phase-down activities and review of Institutional Strengthening. The RTF noted these important limitations in its estimates. Within its deadline to produce its report to parties, the RTF relied on existing cost guidelines and cost effectiveness factors under the MLF, where available. If guidelines are finalised within the timeframe that the RTF is preparing its supplementary report, then the RTF could consider taking these into account if requested by parties after discussions.*

#### **MICRONESIA (FEDERATED STATES OF) (round 2)**

26. Our countries receive significantly less financing from MLF because they do not manufacture and are ineligible for large investment funds. Nevertheless, we contribute significantly large amounts from our own resources to ensure compliance with implementation during transitions. The multiple benefits of supporting projects in LVCs are very cost effective; and as such, funding should not be reduced or minimized. LVC funding is not the place to cut corners; it is rather a critical area to increase funding in order to maximize ozone and climate benefits, as well as to gain experience and learn lessons valuable to all Parties. We fully support the task force proposal to increase funding to cover additional LVC projects.

*RTF: Comment noted.*

27. We would ask the TEAP to further elaborate on how the COVID pandemic might impact implementation and the cost of implementation for this replenishment period, based in part on observed impacts from 2020 and additional surveys of countries. Perhaps consider two vaccine scenarios: 1. global deployment of a vaccine beginning mid 2021; 2. no vaccine until 2022.

*RTF: While acknowledging the potentially significant impact the pandemic will have on world economies now and in the future, the RTF estimates of the funding requirements for the replenishment of the MLF in the 2021-2023 triennium have not taken into account the changing global scenario and the potential implications for funding and project*



*implementation under the Montreal Protocol, as it lacked sufficient information and guidance to do so. Annex 6 of the TEAP Decision XXXI/1 Replenishment Task Force Report, May 2020, provides some preliminary considerations of these potential impacts to relevant sectors. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

28. Could the TEAP also further elaborate on potential implications for replenishment funding, taking into consideration impacts of COVID-19 such as: increased cooling demands in the hospital, pharmaceutical, and health sectors; changed cooling demands due to the shift to working from home; implications of limitations on the servicing and installation of RAC equipment; and other realistic potential scenarios. How could optimizing energy efficiency measures and actions in conjunction with the HFC phasedown impact employment, economic recovery, health, or other critical socio-economic considerations posed by COVID-19?

*RTF: Comment noted and please see above response to Comment/Question 27. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

29. Understanding that it may not be possible for the replenishment task force to give full consideration to all of these critical issues within the time and context of their replenishment report, this delegation believes the Parties should consider urgent establishment of a source of information and analytical support, such as a task force on issues relating to the COVID pandemic that are relevant to our work.

*RTF: Comment noted.*

#### **NIGERIA (round 1)**

##### **Unexpected CFC-11 Emissions and Dumping of Low-Efficiency Appliances with Obsolete Refrigerants**

30. What specific provisions are made to strengthen the MPs system to forestall such future occurrences of illegal CFC-11 emissions and appliance dumping?

*RTF: While this is an important issue, the RTF considers these provisions to be outside of its TOR as in Decision XXXI/1.*

#### **NORWAY (round 1)**

31. We have looked back at the replenishment report published in 2017, ahead of OEWG-39. When doing so, we noticed that the range provided back then, for the 2021-23 triennium, was much narrower than what we see now. Especially the low-end estimate in the provided range is now significantly lower than what we found in the 2017-report. We understand that the former estimate was indicative by nature, but could you please elaborate on why this range has broadened so significantly? More transparency and information about policy choices and decisions taken by ExCom to the Multi-lateral fund (MLF) over the past three years, methodological differences e.g. use of different discount rates and other differences that have influenced the estimated ranges, and/or if Article 5 (A5) Parties momentum of transition/reduction have been faster than expected, are information of interest.

*RTF: In the RTF Report from 2017, the 2021-2023 triennia was estimated to be \$635-771. In the intervening years, the largest impact to the funding is based on a revised HPMP agreement reached at the 84th ExCom. Also, the 2017 RTF Report only included "enabling activities" for HFCs while this report includes HFC project estimates. These factors combined broadened the range.*

*Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers changes to be presented in a supplementary report.*

#### **SWITZERLAND (round 2)**

32. The RTF during its presentation at the OEWG 42 forum offered to share the underlying taxonomy/methodology and calculations data used for the Assessment Study. We will welcome receiving the data, at the earliest possible ahead of the MOP discussions, subsequent to incorporation of clarifications requested by the parties in conjunction with the OEWG 42 forum exchange.

*RTF: Comment noted. The RTF provided additional information related to the funding estimates for the HFC phasedown in the annexes to this document.*

#### **TRINIDAD AND TOBAGO (round 2)**

33. We have noticed during our recent reporting that the issue of gender has now been incorporated in the assessment of work performed under the Montreal Protocol projects. This delegation strongly encourages the incorporation of gender within the work of the Montreal Protocol, and wishes to seek some clarification from the TEAP as to how funding for the implementation of gender focused activities have been catered for in the upcoming replenishment period. It should be noted that in some instances engaging gender specific experts and implementing a gender strategy can be quite costly.

*RTF: Comment noted. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

34. We would like to urge the TEAP to review the cost efficiency calculations being proposed, given that from preliminary assessments of the local markets, the widespread use of HFCs will result in a substantially larger effort for phase-down, and therefore the need for more funding to support these activities that may be beyond the current threshold levels used. It is noteworthy to mention that in cases of small island developing states like Trinidad and Tobago, it would be a very useful and cost-effective approach to invest funding into leapfrogging technology to low GWP ozone friendly alternatives.

*RTF: Comment noted.*

#### **UNITED KINGDOM (round 1) <sup>4</sup>**

35. Some important strategic messages throughout the report about the distribution of funding and the allocation of funding considering how/where the money should be directed.

*RTF: Comment noted.*

36. Useful to recognise the special considerations and needs of LVCs and VLVCs especially in light of the recently published CLASP report highlighting the dumping of inefficient and obsolete a/c equipment.

*RTF: Comment noted.*

37. Helpful to note the conclusions that a slower phase-down and the resultant growth in high-GWP use will result in a much larger overall long-term cost to phase then down.

*RTF: Comment noted.*

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<sup>4</sup> Two additional points made by the United Kingdom under this section of its submission have been placed under sections C (para. 166) and D (para. 207) of the present note, respectively.

38. Page 29 highlights the big synergies between HCFC funding and leapfrogging but it may be useful to bring this out a bit more throughout the report.

*RTF: Comment noted.*

39. Integration of HCFC and HFC activities – seems a very important approach - could encourage leap-frogging and useful to consider early HFC activities within existing HPMPs.

*RTF: Comment noted. The RTF notes that these issues remain under discussion in the ExCom (i.e., cost implications of parallel or integrated implementation of HCFC phase-out, cost guidelines for HFC phase-down activities and review of Institutional Strengthening). The RTF will continue to follow those discussions and decisions.*

40. Annex 6 helpfully sets out some reflections in relation to the Impact of Covid-19 and we would be interested in further analysis on this. Specifically:

- (a) It would be useful to have some more details regarding the impact of Covid-19 on existing projects and activities.
- (b) We have noted that the RTF has not yet explicitly considered the impact of the COVID-19 pandemic. We think this should be considered due to its inevitable impact on our societies over the next Triennium. We would welcome further analysis to consider the impact of the Covid-19 pandemic upon the appropriate level of replenishment, or other related factors that should be considered by the Parties during replenishment discussions.
- (c) Building on annex 6 we would welcome views from the TEAP on eligible activities under the MLF that are important or could be prioritised in the recovery from the Covid-19 pandemic. In order for us to understand how the MLF can contribute to a sustainable recovery from COVID-19, and in case a project's contribution to the recovery from covid-19 can be taken into account during project proposals and development.

*RTF: While acknowledging the potentially significant impact the pandemic will have on world economies now and in the future, the RTF estimates of the funding requirements for the replenishment of the MLF in the 2021-2023 triennium have not taken into account the changing global scenario and the potential implications for funding and project implementation under the Montreal Protocol, as it lacked sufficient information and guidance to do so. Annex 6 of the May 2020 TEAP Decision XXXI/1 Replenishment Task Force Report, provides some preliminary considerations of these potential impacts to relevant sectors.*

*Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

#### UNITED STATES OF AMERICA (round 2) <sup>5</sup>

41. Our understanding is that in the servicing sector there will be ways to leverage activities and cost savings while addressing both HCFCs and HFCs simultaneously. We suggest the analysis should include estimates that take into account this integration in servicing for HCFC phaseout and HFC phasedown activities.

*RTF: Comment noted. The RTF notes that these issues remain under discussion in the ExCom (i.e., cost implications of parallel or integrated implementation of HCFC phase-out, cost guidelines for hydrofluorocarbon (HFC) phase-down activities and review of Institutional Strengthening). The RTF continues to follow the discussions and related decisions of parties on this issue. Any change in the way the RTF approach the TOR must be*

<sup>5</sup> The United States noted in its round 2 submission that written responses would be appreciated to its questions submitted in round 1, in particular questions 3, 5, 8, 9, 10, and 12, which in the present note correspond to questions 87, 177, 180, 181, 182 and 208, respectively.

*first discussed and agreed among parties before RTF considers additions and adjustments to be presented in a supplementary report.*

## FUNDING FOR HCFC PHASE-OUT

### Chapter 2 of the TEAP task force report

#### CANADA (round 1)

42. With respect to the compliance target methodology described for HCFCs, in particular as illustrated in Tables 2-6 and 2-8: It appears the breakdown of compliance target is not taking into account the fact that Montreal Protocol targets apply as of January 1 of a given year and thus the target needs to be addressed by the end of the previous year at the latest. In other words, using the compliance target methodology described for HCFCs, we normally would have expected the 61.5% reduction to be addressed during 2023 in order for it to be achieved by January 1, 2024, and the 67.5% reduction to be addressed during 2024 in order for it to be achieved by January 1, 2025, as per the Montreal Protocol schedule . **Could the RTF provide its view on this? What would be the impact on the funding requirement for HCFCs if each target used by the RTF was addressed by the MLF in the year previous to the target rather than during the year of the target itself?** Canada notes this may also apply to HFC calculations, depending on whether/how a similar compliance target methodology was used.

*RTF: The RTF estimated funding for HPMPs to achieve a 54.5% reduction is approximately US\$ 24 million, and to achieve 67.5% approximately US\$ 135 million, both including support costs.*

*The estimated HPMP funding requirement to achieve a 61.5 % reduction from baseline (instead of 54.5%) by 2023 is estimated to be approximately US\$ 79.7 million dollars including support costs (the initial amount to achieve 54.5% plus half of the amount to achieve 67.5% since the funding is spaced evenly). For HFCs, the estimate is in the year previous to the target rather than during the year of the target itself.*

*Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

43. With respect to the methodology for “additional HPMPs” described in section 2.4.5: It is indicated that the cost of additional HPMPs was calculated using the average cost effectiveness of approved HPMPs. However, particularly for non-LVC countries, approved HPMPs include funding for manufacturing sectors that will be significantly less represented in future HPMPs as HCFCs in these sectors have been largely phased out or funded for phase-out. Indeed, on p. 11, the RTF indicates that “it is expected that the majority of the activities in stage III HPMPs (and stage IV) will address HCFC consumption in the refrigeration servicing sector”. Therefore, using historical average cost effectiveness factors may not be appropriate considering the sectors remaining to be addressed. **Would it be possible to derive more appropriate cost effectiveness factors for additional HPMPs, based on the breakdown of HCFC-consuming sectors remaining to be addressed?**

*RTF: The reductions were not broken out by sector. They are simply calculations based on compliance targets. The bulk of the estimated HPMPs costs comes from approved country agreements and tranche figures plus the planned HPMPs figures taken from the 2020-2022 consolidated business plans.*

*Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions and adjustments to be presented in a supplementary report.*

44. With respect to the cumulative reductions as illustrated in Table 2-5 and Annex 5: Table 2-5 suggests 12 approved HPMPs and 40 planned HPMPs have achieved 100% cumulative reductions from baselines and Annex 5 suggests nearly 60 Article 5 Parties have achieved 100% or greater

reductions of HCFCs from their respective baselines. Canada notes that these figures represent greater cumulative reductions than have already been achieved and are likely based on the additional reductions implementing agencies have included in their 2020-2022 business plans for planned HPMPs. **Could the RTF confirm that this is the case, or elaborate if it is not? Some countries appear to have cumulative reductions far greater than 100%. Could the RTF explain why?**

*RTF: The RTF calculated compliance reductions. i.e. we calculated residual consumption based on the baseline, noting there may be differences between starting point and baseline for an HPMP. Based on the best available information available to the RTF when preparing its report, some countries appear to have achieved reductions greater than 100%, however, the amounts are calculated through a formula in order to apply a consistent methodology across all countries. Corrections and any additions or adjustments discussed and agreed by parties will be considered by the RTF in its estimated funding requirements in a supplementary report.*

45. With respect to the funding for planned HPMPs (section 2.4.4): Canada is unsure that the approach taken by the RTF of basing the requirement on the amount allocated for these HPMPs in the 2020-2022 business plan (US \$36.9 million) is the most appropriate one. If the cumulative reductions referred to in our comment above come from the business plan, this raises doubt about the phase-out quantities, and consequently the funding, included in the business plan. As mentioned, several countries are shown to have cumulative reductions above 100% in Annex 5, suggesting that the phase-out quantities in the business plan could be over-estimated. Furthermore, funding allocations in the business plan are indicative only, and when endorsing the consolidated business plan, the ExCom always notes that it does not approve the funding and tonnage levels identified therein. Therefore, Canada wonders if it would have made more sense for the RTF to calculate funding for these so-called “planned HPMPs” by applying the same methodology used for the “additional HPMPs”, thereby ensuring a consistent approach for all new HPMPs. We would welcome any thoughts the RTF may have on this issue.

*RTF: The RTF realizes that this may be a conservative estimate but have historically relied on the planned HPMPs estimates in the business plans in previous RTF reports.*

46. With respect to the HCFC production sector (section 2.5.2): While an allocation was included in the 2020-2022 business plan for an HPPMP for India, the ExCom and Parties have received little information to date that would confirm the eligibility or production level for controlled uses of the production facility concerned. In that regard, we agree with the RTF characterization on p. 16 that this is a “potential” HPPMP. Consequently, it would have seemed to us more appropriate to include a funding requirement for this project only as part of the high-end estimate for HCFC production.

*RTF: Comment noted. The RTF will follow the discussion and information available regarding the eligibility, and production level, and consequent ExCom decisions.*

## COLOMBIA (round 2)

47. With regards to Annex 5, which contains the table “ESTIMATION OF HCFC REDUCTION NEEDED (LISTED ALPHABETICALLY)” we would request the TEAP to clarify the reasons why the scenarios for the triennium didn’t took into consideration the progress made by countries in phasing out HCFCs and just the differences to achieve the reduction targets in the scenarios for the triennium.

We see with concern that the current proposed scenarios would allow a reduced number of Parties to continue advancing in the implementation of their HPMPs in next three years, limiting the effectiveness of the Protocol in the medium term.

It is important to note that, according with the table, just a limited number of countries would be considered for activities to eliminate the HCFCs in both 54.5% and 67.5% scenarios. This is



something to consider in order to give continuity in the countries to their implementation processes.

*RTF: Comment noted. A majority of the estimate for HCFC activities are contained in the business plans. The “HCFC RTF estimated HPMPs” was based only on those countries that do not have a planned project in 2020-2022 to achieve the next compliance target. The TOR requested the RTF to take into account only “the need to allocate resources to enable [Article 5 Parties] to achieve and/or maintain compliance.” To estimate the funding requirement for the HCFC phaseout, the RTF considered the current status of A5 parties’ compliance with HCFC reduction targets.*

*Any change in the way the RTF approached the TOR must be first discussed and agreed among Parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

## GERMANY on behalf of the EUROPEAN UNION (round 1)

### HCFC consumption sector

48. RTF recommends a **minimum of 178 million USD for the HCFC phase-out** based on the business plan, including activities beyond 2023. Nevertheless, this appears very high when considering that 90% of countries, including China, have already achieved their 2023 reduction targets. It would be helpful, if the RTF could also provide the residual amounts for all A5 to achieve the individual 2023 and 2025 targets and beyond.

*RTF: Comment noted.*

*Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

49. Could TEAP include the following **additional information on the funding of the HPMP stages**:
- percentage of the total funding of HPMP I activities until stage I became effective in 2015
  - if relevant, any remaining HPMP stage I tranches to be funded in 2021/23
  - total funding of HPMP II activities until stage II became effective in 2020
  - the remaining HPMP stage II funding that is required in 2021/23 and the estimated rate of completion of stage II funding by the end of 2023.
  - how many HPMP stage III requests are proposed to be funded in 2021/23 and the rate of completion of stage III proposals by the end of 2023 if any.

*RTF: The RTF has estimated the funding requirement for planned HPMP to be US\$ 36.9 million for the 2021-2023 triennium. This is based on information from the 2020-2022 adjusted MLF BP and consists of Stage I HPMPs at US\$ 0.6 million; Stage II HPMPs at US\$ 21.7 million; and Stage III HPMPs at US\$ 14.6 million. After discussion and agreement by parties, the RTF would need to consult with the MLF Secretariat for the additional information to be presented in a supplementary report..*

50. The operationalisation of para 16 of decision XXVII/2 and para 2 of decision XXX/5 (p.88 to 89) focuses on the specific roles and benefits of LVCs in the HFC phase-out. The ongoing discussions in the ExCom have almost been finalized and the funding proposed revolves around a 10% to 20% increase of the existing funding for servicing. Unfortunately, this is not reflected by the RTF and we would like to ask the RTF to update their funding estimates to reflect the ExCom discussions.

*RTF: Comment noted. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report. This would include any new decisions which were not available when the RTF produced its report.*

51. RTF indicates that **LVCs and VLVCs have a higher need for funding** and it is difficult to apply existing cost effectiveness criteria to the situation in V/LVCs. Apart from this, there is little evidence and supporting information on the financial imbalance, such as for example, how the per capita consumption and income in V/LVC differ in relation to those of other A5s.

*RTF: Comment noted.*

*Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

52. What has been the average time from HPMP preparation approval until submission of the HPMP in the past?

*RTF: The RTF has consulted with the MLF Secretariat. The average duration from HPMP preparation approval to HPMP submission is 32 months.*

53. What are the funding requirements to carry out just the activities needed to achieve 54.5 % reduction?

*RTF: The total funding requirement for the 2021-2023 triennium for the consumption sector is estimated to range from US\$ 178.0 million to US\$ 289.8 million (Table 2-9). The lower end of the range is based on reaching the 54.5% target by 2023.*

54. How much of the approved (113 million) and planned HPMPs (36.9 million) is necessary to achieve 54.5 % reduction?

*RTF: This would be different for each A5, and some of the planned tranches have already been agreed upon. The RTF has no basis to change that.*

55. How much of funds of the approved (113 million) and planned HPMPs (36.9 million) is additionally needed to achieve the 54.5 to 67.5 % step?

*RTF: The RTF did not calculate the approved and planned HPMPs based on strictly achieving the 54.5 to 67.5% step in the 2021-2023 triennium. This could be done based on information contained in Annex 5 and after further discussion by parties.*

56. Could TEAP further clarify Table 2 - 5? According to the table it is claimed that 143 countries have approved HPMPs for Stage I, but it is not mentioned, what the situation is for Stage 2 and 3. Could there be overlaps, e.g. have those listed for Stage 3 automatically achieved Stage 2?

*RTF: Table 2-5 provides a summary of HPMPs, which are either approved or planned and their reduction targets. In order to estimate the need for funding for the 2021-2023 triennium, the RTF first assessed individual A5 parties' progress with respect to their phase-outs. The "stages" of HPMPs were used to align with reduction targets from the HCFC baseline, however, HPMP stages and the associated reduction targets vary greatly between projects. For example, there were eight parties with HPMPs that planned for 100% reduction in "stage I". The variation in reductions is especially obvious in stage II HPMPs, where many parties go beyond the 35% target, with some achieving 100% phase-out. The achievement of 100% reduction from the HCFC baseline in the earlier stages will mean it is unlikely that a party will apply for stage III or stage IV HPMPs. This RTF report has therefore used reduction targets for stage III or stage IV for individual parties, according to their progress in the phase-out.*

57. Could TEAP provide information on the necessary funding in case of deferral of non-LVC and LVC planned activities and upcoming tranche requests, which are not necessary to meet the 67.5% phase-out target for the next triennium?

*RTF: The RTF cannot make a distinction between necessary and unnecessary funding, which must be discussed and decided by the ExCom.*

58. Has TEAP in any way considered that a number of countries are facing difficulties in achieving their extended commitments and are requesting an extension for their implementation?

*RTF: No, the RTF estimates are only based on approved agreements. The RTF estimate for the 2021-2023 triennium does not consider this and the implications would need to be discussed and considered by the ExCom, ImpCom, and parties at their MOP.*

*Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

59. In its calculation in chapter 2.4.5 and Annex 5 TEAP indicates that 90% of the countries, including China, have already achieved the 2023 target, the remaining countries require an additional funding of 22.6 million USD for the 2021 – 2023 period. It is claimed that this is the lower amount. However, in its later calculation TEAP has included all approved and planned HPMPs so far, which have targets beyond 2023. This appears to be inconsistent.

*RTF: The RTF estimated US\$ 22.6 million (not including support costs) to achieve 54.5% target by 2023, which covers about 15 parties for additional projects beyond those currently planned and approved.*

60. Has TEAP or the MLF secretariat updated information on the average delay of tranche submissions from approved HPMPs and the average reduction of tranches and planned proposals after submission, negotiation and final approval in the ExCom and for the last triennium?

*RTF: The RTF consulted with the MLF Secretariat. The response is as follows:  
The average delay of tranche submission for the 2018-2020 triennium is 1.4 meeting. The project review process starts from the time the projects are received at the Secretariat and concludes when the relevant project documents are uploaded in the Secretariat's meeting portal. During this period, the Secretariat reviews all project submissions (i.e., stand-alone projects such as HFC investment projects; HPMPs for LVC and non-LVC countries; project preparation requests, institutional strengthening projects), against relevant decisions, previous tranches approved (for HPMPs), and other similar projects. It also assesses the eligibility of the funding request. As a result, funding adjustments to project components are proposed and agreed.*

*During the 2018-2020 triennium (i.e., from the 81st meeting to the 85th meeting where projects were funded through the intersessional approval process established by the ExCom due to the COVID-19 pandemic), cost adjustments of HFC investment projects (approved under regular contributions to the Fund) amounted to US \$2,853,033, representing 35% of the amount requested, and of HPMPs for non-LVC countries amounted to US \$21,986,642 (including amounts approved in principle), representing 45% of the amount requested.*

*HPMPs for LVC countries are funded in accordance with decision 74/50 (i.e., level of funding is based on the HCFC baseline for compliance); however, cost adjustments have been made when the starting points for aggregate reduction of HCFCs are adjusted.*

*In addition, the amount approved in principle for stage II of HPMP for China was adjusted from US \$ 533,883,625 to US \$264,868,040. The funding adjustment of this project associated with the 2018-2020 triennium was from US \$184,601,930 to US \$30,010,000 (decision 84/69).*

61. Where do the activities and values come from in Table A-3 in the Annex 8? How is this scheme linked to any decisions of the Parties or ExCom or the terms of reference?

*RTF: The RTF “maintain and build” concept describes the activities needed to build on the declining funds available from the HPMPs in order to maintain a sustainable funding infrastructure for LVCs and to respond to the challenges described to the RTF during consultations. This is an abstraction/elaboration, in response to 2b, 2e, 2f of Decision XXX/1, in the framework set by ExCom discussions related to Doc 83/40 and Doc 84/67 on the operationalization of para 16 of Dec XXVIII/2 and para 2 of Dec XXX/5 and Doc 84/65 on the Parallel and/or Integrated HCFC and HFC activities in the servicing sector.*

62. Could TEAP provide a clearer estimate of activities already approved for funding within the HPMPs to transition to low-GWP alternatives according to cost-guidelines as per ExCom decision 74/50 as well as for LVCs?

*RTF: The RTF consulted with the MLF Secretariat for this information. The MLF Secretariat responded that additional time would be need to provide a comprehensive response but informed that the majority of the technologies selected for the conversion of HCFC-based manufacturing enterprises have been low-GWP technologies. Stages I of HPMPs for a few countries selected R-410A as replacement of HCFC-22-based air-conditioners and only in a very few cases, high GWP technologies were selected as replacement of HCFC-141b blowing agent. All stage II of HPMPs introduced only low-GWP technologies*

*MLF Secretariat provided the following three examples to give an indication of funding provided to enable a transition to low-GWP alternatives in line with decision 74/50:*

- *The ExCom approved US \$2,417,128 to phase-out 233.89 mt of HCFC-141b through the conversion to low-GWP alternatives in the foam sector in the stage II of the HPMP for Colombia. Colombia would have been eligible for up to US \$1,831,359 had enterprises converted to high-GWP alternatives. Accordingly, the ExCom provided an additional US \$585,769 to enable the country to transition to low-GWP alternatives.*
- *The ExCom approved US \$89,144,797 for the room air-conditioning sector of the stage II of the HPMP of China. That funding was approved exclusively to enable the conversion to low-GWP alternatives.*
- *The ExCom approved US \$10,926,623 to convert the residential air-conditioning manufacturing sector in the stage II of the HPMP for Egypt. That funding was approved exclusively to enable the conversion to low-GWP alternatives.*

### **HCFC production sector**

63. The **HCFC production sector** sub-group of ExCom has still not decided on the stage II HPPMP. This makes an exact prediction difficult. The figure given by the RTF for China, the single largest recipient, is indicated at a maximum of 71 million USD, which has not yet been negotiated.

*RTF: Correct, it is hard to make an exact prediction. However, there is a funding envelope. Absent new information, the RTF used existing information.*

64. Based on these recent findings, the **HPPMP needs a revision, particularly in terms of enforcement and verification procedures**, as well as government action and a way to learn from past shortcomings.

*RTF: Comment noted.*

65. In view of this, **this funding estimate should remain pro memoria.**

*RTF: Comment noted.*

**INDIA (round 2)**

66. Under Annex 5 of the RTF report, the starting point for India may be corrected as 1691.2 ODP t in place of 1608.2 ODP t. Under the cumulative reduction column 64 % to be replaced by 60 % and accordingly, the reduction needed to reach 67.5% be replaced by 7.5 % from 3 %.

*RTF: The RTF notes the observation with appreciation. The RTF does not include polyols in the starting point (which is 1,608.30 ODPt); however, the RTF inadvertently included the reductions from polyols in the cumulative reductions, thereby increasing the cumulative reduction to 69.1% which is incorrect. The correct cumulative reduction is 1,028.21 ODPt instead of 1,111.26 ODPt. Thus, based on this information, the cumulative reduction divided by the starting point equals 63.94% (1,028.21 ODPt divided by 1608.2 ODPt). These and other corrections as well as agreed changes by parties after discussions will be considered by the RTF in updated estimates for a supplementary report.*

**JAPAN (round 1)**

67. (In relation to HCFC consumption sector) - While scenario 1 (Low End) and 2 (Low End) are based on the amount calculated for all A5 parties to reach 54.5% reduction target by 2023, scenario 3 (High end) is based on the calculated amount for all A5 parties to achieve the 67.5% reduction target by 2023 instead of 2025. Please provide us the explanation on the specific reason why TEAP applied 67.5% as the reduction target for scenario 3. Is it necessary to be in rush to achieve 67.5% reduction target by 2023 instead of 2025?

*RTF: The RTF applied 67.5% by 2023 instead of 2025 as a possible scenario recognizing the progress by parties to date on the HCFC compliance targets. The RTF can consider other scenarios. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

68. In relation to HCFC consumption sector) - At ExCom 84 the decision was adopted that the grand total of the stage 2 of HPMP for China should be revised from 536,045,682 USD to 264,868,040USD. We would like to confirm whether the above-mentioned cost reduction is appropriately reflected on each scenario.

*RTF: Yes, the new figures from the 84th Meeting have been incorporated into the report.*

**MEXICO (round 1)**

69. With respect to the HPMP PRP Stage III, it seems the RTF only considered the resources estimated for the countries which have requested funds for project preparation of HPMP stage III and only allocated USD 225,000 for HPMP stage III project preparation after 2022 for other countries, **please, could the RTF confirm if the assumption is correct?**

*RTF: The RTF notes with appreciation the comment and acknowledges that additional project preparation funding estimate of US\$ 225,000 should have been added for the low-end estimate and an additional amount for the high end.*

70. It seems the funds for HPMP stage III project preparation after 2022 limit other parties with advanced reduction compliance targets which would need to prepare their HPMP III even before 2022. **Could the RTF please provide its point of view on this issue? What would happen if a country which has not requested funds for preparation of the HPMP III yet, and ask for them in 2021 or 2022?**

*RTF: The RTF estimates would not preclude requests to the ExCom for project preparation.*

71. In the first paragraph of subsection 2.5.2, the report mentioned that “Argentina, India, Mexico and Venezuela produce HCFC-22 only for emissive uses”.



The Government of Mexico would like to kindly clarify that a part of the national HCFC-22 production is for emissive uses and **other important amount is also for feedstock uses** since several years.

*RTF: Correction is noted with appreciation.*

#### NIGERIA (round 1)

##### 72. Funding for Planned HPMPs:

RTF estimate of \$36.9 is based on the information from the 2020-2022 adjusted MLF BP. Can the breakdown be provided for each year of 2021-2023?

*RTF: Yes, it is US\$ \$14.4 million for 2021; \$11.6 million for 2022, and \$10.8 million for 2023 according to the consolidated business plans. Amounts indicated as “beyond 2022”, the RTF included in its estimated funding requirement in 2023.*

##### 73. Funding for additional HPMPs:

The need to encourage early action towards achieving the 67.5% (target for 2025) by the end of the next triennium (i.e. 2023) and the cost to achieve this is noted as estimated by RTF. While it is understood that the estimate is for additional projects beyond the ones currently approved and planned, the reference to the estimates for additional projects in the report, is towards achieving 54.5% and 67.5% targets in 2023 and 2025 respectively. This does not seem to address accelerated phase-out.

TEAP should clarify this and present specifically the number and list of parties that will require additional projects to achieve 67.5% target in 2023

*RTF: The RTF based its estimates on compliance targets. RTF decided to provide an accelerated option for achieving 67.5% by 2023 instead of 2025, because many parties are already ahead of commitments. The number and list of parties that need projects to achieve the 67.5% target can be seen in Annex 5. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

#### NORWAY (round 1)

##### 74. Regarding HCFC consumption sector funding requirement for 2021-23 and later triennia.

- (a) We believe that there are good reasons to aim for a slightly larger ambition than the 54.5% reduction by 1 Jan 2023 (assuming 6.5% linearly reduction per year) used in the report. This would in our view further ensure that A5 Parties continue to be in compliance with their reduction target 67.5% by 1 Jan 2025. We would also appreciate more information regarding the status of planned projects for the 32 Parties (mentioned on page 13) that require additional projects to reach their 67.5% target by 1 Jan 2025. Information about this in a format similar to the information provided in footnote 20 would be welcomed. We are aware that the 32 Parties can be identified through the table in Annex 5, but status of planned, or not planned, activities are not that easily accessible. There might also be Parties among those 32, or other A5s, that are willing and actually wishes to accelerate their phase-out during the 2021-23 triennium due to for instance introduction of more energy efficient equipment. If the RTF could be more concrete about such potentials, status and opportunities, it might be useful for the upcoming replenishment.

*RTF: Comment noted and discussion can be expanded in a supplementary report if the information is available. An additional 6.5% reduction per year, could be considered. The estimated HPMP funding requirement to achieve a 61.5 % reduction from baseline (instead of 54.5%) by 2023 is estimated to be approximately US\$ 79.7 million dollars including support costs (the initial amount to achieve 54.5% plus half of the amount to achieve 67.5% since the funding is spaced evenly). Any change in the way the RTF approached the TOR*



*must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

- (b) We acknowledge the importance and opportunities to create stimuli during the HCFC phase-out to leap-frog HFC technologies entirely and move directly to either already available natural, zero/low GWP or not-in-kind technologies. The potential for such technologies, including costs associated with demonstration projects that would raise awareness of associated challenges and co-benefits for technology transitions as such, are perspectives that we believe could be better reflected from the RTF.

*RTF: Comment noted.*

- (c) In addition, more information regarding why it is expected that HCFC consumption in the refrigeration servicing sector are not in focus for the coming triennium, but seems to be expected in HPMP stage III and IV (as stated on page 11), would be appreciated.

*RTF: The RTF estimated the reductions needed by chemical amounts and average cost effectiveness factors. The reductions were not broken out by sector. The calculations are based on compliance targets. The bulk of the HCFC projects are represented in the "HCFC Approved HPMPs" figure taken from the 2020-2022 Business Plans.*

- (d) We also believe that there is a need, and opportunities, to accelerating LVCs and VLVCs phase-out of HCFCs. This potential and how such an acceleration could influence the supply side, could also be better reflected from the RTF.

*RTF: Comment noted – see annex 7 and 8 of the May 2020 TEAP Decision XXXI/I*

*Replenishment Task Force Report-. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report..*

- (e) Information about how the level of required funding for the 2021-23 triennium could potentially influence the estimated funding requirements for later triennia, might be worth exploring further. We understand that this might be slightly outside the mandate of RTF, so we leave it up for the RTF to consider. Additional information about such influences and linkages between triennia would nevertheless be of interest in our view.

*RTF: Comment noted and may need further discussion by parties.*

75. Regarding HCFC production sector funding requirement for 2021-23 and later triennia. Looking at the numbers in Table 2.11 in conjunction with the A5 HCFC production reduction schedule it seems that there will be a significant need for transition of existing production lines at least in the 2024-26 triennium. We also notice that the production levels have been quite stable over the last years, and that it also seems to have increased in one incidence. Information about what kind of barriers that are preventing a faster phase-out of HCFCs in the production sector would be welcomed. Also, for the production sector we would appreciate more information about possible linkages between triennia, and how funding level in 2021-23 might influence estimated funding requirement for future triennia.

*RTF: Comment noted and may need further discussion by parties.*

76. Regarding Section 2.7, transition to low- or zero-GWP alternatives. We appreciate the examples given in the report. It would however be useful if this section also provided indicative figures on an aggregated level, similarly to what is presented in Table 3.6, i.e. an indicative amount of funding for the different scenarios (i.e. an indication of how much funding would be required to allow a country reaching its reduction targets by transitioning totally to low or zero-GWP alternatives, not only for a project). An indication of cost-effectiveness for the low-volume consuming country example would also be valuable information. We also would like to challenge the RTF to present more aggregated information about potential additional costs associated with transitioning from HCFC to either natural, zero/low GWP or not-in-kind technologies. This might

have different implication for the different sectors e.g. both for applications and maintenance/service, such nuanced information from the RTF would be useful in our view.

*RTF: Comment noted. This more comprehensive review would need substantially more information (e.g., on relative servicing costs of NIK applications), and would need further discussion by parties.*

#### NORWAY (round 2)

77. Thanks for providing more details on cost-efficiency for all examples of conversion to low- or zero GWP alternatives in your presentation. However, we are still encouraging the RTF to try to find some way to provide us with more aggregated numbers. Maybe one method you could pursue further, or further develop with your knowledge and expertise, are to look at the remaining amounts of HCFC, and use your expert judgement (or maybe different percentage levels if you want to create scenarios) of how much of that amount which is possible to directly convert to low- or zero GWP alternatives during 2021-23. Estimates of additional costs could then probably be calculated by using an approximation based on the provided cost-efficiencies, while deducting the HCFC cost effectiveness Values provided in Table 3-5. Other more appropriate method to try to aggregate costs concerning such leap-frogging are encouraged, and as stated earlier would be very welcomed.

*RTF: Comment noted. This would need further discussion by parties*

#### SWITZERLAND (round 1)

78. “Extended commitments” by the A5 Parties to the ExCom, through accelerated phase-out schedule(s), over-achieve the 67.5 percent reduction of HCFC baseline by 2023 instead of 2025. By January 2020, 143 A5 Parties, all of the 88 LVC and 55 of 56 non-LVC, had received approvals and funding for the implementation of stage I HPMPs. HPMPs include commitments to achieve 100 percent and in cases even greater (e.g. 256 percent) phase-outs. Can the TEAP-RTF provide estimate of funding requirement for compliance? For HCFC this means timely investments enabling 67.5 percent reduction of baseline HCFC consumption and production by 1 January 2025;

*RTF: Comment noted. The total funding requirement for compliance in the 2021-2023 triennium for the consumption sector is estimated to range from US\$ 178.0 million to US\$ 289.8 million (Table 2-9). The lower end of the range is based on reaching the 54.5% target by 2023. The higher end of the range is based on reaching the 67.5% target by 2023, instead of 2025. To achieve 54.5% target by 2023, the RTF estimates 15 parties<sup>6</sup> need additional projects beyond those currently planned and approved at a cost of about US\$ 22.6 million (not including support costs) which is about US\$ 7.5 million per year for 2021-2023. RTF has assumed these countries would need an additional US\$ 225,000 in project preparation costs. RTF has assumed that these additional projects could commence no earlier than 2021.*

79. The RTF Report’s Table 2-4 depicts the remaining consumption amount of 12,344 ODP tonnes of HCFC to be phased-out. The reduction, from the consumption baseline of 33,097 ODP tonnes, to 20,752 ODP tonnes represent an achievement of a 63 percent phase-out. The remaining eligible 12,344 ODP tonnes of HCFCs is 37 percent of baseline that needs to be phased out by 2030 and are accounted for within the multi-year agreements. Table 2-10 depicts a production amount of 23,146 ODP tonnes of HCFC that remains to be phased out w.r.t. the 32,989 ODP tonnes baseline, indicating a 30 percent reduction by 2018. What are the amounts of HCFC needing to be phased out in the production and consumption sectors, the associated CEs and funds needed, to enable a compliance 54.5 percent during 2021-2023 triennium, 67.5 percent by 2025, and for the

<sup>6</sup> Of those 15 parties, Iraq, Liberia, Libya, Mozambique, Nauru, Niue, and Syria have planned projects but they do not reach 54.5%. Brazil, Indonesia, DPR Korea, Malaysia, Oman, Venezuela, Vietnam, and Yemen do not have planned projects and do not reach 54.5%.

following 2 trienniums up to 2029? HCFC-22 accounts for 93 percent (11,456 ODP tonnes) of the remaining HCFC to be phased out in consumption? We request clarification on the corresponding production sector figures, funds required and associated CEs. Also, could the RTF clarify what deductions have been made for a tail allowing 2.5 percent of baseline consumption and production for specific uses defined in Article 5 and possible essential use exemptions?

*RTF: Please see Annex 5 of the May 2020 TEAP Decision XXXI/1 Replenishment Task Force Report. Each country has different reductions which, when averaged, amount to 63% HCFC phaseout. There are no deductions calculated for the servicing tail. It is simply a calculation based on the quantity allowed for the 2.5% of baseline consumption multiplied by the servicing sector cost effectiveness factor.*

80. To understand clearly the linkage between HCFC phase-out and HFC [phase-]down, we request the RTF to depict both HCFC and HFC quantities and cost effectiveness in term of ODS, ODP and CO<sub>2</sub>-eq terms, as applicable.

*RTF: Comment noted. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

81. HCFC consumption sector verification costs of USD 1.766 M have been included for the 2021-2023 period. It is unclear whether the same amount, or a different sum, for verification is incorporated for the production sector HPPMPs? See also below on need for costs associated with monitoring, verification and reporting (MVR) of the Articles 2A-2J controlled substances.

*RTF: Yes, the verification costs of USD 1.766 M is only consumption sector. In the production sector, verification costs are included into the HPPMP and are not a separate item.*

82. TEAP-RTF estimates that the total funding requirement for the replenishment of the MLF Fund – in the context of HCFC production and consumption phase-out and HFC consumption phase-down only— in the triennium 2021–2023 to be between USD 377 M and USD 809 M and indicative funding requirement for the subsequent two trienniums 2024–2026 and 2027–2029 ranging USD 1.8 Billion to USD 2 Billion. In further work we would appreciate depiction of:

- (a) Resources needed to ensure achievement and maintenance of compliance with the obligations associated with the 2A-2J substances' production and consumption.
- (b) Resources required for MVR of the controlled substances covering both the production and consumption sectors. Specifically, MVR allocations needs for the Institutional Strengthening (IS); Standard Activities (SA) including CAP; and the respective controlled substances' consumption and the production sector management plans. The MVR estimates by the RTF covers only HCFC consumption and the HCFC production sector's allocation is not clear. Considering increasing discrepancies for observed and reported data (CFC-11/12, CTC, CFC-113, and lately HFC-23) adequate MVR needs to be provided for the 2A-2J controlled substances including HFC-23 emanating from feedstock, emissive production and the consumption sectors.

*RTF: Comment noted. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

## SWITZERLAND (round 2)

83. Can the TEAP-RTF provide estimate of funding requirement for compliance? For HCFC 2021-2023 period this would correspond to timely investments enabling 67.5 percent reduction of baseline HCFC consumption and production by 1 January 2025.

*RTF: The total funding requirement for compliance in the 2021-2023 triennium for the consumption sector is estimated to range from US\$ 178.0 million to US\$ 289.8 million (Table 2-9). The lower end of the range is based on achieving the 54.5% target by 2023. The higher end of the range is based on achieving the 67.5% target by 2023, instead of 2025. To achieve 54.5% target by 2023, the RTF estimates 15 parties<sup>7</sup> need additional projects beyond those currently planned and approved at a cost of about US\$ 22.6 million (not including support costs) which is about US\$ 7.5 million per year for 2021-2023. RTF has assumed these countries would need an additional US\$ 225,000 in project preparation costs. RTF has assumed that these additional projects could commence no earlier than 2021.*

84. Can TEAP clarify as to what is the current status of implementation of the Consolidated Business Plan 2020-2022 and whether account has been taken of expected return on balances?

*RTF: The RTF consulted with the MLF Secretariat. In 2020, US \$34,966,643 was approved at the 85th meeting through the intersessional approvals process established by the ExCom due to the COVID-19 pandemic, resulting in a balance of US \$119,396,211 from the 2020 business plan. Currently, the MLF Secretariat is reviewing all project proposals that were to be considered at the 86<sup>th</sup> meeting; as in the case of the 85<sup>th</sup> meeting, the ExCom agreed to establish an intersessional approval process for these projects (November 2020). During this process, return of balances of completed projects will be considered (the estimated amount of balances to be returned is not known yet).*

#### UNITED STATES OF AMERICA (round 1)

85. The “high” scenario for HCFCs moves all HPMP activities forward to reach the 2025 67.5% reduction step in the next triennium. Funding activities in advance of what is necessary for compliance would be a policy choice, whereas the mandate was to estimate the amount of funding needed for compliance with the Montreal Protocol provisions during the 2021-2023 triennium, so why is this additional funding presented in the report as a scenario for a funding need?

*RTF: The RTF has provided the necessary information for compliance (67.5% by 2025). In order to provide parties with options to consider, RTF has estimated the cost of a 67.5% reduction by 2023. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

86. In the “high” end scenario, \$1 million has been included to fund a PRAHA III technical assistance project. However, this project was not approved and is not under consideration, so why was this included in this estimate?

*RTF: The RTF understood from ExCom-84 ( document 84/26) that this technical assistance/regional project was not approved only because of lack of a “funding window for such demonstration project in the 2018-2020 triennium”. Therefore, RTF understood it needed to be considered again so included this in its estimate in the 2021-2023 triennium.*

87. For the HPPMP estimates, the “high” and “low” scenarios estimate \$241 million for Bracket A countries’ HPPMP to be funded over the next 10 to 11 years. We understand a new HPPMP proposal with new numbers will be submitted to the 86th ExCom meeting. Before a revised HPPMP is considered, to support the replenishment discussions, can the RTF estimate funding for the HPPMP as more concentrated in later years, as is typical for production sector projects, and that it may not include funding in every year?

<sup>7</sup> Of those 15 parties, Iraq, Liberia, Libya, Mozambique, Nauru, Niue, and Syria have planned projects but they do not reach 54.5%. Brazil, Indonesia, DPR Korea, Malaysia, Oman, Venezuela, Vietnam, and Yemen do not have planned projects and do not reach 54.5%.

*RTF: The RTF assumed linear funding, but could consider this option for later loading. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

88. Both the “high” and “low” HPPMP scenarios include estimates for an HCFC-22 plant in India, estimated at \$5.35 million for a stage I. While this HPPMP was added to the business plan for 2020-2022 at ExCom 84, the ExCom has not agreed to provide funding or even approved project prep for this facility. We do not believe this should be included in the report.

*RTF: Comment noted. RTF will follow further discussions and decisions of ExCom.*

#### **UNITED STATES OF AMERICA (round 2)**

89. We noted a number of updates in the corrigendum to the table in Annex 5, including changes to HCFC Baselines, starting points, and percent of baseline reductions needed to reach future reduction steps. Can the RTF clarify if these updates impact its total estimated HCFC costs for the 2021-2023 triennium?

*RTF: The RTF estimates will likely be affected by the updates in Annex 5. , Additions, corrections, and changes, discussed and agreed by parties, can be considered by RTF for updating its estimates in a supplementary report.*



## B. ESTIMATED FUNDING FOR HFC PHASE-DOWN

### Chapter 3 of the TEAP task force report

#### AUSTRALIA (round 1)

90. There is not much difference between the ratification scenarios 2 and 3 for the HFC phase-down – did the RTF consider a creating a scenario where not all countries that sent a letter of intent ratified during the replenishment period?

*RTF: The RTF notes the small differentiation between scenario 2 and 3 in terms of number of countries, and impact on final costs estimates. It is important to note that the single largest A5 country in Bracket A is included in both Scenarios 2 and 3. Any scenario that will have this Bracket A country included will be similar to Scenario 3.*

*Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

91. In its calculations, did the RTF consider the time it takes between ratification and getting projects approved through ExCom in coming to its estimates for KPMPs?

*RTF: No, the RTF assumed 2021 ratification for Scenarios 1-3 to provide consistency of calculations and treating all parties alike.*

92. In relation to paragraph 3 of the Terms of Reference, why did the RTF only provide a response in relation to the last part of the paragraph (i.e. provide scenarios for three countries) when Parties had requested a A5 party-wide analysis in the first part of the paragraph?

*RTF: To respond to paragraph 3 of Decision XXXI/1, the RTF found a lack of information on conversion costs. As such, it was difficult to develop scenarios and estimate indicative figures for the resources within the estimated funding required for phasing out HCFCs that could be associated with enabling Article 5 parties to directly transition to the use of low-global-warming-potential or zero-global-warming-potential alternatives. After this study was completed, the RTF focused on studying some sample projects in medium-sized manufacturing country, small manufacturing country, and low-volume-consuming country that resulted in transition towards low- or zero-GWP alternatives. The RTF has since received additional information about the RAC with which the RTF could considering building more comprehensive scenarios, with party discussion and agreement, in a supplementary report.*

93. Can the RTF provide information on how the KPMP costs for 2021-2023 were calculated? While the total costs for the HFC phase-down were reviewed in section 3.3, we were not able to find anywhere specific information on how the amounts of \$23.3m, \$165.3m and \$174m for KPMPs in 2021-2023 were calculated.

*RTF: The RTF estimated the funding requirement that could potentially occur in the 2021-2023 timeframe.*

- *For the reduction target, the RTF calculated a 10% reduction by 2029, to be achieved in a linear manner between 2021-2028, i.e., 1.25% per year for Group 1.*
- *For Group 1, between 2021-2023, a total of 3.75% of the estimated total funding for is used.*
- *For Group 2, there is no estimated funding requirement in 2021-2023. The 10% reduction occurs by 2032, so if the 10% is divided evenly over the years 2024-2031 this equates to 1.25% per year for eight years starting in the next triennium.*



*The RTF notes additional information provided in the annexes to this document related to the estimated funding requirement for the HFC phasedown.*

*While this methodology was used for the RTF estimate, we are open to suggestions for alternate methods, after party discussion and agreement.*

94. Also, in relation to the planned KPMPs, why did the RTF use the estimates in the Business plan instead of using the same methodology for estimating the other KPMPs? The amounts in the business plan are very uncertain as funding guidance is yet to be agreed.

*RTF: The RTF Estimated KPMPs identifies all countries (Table 3-10 of the May 2020 TEAP Decision XXXI/1 Replenishment Task Force Report). The planned KPMPs are from the 2020-2022 consolidated Business Plans. These should have been deducted since it is not possible to identify individual countries. The US\$ 7.3M for planned KPMPs in Scenarios 1-3 will be corrected to zero in the supplementary report.*

95. In section 3.4, the RTF indicated it used a compliance methodology to calculate its estimates for a “maintain and build” approach for the servicing sector. However, there is no compliance target for HFCs in the period 2021-2023. How was the estimate of USD57.5m derived? And does this estimate assume 100% ratification by parties?

*RTF: The RTF notes that the “maintain and build” approach is not based on compliance but is an “opportunity to augment the funding to match the tasks at hand.” The RTF notes that the table in Annex 8 of the report needs to be corrected because a column for the timing for each task was inadvertently left off from the original Excel file. The RTF estimated that 50% of the funds for projects in the 2020-2030 timeframe would be spent in the triennium and zero for those in 2025-2035 and 2030-2040. This does not take ratification into consideration.*

#### AUSTRALIA (round 2)

96. On slide 32 of the TEAP presentation, the RTF indicated that reductions in HFC consumption had been assumed to be starting during the replenishment period, two of those years being years in which the baseline is being established (2021 and 2022). Is the RTF assuming that reductions would be starting for all A5 countries, even before the baseline is established?

*RTF: The RTF assumed funding based on the assumptions of HFC growth by TEAP. The RTF has assumed a linear model for the necessary reduction to have occurred, and the funding disbursed by 2028. Alternative models starting in 2023 and referring to the 2021 and 2022 baseline years could be considered. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report..*

97. The HFC baseline for A5 parties is comprised of a significant HCFC component (65%) and the freeze at the baseline level is scheduled to start in 2024. Did the RTF consider that, due to how the baseline has been comprised, in fact no HFC reductions would be needed in the 2021-2023 replenishment period as the baseline gives A5 countries significant room for HFC consumption growth?

*RTF: Please see Annex C of this note which shows details regarding the baseline and an estimate of “Business as Usual” and shows the estimated timing when funding will be needed for compliance.*

#### CANADA (round 1)

98. With respect to the RTF’s assumptions on sector distribution of HFC use, as described in section 3.3: **Could the RTF please elaborate on its assumptions regarding sector distribution of HFC consumption by each bracket and country group?** Canada notes that Table 3-4 does not

use the same assumptions as in Validation 1, where for example 100% of HFC refrigerants are used for refrigeration servicing in Bracket E countries, as compared to Table 3-4 where 87.7% of HFCs are used for servicing for this group of countries. Furthermore, Table 3-4 shows a significant proportion of HFCs in the mobile air conditioning sector (MAC) sector in brackets D and E countries, apparently not for servicing; however, based on historical experience and surveys, it is unlikely that these countries consume HFCs for the manufacturing of MAC systems. **Could the RTF explain?**

*RTF: HCFC consumption for each country was examined and a conversion was made to HFCs or not-in-kind alternatives based on each sector assumption.*

*The total HFC consumption and the associated GWPs were then estimated for each sector for each country. The sector totals for all of the countries in each bracket were added and a weighted average was calculated. The average CO<sub>2</sub> equivalent units for each sector for each bracket were used to create a percentage of the total CO<sub>2</sub> equivalent units used for that bracket of countries. Since this was based on individual countries and their unique HCFC baseline, each bracket is customized to some degree. These assumptions are simplifying generalizations based on an overall average by bracket to create an indicative figure of the total transition cost rather than a precise representation for each country in the bracket. However, estimates are available country-by-country based on HCFC baselines.*

*Refrigerants used for MAC servicing were not segregated from those used in new equipment. They are incorporated into the total for MAC. The RTF provides additional information on its estimated funding requirement for the HFC phasedown in the annexes to this document.*

99. With respect to the three scenarios of possible ratification of the Kigali Amendment: There is little difference between scenario 2 wherein 137 Article 5 countries would ratify the Kigali Amendment by the 2021-2023 replenishment period, and scenario 3 wherein 144 Article 5 countries would ratify. It would be more meaningful if the task force considered scenarios of potential ratification with more differentiation. Furthermore, the timing of ratification within the 2021-2023 period under these two scenarios is not provided. As further explained in comment # 8 below, this timing is important as depending on when a country ratifies, there may or may not be time during the triennium for the implementation of an HFC phase-down plan to be prepared and approved under the MLF.

*RTF: The RTF notes that the small differentiation between scenario 2 and 3 in terms of number of countries, and impact on final costs estimates. It is important to note that the single largest A5 country in Bracket A is included in both Scenarios 2 (countries which have ratified plus countries which have submitted a letter of intent to ratify to the MLFS) and 3 (all countries ratify). Any scenario that will have this Bracket A country included will be similar to Scenario 3.*

*Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

100. With respect to the estimated funding requirement for the HFC consumption sector phase-down: Section 3.3 of the report outlines the methodology used to estimate total HFC consumption and the total costs of the HFC phase-down over the lifetime of the control schedule. However, the specific funding requirement for HFC phase-down plans (HFC RTF Estimated KPMPs) calculated for the 2021-2023 triennium (as well as for the two subsequent triennia) is not explained. On p. 30, the RTF refers to a “methodology with compliance targets” in relation to the costs of the HFC phase-down, while further below on the same page, it is indicated that the “funding needs for the preparation and implementation of Kigali HFC Phase-down Management Plans (KPMPs) was calculated by using funding figures taken from the original and adjusted 2020-2022 MLF BPs of agencies”. **Could the task force elaborate in detail how it calculated**

**the costs of KPMPs for the 2021-2023 triennium?** In its explanation, it would be appreciated if the task force also considered the following questions:

*RTF: The RTF estimated the funding requirement that could potentially occur in the 2021-2023 timeframe. The 10% reduction was the first control measure taken into consideration. Costs for achieving the freeze were not part of the KPMP costs in the KPMP line in the Summary Table. HFC growth avoidance opportunities were considered under “Early Activities to avoid HFC growth”. Growth is better articulated under the Annex C to this document when discussing the freeze.*

- *For the reduction target, the RTF calculated a 10% reduction by 2029, to be achieved in a linear manner between 2021-2028, i.e., 1.25% per year for Group 1.*
- *For Group 1, between 2021-2023, a total of 3.75% of the estimated total funding for is used.*
- *For Group 2, there is no estimated funding requirement in 2021-2023. The 10% reduction occurs by 2032, so if the 10% is divided evenly over the years 2024-2031 this equates to 1.25% per year for eight years starting in the next triennium.*

*The RTF notes additional information provided in the annexes to this document related to the estimated funding requirement for the HFC phasedown.*

*While this methodology was used for the RTF estimate, we are open to suggestions for alternate methods, after party discussion and agreement.*

- a) What are the quantities of HFCs (in metric tonnes and CO<sub>2</sub> eq) that would be funded for phase-down under the KPMPs under each of the three scenarios, in total and for each bracket of countries, and differentiated among Kigali Group I and Group II countries? Please also indicate the associated funding per bracket for each scenario.

*RTF: In Table 3-6, the estimated quantities of HFCs in MT CO<sub>2</sub>eq are displayed. The RTF notes additional information provided in the annexes to this document related to the estimated funding requirement for the HFC phase-down including quantities in metric tonnes and CO<sub>2</sub>eq. These will always be estimates since the quantities include in the HCFC portion of the baseline are not actually HFCs. The amount of CO<sub>2</sub>eq is based on HCFCs and their conversion into GWP.*

- b) How were those quantities determined? That is, if the amounts represent reductions of HFC consumption (absolute or from BAU) that were deemed to be required in order to ensure compliance with the HFC control schedule, what was the methodology for determining the reductions needed? If the quantities are not directly related to the HFC control schedule, what was the rationale for determining them?

*RTF: An overall weighted average was used for reductions in compliance with the HFC control schedule using an average annual percentage based on the reduction required over the five year (or other year) period.*

- c) What is the sectoral distribution of the HFC reductions included in the KPMPs and what was the rationale for selecting this sectoral distribution?

*RTF: See Table 3-4. There is no sectoral distribution for KPMP; it was based on CO<sub>2</sub>eq reduction targets. For scenarios 1, 2 and 3, the RTF interpolated from the 10% reduction target by 2029. That 10% is divided evenly over the years 2021-2028 which equals 1.25%/yr for Group 1. That means in 2021-2023, a total of 3.75% for Group 1, and 0% for Group 2. For Group 2, the 10% reduction occurs by 2032, so the 10% is divided evenly over the years 2024-2031 which equals 1.25%/yr for Group 2. The reductions were not refined by sector. Rather a weighted overall average was used as a simplification. A more refined and specific sector approach could be considered by the RTF, with discussion and agreement by parties, in a supplementary report.*

- d) Are all the countries included in the estimate for “HFC RTF Estimated KPMPs” different than the ones included in the estimate for “HFC planned KPMPs” (from the business plan)? If not, please explain.

*RTF: RTF notes the comment with appreciation for identifying an error.*

*The RTF Estimated KPMPs identifies all countries (Table 3-10 of the May 2020 TEAP Decision XXXI/1 Replenishment Task Force Report).*

*The planned KPMPs are from the 2020-2022 consolidated Business Plans. These should have been deducted since it is not possible to identify individual countries. The US\$ 7.3M for planned KPMPs in Scenarios 1-3 will be corrected to zero in the supplementary report.*

101. With respect to funding allocated for “HFC planned KPMPs”: For similar reasons as mentioned in comment # 4 above,<sup>8</sup> Canada does not believe that taking the amount included for such KPMPs from the MLF business plan (US \$7.3 million) represents a robust methodology. In the case of HFCs in particular, the amounts included in the business plan are highly uncertain because the ExCom has not yet adopted HFC cost guidelines that could have been used by the Secretariat to assess these amounts. The amounts, therefore, represent only rough estimates from the implementing agencies provided in the absence of any guidance, assessment of costs or ExCom endorsement of the amounts. In Canada’s view, it would thus have been more appropriate for the RTF to apply the same methodology for estimating the funding requirement for all KPMPs, irrespective of whether a KPMP was or was not included in the 2020-2022 business plan.

*RTF: Comment noted.*

102. With respect to the estimated funding requirements for LVCs discussed in section 3.4 and in Annexes 7 and 8: **Was the estimated funding requirement for 2021-2023, of between US \$11.3 million (based on compliance target methodology) and US \$57.5 million (based on “maintain and build” concept), the basis for Bracket E’s contribution to all three scenarios?** Please elaborate/explain. Canada notes that Annex 8 only presents the higher estimate of US \$57.5 million.

*RTF: The RTF estimated the funding requirement for HFC phase-down in the 2021-2023 triennium at US\$ 11.3 million based on the methodology with compliance reduction targets (except for the freeze).*

*However, in order to support the “maintain and build” concept in the servicing sector, the RTF estimated US\$ 57.5 million in this triennium based on activities as shown in Annex 7 and 8 for the consideration of parties. This is in support of upfront funding for activities identified by LVC countries.*

*A new corrected estimate is provided in Annex B to this document, and which will be included in the RTF supplementary report, showing an estimated funding of US\$ 45.349M for “maintain and build activities” by taking the estimated US\$ 57.508M (as in Table A-3 in Annex 8 of the TEAP Decision XXXI/1 RTF May 2020 report) and deducting US\$ 12.159M already included in the HFC estimated funding for LVCs during this time period.*

103. With respect to early activities to address the high growth rate of HFCs in section 3.9: It is not clear how the funding requirements to address this aspect in Table 3-9 were derived. Moreover, the difference between the objectives of the funding estimated for KPMPs to phase down HFCs and the funding estimated here for activities to address the growth rate of HFCs is not clear. As shown in the HFC projections in the report, HFC consumption is predicted to grow significantly over the 2021-2023 period. Therefore, it is likely that the primary objective of any KPMP approved during this period would be to reduce such growth and eventually reverse it in order to ensure compliance with the 2024 freeze and subsequent targets. Consequently, “early activities to

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<sup>8</sup> Canada’s “comment # 4” refers to paragraph 45 in the present document.



address the high growth rate of HFCs” would be an integral part of any KPMP approved in the 2021-2023 triennium. In fact, it is clear in the terms of reference for the RTF report (Decision XXXI/1) that such activities, if any, would be considered as part of the funding requirement for KPMPs and should be related to meeting the Kigali control schedule: “The need to allocate resources for Article 5 parties to comply with the Kigali Amendment, including the preparation and, if needed, **the implementation of phasedown plans for HFCs that could include early activities in the servicing/end users sector in order to comply with the Kigali Amendment by addressing the high growth rate in HFC consumption**”. Hence, presenting a stand-alone estimate for activities to address HFC consumption growth, separate from the KPMPs, seems to be inconsistent with the terms of reference of the report, and could constitute double-counting, depending on how the funding requirement for KPMPs was determined. **Canada would welcome any explanation from the task force on this point. Specifically, would funding for early activities be additional to the total funding that would be eligible under KPMPs or would it substitute part of the funding for future KPMPs?**

*RTF: To respond to opportunities to avoid growth, zero to 50 US\$ million was the estimated cost range in the May 2020 RTF Report for addressing- at the source- the manufacturing of HFC products especially the high GWP containing ones. The methodology for the estimation was based on comparing projects approved by the MLF two years after the HCFC accelerated phaseout was agreed upon. At that time, a total of 33 investment projects for 18 A5 parties were approved, totaling US\$ 48.2 million including support costs. RTF has rounded the figures.*

*An additional range of zero to US\$ 15 million was estimated to foster market transformation- at the end-user. The methodology was also a comparative one using the funding window concept developed and used by the MLF in the past for activities that help to avoid growth of controlled substances, reduce the inventory of products that require servicing, and foster energy gains.*

*RTF provides additional information in the annexes to this document related to the estimated funding for HFC phasedown.*

*The funding for early activities could substitute part of the funding for future KPMPs. In some cases, the earlier funding of conversion projects (than required for compliance), could reduce future funding requirements. The Task Force presented a number of early action opportunities to avoid HFC growth, but this has not been fully modelled. \*

*After party discussion and agreement, some scenarios on the impact of early funding could be modelled and analysed, and presented in a supplementary report.*

104. With respect to sections 3.4.2 and 3.9: Canada has noted that there are two categories of funding requirements within the report, *the servicing sector funding requirements for LVC and VLVC countries* (section 3.4.2) and the aforementioned *early activities to address the high grow rate of HFCs* (section 3.9) that appear to go beyond addressing the strict compliance needs of Article 5 countries related to HFCs, and include activities related to facilitating improvements of energy efficiency in the refrigeration and air conditioning sector. **Would the RTF be able to provide an indication of the potential environmental benefits of such activities, in terms of both the climate impact associated with the additional HFCs that would be reduced or avoided and the climate impact related to reduction/avoidance of CO<sub>2</sub> resulting from energy efficiency gains?**

*RTF: Comments noted.–However, this may be beyond the TOR of the RTF and may need further discussion by parties. The RTF notes that the assessment of technology is not within the TOR for the RTF, however, the reports of the TEAP in response to previous decisions XXVIII/3, XXIX/10 and XXX/5, inter alia, covers some of these aspects related to energy efficiency while phasing down HFCs. Also, in response to Decision XXXI/7, the TEAP is preparing a report for consideration by the Thirty-Second Meeting of the Parties addressing any new developments with respect to best practices, availability, accessibility and cost of*

*energy-efficient technologies in the refrigeration, air-conditioning and heat-pump sectors as regards the implementation of the Kigali Amendment to the Montreal Protocol.*

*Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

#### CANADA (round 2)

105. We noted that the RTF addressed several questions included in Canada's written submission to the online forum, including a question asking the task force to provide, for the 2021-2023 triennium, the quantities of HFCs (in metric tonnes and CO<sub>2</sub> eq) that would be funded for phase-out under the KPMPs, as well as the associated funding, under each of the three scenarios, in total and for each bracket of countries, differentiated among Kigali Group I and Group II countries (paragraph 8 of Canada's submission). In response to this question, the RTF suggested that this information was provided in Table 3-6 of its report. We would like to note that Table 3-6 provides the total quantities of HFCs and related funding for the entire phase-down of HFCs, whereas we asked if this information could be provided for the 2021-2023 triennium specifically. However, having considered the presentation of the RTF to the online meeting, we recognize and appreciate that this information was provided to some extent in slide 32 of the presentation, although for one scenario only, in CO<sub>2</sub> eq tonnes only, and not broken down among brackets of countries. We find this slide particularly helpful, and suggest that the RTF could expand on it in its written response by presenting the information for all three scenarios and, to the extent possible, in metric tonnes and by country brackets.

*RTF: It may be helpful to note that the business as usual case does not exceed the phasedown schedule until the end of the freeze period (after the 2021-2023 triennium).*

106. We are aware that the RTF indicated in its presentation that currently the quantities of HFCs to be funded for phase-out are only available in CO<sub>2</sub> eq tonnes. However, we note the cost-effectiveness values used by the task force to calculate the funding for KPMPs (in table 3-5 of the report) are themselves based on metric tonnes. Canada would thus appreciate some clarifications from the task force on this point. We recall that the TEAP has previously presented estimates of HFC consumption in Article 5 countries from 2010 to 2050 in both CO<sub>2</sub> eq and metric tonnes, notably in Annex IV of the June 2016 TEAP Decision XXVII/4 by the Task Force on Alternatives to Ozone Depleting Substances.

*RTF: The cost-effectiveness factors were not determined based on tonnages. They were used with the tonnages of HFCs to calculate a range of funding for the transition. The quantities of HFCs to be funded for phasedown are converted into kilograms to be multiplied by the estimated cost effectiveness factors. The clarification and expansion of the calculation methodology is contained in a new Annex A to this document.*

#### CHINA (round 2)

107. Regarding the cost effectiveness of HCFCs and HFCs, we noted that the RTF listed the cost effectiveness factors of previously approved HPMP projects in Table 3-5 of the report to calculate the funding requirements of HFCs. However, we do not understand the source of the cost effectiveness as listed in this table and they do not seem to be consistent with approved HPMP projects. We would thus appreciate if we could get some further clarifications from the task force on this point.

*RTF: In the absence of guidance from the parties, the RTF started with the HCFC cost-effectiveness factors, and made modifications only where they seemed inconsistent between HCFCs and HFCs. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*



## COLOMBIA (round 2)

108. Regarding the initial exercise to classify the 144 A5 parties in brackets to estimate the funding assignment needed to comply with the Kigali Amendment, we would ask the TEAP why the only classification criteria taken was the consumption of HCFC in metric tons and not any other factors, such as the CO<sub>2</sub> Metric Tons, production or consumption distribution from the manufacturing and servicing sectors, as referenced in the Terms of Reference? We see for instance that the Group C has very heterogeneous group of countries into the current classification.

*RTF: The Task Force considered both HCFC production and consumption in metric tons as in determining grouping.*

109. On the funding estimations for phasing down the HFCs in the servicing sector, we have a few questions for clarification:  
Step 4 of the methodology used to estimate the funding for the reduction of HFCs (cost-effectiveness), describes that because of the lack of HFC guidelines with agreed cost-effectiveness thresholds, the estimates for calculating the cost- HFCs' effectiveness was based on the cost-effectiveness of HCFCs (Table 3-5).
- How did you use these values to define the cost effectiveness value of HFCs in the HCFC cost effectiveness contained in the Table 3-5?

*RTF: Cost effectiveness factors by sector were used together with the % of HFC for each sector and the total quantity of HFC that must be phased down for compliance to develop the costs in Table 3-5.*

- Is there any type of conversion used to go from values with units of US / kg (cost-effectiveness of HCFCs, Table 3-5) to values with units of US / t CO<sub>2</sub> equivalent (cost-effectiveness of HFC Table 3- 6)?

*RTF: The CO<sub>2</sub> equivalent was determined based on the weighted average GWP for the bracket estimated by The Task Force in validation method 1.*

- Is the cost-effectiveness value for HFCs defined in Table 3-6 for countries classified in C group 1 (3.37 \$ US / t CO<sub>2</sub> equivalent), a unique value that would be applied to each of the sectors or is it an averaged value? Why there is no cost effectiveness for each of the sectors as the values defined in Table 3-5 for HCFCs?

*RTF: The last column in Table 3-6 indicates a calculation of US\$ per ton of CO<sub>2</sub> equivalent. This is not a cost effectiveness factor since cost-effectiveness factors are calculated on a US\$ per kilogram basis. This number is based on the carbon dioxide equivalent and GWPs. Please see Annex B of this document.*

110. Regarding number 3.9 “OPPORTUNITIES FOR EARLY ACTIVITIES ADDRESSING THE HIGH GROWTH RATE OF HFCS” and table 3.9 of the study, the Task Force has included estimates of early activities to prevent the growth of HFCs with high warming potential, for Colombia it would be very important to know the methodology and assumptions considered to estimate the costs of these two literals presented in Table 3.9, so this delegation would like to request TEAP to share the details of the calculations in that table.

*RTF: To respond to opportunities to avoid growth, zero to 50 US\$ million was the estimated cost range in the May 2020 RTF Report for addressing- at the source- the manufacturing of HFC products especially the high GWP containing ones. The methodology for the estimation was based on comparing projects approved by the MLF two years after the HCFC accelerated phaseout was agreed upon. At that time, a total of 33 investment projects for 18 A5 parties were approved, totaling US\$ 48.2 million including support costs. RTF has rounded the figures.*

*Additional range of zero to US\$ 15 million was estimated to foster market transformation- at end-user. The methodology was also a comparative one using the concept of funding window used by the MLF in the past for activities that help to avoid growth of controlled substances, reduce the inventory of products that require servicing and foster energy gains.*

*RTF provides additional information in the annexes to this document related to the estimated funding for HFC phasedown.*

*The funding for early activities would substitute part of the funding for future KPMPs. In some cases, the earlier funding of conversion projects (than required for compliance) could reduce future funding requirements. The RTF presented a number of early action opportunities to avoid HFC growth, but this has not been fully modelled. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

111. Finally, we would like to clarify if there is an annex available for the Parties explaining the calculations made for the HFC Chapter of the Assessment Study. If so, we would request a copy of this annex, for our consideration and study.

*RTF: Comment noted. Please see annexes to this document.*

#### **GERMANY on behalf of the EUROPEAN UNION (round 1)**

##### **Early activities on HFCs**

112. Various **early activities** to demonstrate low or zero GWP alternatives could be implemented either under HPMPs or KPMPs.

*RTF: Comment noted.*

113. In the **absence of HFC guidelines, baselines, starting point and a national HFC plan**, including overall strategies and priorities, it will be difficult to estimate the level of funding which could be applied.

*RTF: Comment noted.*

114. Nevertheless, for the 2021 to 2023 period it is practical and effective to link early activities **with the implementation of the HPMPs, such as leapfrogging HFCs in countries that have ratified Kigali.**

*RTF: Comment noted even though there are sectors/subsectors that have already shifted to HFCs and are not dealt with under HPMPs.*

115. Unfortunately, the RTF does not provide substantial information on the **possible linkage, impact and benefits of using HPMP funding** for both, the phase-out of ODS and early action for accelerating the phase-in of HFC alternatives.

*RTF: Comment noted.*

116. We would like to see alternative scenarios that illustrate the possible impact and benefits resulting from accelerated transitions to low or zero GWP alternatives under the HPMP, thus fostering an **early sustained reduction of demand** for HFCs in the A5.

*RTF: Comment noted, and the RTF also notes that discussions remain ongoing at the ExCom on the parallel integration of activities for HCFC phaseout and HFC phasedown that could reduce growth in use and emissions of HFCs.*

117. Early activities on HFCs need to be presented with regard to their impact on **sustainability, environmental benefits and climate gains and costs** for the next 10 – 20 years.

*RTF: Comment noted, and the RTF also notes that this may be outside its TOR in Decision XXXI/1 and requires the discussion of parties.*

118. The funding of early activities should depend on the ratification of Kigali and existence of an HFC import-export licensing system.

*RTF: Comment noted.*

### HFC Consumption Sector

119. The **HFC consumption** during the 2020/2022 baseline years is likely to be affected by the global recession. Together with the addition of **65% of the HCFC-baseline consumption to the HFC-baseline, the A5 are provided with a flexibility** and need to start reduction earliest after 2025 to meet control targets and compliance obligations in 2030.

*RTF: Comment noted.*

120. First of all, it is important **to start the preparation of the Kigali phase-down** activities, keeping in mind that the preparation of HPMPs has generally taken several years to complete. An important prerequisite for funding is ratification of Kigali, as this indicates that a country will adhere to the goals and requirements of Kigali. We strongly object to approving KPMPs or any HFC-projects for those **A5, who have not ratified Kigali** and who have no established HFC import-export licensing system

*RTF: Comment noted. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

121. This has implications on the proposed funding scenarios including all A5 irrespective of their status of ratification.

*RTF: Comment noted.*

122. The RTF **bottom up assessment on the HFC consumption** should be better explained, it lacks generic information on market assumption and cost effectiveness criteria and the references provided appear to be inconsistent (Tables 3-4 to 3-6, p. 25&26) see more detailed questions in the Annex.

*RTF: The RTF provides additional information in the annexes to this document related to estimating the funding requirement for the HFC phasedown. Additional information is also provided below.*

*Table 3-4 of the RTF May 2020 report was developed based on the following: HCFC consumption for each country was examined and conversion was made to HFCs or not-in-kind alternatives based on each sector assumption. The total HFC consumption and the associated GWPs were then estimated for each sector for each country. The sector totals for all of the countries in each bracket were added and a weighted average was calculated. The average CO<sub>2</sub> equivalent units for each sector for each bracket were used to create a percentage of the total CO<sub>2</sub> equivalent units used for that bracket of countries. Since this was based on individual countries and their unique HCFC baseline, each bracket is customized to some degree. These assumptions are simplifying generalisations based on an overall average by bracket to create an indicative figure of the total transition cost rather than a precise representation for each country in the bracket.*

*Table 3-5 was developed as described in the RTF May 2020 report.*

*Since there are no HFC Guidelines with agreed cost-effectiveness thresholds, the RTF based its estimates on previous cost-effectiveness factors used from HCFCs, for Brackets A through D. Bracket E (LVCs and VLVCs) primarily consist of the refrigeration servicing sector and*

*are calculated on a different level as discussed in section 3.3 where the RTF looked at ways of a) addressing the need to support LVCs for the implementation of Kigali as early as possible, to maintain and build on the existing infrastructure and personnel, b) identifying barriers and assistance gaps, c) providing a bottom-up approach to calculate funding for LVCs by listing in detail activities needed and associated funding. Inputs received during informal consultations (Annex 2 of the RTF May 2020 report) were key to the approach used in the funding calculation, detailed in Annex 7 of the same report.*

*Table 3-6 provides indicative figures for the total cost of an HFC phase-down for all countries in Brackets A to D, for the Consumption Sector to 80% (Group 1 countries) and 85% (Group 2 countries). The figure includes deduction for exports, foreign/multinational ownership of enterprises & cutoff date. It also includes the total based on the adjusted calculation method for Bracket E.*

123. RTF has been asked to calculate the cost of supporting a limited number of **stand-alone projects with para 4 of decision XXX/5**, for which ExCom dec 84/53 outlines the conditions of submission. In view of this, the funding proposal by RTF appears excessive. How did RTF consider decision 84/53 and the fact that many projects have already been funded? What are the experiences with projects approved so far, have they been useful? What were the assumptions used for the approval of additional stand-alone projects to be continued in 2021 (better regional coverage, sectors, or otherwise)? How will these stand-alone projects be different and contribute short term, highly relevant information for the cost guidelines and to sustain HFC-reductions?

*RTF: Parties requested RTF to provide the estimated funding needs to support a limited number of stand-alone projects. RTF looked back and reviewed the precedent for previous ExCom approvals for a limited number of projects. RTF also consulted with several delegations who attended the ExCom meeting in Montreal Dec 2019 to confirm the meaning of “limited”. The consensus answer was “up to 10 projects”. In 2017 and 2018, a total of US\$14 million, including support costs, was approved for 9 countries for 10 investment projects for the conversion from HFCs.*

*RTF estimated US\$ 14 million based on the number of projects approved in the 2018-2020 period. This was deducted from the total funds calculated for KPMPs to avoid double counting.*

*RTF understood that these projects are useful in gaining experience, since ExCom members requested more of such projects to be presented by extending the deadline for submission up to the 87<sup>th</sup> ExCom meeting. The ExCom requested a limited number of stand-alone projects for the 2021-2023 period to consider under-represented regions and sectors, prioritizing stationary air conditioning, commercial refrigeration and mobile air conditioning sectors (Decision 84/53).*

124. The RTF proposed to **interlink the funding of servicing activities under the HPMP and the KPMP**. This will become relevant after 2023 only, because the guidelines for KPMPs are still to be negotiated and the baselines, submission and preparation of the KPMPs will take beyond 2023, particularly in countries with a higher HFC consumption.

*RTF: Comment noted.*

125. There is no mentioning of the **relationship between the proposed HFC activities and costs and their relevant compliance needs**. When applying the HFC baseline of A5 Group 1 countries compared to their actual HFC consumption, in which year would the consumption exceed the control obligations for the first time?

*RTF: Although, data on HFC baselines and actual consumption for A5 parties are not available and no KPMPs have yet been prepared we have included in this RTF response to online comments in the annexes to this document to clarify. Based on the phase-down*

*schedule, the Task Force estimates that the business as usual consumption could exceed the phase-down schedule at the end of the freeze period for both Group 1 and Group 2 parties.*

126. In view of the above, the **actual costs for HFC sector** should be much lower than projected in the report. And as stated before the early activities on HFCs need to be presented with regard to their impact on **sustainability, environmental benefits and climate gains and costs** for the next 10 – 20 years.

*RTF: Comment noted, and the RTF also notes that this may be outside its TOR in Decision XXXI/1 and requires the discussion and agreement of parties.*

*Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

127. TEAP states that the next triennium is supposed to follow the paradigm of “Maintain and build”. We would like to know where this idea originates from, has this been discussed or decided by the parties and if not, who is suggesting this?

*RTF: The RTF “maintain and build” concept is not a policy. With the declining funds available from the HPMPs, LVCs indicated the need to maintain a sustainable funding model to respond to the challenges arising from Kigali. This responds to 2 b, 2e, 2f of DEC XXXI/1, in the framework set by ExCom discussions related to Doc 83/40 and Doc 84/67 on the operationalization of para 16 of Dec XXVIII/2 and para 2 of Dec XXX/5 and Doc 84/65 on the Parallel and/or Integrated HCFC and HFC activities in the servicing sector.*

128. Why did the RTF not consider the discussion on Dec. 83/62 on the operationalization of para 16 of decision XXXII/2 and para 2 of decision XXX/5, and specifically what was discussed with regard to funding?

*RTF: The RTF is aware of the ongoing discussions at the ExCom but only considered decisions already taken at the time the report was prepared. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before RTF considers additions or adjustments to be presented in a supplementary report.*

129. The RTF has taken the 2016 figures of TEAP and combines them with a new type of validation method in 3.5, which is insufficiently explained and lacks references. This makes the calculation less transparent than in previous TEAP reports. What is the rationale for the bottom up model, e.g. does it consider actual economic forecasts or not? (RTF mentions elsewhere that there is no consideration following a lack of data)

*RTF: The bottom-up calculations were used to confirm applicability of TEAP 2016 Report to the calculation of the baseline.*

*The assumptions were informed by International Monetary Fund data and IHS MARKIT reports, as cited in the report. Conversions were based on previous TEAP assessment and progress reports unless members identified newer information. RTF estimated the servicing air conditioning and commercial refrigeration by bracket, and made global assessments of the quantities of refrigerant used to service existing systems.*

130. HCFC consumption for each country was examined and conversion was made to HFCs or not-in-kind alternatives based on each sector assumption. The total HFC consumption and the associated GWPs were then estimated for each sector for each country. The sector totals for all of the countries in each bracket were added and a weighted average was calculated. The average CO<sub>2</sub> equivalent units for each sector for each bracket were used to create a percentage of the total CO<sub>2</sub> equivalent units used for that bracket of countries. Since this was based on individual countries and their unique HCFC baseline, each bracket is customized to some degree. TBased on an overall average by bracket, the RTF estimated an indicative figure of the total transition cost



rather than a precise representation for each country in the bracket. How does the bottom up assessment consider?

- the advanced phase-out of HCFC compared to previous predictions?

*RTF: The RTF considered trends in converting from HCFCs directly to low GWP alternatives in confirming the TEAP's 2016 Report, "Decision XXVII/4 Task Force Update Report: Further Information on Alternatives to Ozone-Depleting Substances, September 2016. The first methodology also incorporated advanced phase-out of HCFCs.*

- the transitions to R-32 and to low/zero GWP alternatives?

*RTF: The RTF used a conversion rate of 10% to R-32 and used the following assumptions: :*

- 3% growth in all markets per year;
- HCFC-22 used in refrigeration and air conditioning converts to 33% R-404A for refrigeration and 67% for air conditioning with 90% to R-410A and 10% to HFC-32.

- ExCom document 82/66 on the application of a starting point

*RTF: The RTF did not calculate the starting point and used the baseline instead.*

131. Is there any updated information on HFC consumption available, e.g. from commercially available data or from the survey on "alternative refrigerants"?

*RTF: The RTF considered a number of available reports as well as commercial information and recent TEAP Progress reports in their work .*

*The RTF found it difficult to use the outcomes from surveys based on the conclusions of the 2017 document ExCom 80/54, which compiled results of 119 reports, 81 of them for LVCs. This document indicated inconsistencies in approaches and methodologies, stating: " Some reported alternative substances which are used in many applications not related to industrial processes where ODS are used. It was, therefore, not possible to ascertain whether the reported amounts of these alternative substances were entirely used as replacement of ODS, or for non-ODS use applications; Consumption was not disaggregated by sub-sector and application in refrigeration and air-conditioning (RAC) sector and hence, analysis at disaggregated level could not be provided; The use of some substances was reported incorrectly in certain applications; The forecast methodology used varied by country."*

132. What is meant by the term "methodology with compliance targets" (chapter 3.4, last para)?

*RTF: The methodology with compliance targets refers to the methodology in section 3.3 where the tonnage related to the compliance target is multiplied by the cost-effectiveness factor.*

133. What is the HFC baseline in tons of substance (not GWP-weighted)?

*RTF: The RTF notes additional information provided in the annexes to this document related to the estimated funding requirement for the HFC phase-down including quantities in metric tonnes and CO<sub>2</sub>eq.*

134. What is the share of consumption (tonnes and t CO<sub>2</sub>eq) of brackets A-E in the baseline years?

*RTF: The share of consumption in MMTCO<sub>2</sub>eq is in Table 3-6 of the RTF May 2020 Report. Please also see the annexes to this document for additional information related to the estimated funding requirement for the HFC phasedown and the RTF approach.*

135. For validation 1, it is stated that it underestimated the TEAP estimated BL by approx. 5%. In which year, are you referring to t HFC or t CO<sub>2</sub>eq? (Chapter 3.5)

*RTF: In 2021 in reference to t CO<sub>2</sub>eq.*

136. The validation methodology and its inputs are not transparent and understandable, and need to be reworked.

*RTF: Comment noted. Please see additional information provided in the annexes to this document related to estimating the funding for HFC phasedown.*

137. Could TEAP provide more information on the assumption for the sector distribution, specifically regarding projected sector conversions and differentiations between country brackets? (Chapter 3.5, above table 3-4)

*RTF: HCFC consumption for each country was examined and conversion was made to HFCs or not-in-kind alternatives based on each sector assumption. The total HFC consumption and the associated GWPs were then estimated for each sector for each country. The sector totals for all of the countries in each bracket were added and a weighted average was calculated. The average CO<sub>2</sub> equivalent units for each sector for each bracket were used to create a percentage of the total CO<sub>2</sub> equivalent units used for that bracket of countries.*

*Since this was based on individual countries and their unique HCFC baseline, each bracket is customized to some degree. These assumptions are simplifying generalizations based on an overall average by bracket to create an indicative figure of the total transition cost rather than a precise representation for each country in the bracket, although estimates are available by country based on HCFC baselines, if needed. The following assumptions were used in Validation 1:*

- *3% growth in all markets per year*
- *16% of HCFC-141 converts to HFC-245fa for foams*
- *33% of HCFC-142b converts to HFC-134a for foams*
- *1% of total HFC baseline will be used for HFCs for aerosols including MDIs*
- *0.8% of HCFC-141b GWP in the 2009-10 baseline will be used for HFCs for solvents*
- *HCFC-123 converts to non-HFCs for chillers*
- *2% of total HFC baseline used for domestic appliances*
- *6% total HFC baseline used for MAC*
- *HCFC-22 used in refrigeration and air conditioning converts to 33% R-404A for refrigeration and 67% for air conditioning with 90% to R-410A and 10% to HFC-32*

138. Table 3-4 HFC consumption by market type for brackets and country group: Are the percentages weighted per t HFC (not per t CO<sub>2</sub>eq)? Are the values for the baseline year (and for Group 1 and 2)?

*RTF: The percentages are weighted by t CO<sub>2</sub> eq for the baseline year for group 1 and separately for group 2.*

139. The indicative total cost for HFC consumption PD (Table 3-6) refers to the HFC part of the BL. How was growth between BL setting and freeze and thus the HCFC part of the BL considered?

*RTF: Baseline is based on the formula. Reductions are a direct calculation from the baseline formula. The HCFC part of the baseline is considered as part of the baseline. The indicative costs for HFC consumption in Table 3-6 of the May 2020 RTF Report include the HCFC portion of the HFC baseline. Freeze as a control target was not considered in the estimated costs of HFC activities to assist parties. Growth avoidance opportunities were dealt with under "Early Activities to avoid HFC growth in the May 2020 RTF Report."*

140. How was the indicative total cost for HFC consumption PD (Table 3-6) translated to the cost for the triennium 2021-23?

*RTF: Based on CO<sub>2</sub>eq reduction targets. For scenarios 1, 2 and 3, the RTF calculated 10% reduction by 2029. That 10% is divided evenly over the years 2021-2028 which equals 1.25%/yr for Group 1. That means in 2021-2023, total of 3.75% for Group 1, and 0% for Group 2. For Group 2, the 10% reduction occurs by 2032, so the 10% is divided evenly over the years 2024-2031 which equals 1.25%/yr for Group 2. Freeze as a control target was not considered in the estimated costs of HFC activities to assist parties. Growth avoidance opportunities were dealt with under Early Activities to avoid HFC growth, in the May 2020 RTF report.*

141. Could TEAP better clarify assumptions related to the chapter on “Kigali Ratification Assistance” (funds have been provided already under enabling activities and 129 EAs have been already approved as of now in Article 5 Parties)? And what is the relation in the TEAP assumption between the “additional support for VLVCs and the activities under discussion regarding operationalization of Decision XXXX/5?

*RTF: In the 2017 RTF Report, the term Enabling Activities encompassed both investment and non-investment HFC related activities. Funds were provided to parties who had applied for it and followed the criterium set by ExCom, meaning only parties that ratified and/or sent letters of commitment to ratify were eligible. The figures presented in this Report cover the needs of those remaining parties which have not yet applied for those funds, but if they meet the criterion of committing to ratify, might wish to do so and seek funding in the 2021-2023 triennium. Regarding VLVCs, the replenishment TOR requested TEAP to consult widely. Consultations with some VLVCs indicated that the very small budget allocation meant they were unable to undertake some necessary activities (see Annex 2 on Informal Consultations in the RTF May 2020 report). The RTF suggested a way to overcome this so that all VLVC/LVC parties get a certain minimum basic funding in order to set up infrastructure, regulations, etc.*

142. How did you assess the need for an additional 14mln USD for stand-alone HFC investments projects in the next triennium?

*RTF: Parties requested RTF to provide the estimated funding needs to support a limited number of stand-alone projects. RTF looked back and reviewed the precedent for previous ExCom approvals for a limited number of projects. RTF also consulted with several delegations who attended the ExCom meeting in Montreal Dec 2019 to confirm the meaning of “limited”. The consensus answer was “up to 10 projects”. In 2017 and 2018, a total of US\$14 million, including support costs, was approved for 9 countries for 10 investment projects for the conversion from HFCs.*

*RTF estimated US\$ 14 million based on the number of projects approved in the 2018-2020 period. This was deducted from the total funds calculated for KPMPs to avoid double counting.*

#### **GERMANY on behalf of the EUROPEAN UNION (round 2)**

143. For better consistency and understanding, we would like to request an additional table similar to Annex 5, including the HFC baselines calculated for all A5, their projected HFC consumption at the end of 2023 and 2028 and the reductions necessary for Group 1 countries, to achieve the freeze in 2024 and first reduction step in 2029. Furthermore, we request a table similar to Table 2-8, indicating the cost effectiveness (CE) and funding needed to reach the HFC reduction targets in US\$ for three different scenarios of expected ratification in the period 2021 to 2023.

*RTF: Comment noted. Please see appendix A of this RTF response document, regarding consumption at the end of the freeze period.*

**INDIA (round 2)**

144. As there is no comprehensive reported data on HFCs, the RTF has used estimated figures on HFC consumption from TEAP September 2016 (Decision Ex III/1: Working Group Report: On the Climate Benefits and Costs of Reducing Hydrofluorocarbons under the Dubai Pathway) for estimation of HFC consumption in Article 5 parties. These are given in Table 3-3 of the RTF report. However, for calculation of estimated funding requirement for HFC phasedown, the RTF has used cost effectiveness factors for various sectors used under HCFC regime (Table 3-5) while the same TEAP September 2016 report provides cost effectiveness thresholds for various sectors under a proposed HFC regime at that time. We would like to seek clarification on the specific rationale for using HCFC cost effectiveness values as a base and also methodology for arriving at those figures. It would have been appropriate to use the cost effectiveness estimates of TEAP September 2016 to arrive at a realistic figure for fund requirement for HFC phasedown.

*RTF: The same basis was used for both this report as well as the TEAP 2016 report (HCFC cost effectiveness factors). The sectors were addressed slightly differently, and where there was additional information regarding not-in-kind products or other new information on costs available, the RTF modified the factors slightly.*

*The RTF presents data below to facilitate comparison. In the absence of guidance from the parties, the RTF started with the HCFC Cost-Effectiveness Factors only making modifications where they seemed inconsistent between HCFCs and HFCs.*

**September 2016 TEAP Report**

*“The following cost effectiveness factors were taken into account for the various sectors and sub-sectors. Because potential related costs to an HFC phasedown are currently an ongoing discussion by parties, for the purposes of this report, the factors used are consistent with current MLF cost guidelines and comparable to the factors applied in HCFC HPMPs stage II.”*

<i>Sector</i>	<i>US\$/kg</i>
<i>R/AC domestic</i>	<i>7-9</i>
<i>R/AC based on 134a</i>	<i>8-10</i>
<i>R/AC commercial</i>	<i>10-15</i>
<i>R/AC transport/industrial</i>	<i>10-15</i>
<i>R/AC servicing</i>	<i>6-8</i>
<i>Stationary air conditioning (SAC)</i>	<i>11-15</i>
<i>Mobile air conditioning (MAC)</i>	<i>4-6</i>
<i>Foams</i>	<i>7-9</i>
<i>Fire protection</i>	<i>3-5</i>
<i>Aerosols</i>	<i>4-6</i>
<i>MDIs (no conversion assumed)</i>	<i>None</i>
<i>Production</i>	<i>1.5-3.5</i>

**May 2020 TEAP RTF Report**

*Cost effectiveness factors (HCFCs) used by the Replenishment Task Force task force in its May 2020 report.*

Bracket	Servicing	Domestic Ref	ICR	Stationary A/C	MAC	Foam XPS	Foam PUR	Aerosol	Fire Sup	Solvents
Bracket A	\$ 4.80	\$ 9.00	\$ 9.50	\$ 8.00	\$ 7.00	\$ 4.75	\$ 4.75	\$ 5.00	\$ 5.00	\$ 20.00
Bracket B	\$ 4.80	\$ 11.00	\$ 12.00	\$ 9.50	\$ 8.50	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	\$ 20.00
Bracket B Group 2	\$ 4.80	\$ 11.00	\$ 12.00	\$ 9.50	\$ 8.50	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	\$ 20.00
Bracket C	\$ 4.80	\$ 11.00	\$ 12.00	\$ 9.50	\$ 8.50	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	\$ 20.00
Bracket C Group 2	\$ 4.80	\$ 11.00	\$ 12.00	\$ 9.50	\$ 8.50	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	\$ 20.00
Bracket D	\$ 4.80	\$ 11.00	\$ 12.00	\$ 9.50	\$ 8.50	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	\$ 20.00
Bracket D Group 2	\$ 4.80	\$ 11.00	\$ 12.00	\$ 9.50	\$ 8.50	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	\$ 20.00

145. Noting the specific requirement for the RAC servicing sector with respect to flammability and high pressure of alternative refrigerants and keeping in mind issues of safety and competency enhancement, the TEAP September 2016 report has proposed cost effectiveness threshold range of 6-8 USD / kg (p 190/c) as against 4.8 USD / kg (p 99/c) used under HCFC regime. This is an important sector which needs focus and adequate resource allocation. Of course, the final cost effectiveness shall be decided by the Executive Committee of the Multilateral Fund, however, in the absence of that a reasonable estimate would be the values given TEAP September 2016 report.

*RTF: Comment noted. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

#### **JAPAN (round 1)**

146. (In relation to HFC consumption sector), According to the compliance schedule for HFC, freeze year starts from 2024 and 1st step for 10% reduction starts from 2029. Given this compliance schedule, the stage of MLF 2021-2023 is not in the compliance schedule. Please tell us about TEAP's point of view on the maximum target which A5 Parties need to achieve at the stage of MLF 2021-2023, and how TEAP set the target. Also, are we correct in understanding that "preparation" for KPMP is a main focus at the stage of MLF 2021-2023, given that the compliance schedule for HFC reduction will start from 2024? If NOT, please provide us specific reason why preparation for KPMP is not centered during 2021-2023 period.

*RTF: The RTF estimated scenarios for this triennium based on the level of ratification of the Kigali Amendment, as requested in the TOR. The RTF approach did not prioritise sectors so there is no sectoral distribution for KPMPs and based on CO<sub>2</sub>equivalent reduction targets. For scenarios 1, 2 and 3, RTF calculated 10% reduction by 2029. That 10% is divided evenly over the years 2021-2028 which equals 1.25%/yr for Group 1. That means in 2021-2023, total of 3.75% for Group 1, and 0% for Group 2. For Group 2, the 10% reduction occurs by 2032, so the 10% is divided evenly over the years 2024-2031 which equals 1.25%/yr for Group 2.*

*The RTF considered that while the "preparation" for KPMP is the main focus in the 2021-2023 period. The RTF notes that in the event a KPMP is approved during the 2021-2023 triennium, funds for the first tranche would need to be available prior to starting implementation. As in its TOR, the RTF considered early activities in the 2021-2023 triennium to help with compliance control targets such as the freeze and the 10% reduction target.*



*Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

147. (In relation to HFC consumption sector), We understand how challenging it was to calculate the funding requirement without HFC cost guideline. However, our overall impression is that the estimation of the funding requirement by TEAP is unclear. Please provide us the information on how TEAP determined the funding requirement for “HFC RTF Estimated KPMPs” and “HFC Stand Alone Projects”. To be exact, we would like to know more detailed breakdown of the both components (ex. the exact calculated amount which are allocated to individual A 5 parties). Furthermore, if “KPMPs” will be implemented at the stage of MLF 2021-2023, please explain why “Stand Alone Projects” will need to be implemented at the same stage.

*RTF: The RTF agrees with the comment regarding this particular challenge. RTF further expanded on this in the presentation and in the annexes to this document. RTF can consider providing this breakdown in a supplementary report after discussion and agreement by parties.*

*With regard to stand-alone projects, a total of US\$ 14.4 million including support costs in stand-alone projects was approved by ExCom in 2017 and 2018, to transition from HFCs and to help to determine the costs of conversions to low-GWP alternatives. ExCom expanded the deadline for submission until its 87<sup>th</sup> meeting, prioritizing projects in the stationary air conditioning, commercial refrigeration and mobile air conditioning sector (ExCom Decision 84/53). The RTF also considered that some parties may submit a stand-alone project without a KPMP. The same funding level is suggested for parties' consideration, for a limited number of stand-alone projects in the 2021-2023 triennium, but no country allocation was considered. US\$ 14 million, was deducted from the funding for KPMPs in the 2021-2023 triennium to avoid double counting.*

148. (In relation to HFC consumption sector), Regarding “funding for early activities to avoid HFC growth”, ToR for the study on the 2021-2023 replenishment of MLF indicates at 2. (e) that “if needed, the implementation of phase-down plans for HFCs that could include early activities in the servicing/end users sector”. Given that TEAP provides the estimation of the funding requirement for early activities to avoid HFC growth, we understand that TEAP judged that the activity was “needed” at the stage of MLF 2021-2023.

In this regard, please provide us the detailed information on the following.

- a) Specific scheme used by TEAP in estimating “funding for early activities to avoid HFC growth”
- b) Specific reason for the difference in the estimated amount among three scenarios.
- c) Expected specific outcome which will be brought by the early activities to avoid HFC growth

**RTF:**

- a) *RTF has not considered in the compliance model, the cost of activities to assist parties with the freeze. To respond to opportunities to avoid growth, zero to 50 US\$ million was the estimated cost range in the May 2020 RTF Report for addressing- at the source- the manufacturing of HFC products especially the high GWP containing ones. The methodology for the estimation was based on comparing projects approved by the MLF two years after the HCFC accelerated phaseout was agreed upon. At that time, a total of 33 investment projects for 18 A5 parties were approved, totaling US\$ 48.2 million including support costs. RTF has rounded the figures.*

*Additional range of zero to US\$ 15 million was estimated to foster market transformation- at end-user. The methodology was also a comparative one using the concept of funding window used by the MLF in the past for activities that help to*

*avoid growth of controlled substances, reduce the inventory of products that require servicing and foster energy gains.*

*RTF provides additional information in the annexes to this document related to the estimated funding for HFC phasedown.*

*The funding for early activities would substitute part of the funding for future KPMPs. In some cases, funding conversion projects earlier than required for compliance could displace future funding requirements. The RTF presented a number of early action opportunities to avoid HFC growth but has not fully modelled. The RTF can consider presenting further information, with the discussion and agreement by parties, in a supplementary report.*

- b) Regarding distribution based on scenarios, it was hard to find out how to split the funds among scenarios because RTF does not know the number of countries in scenario 2 for instance, which submitted letters of intent and would be ratifying in the triennium 2021-2023. In addition, for early activities for market transformation at end-users side, funding windows approaches are usually used on a first-come-first-served basis. The difference in estimated amounts among the 3 scenarios is informed by the similarities in scenario 2 and 3.*
- c) Request noted and to be discussed by Parties. TEAP RTF can consider presenting further information, with the discussion and agreement by parties, in a supplementary report on the impact of early activities in terms of climate benefits.*

149. Please provide us the information on the following points:

- (a) Amount of initially assumed MLF budget for HFC-related activities and details i.e. HFC-enabling activities, HFC-investment project preparation and HFC-investment projects including demonstration, within the Multilateral Fund for this triennium (2018-2020).

*RTF: The RTF consulted with the MLF Secretariat for this information. The total budget planned for HFC related activities under regular funding in the business plan for the 2018-2020 triennium is shown in the table below:*

Description	2018	2019	2020	Total
HFC - demonstration	3,351,981			3,351,981
HFC - enabling activities	3,236,750	679,450	315,650	4,231,850
HFC - investment	1,378,659	15,512,484	1,819,000	18,710,143
HFC - preparation		62,100	6,019,506	6,081,606
<b>Total</b>	<b>7,967,390</b>	<b>16,254,034</b>	<b>8,154,156</b>	<b>32,375,580</b>

- (b) Actual approved amount of funding, the number of projects and details (same as above (1)) under this triennium (2018-2020) and those of projects assumed to be approved until the end of 2020. We would appreciate if those funded from the regular contributions and those funded from the additional voluntary contributions provided by a group of non-Article 5 are respectively indicated.

*RTF: The RTF consulted with the MLF Secretariat for this information. The following tables show the total number of projects and total funding approved for 2018 to 2020 (including projects approved at the 85<sup>th</sup> meeting under the intersessional approval process) and the remaining activities planned in the 2020 business plan for 86<sup>th</sup> meeting for HFC related activities. These tables are only applied for activities under regular funding.*

**Total number of projects approved for HFC related activities during 2018-2020 triennium**

Description	2018 Approvals	2019 Approvals	2020 Approvals (85 <sup>th</sup> meeting)	2020 Remaining activities in business plan	Total
HFC - enabling activities	22	2	5	1	30
HFC - investment	7			1	8
HFC - preparation	1	1		68	70
<b>Total</b>	<b>30</b>	<b>3</b>	<b>5</b>	<b>70</b>	<b>108</b>

**Total funds approved for HFC related activities during the 2018-2020 triennium**

Description	2018 Approvals	2019 Approvals	2020 Approvals (85 <sup>th</sup> meeting)	2020 Remaining activities in business plan	Total
HFC - enabling activities	2,835,500	262,150	476,150	53,500	3,627,300
HFC - investment	5,282,193			1,819,000	7,101,193
HFC - preparation	80,250	58,850		6,019,506	6,158,606
<b>Total</b>	<b>8,197,943</b>	<b>321,000</b>	<b>476,150</b>	<b>7,892,006</b>	<b>16,887,099</b>

*The following tables show the total number of projects and total funds approved for HFC activities under additional funding.*

**Total number of projects approved for HFC related activities under additional funding**

Description	2017	2018	2019	Total
HFC - enabling activities	70	58	1	129
HFC - preparation	9	1		10
HFC- investment	1	5		6
<b>Total</b>	<b>80</b>	<b>64</b>	<b>1</b>	<b>145</b>

**Total funds approved for HFC related activities under additional funding**

Description	2017	2018	2019	Total
HFC - enabling activities	8,848,847	7,131,550	267,500	16,247,897
HFC - preparation	260,888	32,100		292,988
HFC- investment	3,350,823	5,750,907		9,101,730
<b>Total</b>	<b>12,460,558</b>	<b>12,914,557</b>	<b>267,500</b>	<b>25,642,615</b>

**MEXICO (round 1)**

150. Chapter 3.3 (RTF approach to estimate total HFC phase-down costs-methodology)  
In the report, RTF mentioned they estimated HFC consumption because there is currently no comprehensive reported data. It is important to remark that some A5 countries reported in 2017 their HFC consumption figures as part of the surveys on alternatives to ODS, in our understanding, these data provide a better representation of the market conditions for A5 countries. **Could the RTF please kindly clarify if the surveys on alternatives to ODS data were considered in the consumption modelling?**

***RTF:** The RTF had difficulties using the results of the surveys based on the conclusions of the 2017 document ExCom 80/54, that compiled and reviewed 119 reports, 81 of them for LVCs. This indicated inconsistencies in approaches and methodologies, stating: “ Some reported alternative substances which are used in many applications not related to industrial processes where ODS are used. It was, therefore, not possible to ascertain whether the reported amounts of these alternative substances were entirely used as replacement of ODS, or for non-ODS use applications; Consumption was not disaggregated by sub-sector and application in refrigeration and air-conditioning (RAC) sector and hence, analysis at*

*disaggregated level could not be provided; The use of some substances was reported incorrectly in certain applications; The forecast methodology used varied by country."*

151. Step 3: Apply Assumptions for Sector Distribution

Regarding Table 3-4 HFC Consumption by Market Type for Brackets and Country Group, it is unclear whether the distribution by sectors was estimated using metric tons or CO<sub>2</sub>eq tonnes, **could RTF please kindly clarify?**

*RTF: Table 3-4 HFC Consumption by Market Type for Brackets and Country group was in CO<sub>2</sub>eq tonnes*

152. With respect to Table 3-5: HCFC Cost Effectiveness Values Used for Countries in Brackets A to D, it would be useful to indicate the units, it could be confusing for some Parties if the units are referred in kg of substance or CO<sub>2</sub>eq.

*RTF: Comment noted. For clarity, the HCFC units for the cost effectiveness values were in USD per kilogram (\$/kg of substance).*

153. Chapter 3.5 (Kigali HFC phase-down management plan-preparation and implementation)

It is unclear what was the methodology to calculate the Kigali HFC Phase-down Management Plan-Preparation costs. Please, **could the RTF kindly explain more in detail, what was the approach to calculate those figures?**

*RTF: The RTF based the estimates on preparation costs from the Business Plan and based on HCFC PRP costs.*

#### **MICRONESIA (FEDERATED STATES OF) (round 2)**

154. We thank the task force for their attention to the question of cost-effectiveness and savings opportunities for the HFC phasedown, in particular for leapfrogging opportunities. We ask that the task force review and revise their calculations in light of the increasing demand for HFC equipment. This accelerating growth, due in part to increasing global temperatures, requires commensurate levels of support to phase down. While leapfrogging HFCs may be possible in many countries, it is highly unlikely in the absence of concrete regulations or economic incentives to do so. We ask to see estimates that take into consideration the highest potential cost scenario where countries might, as has happened, be motivated to hike their HFC production and/or consumption. While Parties consider ways to avoid such negative circumstances, we should be prepared for such a realistic scenario, rather than find ourselves in a negative situation of inadvertently failing to meet our compliance requirements. Overly conservative figures potentially set the Protocol up for failure, when we should instead be taking an approach to guarantee success. Not only do we put at risk our compliance obligations, but we preclude flexibility in the future to refine our decisions in order to further improve climate benefits. The need for a faster track in the future is a highly realistic scenario considering that current pledges of action under the climate treaty fall significantly short of what is required to keep global temperature rise below 2°C (Detailed information available in UNEP's mitigation gap report). Rapid and full implementation of the Kigali Amendment presents one of the best opportunities most likely to generate critical fast results for climate.

*RTF: Comment noted.*

#### **NIGERIA (round 1)**

155. Nigeria ratified the Kigali Amendment on 20 December 2018 and is very proud of its entry into force. Other A5 Parties will also want to phase down HFCs as soon as technically feasible and will no doubt also ratify by the time of the first control measures in order to qualify for agreed incremental costs. Therefore, replenishment should presume universal A5 ratification.

Can the TEAP estimate the replenishment needed if A5 Parties are allowed to proceed to superior technology at the same pace as required for non-A5 Parties?

*RTF: Comment noted, however assessment of technology is not within the TOR for the RTF. The RTF notes that the reports of the TEAP in response to previous decisions XXVIII/3, XXIX/10 and XXX/5, inter alia, covers some of these aspects related to energy efficiency while phasing down HFCs and the cost and availability of low-global-warming-potential technologies and equipment that maintain or enhance energy efficiency. Also, in response to Decision XXXI/7, the TEAP is preparing a report for consideration by the Thirty-Second Meeting of the Parties addressing any new developments with respect to best practices, availability, accessibility and cost of energy-efficient technologies in the refrigeration, air-conditioning and heat-pump sectors as regards the implementation of the Kigali Amendment to the Montreal Protocol.*

156. The criticality of the Energy Efficiency component in the implementation of the KPMP requires a dedicated EE funding estimate. The RTF has discussed extensively on energy efficiency in the report but there appears not to be a specific provision for this which in our view is crucial. This may have been integrated in the funding scenarios for phasing out HFCs. TEAP may wish clarify on this please. Our proposal is to have funding estimates specifically on EE.

*RTF: Comment noted. Where this and other issues remain under discussion in the ExCom (i.e., cost implications of parallel or integrated implementation of HCFC phase-out, cost guidelines for HFC phase-down activities and review of Institutional Strengthening), the RTF used existing cost guidelines under the MLF and noted these limitations in its estimates.*

#### **NORWAY (round 1)**

157. Regarding Section 3.7 about the different scenarios for ratification of the Kigali Amendment, and how these scenarios are further used later in the report. We found it somewhat puzzling that there are no difference between scenario two and three in Table 3.8, Table 3.9 and most of the rows in Table 3.10. This is especially puzzling as we would expect the figures for scenario three to be relatively bigger than for scenario 2, since the consumption and/or production of substances regulated by Montreal Protocol have traditionally been quite high in several of the A5 parties that are not included in scenario 2 but are included in scenario 3. A more thorough explanation for why these two scenarios are almost identical would be appreciated.

*RTF: The RTF notes that the small differentiation between scenario 2 and 3 in terms of number of countries, and impact on final costs estimates. It is important to note that the single largest A5 country in Bracket A is included in both Scenarios 2 and 3. Any scenario that will have this Bracket A country included will be similar to Scenario 3.*

*Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

158. Regarding Section 3.9 high growth rate of HFCs. We find this Section to be very useful and informative. Regarding the paragraph on end-user incentive programmes, we appreciate the reflections on the opportunities and benefits of revised guidelines for the preparation of such projects. We think it would be useful to add a reference to decision ExCom 84/84 where the ExCom already have made a number of requests to bilateral and Implementing Agencies (IAs) when designing and submitting demo and pilot project directed to end-users (i.e. end-user incentive schemes), the decision also requested detailed reports to be able to draw up lessons learned from such projects.

*RTF: Comment noted with appreciation*

#### **SWITZERLAND (round 1)**



159. The RTF has assessed only the HFC consumption sector. According to Kigali Amendment (KA) obligations, however, HFC baseline has to be established for the 2020-2022 period for both consumption and production. The freeze of production and consumption are to be in place by 1 January 2024. Compliance is to address production and consumption for A5 Parties Group 1 countries. Considering the average time taken for implementation of a project, funding decisions have to be taken in time during 2021-2023. This aspect needs to be addressed by the RTF. We would appreciate if the RTF can provide an estimate of quantity, CE and costs associated with addressing establishment of baselines and freeze by 1 January 2024. Hitherto 68 A5 Parties of Group 1 have ratified the KA. We would appreciate an estimate of what funding is to be made available by when for the Group 1 producers and consumers of HFC during the 2021-2023 triennium and subsequent 2 trienniums up to 2029?

*RTF: Comment noted. Please see annexes to this document for additional information on the RTF estimated funding for HFC phasedown.*

160. Regarding HFC consumption, RTF estimates a total phase-down cost of USD 4.12 Billion for the consumption sector alone (Table 3-6). The HFC and 65 percent HCFC component baseline for A5 Parties (Group 1 and 2) is estimated to be 1747 M tonnes CO<sub>2</sub>-eq. Production sector costs, however, are not estimated as called for by the ToR. We request incorporation of costs of the production sector phase-down sector in the supplementary report taking into account the assumptions made regarding the timing of parties' ratifications in the relevant triennial. We also note the very high calculated costs of USD 4.1 Billion (Table 3-6) for the consumption sector alone. Can the RTF clarify the inconsistency w.r.t. the indicative costs range, for the period 2024-2029, estimated to be USD 1.8-1.9 Billion for the consumption sector vis-a-vis the USD 4.12 Billion in Table 3.6?

*RTF: Comment noted. Please see annexes to this document for additional information on the RTF estimated funding for HFC phasedown.*

161. The RTF estimates the HFC-BAU costs at USD 9.7M and USD 58.2M for those A5 Parties who have ratified. The costs ramp up to USD 282-293 M for those with an intent to ratify. The time scale is not clear as to by when? A clearer approach would be to focus on the A5 Parties who have ratified followed by the remaining Group 1 during the 2nd triennium period and lastly the Group 2 countries.

*RTF: Comment noted. RTF estimated ratification by 2023.*

162. The ExCom has earlier approved USD 8.76M for national surveys on HFCs in 127 countries in line with decision XXVI/9 of the Parties. We would appreciate if RTF clarifies to what extent account has been taken of the data in the 119 survey reports, especially for the majority of the A5 Parties, identified in the 2017 ExCom documents?

*RTF: The RTF had difficulties using the results of the surveys based on the conclusions of the 2017 document ExCom 80/54, that compiled and reviewed 119 reports, 81 of them for LVCs. This indicated inconsistencies in approaches and methodologies, stating: "Some reported alternative substances which are used in many applications not related to industrial processes where ODS are used. It was, therefore, not possible to ascertain whether the reported amounts of these alternative substances were entirely used as replacement of ODS, or for non-ODS use applications; Consumption was not disaggregated by sub-sector and application in refrigeration and air-conditioning (RAC) sector and hence, analysis at disaggregated level could not be provided; The use of some substances was reported incorrectly in certain applications; The forecast methodology used varied by country."*

163. The RTF estimates are based on growth rates ranging 3-7.8 percent. These are arguably high growth rates. In reality, due to the Covid-19 pandemic, a constriction of 5-10 percent in global economy is expected. We request the RTF to re-visit the HCFC and HFC production and consumption data reported for the A5 Parties, the growth rates assumed, take into account

transnational ownership and other exemptions, and suggest a scenario with stagnation or a reduced growth figure, as appropriate, for the 2021-2023 triennium and possible impact on the needs for compliance during the following 2 trienniums.

*RTF: Please note that the growth rates of 3 and 7.8% were used by the RTF to validate the methodology of the TEAP in the 2016 report only. While acknowledging the potentially significant impact the pandemic will have on world economies now and in the future, the RTF estimates of the funding requirements for the replenishment of the MLF in the 2021-2023 triennium have not taken into account the changing global scenario and the potential implications for funding and project implementation under the Montreal Protocol, as it lacked sufficient information and guidance to do so. Annex 6 provides some preliminary considerations of these potential impacts to relevant sectors. The RTF could further consider these impacts and other assumptions (e.g., growth rates) if data is available and with guidance following discussion and agreement by parties.*

#### SWITZERLAND (round 2)

164. Regarding establishment of Article 5 party Country Brackets only DPR Korea is assigned to Bracket D – non-LVC. What is the assignment for Republic of Korea (G I) and UAE (G II)?

*RTF: The RTF appreciates the comment ~~and correction that the Republic of Korea was inadvertently omitted from the report, Table 3-1 List of countries per bracket; based on its baseline HCFC consumption in metric tonnes, Republic of Korea should have been included in Bracket E.~~ Table 3-1 List of countries per bracket only includes parties that receive funding from the MLF. Based on Decision V/4, the Republic of Korea and UAE (among other countries) does not receive funding assistance from the MLF. The RTF can clarify this in a supplementary report.*

165. The ExCom approved USD 8.76M for HFC surveys in 127 countries, Document 8054 provides results for consumption in 119/120 Parties. According to the Surveys, about 87 percent of the HFC substance consumption comprises of R410A, followed by HFC 134a & R404A – the main HFC thus being: HFC-32; -125; -134a; & 143a. Approximately 99 percent of the HFCs are consumed in Refrigeration and Air Conditioning (95.1%), Fire-fighting (2.3%) and Foam (1.8%) sectors. The forecast HFC consumption for 2015 (345 M tCO<sub>2</sub>-eq); 2020 (601 Mt CO<sub>2</sub>-eq) and 2030 (1746 Mt CO<sub>2</sub>-eq) appears to vary significantly from the RTF estimates in Tables 3-6 and clarification provided in Slide 32 of the TEAP-RTF Presentation at the forum. We would appreciate if RTF reconciles the data with regard to the 119 surveys and provides data and costs for the corresponding production sector of HFC substance phase-down – in the Article 5 parties (likely 3 such parties?) including monitoring, verification and reporting (MVR) costs for both the production and consumption sectors.

*RTF: The RTF had difficulties using the results of the surveys based on the conclusions of the 2017 document ExCom 80/54, that compiled and reviewed 119 reports, 81 of them for LVCs. This indicated inconsistencies in approaches and methodologies, stating: “ Some reported alternative substances which are used in many applications not related to industrial processes where ODS are used. It was, therefore, not possible to ascertain whether the reported amounts of these alternative substances were entirely used as replacement of ODS, or for non-ODS use applications; Consumption was not disaggregated by sub-sector and application in refrigeration and air-conditioning (RAC) sector and hence, analysis at disaggregated level could not be provided; The use of some substances was reported incorrectly in certain applications; The forecast methodology used varied by country.” Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

**UNITED KINGDOM** (round 1)

166. Whilst its helpful to see the results of the different Kigali Amendment ratification scenarios presented in the report, in relation to scenario two and the total funding estimate we note that funding would only be available for those countries that have ratified the Kigali Amendment and that Letters of Intent would not be sufficient.

*RTF: Comment noted.*

167. **3.1** – Refers to Decision XXVIII/1 adopted at MOP31. Presume this is the wrong decision referenced here?

*RTF: Correction (Decision XXXI/1) noted with appreciation.*

168. **Table 3.1** – This is a useful table and a good reminder of the significant number of LVCs and reinforces the importance of considering the special needs of the LVCs and VLVCs and the distribution of funding.  
It would also be useful to understand how many of these countries are equipment manufacturers and to perhaps also make the distinction between those countries that are just assembling equipment versus those countries that produce and manufacture the equipment.

*RTF: Comment noted.*

169. **Table 3-2** - total Kigali baseline 1,747 million tonnes CO<sub>2</sub>. Could the TEAP remind us how they estimated the HFC component of the baseline in 2016?

*RTF: The HFC Business As Usual (BAU) scenarios for non-Article 5 and Article 5 parties were calculated taking into account the R/AC, foams, MDIs and aerosols, and fire protection sectors including HFC-32, HFC-125, HFC-134a and HFC-143a, as well as HFC-152a, HFC-227ea, HFC-245fa and HFC-365mfc. The HFC BAU scenario for Article 5 parties is calculated without accounting for any HFC regulations. The BAU scenario specifically takes into account economic growth factors expected for the period 2015-2050, as already presented for R/AC in the June 2016 XXVII/4 Task Force report (UNEP, 2016).*

*Please refer to the TEAP report on Decision EX.III/1, Working Group Report: On the climate benefits and costs of reducing HFCs under the Dubai Pathway, September 2016.*

170. **Assumptions for validation method 1** – Whilst we find it helpful to have the countries grouped in brackets A – E there are obviously certain assumptions here which are not representative of some of the countries in the respective brackets. For example, the assumption for servicing on page 24 suggests 75% of refrigerants are used for servicing in bracket D countries which then implies 25% is for manufacture of RACHP equipment. However, there are countries in Bracket D that do not carry out these types of activities and whose usage is entirely for servicing.

*RTF: Comment noted. This is correct. This is an overall average for the bracket and there are exceptions.*

171. **Table 3-4** – Similar to our observations on the validation method 1, the sector distribution in table 3-4 seems a bit strange in some cases. For example, in Bracket E countries, if all refrigerant used for servicing is in Column 1, what is 7.8% for MACs for and isn't this included in the servicing column? Also, the aerosol column implies that all countries, including Bracket E and certain Bracket D countries are manufacturing aerosols?

*RTF: Mobile refrigerants used for servicing were not segregated from those used in new equipment. They are incorporated into the total for mobile air conditioning. (MAC). MACs includes the estimated installed base for cars in a country. Servicing for MAC is MVAC sector. Servicing sector identifies stationary refrigerants. This table is based on estimates of consumption; it does not specify whether this is only for manufacturing.*

*HCFC consumption for each country was examined and a conversion was made to HFCs or not-in-kind alternatives based on each sector assumption. The total HFC consumption and the associated GWPs were then estimated for each sector for each country. The sector totals for all of the countries in each bracket were added and a weighted average was calculated. The average CO<sub>2</sub> equivalent units for each sector for each bracket were used to create a percentage of the total CO<sub>2</sub> equivalent units used for that bracket of countries. Since this was based on individual countries and their unique HCFC baseline, each bracket is customized to some degree. Based on an overall average by bracket, the RTF estimated an indicative figure of the total transition cost rather than a precise representation for each country in the bracket.*

172. **Table 3-5** - Not clear what units are. We assume these are per ODP tonne?

*RTF: These are in units of US dollars per kilogram (\$/kg).*

173. **Table 3-6** - Not clear where 1217 million tonnes CO<sub>2</sub> comes from. In Table 3-2, estimated Kigali baseline = 1747 million tonnes CO<sub>2</sub>. Ratio 1217 / 1747 is 69%. Phase-down target 80% for Group 1 and 85% for Group 2. That would give a 1411 million tonnes CO<sub>2</sub> cut based on data in Table 3-2. Also, the figures in the MMTCO<sub>2</sub>eq column total 1218 not 1217?

*RTF: The RTF used the following methodology for Group 1: The RTF took group 1 proportion of the 2020-2022 baseline of 1,161 million metric tonnes carbon dioxide equivalent which equaled 1,014. We then added the HCFC estimate that was converted into CO<sub>2</sub> equivalents which amounted to 812. That 812 is proportioned to Group 1 countries which equalled 709 MMTCO<sub>2</sub>eq. 65% of 709 equals 461 MMTCO<sub>2</sub>eq. Thus, the total baseline for Group 1 countries amounted to 1,476. Since the Group 1 countries phasedown by 80%, we took 80% of the 1,476. Then, we deducted 15% for ineligible consumption such as exports and foreign ownership et cetera from the Bracket A, B, and C countries. After this deduction, the remaining amount is estimated at 1,018 MMTCO<sub>2</sub>eq for Group 1 countries. The same method is applied to Group 2 countries which amounts to 199 MMTCO<sub>2</sub>eq. Thus, the total is 1,217 MMTCO<sub>2</sub>eq.*

174. **3.5** – Given KPMPs are a really crucial next step, the RTF says very little here.

*RTF: Comment noted. Additional information is provided in the annexes to this document related to the RTF estimated funding requirement for the HFC phasedown. The discussion can be further expanded in a supplementary report.*

175. **3.9 Early Activities** – describes some important issues about avoiding on-going uptake of high GWP HFCs, particularly that alternatives and substitutes are available for at half the applications presently using HFCs at equal or lower life-cycle ownership cost. This helpfully indicates that A5 Parties, especially LVCs can avoid the use of 404A, 410A and 134a in new equipment.

Also very useful to note the need to avoid the build-up and lock-in of high-GWP HFC refrigerant banks and technologies that will create an excessive servicing liability that will last for decades, likely beyond the current Kigali phase-down schedule and that the overall cost of the phase-down will be lower if lower GWP technical solutions are implemented as soon as available at competitive prices.

An important reminder of the potential perverse consequences of MEPS that focus solely on improving the energy efficiency without consideration of the refrigerant aspects. Page 36 of the report references the Model Regulations that have been developed by United for Efficiency which importantly address both the energy and refrigeration aspects and so perhaps an earlier link to these on page 33 when setting out the potential adverse impact of MEPS could be helpful.

*RTF: Comment noted with appreciation. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

176. **Page 36:** Important to understand the availability of lower GWP alternatives compared to accessibility. Whilst these lower GWP alternatives are available and accessible to consumers and technicians in many A2 countries, they aren't accessible in A5 countries, especially in regions away from the capital. Accessibility is vital if the contractors are to encourage use of the lower GWP options.

*RTF: Comment noted.*

#### UNITED STATES OF AMERICA (round 1)

177. How did the RTF account for the likelihood that the actual HFC consumption for most Article 5 Parties will be well below baseline level, thus not requiring funding in the next triennium? Can the RTF provide an estimate that assumes consumption is 40% less?

*RTF: The RTF included consideration of conversion to not-in-kind technologies, but the RTF did not assume a difference for a "starting point" versus baseline level. The RTF can consider the pandemic in their work. Please see annexes to this document for additional clarification. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

178. How did the RTF estimate the deductions for exports, foreign/multinational ownership of enterprises, and cutoff dates from the HFC Baseline?

*RTF: The RTF estimated a 15% reduction for bulk chemicals for Brackets A, B, C, and D.*

179. How did the RTF determine how much of its total estimated HFC phasedown funding would be required for the 2021-23 triennium?

*RTF: The RTF estimated the funding requirement that could potentially occur in the 2021-2023 timeframe. There is no prioritization of sectors so there is no sectoral distribution for KPMPs and based on CO<sub>2</sub>e reduction target. Costs of activities to meet the freeze were not included in the model. Please refer to the annexes to this document for additional information on the RTF estimated funding requirements for HFC phasedown. For scenarios 1, 2 and 3, RTF calculated 10% reduction by 2029. That 10% is divided evenly over the years 2021-2028 which equals 1.25% per year (%/yr) for Group 1. That means in 2021-2023, a total of 3.75% of the estimated funding for Group 1 is used, and 0% for Group 2. For Group 2, the 10% reduction occurs by 2032, so the 10% is divided evenly over the years 2024-2031 which equals 1.25% per year (%/yr) for Group 2. The amounts for the funding requirement correspond to the scenarios. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

180. In our view both scenarios 2 and 3 project an unrealistic number of Kigali ratifications through 2023. In addition, it is unlikely that all of these Parties would ratify early enough to have KPMPs and funded tranches approved by 2023. How would an alternate scenario look if the number of Article 5 Parties that ratify the Kigali Amendment were halfway between scenarios 1 and 2?

*RTF: The RTF could consider alternative scenarios based on available information to the RTF. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*



181. Please provide an additional estimate of the amount of funding needed for Bracket A countries that uses a substantially higher cost-effectiveness. This would take into account higher cost effectiveness factors from more recent agreements, including from ExCom 84, and reflect economies of scale.

*RTF: The RTF could consider alternative scenarios with different cost-effectiveness figures if available. Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

182. The report includes estimates for early activities to avoid growth in high-GWP HFCs. Why were activities, such as buyers' clubs and market transformation programs, that do not have a bearing on compliance chosen to be included in these estimates? Can the RTF provide an explanation and the methodology for how the costs for these activities were estimated including information specific to the individual activities identified?

*RTF: The costs associated with meeting the freeze (a control measure obligation) were not included under the KPMP cost line in the triennium funding needs for KPMPs (only reduction targets considered). Nevertheless, activities to assist countries to avoid HFC growth were included under the chapter on "Early activities to avoid HFC growth" in the RTF May 2020 report, and added to the total funding needed for the triennium. The funding is estimated to smooth future replenishments by bringing forward funding and is not an additional amount of funding. Please see annexes to this document to see the net zero impact of this smoothing exercise. The methodology used for the Early activities was the following: Zero to 50 US\$ million was the estimated cost range in the RTF Report for addressing at the source the manufacturing of HFC products especially the high GWP ones. The methodology for the estimation was based on comparing projects approved by the MLF two years after the HCFC accelerated phaseout was agreed upon. At that time, a total of 33 investment projects for 18 A5 parties were approved, totaling US\$ 48.2 million including support costs. RTF has rounded the figures.*

*Additional range of zero to US\$ 15 million was estimated to foster market transformation to low GWP products at end-user. The methodology was also a comparative one using the concept of funding window used by the MLF in the past for activities that help to avoid growth of controlled substances, reduce the inventory of products that require servicing and foster energy savings.*

183. For HFCs, the RTF used a figure of \$14,000,000 for HFC Stand Alone Projects. Why did the RTF assume that these would be approved at the same rate as they have been, considering that KPMPs will start to be approved in the next triennium? Are these Stand-Alone Projects duplicative of the KPMPs? It also is not clear that the funding window for HFC Stand Alone Projects will remain open throughout the triennium. Can the RTF provide a range of possible funding with \$14,000,000 or less at the upper end?

*RTF: Parties requested RTF to provide the estimated funding needs to support a limited number of stand-alone projects. RTF consulted with several delegations who attended the ExCom meeting in Montreal, Dec 2019, to confirm the meaning of "limited". The answers was up to 10 projects. Looking at ExCom stand-alone approvals in 2017 and 2018, a total of US\$14 million, including support costs, was approved for 9 countries and for 10 investment projects for the conversion from HFCs.*

*The US\$ 14 million was a rounded figure based on the previous number of projects approved in the 2018-2020 period, and it was deducted from the total funds calculated for KPMPs to avoid double counting. In addition, ExCom members requested more of such projects to be presented by giving parties an extension of deadline for submission up to the 87<sup>th</sup> ExCom meeting, considering under-represented regions and sectors, prioritizing stationary air conditioning, commercial refrigeration and mobile air conditioning sectors (Decision 84/53).*

**UNITED STATES OF AMERICA** (round 2)

184. On the estimate for KPMPs, the RTF should only estimate funding for those KPMPs that would be needed for compliance. Most countries will not need reductions to meet the first consumption control obligations in 2024 and are therefore unlikely to need KPMPs in the next triennium. The RTF also added a line on “early activities for HFCs.” If there is any need to look at early action, the associated estimate should be clearly identified as separate from the KPMPs needed for compliance, and a clear description provided of the related assumptions.

*RTF: Comment noted. See response to question 182 above. The costs associated with meeting the freeze in 2024(a control measure obligation) were not included under the KPMP cost line in the triennium funding needs for KPMPs (only reduction targets considered). Nevertheless, activities to assist countries to avoid growth were included under the chapter on “Early activities to avoid growth of HFCs” and added to the total funding needed in the triennium 2021-2023 according to different ratification scenarios.*

## C. HFC PRODUCTION SECTOR AND HFC-23 BY-PRODUCT EMISSION MITIGATION

### Chapter 4 of the TEAP task force report

#### AUSTRALIA (round 1)

185. For the HFC production sector in Argentina, why did the RTF use the high-end figure of \$59m for closure when the last ExCom document (85/65) suggested the high-end figure could be around \$6m instead?

*RTF: The project proposal was the only information that RTF had available during the preparation of the May 2020 RTF report. As the ExCom 85 is continuing the discussion on the projects of Argentina and Mexico, RTF will update based on new decisions or information available*

#### CANADA (round 1)

186. With respect to the estimated funding requirement for HFC-23 by-product mitigation described in sections 4.3 and 4.4: Canada notes the RTF has used the low end and high end cost options from the project proposal for HFC-23 mitigation in Argentina submitted to the MLF at the 83rd ExCom meeting. However, the ExCom has not indicated that it agreed with this range of costs and the MLF Secretariat has recommended significantly lower costs for the mitigation options considered. Furthermore, the high end of the range (at close to US \$60 million) is associated with the option of closing production of the HCFC-22 swing plant. However, in decision 79/47(c), the ExCom decided to consider possible *cost-effective options* for compensation of HCFC-22 swing plants to allow for compliance of HFC-23 by-product obligation of the Kigali Amendment” (emphasis added). Under this understanding, funding for closing the HCFC-22 swing plant in Argentina could only be considered if it was cost-effective in relation to the other options for mitigating HFC-23, which is not the case as the project proposal itself includes more cost-effective options. Finally, while in the case of Mexico, the RTF considered the revised costs for mitigating HFC-23 agreed to as per document 85/65 submitted to the 85th meeting, the RTF did not consider that in document 85/64 submitted to the same meeting, it is indicated that “the Government of Argentina believes any discussion on closure should be at a minimum of US \$6 million”. Therefore, the funding range for mitigating HFC-23 in Argentina seems to us be significantly over-estimated.

*RTF: RTF noted those relevant information and decisions, as well as the policy discussions regarding the HFC-23 mitigation and closure of HCFC-22 production especially the swing plant. However, the project proposal was the only information that RTF had available during the preparation of the May 2020 RTF report. RTF also noticed that those submitted project proposals covers a wide range of options and related costs. As the ExCom 85 is continuing the discussion on the projects of Argentina and Mexico, RTF will update based on new decisions or information available.*

#### CHINA (round 1)

187. In Chapter 4 Section 4.2 of the Assessment Report of the Funding Requirement for the Replenishment of MLF for the Period of 2021-2023, TEAP introduces the situations of HFC-23 by-product production in relevant countries, in which the description of the management policies of new lines built for HCFC-22 production, and relevant data related to HCFC-22 production and HFC-23 by-product destruction in China are inconsistent with the policies promulgated by the government and the actual situation.

For the management policies, the replenishment report says, “Since 2008, any new lines built for HCFC-22 production for use as a refrigerant were required by the Chinese government to have the capability to destroy the HFC-23 by-product and any new HCFC-22 production units for feedstock are required to destroy HFC-23 without subsidies related to capital investment or operating costs” (page 44). According to management policies promulgated by the Chinese government, the description mentioned above should be revised as following:

*The Chinese government has banned the construction and expansion of HCFC-22 production facilities for controlled use since 2008. Meanwhile, the Chinese government supports the incineration and conversion of HFC-23 by-produced by valid HCFC-22 production capacities recognized by then Ministry of Environmental Protection before April 27, 2015 when Supplementary Circular on Strict Control of New, Reconstruction and Expansion of HCFCs Production Facilities was issued. From 2014 to 2019, the country has provided financial subsidies for the operation of HFC-23 destruction facilities of the eligible HCFC-22 manufacturers, which effectively reduces HFC-23 emissions.*

As for data of HCFC-22 and HFC-23 production in China illustrated in Table 4-3, the total production of HCFC-22 of China reported according to the A7 to the Ozone Secretariat in the year of 2018 is 611,513.7 tons, which is 655 tons different from the amount in table 4-3 (referring to the corrected version presented in this document). This discrepancy is mainly caused by the different scope of enterprises included in calculation (A7 data also included Xingguo Xingfu Chemical), as well as the different calculation methods of production batch time and stockpiles from the World Bank verification. We suggest that the data in Table 4-3 in the replenishment report be corrected as follows, where about 97% of HFC-23 generated at HCFC-22 manufactures that received subsidies was incinerated in 2018 in China.

*Table 4-3 Amounts of HCFC-22 and HFC-23 produced as well as HFC-23 incinerated in plants that received subsidies in 2018 in China*

Producer	HCFC-22 production (tonnes)	HFC-23 production (tonnes)	% of HFC-23 formed	Incinerated HFC-23 (tonnes)	Incinerated HFC-23 (tonnes of CO <sub>2eq</sub> )
Dongyue Chemical Co (Shandong)	207,043.5	4,244.93	2.05	4,244.88	36,325,294
Quhua Co (Zhejiang)	91,298.0	2,072.23	2.27	2,065.15	15,963,194
Meilan (Jiangsu)	101,469.9	2,803.39	2.76	2,803.18	17,804,395
3F Changsu (Jiangsu)	39,312.3	1,135.27	2.89	1,134.82	6,895,033
ZhongHao ChenGuang (Sichuan)	34,868.6	890.6	2.55	884.79	6,076,990
Linhai Limin Chemical (Zhejiang)	25,750.2	525.3	2.04	524.8	4,514,226
Arkema Changshu (Jiangsu)	37,942.7	724.7	1.91	722.38	6,635,979
Sanmei Chemical (Zhejiang)	13,977.2	344.88	2.47	340.01	2,417,993
Jinhua Yonghe (Zhejiang)	24,185.0	496.37	2.05	450.55	1,910,222
Lanxi Juhua (Zhejiang)	25,551.5	704.38	2.76	424.95	2,703,873
Pengyou Chemical (Zhejiang)	9,459.8	210.0	2.22	218.24	1,740,711
<b>Average</b>	/		<b>2.36</b>		/
<b>Totals</b>	<b>610,858.7</b>	<b>14,152.05</b>	<b>/</b>	<b>13,813.75</b>	<b>102,987,910</b>

It should be noted in particular that in the last column of Table 4-3 in the replenishment report, data of “tons of CO<sub>2</sub> reduced through HFC-23 incineration” does not refer to “Direct Emission Reduction” (the amount of HFC-23 destroyed by the incineration facilities), but “Net Emission Reduction” (the environmental benefits from HFC-23 incinerated), i.e., “Direct Emission Reduction” × GWP<sub>HFC-23</sub> (GWP used in the verification of HFC destruction was 11700) - HFC-23 in the incineration exhaust gas - HFC-23 escaping from the production facilities - greenhouse gas emissions caused by burning fuel - CO<sub>2</sub> emission caused by HFC-23 incineration. Therefore, the inverse calculation, namely dividing “Net Emission Reduction” by GWP<sub>HFC-23</sub> (GWP used in this replenishment report is 14800) to get the amount of HFC-23 incinerated, is supposed to be inaccurate.

*RTF: Corrections and clarification noted with appreciation.*

## GERMANY on behalf of the EUROPEAN UNION (round 1)

### HFC Production Sector

188. We agree that no cost is associated with the HFC productions sector for the next triennium and it is not relevant for the replenishment.

*RTF: Comment noted.*

### HFC – 23 Mitigation

189. In the discussions related to the **HFC-23 mitigation**, important policy issues are still open that need to be resolved first, such as the sustainability of funding HFC-23 and applicability of best practice examples that not only lower the emissions but provide economic benefits at the same time.

*RTF: Comment noted. RTF will continue to follow discussions and information available.*

190. In the **absence of any baseline or reduction targets**, the Ozone Secretariat clarified (at the request of the MLF) that at present, when parties present their HFC-23 by-product emissions in order to comply with Article 2J, this will be interpreted as their best effort to reduce emissions. Therefore, countries are at present not in non-compliance. Any assumption on higher costs, especially with very long-standing operational costs included, lacks the prediction of policy decisions of parties and possible extended commitments of the countries concerned that have not been taken yet, nor can we safely project the impact or costs. This is not adequately reflected by the RTF.

*RTF: Comment noted.*

191. Because HFC-23 is related to HCFC-22 production, certain issues mentioned under HCFC production might be also relevant here.

*RTF: Comment noted.*

192. Could the RTF develop a funding scenario, where it applies saving potentials resulting from the application of technical and economical best practice examples only, as appearing in the case of many Non-A5?

*RTF: Any change in the way the RTF approached the TOR must be first discussed and agreed among parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

193. As described in the report, several producing countries have already developed national standards, bans and regulations that internalize mitigation in the market. Is this seen as an indispensable precondition for sustainable mitigation?



*RTF: Yes, national requirements would strengthen sustainable mitigation.*

194. Has the RTF funding proposal for HFC-23 considered the MLF principle on “funding for sustained reductions only”?

*RTF: Yes, the RTF considered the principle on funding for sustained reductions only. In the discussions related to the HFC-23 mitigation, there are still many important policy issues which are open for discussion and need to be resolved first, including the sustainability of funding HFC-23 and other relevant effects of policies and best practice examples, which may not only lower the emissions but provide economic benefits at the same time.*

#### **INDIA (round 2)**

195. The RTF may include provision for HCFC 22 production sector the guidelines for which are under discussion at ExCom. The RTF may further provide for 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 for all Article 5 parties as per Decision 79/47.

*RTF: Comment noted. RTF will follow the discussion of ExCom and parties regarding these issues, and RTF will update its estimates in a supplementary report, as appropriate, as new decisions or information is available to the RTF.*

#### **JAPAN (round 1)**

196. (In relation to HFC production sector), We would like to seek clarification on the inclusion of DPRK for HFC-23 mitigation preparation cost on scenario 2 and 3 (High End). In this regard, please explain TEAP’s view on the compliance with the UN resolution. Did TEAP allocate the amount for DPRK because TEAP assessed that the activity in DPRK could be feasible while taking the compliance with the UN resolution into account?

*RTF: RTF considered DPRK’s mitigation preparation cost, simply because it ratified the Kigali Amendment. RTF did not take into account the UN resolution.*

#### **MEXICO (round 1)**

##### **HFC-23 by-product production**

197. As stated in subsection 2.5.2, Mexico has produced HCFC-22 for feedstock uses for several years, the updated figures were reflected and added in red in the Table 4-1 2008-2018 A5 parties HCFC-22 Production, including for feedstock use:

Total production (all uses) of HCFC-22 in A5 parties, period 2008-2018 (in tonnes)											
Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mexico	14,022	12,726	12,618	11,813	7,872	7,378	9,214	4,752	4,791	5,965	7,718
Total feedstock production in A5 parties, period 2008-2018 (in tonnes)											
Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mexico	2,043	815	3,513	4,233	1,951	1,007	4,041	0	308	1,293	4,376

In the Table 4-2, please kindly note, there is a mistake in the data corresponding to Mexico, corrected numbers are mark in red for reference.

Country	HCFC-22 production		HCFC-22 production lines		HFC-23 generation			
	2015	2018 <sup>a</sup>	2015	2017	2015		2018	
	(mt/year)		(# of Lines)		(mt/year)	yield	(mt/year)	yield
Mexico	4,752	7,718	2	2	115	2.4%	152	1.96% <sup>c</sup>

*Data sources: 2015 data from the RTF 2017 report, the 2018 data from UNEP/OzL.Pro/ExCom/84/72.*

*-(c) Quimobásicos currently vents all of the HFC-23 by-product it generates. The enterprise has taken steps to reduce its HFC-23 by-product generation, from a high of 2.55%, to a minimum of 1.30%; in 2018, the generation was 1.96%.*

*RTF: Corrections and clarification are noted with appreciation.*

198. Regarding the paragraph of Mexico's HFC-23 situation, RTF mentioned the country reported the production of 4,729 tonnes of HCFC-22, with about 2.2% of HFC-23 as a by-product in 2018. Please kindly note the country reported in 2018 a total HCFC-22 production of **7,718 tonnes, with a 1.96 % ratio of HFC-23 as a by-product**, the reference is stated in document UNEP/OzL.Pro/ExCom/84/72.

*RTF: Correction noted with appreciation.*

### HFC-23 mitigation

199. Could the RTF kindly clarify what funding activities are included as HFC-23 Mitigation costs in the Low-end and High-end estimates for the triennium 2021-2023?

*RTF: Based on the project proposal submitted by Argentina and Mexico, which cover a range of various options and costs, RTF attributed the range of costs into eight equal annual tranches from 2021 to 2029.*

### SWITZERLAND (round 1)

#### HFC- production

200. In line with decision XXVIII/2, there is need for "early projects" to also look at production sector, e.g. compensation relative to alternative technologies, such as not-in-kind (NIK) technologies, with potentially lesser incremental costs for the production and thereupon also the consumption and servicing sectors. We invite the RTF to kindly provide an estimate of replenishment for the future 2 triennium based on a qualified estimate of NIK penetration of the HVAC sector with more cost effective alternative technologies impacting funding for both production and consumption sectors?

*RTF: This could be included in future reports at the direction of the parties.*

201. Verification costs. They are not estimated. Need to ascertain and include costs for MVR, see below.

*RTF: In the production sector, verification costs are generally included in the project. They are not a separate line item as they are in the consumption sector.*

**HFC-23**

202. The RTF looks solely at mitigation of HFC-23 emissions. Emission rate of HFC-23 is assumed to be about 2-3 percent w.r.t. HCFC-22 production. These rates risk to be easily higher – up to 4-5.5 percent – being a function of a number of parameters including amount of HCFC-22 being produced for emissive and feedstock purposes, technology being used, maintenance and down-time of equipment and plant and whether point, diffuse and fugitive emissions have been included. It is not clear as to what are the quantities, related CE and justification that are being addressed by the RTF w.r.t. the 2020 compliance of A5 Parties that have ratified the KA and compliance of other A5 Parties upon their ratification? We request RTF to please clarify what are the practical destruction levels of HFC-23 controls? Also, the suggested length of period providing operating cost (OC) funded by the MLF appears not to follow established practice. It is also unclear why HFC-23 destruction OC are to be provided for a longer period of 2021 to 2029?

*RTF: Comments noted. The RTF has no information regarding the practical destruction levels of HFC-23. Stanley's and Kan Liu's paper on HFC-23 estimated that about 47% of HFC-23 generated was destroyed. In addition, the previous TEAP destruction task force assessed which destruction technologies could meet a destruction and removal efficiencies (DRE) of 99.99% or above. The technologies approved by parties for the destruction of Annex F, group II, substances are: gaseous/fume oxidation; liquid injection incineration; reactor cracking; rotary kiln incineration; argon plasma arc; nitrogen plasma arc; chemical reaction with H<sub>2</sub> and CO<sub>2</sub>; superheated steam reactor. These should all be theoretically capable of meeting the DRE requirements. Concerning the questions on OC, the project proposals are still being discussed at ExCom for Mexico and Argentina. In those proposals, the range of funding not only relate to various options and costs but also the various IOC years applied. For example, the MLF Secretariat assessment is from 1 year to 9 year IOC. The RTF used the low and high range of the proposals, which includes the range of various options and investment, and IOC applied.*

203. The amount of production of HCFC-22, HFC-23 emission and fate appears to vary considerably. Table 4.2 estimates HFC-23 generation in A5 Parties at 16,675 tonnes in 2018 from a production (for emissive and feedstock uses) of 705,990 tonnes of HCFC-22 indicate a 2.5 percent emission rate. However, varying metrics risk different emissions quantities. The resulting HFC-23 generated is emitted or destroyed or stored, and some amount is consumed in refrigeration, fire suppression, plasma-etching, or as a feedstock for producing other chemicals. We would appreciate a clarification from the RTF on realistic amounts of HFC-23 to be addressed for mitigation controls, the associated practical destruction levels, CE, mitigation costs and what are the amounts and fate estimated for consumption? Are there current emission trading schemes that can potentially distort the effectiveness of HFC-23 controls?

*RTF: The HFC-23 mitigation project proposals and policies have been extensively discussed at ExCom, and the RTF will continue to follow the discussions and any new information regarding CE, mitigation options and costs. There are policy discussion for the impacts of emission trading schemes and other relevant policies, but the RTF does not have information to give a concrete answer. The bottom-up analyses are validations of previous TEAP work 2018 TEAP Report, Supplement to the April 2018 Decision XXIX/4 TEAP Task Force Report on Destruction Technologies for Controlled Substances.*

204. We would like to also see incorporating of MVR cost for the HFC-23 controls spanning the relevant three trienniums assuming a tiered ratification of the remaining A5 Parties. Institutional Strengthening - Verification, Monitoring and Reporting (MVR).

*RTF: In the production sector, verification costs are generally included in the project. They are not a separate line item as they are in the consumption sector.*

**SWITZERLAND (round 2)**

205. Recent (2020) information estimates global HFC-23 emissions can be up to 16000 tonnes/y. This corresponds to annual emission of about 237 MtCO<sub>2</sub>-e and results after HFC-23 is emitted or destroyed or stored, consumed in refrigeration, fire-fighting, plasma-etching, or emitted while used as a feedstock for producing other chemicals. We would appreciate a clarification from the RTF on realistic amounts of HFC-23 to be addressed for Kigali Amendment related control measures in the A5 Parties, including the associated practical destruction levels, cost effectiveness, mitigation costs and the amounts (and fate) estimated for the consumption measures? Are there current emission trading schemes that can potentially distort the effectiveness of HFC-23 controls?

*RTF: The HFC-23 mitigation project proposals and policies have been intensively discussed at ExCom, RTF will follow the discussions and any new information and decisions regarding cost effectiveness, mitigation options and costs. There are policy discussions for the impacts of emission trading schemes and other relevant policies, but do not provide enough information to give a concrete answer to assess the impacts/distortion on HFC-23 control.*

206. What are the estimates for the MVR associated with HFC-23 control measures?

*RTF: The RTF can consider this, after discussion and agreement by parties, and present it in a supplementary report.*

#### UNITED KINGDOM (round 1)

207. In relation to HFC-23 table 4.3 implies that over 50% of HFC-23 is still being emitted from China's HCFC-22 production which seems high especially when the report notes that there is sufficient HFC-23 destruction capacity to destroy all HFC-23 by-product from HCFC-22 production in China.

*RTF: Those information has been corrected at the corrigendum that "in 2018, 99.8 per cent of the HFC-23 generated at all HCFC-22 production plants, including the integrated facilities, had been incinerated or collected, stored and sold, and 0.22 per cent had been vented."*

#### UNITED STATES OF AMERICA (round 1)

208. The HFC-23 estimates were calculated based on project submissions. Did the RTF take into account that project submissions are estimates and projects are typically funded at a lower amount than originally submitted? We also believe the estimate should be revised to not include project prep for countries that have not ratified the Kigali Amendment.

*RTF: Comments noted. RTF will follow the discussion of ExCom for the project proposals and will update based on new decisions or information available for BP.*

## D. FUNDING REQUIREMENTS FOR INSTITUTIONAL STRENGTHENING AND STANDARD ACTIVITIES FOR THE 2021-2023 REPLENISHMENT PERIOD

### Chapter 5 of the TEAP task force report

#### GERMANY on behalf of the EUROPEAN UNION (round 1)

209. Lower funding for institutional strengthening and standards activities has been kept similar to previous replenishments, except for **the costs of the MLF-Secretariat which show an increase of 18%**. There is no sufficient explanation as to why.

*RTF: The CAP, MLF Secretariat, and Core Unit costs are the same as the Business Plans (BPs), except for the estimate for 2023 which uses the same UN calculated increase based on the normal trend in the BP. We would like to clarify that there is no increase in the Secretariat costs as mentioned in your comment. Just Add percentage (%) of increase per year for each activity.*

210. The exercise of the three **IS cost scenarios** are simply a multiple (50 or 100%) of the actual costs without justification. This should be taken out.

*RTF: Comments noted.*

211. Why is there such a steep increase for the secretariat's costs?

*RTF: The MLF Secretariat, CAP, and Core Unit costs are the same as the BPs except for the estimate for 2023 which uses the same UN calculated increase based on the normal trend in the BP.*

212. What type and how much funding is provided through the UNEP CAP for LVCs and VLVCs for ratification?

*RTF: The RTF consulted with the MLF Secretariat. UNEP CAP does not provide any funding directly to countries related to ratification of Amendments to the Montreal Protocol. Instead, it encourages and assists National Ozone Officers (NOOs) with ratification through:*

- *CAP staff time. Encouraging ratification is part of the core assistance provided by CAP assistance. The CAP staff provide advisory services, guidance and technical assistance to raise the awareness of National Ozone Officers about the institutional, legal and technological implications arising from Kigali Amendment ratification, help them understand the implications in terms of compliance obligations, and advise them about the procedures to follow. CAP staff also facilitate the sharing between countries of their experiences on issues related to Kigali Amendment. CAP staff provide this support through one-on-one consultations with NOOs as well as during Regional Network and Thematic meetings. UNEP CAP cooperates closely with the Ozone Secretariat on promoting ratification in Article 5 countries.*
- *Enabling Activity project support. CAP staff assist NOOs with the implementation of these projects, which are designed to support Kigali Amendment ratification and to initiate HFC phase-down activities.*
- *Information Clearinghouse. CAP develops and shares information materials (e.g. factsheets, electronic news) to promote ratification the Kigali Amendment.*



213. Has RTF ensured in its calculation that there are no overlaps between activities proposed under the HPMP, KPMP, LVC/VLVC and the CAP?

*RTF: The RTF does not have detailed information on all activities included in those plans to be in a position to guarantee no overlaps. However, justification for funding each set of plans is provided in detail.*

214. What is the justification for the variation of scenarios, apart from increasing the amount of funding by 50% or 100%?

*RTF: Scenario BAU was based on approved levels of funding as of ExCom 84. Scenario A considered projections for 2021-2023 period based on the 28% increase approved by ExCom at its last IS review (Decision 74/51). A new IS review decision is expected at the next ExCom meeting (85<sup>th</sup>).*

*The additional hypothetical scenarios funding needs were not added to the calculated funding but were presented in response to the informal consultations mentioned in Annex 2 of the RTF May 2020 report, recognizing the additional workload due to implementation of both HPMPs and Kigali related tasks, and to help informed discussions during the next IS review.*

## **NIGERIA (round 1)**

### **Institutional Strengthening (IS)**

215. The funding level for the 2021-2023 triennium, understandably retained the levels for 2021 and 2022 as provided for in the MLF CBP. The 2023 estimate is retained at the same level of 9,858,117 as 2021 “following practice and policy decisions”. TEAP should clarify this please.

*RTF: IS typically follows a pattern of funding every two years. In 2020, Institutional Strengthening is estimated at \$11.741 million; in 2021 at \$9.858; in 2022 at \$11.741 million; in 2023 at \$9.858 million and so on and so forth.*

216. We propose an increase for the 2023 level in view of additional challenges that may not have been taken cognizance of in the previous triennium, particularly the KA Implementation and the ongoing implementation of the HPMP, the integration of the two to achieve leapfrogging to low GWP alternatives, which continues to be a major issue for the servicing sector. We propose an increase of 28% (BAU) which will translate to \$12,618,389 and bring the 2021-2023 BAU Scenario to \$34,217,393.00. The hypothetical scenarios B & C will also change accordingly.

*RTF: Comments noted, and may need to be further discussed by parties.*

217. We propose Scenario C – 100% increase from BAU as 68,434,786 (34,217,393 – 64,434,786).

*RTF: Comment noted, and may need to be further discussed by parties.*

### **Standard Activities**

218. We also propose an increase for UNEP CAP beyond the BAU Scenario. They face the same additional challenges in assisting to ensure and sustain A5 parties compliance obligation in the wake of the KA and the continuing HCFC Phase-out.

*RTF: Comment noted, and may need to be further discussed by parties.*

219. As stated in the report, “The proposed estimates do not consider the provision of any additional costs to UNEP CAP regarding the phase-down of HFCs and additional support needed, while HPMP are still being implemented”. Is there any special reason for this? We propose a 50% increase.

*RTF: Comment noted, and may need to be further discussed by parties.*

**NORWAY** (round 1)

220. Regarding Section 5.2 about Institutional Strengthening (IS), and possible linkages to HCFC and HFC verification from HPMP and KPMP estimated funding requirements. We also found this section quite informative and useful. We find the choice of word “hypothetical” to be somewhat prescriptive, and would rather see them included as alternatives aligned with the rest of the information in Table 5.2. We also note that to our knowledge adjustments for IS, units at IAs and MLF Secretariat costs are to be discussed at upcoming ExCom meetings. In our perspective there are clearly linkages between IS and verification of ongoing and finalized projects. We would appreciate if the RTF could elaborate further on how they have treated the proposed funding requirement for both HCFC and HFC verification, together with the IS and the Compliance Assistance Programme.

*RTF: For IS and CAP, the RTF used figures from the November 2019 consolidated BP document ExCom 84/26. The RTF used average annual verification figures. P16: HPMP Verification: A total of US\$ 589,000 for each of 2021 and 2022 (total US\$ 1,178,000) is included in the BP for HPMP verification, but no funds are included for after 2022. The RTF has used the same annual amount as an estimate for HPMP verification for 2023 and each year beyond. Regarding hypothetical scenarios to be included in Table 5.2, please note that any changes in the way the RTF approached the TOR used must be first discussed and agreed by parties before the RTF considers additions or adjustments to be presented in a supplementary report.*

## ANNEX A: RTF ADDITIONAL CLARIFICATION ON ESTIMATING FUNDING FOR HFC PHASEDOWN

The RTF undertook a number of steps including conversions between units (ODS, GWP, metric tonnes, kilograms, and MMTCO<sub>2</sub>eq) to calculate the total estimated funding for an HFC phase-down and to estimate the funding required to phase-down HFCs for the 2021-2023 triennium, based on the best available information, established practices, experiences in HCFC phase-out implementation and available decisions by ExCom. As discussed in section 3.3 of the report, the steps are below:

***Step 1: Allocate Countries into “Brackets” Based on HCFC Baseline Consumption***

***Step 2: Calculate the HFC Baseline***

***Step 3: Apply Assumptions for Sector Distribution***

***Step 4: Apply Cost Effectiveness Factors***

***Step 5: Results for the Estimated Total Cost of an HFC Phase-down Under the MLF***

The conversion tables for the estimates are broken down by bracket and sectors in the tables below.

### ***Step 1: Allocate Countries into “Brackets” Based on HCFC Baseline Consumption***

The RTF first allocated each of the 144 A5 parties into “brackets” in order to estimate projected usage patterns for HFCs, based on their baseline HCFC consumption in metric tonnes, as below, see Table 3-1.

- Bracket A is based on baseline HCFC consumption over 25,000 metric tons (mt).
- Bracket B is based on baseline HCFC consumption from 10,001 to 25,000 mt.
- Bracket C is based on baseline HCFC consumption from 2,001 to 10,000 mt.
- Bracket D is based on baseline HCFC consumption from 360 to 2,000 mt.
- Bracket E is based on the list of HCFC LVCs (see Annex 4).

### ***Step 2: Calculate the HFC Baseline***

In 2016, TEAP estimated that the total HFC component of the baseline for all A5 parties would be 1,161 MMTCO<sub>2</sub>eq for a 2020 to 2022 transition or 1,620 MMTCO<sub>2</sub>eq for a 2024 to 2026 transition. The RTF used this as its basis for the HFC portion of the total baseline for A5 parties. For the HCFC portion of the baseline for all A5 parties, a proportional percentage was calculated for each party based on their contribution to the total.

**Table 3-2: HFC and HCFC Component of Formula in HFC Baseline**

	HFC Component (MMTCO <sub>2</sub> eq)	HCFC Component (MMTCO <sub>2</sub> eq)	HFC Baseline (MMTCO <sub>2</sub> eq)
Group 1	1,014	461	1,476
Group 2	204	67	271
Total	1,219	528	1,747

The table below provides the proportional amount of the total HFC baseline by country brackets.

	% of HCFC Total GWP	HFC proportion of Baseline using HCFC% as a proxy		HCFC Portion of Baseline Calculation		HFC BASELINE (MMTCO <sub>2</sub> e)
Bracket A	59.28%	688	688	481	313	<b>1,001</b>
Bracket B	9.23%	107	107	75	49	<b>156</b>
B Group 2	8.62%	140	140	70	45	<b>185</b>
Bracket C	11.77%	137	137	96	62	<b>199</b>
C Group 2	2.88%	47	47	23	15	<b>62</b>
Bracket D	5.00%	58	58	41	26	<b>84</b>
D Group 2	1.13%	18	18	9	6	<b>24</b>
Bracket E	2.09%	24	24	17	11	<b>35</b>
Total All	100.00%	1,219	1,219	812	528	<b>1,747</b>

The table below provides the HFC phasedown compliance targets by country brackets.

Consumption Caps						
Group 1	Baseline	Freeze	10%	30%	50%	80%
Group 2	Baseline	Freeze	10%	20%	30%	85%
Bracket A	1,001	1,001	901	701	501	200
Bracket B	156	156	140	109	78	31
B Group 2	185	185	167	148	130	28
Bracket C	199	199	179	139	99	40
C Group 2	62	62	56	49	43	9
Bracket D	84	84	76	59	42	17
D Group 2	24	24	22	19	17	4
Bracket E	35	35	32	25	18	7
Total All	1,747	1,747	1,572	1,250	928	336
Reduction Per Step			175	322	322	592

From the baseline estimate by country brackets, the volume of HFCs in MMTCO<sub>2</sub>eq are then proportioned using sector breakdown estimates provided in Table 3-4 to estimate the MMTCO<sub>2</sub>eq for each sector.

**Table 3-4 HFC Consumption by Market Type for Brackets and Country Group †**

	Servicing	Domestic Ref	ICR	Stationary AC	MAC	Foam XPS	Foam PUR	Aerosol	Fire Sup.	Solvents
Bracket A	20.8%	3.0%	31.5%	31.2%	9.0%	1.6%	1.3%	1.5%	0.03%	0.11%
Bracket B	42.5%	2.8%	21.4%	21.2%	8.5%	0.1%	1.9%	1.4%	0.07%	0.15%
Bracket B Group 2	40.9%	3.1%	20.6%	20.4%	9.4%	1.9%	1.9%	1.6%	0.07%	0.15%
Bracket C	42.2%	2.9%	21.3%	21.0%	8.7%	0.8%	1.5%	1.4%	0.14%	0.12%
Bracket C Group 2	40.6%	3.2%	20.5%	20.3%	9.5%	2.1%	2.1%	1.6%	0.01%	0.17%
Bracket D	65.0%	2.7%	10.9%	10.8%	8.1%	0.3%	0.7%	1.4%	0.02%	0.06%
Bracket D Group 2	65.4%	2.7%	11.0%	10.9%	8.0%	0.7%	0.0%	1.3%	0.00%	0.00%
Bracket E	87.7%	2.6%	0.1%	0.1%	7.8%	0.1%	0.1%	1.3%	0.03%	0.01%

† Industrial and Commercial Refrigeration (ICR)

Mobile Air Conditioning (MAC)

Extruded Polystyrene (XPS)

Polyurethane (PUR)

	HFC Consumption Estimates for each sector in MMTCO <sub>2</sub> eq										
	Servicing	Domestic Refrigeration	Industrial Commercial Refrigeration	Stationary A/C	MVAC	Foam XPS	Foam PUR	Aerosol	Fire Suppression	Solvents	TOTAL
Bracket A	208.54	29.91	315.25	311.97	89.72	16.14	13.30	14.95	0.25	1.06	1,001.09
Bracket B	66.17	4.43	33.34	33.00	13.28	0.12	2.98	2.21	0.11	0.24	155.88
B Group 2	75.67	5.79	38.13	37.73	17.36	3.49	3.59	2.89	0.12	0.29	185.07
Bracket C	83.87	5.73	42.26	41.82	17.20	1.51	3.06	2.87	0.27	0.24	198.83
C Group 2	25.11	1.95	12.65	12.52	5.86	1.29	1.30	0.98	0.01	0.10	61.78
Bracket D	54.88	2.29	9.22	9.12	6.87	0.27	0.60	1.15	0.02	0.05	84.47
D Group 2	15.82	0.65	2.66	2.63	1.94	0.17	0.01	0.32	-	0.00	24.20
Bracket E	30.96	0.92	0.04	0.04	2.77	0.05	0.05	0.46	0.01	0.00	35.31
Total All	561.02	51.67	453.56	448.84	155.00	23.04	24.88	25.83	0.80	1.98	1,746.63



**Step 3: Apply Assumptions for Sector Distribution**

Those country bracket sector estimates in MMTCO<sub>2</sub>eq are then divided by the average GWP for each sector to estimate consumption in metric tonnes and kilograms as below.

Average GWP											
	Servicing	Domestic Ref.	ICR	Stationary AC	MAC	Foam XPS	Foam PUR	Aerosol	Fire Sup.	Solvents	TOTAL
Bracket A	2,594	1,430	3,922	1,941	1,430	1,430	1,030	1,430	3,220	1,640	
Bracket B	2,594	1,430	3,922	1,941	1,430	1,430	1,030	1,430	3,220	1,640	
B Group 2	2,594	1,430	3,922	1,941	1,430	1,430	1,030	1,430	3,220	1,640	
Bracket C	2,594	1,430	3,922	1,941	1,430	1,430	1,030	1,430	3,220	1,640	
C Group 2	2,594	1,430	3,922	1,941	1,430	1,430	1,030	1,430	3,220	1,640	
Bracket D	2,594	1,430	3,922	1,941	1,430	1,430	1,030	1,430	3,220	1,640	
D Group 2	2,594	1,430	3,922	1,941	1,430	1,430	1,030	1,430	3,220	1,640	
Bracket E	2,594	1,430	3,922	1,941	1,430	1,430	1,030	1,430	3,220	1,640	
	Metric tonnes										
	Servicing	Domestic Refrigeration	Industrial Commercial Refrigeration	Stationary A/C	MVAC	Foam XPS	Foam PUR	Aerosol	Fire Suppression	Solvents	TOTAL
Bracket A	80,381	20,913	80,381	160,762	62,739	11,287	12,908	10,456	79	645	440,551
Bracket B	25,506	3,095	8,502	17,004	9,285	84	2,892	1,547	35	145	68,095
B Group 2	29,166	4,046	9,722	19,444	12,139	2,443	3,489	2,023	38	174	82,686
Bracket C	32,326	4,010	10,775	21,551	12,031	1,053	2,968	2,005	84	148	86,953
C Group 2	9,678	1,367	3,226	6,452	4,101	901	1,260	684	3	63	27,735
Bracket D	21,153	1,602	2,350	4,701	4,805	192	585	801	6	29	36,224
D Group 2	6,098	453	678	1,355	1,358	118	5	226	-	0	10,291
Bracket E	11,933	645	11	22	1,935	36	51	322	3	3	14,961
Total All	216,240	36,131	115,645	231,290	108,393	16,115	24,159	18,065	249	1,208	767,495

	kilograms										
	Servicing	Domestic Refrigeration	Industrial Commercial Refrigeration	Stationary A/C	MVAC	Foam XPS	Foam PUR	Aerosol	Fire Suppression	Solvents	TOTAL
Bracket A	80,380,781	20,912,842	80,380,781	160,761,563	62,738,527	11,287,304	12,907,852	10,456,421	79,163	645,393	440,550,627
Bracket B	25,505,576	3,094,850	8,501,859	17,003,717	9,284,551	84,445	2,892,181	1,547,425	35,489	144,609	68,094,703
B Group 2	29,166,083	4,046,473	9,722,028	19,444,055	12,139,418	2,443,020	3,489,229	2,023,236	37,777	174,461	82,685,782
Bracket C	32,325,868	4,010,411	10,775,289	21,550,578	12,031,234	1,053,482	2,968,032	2,005,206	84,395	148,402	86,952,898
C Group 2	9,677,701	1,367,116	3,225,900	6,451,801	4,101,347	901,424	1,260,382	683,558	2,817	63,019	27,735,065
Bracket D	21,153,038	1,601,824	2,350,338	4,700,675	4,805,473	191,592	585,419	800,912	5,892	29,271	36,224,434
D Group 2	6,098,084	452,592	677,565	1,355,130	1,357,776	117,762	5,443	226,296	-	272	10,290,919
Bracket E	11,933,085	644,886	11,118	22,236	1,934,657	35,889	50,727	322,443	3,199	2,536	14,960,776
Total All	216,240,215	36,130,994	115,644,878	231,289,755	108,392,983	16,114,920	24,159,266	18,065,497	248,732	1,207,963	767,495,203

#### Step 4: Apply Cost Effectiveness Factors

The RTF based estimates on previous cost effectiveness factors used from HCFCs as show in Table 3-5. The consumption in kilograms is then multiplied by the HCFC Cost Effectiveness Values from Table 3-5 to get the estimated cost for the total phaseout (100%) of HFCs.

**Table 3-5: HCFC Cost Effectiveness Values Used for Countries in Brackets A to D (Note: Bracket E added for completeness)**

	Servicing	Domestic Ref.	ICR	Stationary AC	MAC	Foam XPS	Foam PUR	Aerosol	Fire Sup.	Solvents
Bracket A	\$ 4.80	\$ 9.00	\$ 9.50	\$ 8.00	\$ 7.00	\$ 4.75	\$ 4.75	\$ 5.00	\$ 5.00	\$ 20.00
Bracket B	\$ 4.80	\$ 11.00	\$ 12.00	\$ 9.50	\$ 8.50	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	\$ 20.00
B Group 2	\$ 4.80	\$ 11.00	\$ 12.00	\$ 9.50	\$ 8.50	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	\$ 20.00
Bracket C	\$ 4.80	\$ 11.00	\$ 12.00	\$ 9.50	\$ 8.50	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	\$ 20.00
C Group 2	\$ 4.80	\$ 11.00	\$ 12.00	\$ 9.50	\$ 8.50	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	\$ 20.00
Bracket D	\$ 4.80	\$ 11.00	\$ 12.00	\$ 9.50	\$ 8.50	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	\$ 20.00
D Group 2	\$ 4.80	\$ 11.00	\$ 12.00	\$ 9.50	\$ 8.50	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	\$ 20.00
Bracket E	\$ 20.00	\$ 11.00	\$ 12.00	\$ 9.50	\$ 8.50	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	\$ 20.00

**Step 5: Results for the Estimated Total Cost of an HFC Phase-down Under the MLF**

	Servicing	Domestic Ref	ICR	Stationary A/C	MVAC	Foam XPS	Foam PUR	Aerosol	Fire Sup	Solvents	TOTAL	
Bracket A	\$ 385,827,750	\$ 188,215,580	\$ 763,617,422	\$ 1,286,092,501	\$ 439,169,686	\$ 53,614,693	\$ 61,312,299	\$ 52,282,105	\$ 395,814	\$ 12,907,852	\$ 3,243,435,703	
Bracket B	\$ 122,426,764	\$ 34,043,355	\$ 102,022,303	\$ 161,535,314	\$ 78,918,686	\$ 422,227	\$ 14,460,903	\$ 7,737,126	\$ 177,445	\$ 2,892,181	\$ 524,636,303	
B Group 2	\$ 139,997,198	\$ 44,511,200	\$ 116,664,332	\$ 184,718,526	\$ 103,185,055	\$ 12,215,102	\$ 17,446,147	\$ 10,116,182	\$ 188,885	\$ 3,489,229	\$ 632,531,857	
Bracket C	\$ 155,164,164	\$ 44,114,526	\$ 129,303,470	\$ 204,730,495	\$ 102,265,493	\$ 5,267,412	\$ 14,840,161	\$ 10,026,029	\$ 421,974	\$ 2,968,032	\$ 669,101,756	
C Group 2	\$ 46,452,965	\$ 15,038,271	\$ 38,710,804	\$ 61,292,106	\$ 34,861,446	\$ 4,507,122	\$ 6,301,912	\$ 3,417,789	\$ 14,086	\$ 1,260,382	\$ 211,856,883	
Bracket D	\$ 101,534,582	\$ 17,620,068	\$ 28,204,051	\$ 44,656,413	\$ 40,846,521	\$ 957,961	\$ 2,927,096	\$ 4,004,561	\$ 29,460	\$ 585,419	\$ 241,366,132	
D Group 2	\$ 29,270,803	\$ 4,978,511	\$ 8,130,778	\$ 12,873,733	\$ 11,541,095	\$ 588,808	\$ 27,216	\$ 1,131,480	\$ -	\$ 5,443	\$ 68,547,867	
Bracket E	\$ 238,661,691	\$ 7,093,743	\$ 133,417	\$ 211,243	\$ 16,444,586	\$ 179,447	\$ 253,634	\$ 1,612,214	\$ 15,995	\$ 50,727	\$ 264,656,698	
Total All	\$ 1,219,335,918	\$ 355,615,254	\$ 1,186,786,578	\$ 1,956,110,330	\$ 827,232,567	\$ 77,752,772	\$ 117,569,368	\$ 90,327,486	\$ 1,243,659	\$ 24,159,266	\$ 5,856,133,198	

The table below adjusts the estimated costs ed based on the deduction for exports, foreign ownership and cutoff dates, and then adjusted again for their phasedown schedule.

	HFC Cost 100% Phaseout	HFC Cost 100% Phaseout minus 15% Exports, Foreign Ownership, & Cutoff Date	HFC BASELINE	HFC Cost Phasedown (80% and 85%)
<b>GRAND TOTAL</b>	<b>\$ 5,856,133,198</b>	<b>\$ 5,101,896,973</b>	<b>1,747</b>	<b>\$ 4,120,831,493</b>
Bracket A	\$ 3,243,435,703	\$ 2,756,920,347	<b>1,001</b>	\$ 2,205,536,278
Bracket B	\$ 524,636,303	\$ 445,940,857	<b>156</b>	\$ 356,752,686
Bracket B Group 2	\$ 632,531,857	\$ 537,652,079	<b>185</b>	\$ 457,004,267
Bracket C	\$ 669,101,756	\$ 568,736,492	<b>199</b>	\$ 454,989,194
Bracket C Group 2	\$ 211,856,883	\$ 180,078,351	<b>62</b>	\$ 153,066,598
Bracket D	\$ 241,366,132	\$ 242,400,980	<b>84</b>	\$ 193,920,784
Bracket D Group 2	\$ 68,547,867	\$ 68,547,867	<b>24</b>	\$ 58,265,687
Bracket E	\$ 264,656,698	\$ 301,620,000	<b>35</b>	\$ 241,296,000

This information is summarized in Table 3-6 in the report, as below, providing indicative figures for the total cost of an HFC phase-down for all countries in Brackets A to D, for the Consumption Sector to 80% (Group 1 countries) and 85% (Group 2 countries). Estimates included deduction for exports, foreign/multinational ownership of enterprises & cutoff date. It also included the total based on the adjusted calculation method for Bracket E. The last column indicates a calculation of US\$ per ton of CO<sub>2</sub> equivalent. This is not a cost effectiveness factor since cost effectiveness factors are calculated on a US\$ per kilogram basis. This number is based on the carbon dioxide equivalent and GWPs.

**Table 3-6: Indicative Figures for Total Cost of HFC Phase-down Under the MLF**

Unit	MMTCO <sub>2</sub> eq	% of Volume	(US Dollars \$)	% of Funding	\$/mtCO <sub>2</sub> eq
<b>GRAND TOTAL</b>	<b>1,217</b>	<b>100%</b>	<b>\$ 4,120,800,000</b>	<b>100%</b>	<b>\$ 3.39</b>
Bracket A	<b>681</b>	<b>56%</b>	\$ 2,205,500,000	<b>54%</b>	\$ 3.24
Bracket B	<b>106</b>	<b>9%</b>	\$ 356,800,000	<b>9%</b>	\$ 3.37
Bracket B Group 2	<b>134</b>	<b>11%</b>	\$ 457,000,000	<b>11%</b>	\$ 3.42
Bracket C	<b>135</b>	<b>11%</b>	\$ 455,000,000	<b>11%</b>	\$ 3.37
Bracket C Group 2	<b>45</b>	<b>4%</b>	\$ 153,100,000	<b>4%</b>	\$ 3.43
Bracket D	<b>68</b>	<b>6%</b>	\$ 193,900,000	<b>5%</b>	\$ 2.87
Bracket D Group 2	<b>21</b>	<b>2%</b>	\$ 58,300,000	<b>1%</b>	\$ 2.83
Bracket E	<b>28</b>	<b>2%</b>	\$ 241,300,000	<b>6%</b>	\$ 8.54

The RTF applied annual percent reductions evenly spread within each compliance period.

Even transition based on the phasedown schedule				Even transition based on the phasedown schedule			
	Group 1				Group 2		
	Compliance Targets		% reduction per year		Compliance Targets		% reduction per year
2021		10%	1.25%	2021			
2022			1.25%	2022			
2023			1.25%	2023			
2024	Freeze		1.25%	2024		10%	1.25%
2025			1.25%	2025			1.25%
2026			1.25%	2026			1.25%
2027			1.25%	2027			1.25%
2028			1.25%	2028	Freeze		1.25%
2029	10%	30%	3.33%	2029		20%	1.25%
2030			3.33%	2030			1.25%
2031			3.33%	2031			1.25%
2032			3.33%	2032	10%	30%	2.00%
2033			3.33%	2033			2.00%
2034			3.33%	2034			2.00%
2035	30%	50%	4.00%	2035			2.00%
2036			4.00%	2036		85%	2.00%
2037			4.00%	2037	20%		2.00%
2038			4.00%	2038			2.00%
2039			4.00%	2039			2.00%
2040	50%	80%	6.00%	2040			2.00%
2041			6.00%	2041			2.00%
2042			6.00%	2042	30%		11.00%
2043			6.00%	2043			11.00%
2044			6.00%	2044			11.00%
2045	80%			2045			11.00%
2046				2046			11.00%
2047				2047	85%		
2048				2048			
2049				2049			
2050				2050			



## Annex B: Estimating the Funding Requirement for the Kigali HFC Phase-down Management Plans (KPMPs)

The estimated funding requirement for the preparation and implementation of KPMPs (Table 3-10 as below) was calculated by using funding figures taken from the original and adjusted 2020-2022 MLF BPs of agencies and extrapolating for 2023 as well as the replenishment periods beyond, taking into consideration the modelling approach in section 3.3 (also Annex B) and the three scenarios for ratification of the Kigali Amendment.

**Table 3-10: Total Estimated Funding Requirement for the HFC consumption Sector Phase-down for the 2021-2023 Triennium (US\$)**

2021-2023 Triennium	BAU / Business Planning	SCENARIO 1: RATIFIED	SCENARIO 2: RATIFIED + LETTERS	SCENARIO 3: ALL COUNTRIES
<b>HFC Consumption Sector</b>				
HFC Approved KPMPs	\$ -	\$ -	\$ -	\$ -
HFC Prep Costs	\$ 2,454,000	\$ 2,500,000	\$ 27,500,000	\$ 29,500,000
HFC Planned KPMPs*	\$ 7,290,000	\$ 7,300,000	\$ 7,300,000	\$ 7,300,000
<b>HFC RTF Estimated KPMPs</b>	<b>\$ -</b>	<b>\$ 23,300,000</b>	<b>\$165,300,000</b>	<b>\$174,000,000</b>
HFC Stand Alone Projects	\$ -	\$ 14,000,000	\$ 14,000,000	\$ 14,000,000
HFC Ratification Assistance	\$ -	\$ 1,100,000	\$ 2,900,000	\$ 2,900,000
HFC Verification	\$ -	\$ -	\$ -	\$ -
HFC Early Activities to Avoid Growth	\$ -	\$ 10,000,000	\$ 65,000,000	\$ 65,000,000
<b>Subtotal - HFC Consumption Sector</b>	<b>\$ 9,744,000</b>	<b>\$ 58,200,000</b>	<b>\$282,000,000</b>	<b>\$292,700,000</b>

\* The US\$ 7.3M for planned KPMPs in Scenarios 1-3 will be corrected in the supplementary report to be zero since these are counted in the RTF estimated KPMPs (highlighted).

The RTF looked into the following potential ratification scenarios for the triennium 2021-2023:

**Scenario 1:** Countries that have ratified;

Under Scenario 1, RTF applied the methodology to calculate funding for only the 62 countries who had ratify the Kigali Amendment as of 2 April 2020.

**Scenario 2:** Countries that have ratified plus countries with letters of intent sent to the MLF Secretariat

Under Scenario 2, RTF applied the methodology explained above to countries that ratified plus countries with letters of intent to ratify, which were sent to the MLF Secretariat (by the ExCom-84), as per the criterium on accessing “enabling activities funding”. 137 countries have ratified and sent letters to the Secretariat.

**Scenario 3:** All countries ratify.

Under Scenario 3, the RTF used the estimates as described in Chapter 3.3, based on Scenario 3, assuming full ratification of the Kigali Amendment.

The tables below provide estimated costs for the total HFC phasedown according to the above scenarios.

Scenario 1: Ratified as of 3 April 2020								
Year	Group 1 & 2: Freeze & 10% Reduction Step	Group 1: 30% Group 2: 20% Reduction Step	Group 1: 50% Group 2: 30% Reduction Step	Group 1: 80% Group 2: 85% Reduction Step	Estimated Support Costs	Total Costs	Costs Per Triennia	Early Activities to Avoid Growth - Replenishment Smoothing
2021	\$ 7,218,000	\$ -	\$ -	\$ -	\$ 541,000	\$ 7,760,000	\$ 23,279,000	\$ 10,000,000
2022	\$ 7,218,000	\$ -	\$ -	\$ -	\$ 541,000	\$ 7,760,000		
2023	\$ 7,218,000	\$ -	\$ -	\$ -	\$ 541,000	\$ 7,760,000		
2024	\$ 7,218,000	\$ -	\$ -	\$ -	\$ 541,000	\$ 7,760,000	\$ 23,279,000	\$ -
2025	\$ 7,218,000	\$ -	\$ -	\$ -	\$ 541,000	\$ 7,760,000		
2026	\$ 7,218,000	\$ -	\$ -	\$ -	\$ 541,000	\$ 7,760,000		
2027	\$ 7,218,000	\$ -	\$ -	\$ -	\$ 541,000	\$ 7,760,000	\$ 36,212,000	\$ -
2028	\$ 7,218,000	\$ -	\$ -	\$ -	\$ 541,000	\$ 7,760,000		
2029	\$ -	\$ 19,249,000	\$ -	\$ -	\$ 1,444,000	\$ 20,692,000		
2030	\$ -	\$ 19,249,000	\$ -	\$ -	\$ 1,444,000	\$ 20,692,000	\$ 62,077,000	\$ (10,000,000)
2031	\$ -	\$ 19,249,000	\$ -	\$ -	\$ 1,444,000	\$ 20,692,000		
2032	\$ -	\$ 19,249,000	\$ -	\$ -	\$ 1,444,000	\$ 20,692,000		
2033	\$ -	\$ 19,249,000	\$ -	\$ -	\$ 1,444,000	\$ 20,692,000	\$ 66,215,000	\$ -
2034	\$ -	\$ 19,249,000	\$ -	\$ -	\$ 1,444,000	\$ 20,692,000		
2035	\$ -	\$ -	\$ 23,098,000	\$ -	\$ 1,732,000	\$ 24,831,000		
2036	\$ -	\$ -	\$ 23,098,000	\$ -	\$ 1,732,000	\$ 24,831,000	\$ 74,492,000	\$ -
2037	\$ -	\$ -	\$ 23,098,000	\$ -	\$ 1,732,000	\$ 24,831,000		
2038	\$ -	\$ -	\$ 23,098,000	\$ -	\$ 1,732,000	\$ 24,831,000		
2039	\$ -	\$ -	\$ 23,098,000	\$ -	\$ 1,732,000	\$ 24,831,000	\$ 99,323,000	\$ -
2040	\$ -	\$ -	\$ -	\$ 34,648,000	\$ 2,599,000	\$ 37,246,000		
2041	\$ -	\$ -	\$ -	\$ 34,648,000	\$ 2,599,000	\$ 37,246,000		
2042	\$ -	\$ -	\$ -	\$ 34,648,000	\$ 2,599,000	\$ 37,246,000	\$ 111,738,000	\$ -
2043	\$ -	\$ -	\$ -	\$ 34,648,000	\$ 2,599,000	\$ 37,246,000		
2044	\$ -	\$ -	\$ -	\$ 34,648,000	\$ 2,599,000	\$ 37,246,000		
2045	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2046	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
2047	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
2048	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2049	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
2050	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
Total	\$ 57,744,000	\$ 115,494,000	\$ 115,490,000	\$ 173,240,000	\$ 34,647,000	\$ 496,617,000	\$ 496,615,000	\$ -
				Total without Support Costs		\$ 461,968,000		

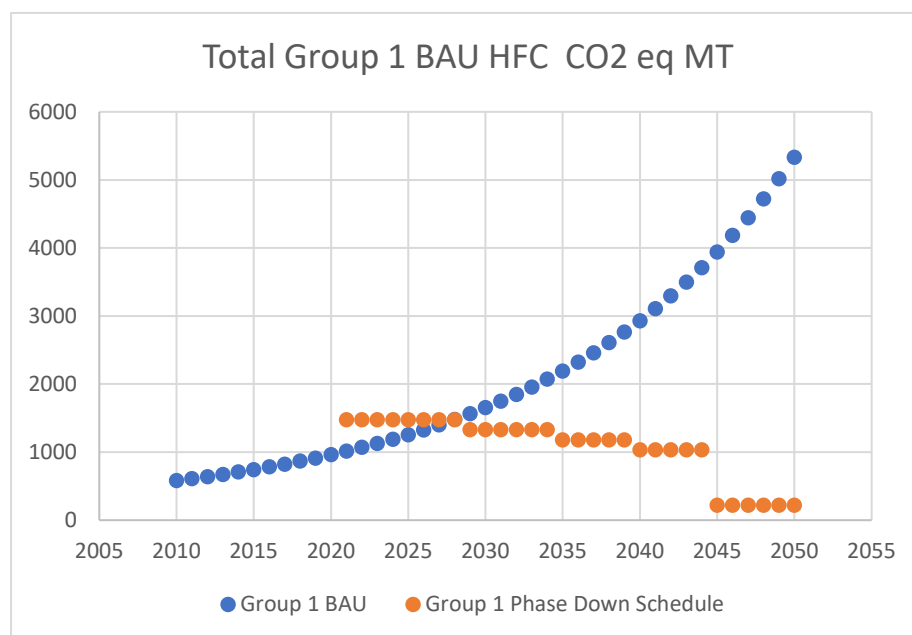
Scenario 2: Letters of Intent Submitted								
Year	Group 1 & 2: Freeze & 10% Reduction Step	Group 1: 30% Group 2: 20% Reduction Step	Group 1: 50% Group 2: 30% Reduction Step	Group 1: 80% Group 2: 85% Reduction Step	Estimated Support Costs	Total Costs	Costs Per Triennia	Early Activities to Avoid Growth - Replenishment Smoothing
2021	\$ 51,249,000	\$ -	\$ -	\$ -	\$ 3,844,000	\$ 55,093,000	\$ 165,278,000	\$ 65,000,000
2022	\$ 51,249,000	\$ -	\$ -	\$ -	\$ 3,844,000	\$ 55,093,000		
2023	\$ 51,249,000	\$ -	\$ -	\$ -	\$ 3,844,000	\$ 55,093,000		
2024	\$ 58,167,000	\$ -	\$ -	\$ -	\$ 4,362,000	\$ 62,529,000	\$ 187,587,000	\$ -
2025	\$ 58,167,000	\$ -	\$ -	\$ -	\$ 4,362,000	\$ 62,529,000		
2026	\$ 58,167,000	\$ -	\$ -	\$ -	\$ 4,362,000	\$ 62,529,000		
2027	\$ 58,167,000	\$ -	\$ -	\$ -	\$ 4,362,000	\$ 62,529,000	\$ 279,408,000	\$ -
2028	\$ 58,167,000	\$ -	\$ -	\$ -	\$ 4,362,000	\$ 62,529,000		
2029	\$ 6,918,000	\$ 136,664,000	\$ -	\$ -	\$ 10,769,000	\$ 154,350,000		
2030	\$ 6,918,000	\$ 136,664,000	\$ -	\$ -	\$ 10,769,000	\$ 154,350,000	\$ 467,512,000	\$ (21,667,000)
2031	\$ 6,918,000	\$ 136,664,000	\$ -	\$ -	\$ 10,769,000	\$ 154,350,000		
2032	\$ -	\$ 147,732,000	\$ -	\$ -	\$ 11,080,000	\$ 158,812,000		
2033	\$ -	\$ 147,732,000	\$ -	\$ -	\$ 11,080,000	\$ 158,812,000	\$ 505,819,000	\$ (21,667,000)
2034	\$ -	\$ 147,732,000	\$ -	\$ -	\$ 11,080,000	\$ 158,812,000		
2035	\$ -	\$ 11,068,000	\$ 163,996,000	\$ -	\$ 13,130,000	\$ 188,195,000		
2036	\$ -	\$ 11,068,000	\$ 163,996,000	\$ -	\$ 13,130,000	\$ 188,195,000	\$ 564,584,000	\$ (21,667,000)
2037	\$ -	\$ -	\$ 175,065,000	\$ -	\$ 13,130,000	\$ 188,195,000		
2038	\$ -	\$ -	\$ 175,065,000	\$ -	\$ 13,130,000	\$ 188,195,000		
2039	\$ -	\$ -	\$ 175,065,000	\$ -	\$ 13,130,000	\$ 188,195,000	\$ 740,880,000	\$ -
2040	\$ -	\$ -	\$ 11,068,000	\$ 245,995,000	\$ 19,280,000	\$ 276,343,000		
2041	\$ -	\$ -	\$ 11,068,000	\$ 245,995,000	\$ 19,280,000	\$ 276,343,000		
2042	\$ -	\$ -	\$ -	\$ 306,870,000	\$ 23,015,000	\$ 329,886,000	\$ 989,657,000	\$ -
2043	\$ -	\$ -	\$ -	\$ 306,870,000	\$ 23,015,000	\$ 329,886,000		
2044	\$ -	\$ -	\$ -	\$ 306,870,000	\$ 23,015,000	\$ 329,886,000		
2045	\$ -	\$ -	\$ -	\$ 60,876,000	\$ 4,566,000	\$ 65,441,000	\$ 130,883,000	\$ -
2046	\$ -	\$ -	\$ -	\$ 60,876,000	\$ 4,566,000	\$ 65,441,000		
2047	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
2048	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2049	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
2050	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		
Total	\$ 465,336,000	\$ 875,324,000	\$ 875,323,000	\$ 1,534,352,000	\$ 281,276,000	\$ 4,031,611,000	\$ 4,031,608,000	\$ (1,000)
				Total without Support Costs	\$ 3,750,335,000			

Scenario 3: All Countries Ratified										
Year	Group 1 & 2: Freeze & 10% Reduction Step	Group 1: 30% Group 2: 20% Reduction Step	Group 1: 50% Group 2: 30% Reduction Step	Group 1: 80% Group 2: 85% Reduction Step	Estimated Support Costs	Total Costs	Costs Per Triennia	Early Activities to Avoid Growth - Replenishment Smoothing	Maintain and Build - Replenishment Smoothing*	Potential Revised Costs Per Triennia
2021	\$ 53,945,000	\$ -	\$ -	\$ -	\$ 4,046,000	\$ 57,991,000	\$ 173,973,000	\$ 65,000,000	\$ 45,349,000	\$ 284,322,000
2022	\$ 53,945,000	\$ -	\$ -	\$ -	\$ 4,046,000	\$ 57,991,000				
2023	\$ 53,945,000	\$ -	\$ -	\$ -	\$ 4,046,000	\$ 57,991,000				
2024	\$ 63,774,000	\$ -	\$ -	\$ -	\$ 4,783,000	\$ 68,557,000	\$ 205,670,000	\$ -	\$ -	\$ 205,670,000
2025	\$ 63,774,000	\$ -	\$ -	\$ -	\$ 4,783,000	\$ 68,557,000				
2026	\$ 63,774,000	\$ -	\$ -	\$ -	\$ 4,783,000	\$ 68,557,000				
2027	\$ 63,774,000	\$ -	\$ -	\$ -	\$ 4,783,000	\$ 68,557,000	\$ 302,322,000	\$ -	\$ -	\$ 302,322,000
2028	\$ 63,774,000	\$ -	\$ -	\$ -	\$ 4,783,000	\$ 68,557,000				
2029	\$ 9,828,000	\$ 143,854,000	\$ -	\$ -	\$ 11,526,000	\$ 165,209,000				
2030	\$ 9,828,000	\$ 143,854,000	\$ -	\$ -	\$ 11,526,000	\$ 165,209,000	\$ 501,965,000	\$ (21,667,000)	\$ (15,116,000)	\$ 465,182,000
2031	\$ 9,828,000	\$ 143,854,000	\$ -	\$ -	\$ 11,526,000	\$ 165,209,000				
2032	\$ -	\$ 159,580,000	\$ -	\$ -	\$ 11,968,000	\$ 171,548,000				
2033	\$ -	\$ 159,580,000	\$ -	\$ -	\$ 11,968,000	\$ 171,548,000	\$ 545,573,000	\$ (21,667,000)	\$ (15,116,000)	\$ 508,790,000
2034	\$ -	\$ 159,580,000	\$ -	\$ -	\$ 11,968,000	\$ 171,548,000				
2035	\$ -	\$ 15,726,000	\$ 172,625,000	\$ -	\$ 14,126,000	\$ 202,477,000				
2036	\$ -	\$ 15,726,000	\$ 172,625,000	\$ -	\$ 14,126,000	\$ 202,477,000	\$ 607,430,000	\$ (21,667,000)	\$ (15,116,000)	\$ 570,647,000
2037	\$ -	\$ -	\$ 188,350,000	\$ -	\$ 14,126,000	\$ 202,477,000				
2038	\$ -	\$ -	\$ 188,350,000	\$ -	\$ 14,126,000	\$ 202,477,000				
2039	\$ -	\$ -	\$ 188,350,000	\$ -	\$ 14,126,000	\$ 202,477,000	\$ 793,001,000	\$ -	\$ -	\$ 793,001,000
2040	\$ -	\$ -	\$ 15,726,000	\$ 258,937,000	\$ 20,600,000	\$ 295,262,000				
2041	\$ -	\$ -	\$ 15,726,000	\$ 258,937,000	\$ 20,600,000	\$ 295,262,000				
2042	\$ -	\$ -	\$ -	\$ 345,428,000	\$ 25,907,000	\$ 371,335,000	\$ 1,114,004,000	\$ -	\$ -	\$ 1,114,004,000
2043	\$ -	\$ -	\$ -	\$ 345,428,000	\$ 25,907,000	\$ 371,335,000				
2044	\$ -	\$ -	\$ -	\$ 345,428,000	\$ 25,907,000	\$ 371,335,000				
2045	\$ -	\$ -	\$ -	\$ 86,491,000	\$ 6,487,000	\$ 92,977,000	\$ 185,955,000	\$ -	\$ -	\$ 185,955,000
2046	\$ -	\$ -	\$ -	\$ 86,491,000	\$ 6,487,000	\$ 92,977,000				
2047	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				
2048	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2049	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				
2050	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				
Total	\$ 510,189,000	\$ 941,754,000	\$ 941,752,000	\$ 1,727,140,000	\$ 309,060,000	\$ 4,429,897,000	\$ 4,429,893,000	\$ (1,000)	\$ 1,000	\$ 4,429,893,000
Total without Support Costs						\$ 4,120,835,000				
* The estimated funding of US\$ 45.349M takes the estimated US\$ 57.508M for "Maintain and Build" funding (as in Table A-3, Servicing Costs for LVCs, in Annex 8 of the TEAP Decision XXXI/1 Replenishment Task Force Report, May 2020) and deducts US\$ 12.159M (revised value from RTF report of US\$11.3M with support costs now added) already included in the HFC estimated funding for LVCs during this time period.										

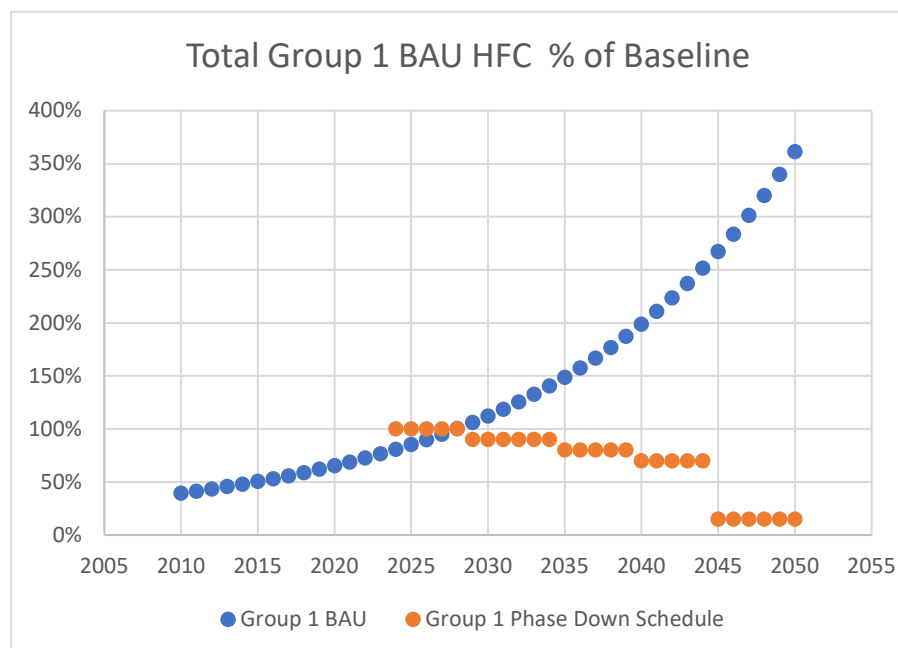
## ANNEX C ADDITIONAL CONSIDERATIONS ON THE FREEZE

In response to questions from parties, the Replenishment Task Force (RTF) examined the period of the HFC “Freeze” for both the A5 Group 1 and Group 2 schedules to better understand potential funding needs for parties during the “Freeze”. The HCFC portion of the HFC baseline provides time during the “freeze period” for additional growth within A5 parties before action is required. The RTF based these estimates on the estimated HFC baseline for both Groups and a growth rate of 7% per year for air conditioning (AC) and 3% per year for other sectors. The RTF estimates that, with compliance-based mitigation measures in place only, that HFC consumption would continue to grow without mitigation until 2028 for Group 1 parties and 2031 for Group 2 parties. The end of the freeze is 2029 for Group 1 parties and 2032 for Group 2 parties.

Growth for A5 parties has been estimated to stay within the “Freeze” allowed volumes from a strict compliance perspective until the last year of the “Freeze”.

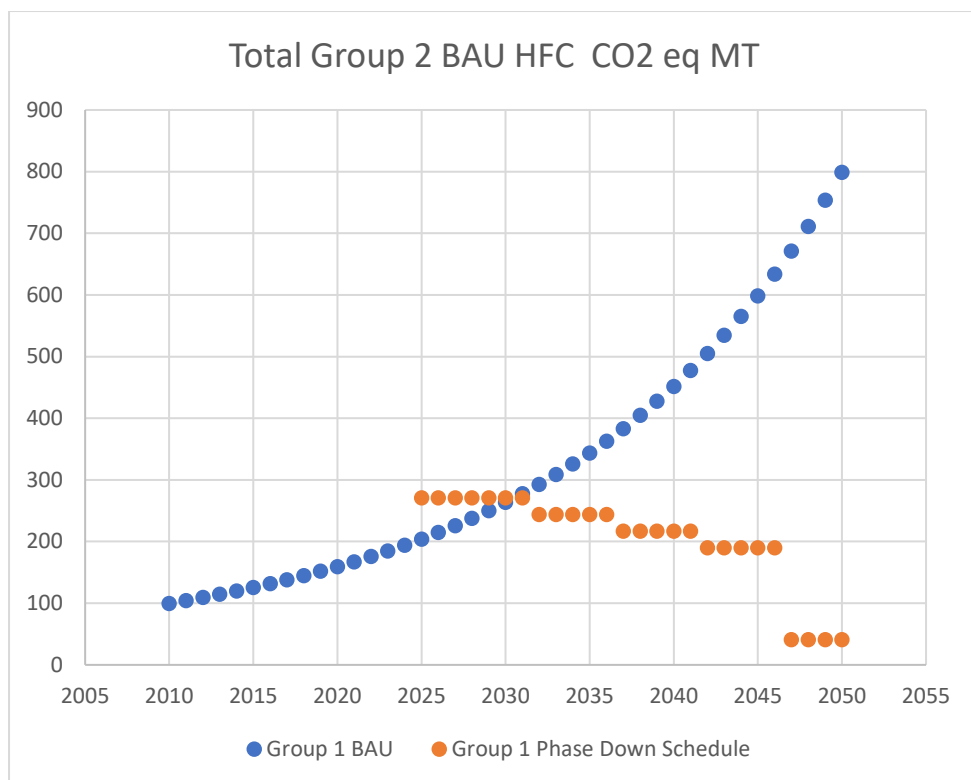


Graph 1. Total Group 1 Business as usual (BAU) case compared to Group 1 phase-down schedule.

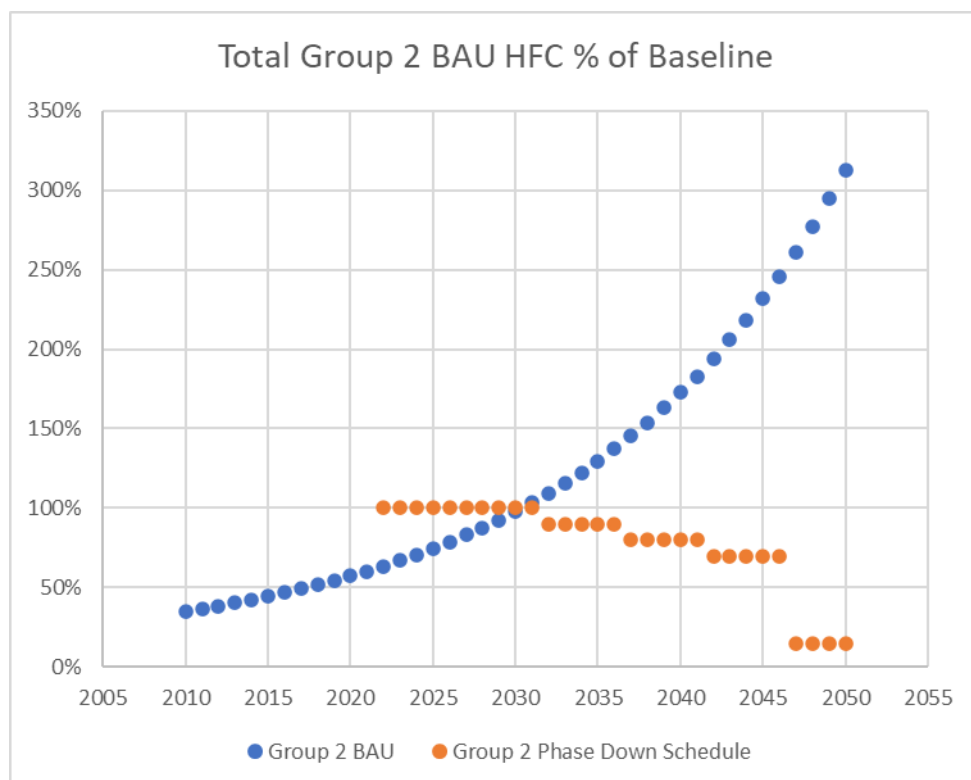


Graph 2. Total Group 1 Business as usual (BAU) case compared to Group 1 phase-down schedule.

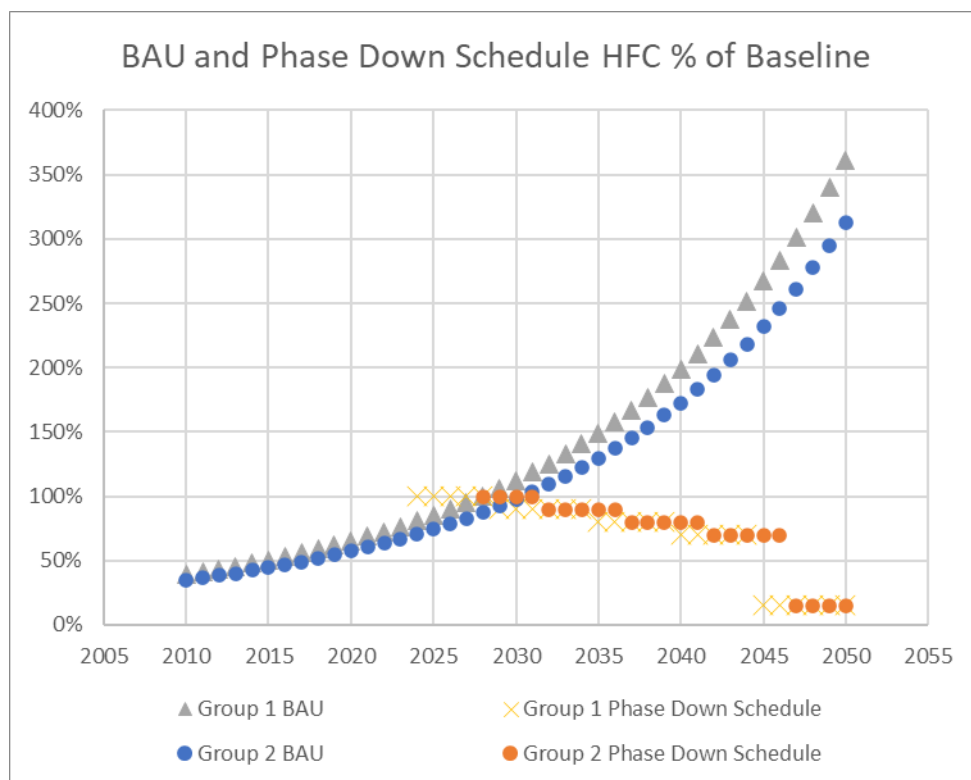




Graph 3. Total Group 2 Business as usual (BAU) case compared to Group 2 phase-down schedule.



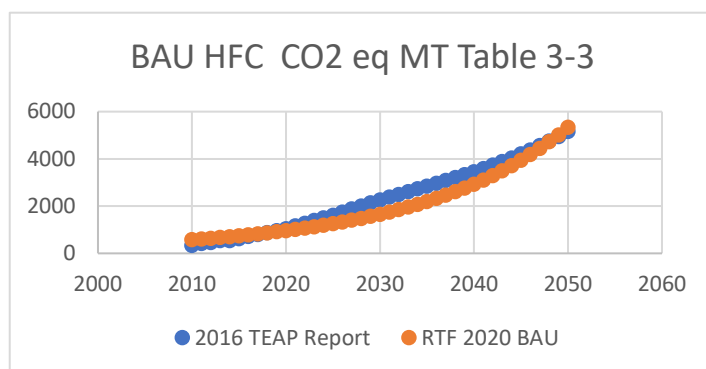
Graph 4. Total Group 2 BAU case compared to Group 2 phase-down schedule by percentage



Graph 5 Group 1 and Group 2 BAU case compared to phase-down schedules by percentage

### Confirmation of Assumptions

The RTF first compared the 2016 TEAP report business as usual (BAU) case to a 2020 BAU case using the 7% growth rate for AC and 3% growth rate for other sectors to test those assumptions for reasonableness compared to the 2016 BAU case. This was necessary because of the separation of Groups 1 and 2 which was not contemplated in the 2016 TEAP report. The 2020 BAU case and the 2016 BAU case are within 15% of each other from 2018 to 2049.



The RTF also created a scenario using a percentage of the BAU case for Group 1 and Group 2 parties removing the differentiation between the 2016 BAU case and the 2020 BAU case. The RTF estimates that the HFC consumption could continue to grow without mitigation until 2028 for Group 1 parties and 2031 for Group 2 parties which is the same outcome as the first analysis.