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执行蒙特利尔商定书  
多边基金执行委员会  
第七十八次会议  
2017年4月4日至7日，蒙特利尔

### 附加说明的临时议程

1. 请注意执行委员会第七十八次会议是一次特别会议，执行委员会召开此次会议是要解决由第 XXVIII/2 号决定引起的与《基加利修正案》相关的事项以及对多边基金可能的额外捐款，特别会议的议程与执行委员会常会的议程完全不同。
2. 为了执行委员会成员方便起见，附加说明的临时议程扼要地解释了议程拟订的背景，并摘要说明了秘书处为各议程项目编制的文件。

#### 背景

3. 在第七十七次会议的议程项目 10 方面，执行委员会讨论了秘书处编制的关于蒙特利尔议定书缔约方第二十八次会议产生的与执行委员会相关的问题的说明，<sup>1</sup> 该说明的目的是就如何着手处理关于逐步减少氢氟碳化合物的《基加利修正案》的第 XXVIII/2 号决定，寻求执行委员会的指导意义。在第 XXVIII/2 号决定中，缔约方请执行委员会，除其他外，在《基加利修正案》获得通过之后的两年内，制定资助第 5 条国家缔约方逐步削减氢氟碳化合物消费和生产的准则，并在执行委员会最终确定这些准则之前将其提交缔约方会议以征求缔约方的意见和建议。第七十七次会议报告关于议程项目 10<sup>2</sup> 的摘要载于本文件的附件一。该摘要概述了执行委员会成员在第七十七次会议中的讨论。
4. 讨论中普遍认识到《基加利修正案》通过的历史重要性，以及执行委员会在制定及时和适当应对第 XXVIII/2 号决定方面面临的挑战。几名成员表示，有必要在迅速而决定性行动的必要性和以周到、审慎和知情的方式向前推进的必要性之间取得平衡。这一进程

<sup>1</sup> UNEP/OzL.Pro/ExCom/77/70/Rev.1。

<sup>2</sup> UNEP/OzL.Pro/ExCom/77/76 号文件第 205-213 段。

应是一种反复的进程，每走一步都应与执行委员会进行协商。讨论中达成的共识是，执行委员会必须采取有条理的战略办法，运用适当的准则和参数，然后再确定具体的行动和活动。

5. 讨论中达成的共识是，应于 2017 年初举行一次执行委员会特别会议，讨论与《基加利修正案》相关的事项，以及如何处理一批捐助国可能作出的额外捐款。<sup>3</sup> 一些成员说，执行委员会应请秘书处编制相关的战略文件以指导这次会议的讨论。

6. 几名成员表示，执行委员会眼下的优先事项是决定是否接受以及如何处理一批捐助国所作意在资助落实逐渐减少氢氟碳化合物的额外自愿捐款。初期的重点应放在促进实施面的快速启动支持上，包括在第 5 条国家的扶持活动，以便尽早形成势头。已确定的重点领域包括能效以及制冷和空调行业。

7. 执行委员会同意设立一联络小组讨论执行委员会今后应如何处理与《基加利修正案》和第 XXVIII/2 号决定相关的事项，以及捐助国可能作出的额外捐款。

8. 在联络小组召集人作出汇报后，执行委员会决定（第 77/59 号决定）：

- (a) 在 2017 年初举行为期四天的特别会议，处理与缔约方大会第 XXVIII/2 号决定引起的与《蒙特利尔议定书基加利修正案》有关的事项以及可能对多边基金提供的额外捐款；
- (b) 请秘书处根据缔约方大会第二十八次会议第 XXVIII/2 号决定中要求执行委员会采取行动的内容，编写一份载有初步信息的文件，并处理下列问题：
  - (一) 关于氢氟碳化合物消费和生产情况以及关于 HFC-23 副产品的现有信息，包括来自多边基金和其他来源资助的消耗臭氧层物质替代品调查所提供的信息；
  - (二) 为协助第 5 条国家开始就氢氟碳化合物控制措施开展报告和管制活动所需要扶持活动；
  - (三) 与 HFC-23 副产品控制技术有关的主要问题；
  - (四) 确定执行委员会可能要考虑的与当前氟氯烃淘汰活动有关的问题；
  - (五) 与制定执行委员会要求的费用准则有关的信息；
- (c) 鉴于 2016 年底之前的时间有限，作为特例，请第七十七次会议的执行委员会成员至迟于 2017 年 1 月 31 日向秘书处提供与上文(b)(一)至(五)分段所列要素有关的信息，并提供其他信息；
- (d) 关于某些非第 5 条缔约方打算在 2017 年提供 2,700 万美元快速启动捐款的问题；

<sup>3</sup> 缔约方第二十八次会议之前，美利坚合众国白宫于 2016 年 9 月 22 日发布的新闻稿（<https://obamawhitehouse.archives.gov/the-press-office/2016/09/22/leaders-100-countries-call-ambitious-amendment-montreal-protocol-phase>）宣布，如果 2016 年能够通过一项具有尽早冻结日期的雄心勃勃的氢氟碳化合物修正案，16 个捐助国（即非第 5 条国家）打算提供 2,700 万美元，协助第 5 条国家通过快速启动支持予以落实。这一捐款将是一次性的，也不会取代今后捐助方的捐款。

- (一) 赞赏地接受一些非第 5 条缔约方宣布的用于为执行《基加利修正案》提供快速启动支助的额外捐款，指出这些供资是一次性的，不会取代捐助者的捐款；
  - (二) 上文(d)(一)分段所述额外捐款应提供其氢氟碳化合物消费基准年度在 2020 年至 2022 年之间，并且正式表示愿意批准《基加利修正案》，接受了及早削减氢氟碳化合物的义务的第 5 条国家，以便支持其使能活动，如进行处理氢氟碳化合物替代品、第 4B 条许可证发放、报告和项目筹备活动方面的能力建设和培训，同时考虑到，但不限于，相关准则和执行委员会的决定；
  - (三) 请秘书处编制一份文件，说明上文(d)(二)分段确定的国家在获得额外快速捐款用于使能活动方面可能采取的程序；
  - (四) 财务主任将与提供捐款的非第 5 条国家沟通，讨论向基金提供额外捐款以便及早就《基加利修正案》采取行动的程序；
  - (五) 秘书处除了报告对多边基金的认捐捐款外，将另行向执行委员会报告所收到的额外快速启动捐款；
- (e) 请秘书处根据上文(b)至(d)段确定的问题，制定上文(a)段所述特别会议的议程。

#### 编制议程和辅助文件

9. 秘书处参照第 77/59 号决定，考虑了第 XXVIII/2 号决定的所有段落，<sup>4</sup> 并编制了临时议程草案。根据多边基金执行委员会会议议事规则第 8 条，该临时议程草案已提交主席和副主席，经其同意后，临时议程已作为 UNEP/OzL.Pro/ExCom/78/1 号文件印发。

10. 第七十八次会议的临时议程包括以下实质性议程项目和相应的文件：

- (a) 关于“秘书处的活动”的议程项目 3，介绍关于秘书处自第七十七次会议以来为处理第 77/59 号决定所开展的活动的报告，即：与第 XXVIII/2 号决定产生的与《基加利修正案》相关的事项，以及可能对多边基金的额外捐款；
- (b) 关于“向多边基金提供额外捐款的现状”的议程项目 4，系根据第 77/59 号决定(d)(五)分段列入，该决定请秘书处另行报告在认捐捐款之外收到的额外快速启动捐款。该报告将由多边基金财务主任提交。
- (c) 关于“关于第 5 条国家氢氟碳化合物消费和生产情况的现有信息”的议程项目 5，是根据第 77/59 号决定(b)(一)分段列入的，目的是介绍关于现有自各来源的氢氟碳化合物的信息，主要包括：技术和经济评估小组工作队根据第 XXV/5 号和第 XXVI/9 号决定编制的报告，以及关于由多边基金和其他来源所资助的消耗臭氧层物质替代品的调查；

<sup>4</sup> UNEP/OzL.Pro.28/12。

- (d) 关于“与制定第 5 条国家逐步减少氢氟碳化合物的费用准则有关的信息”的议程项目 6 (a)，是根据第 77/59 号决定(b)段和第 XXVIII/2 号决定列入的。该文件介绍初步的信息和相关的政策、准则，执行委员会和缔约方的决定，以及所收到执行委员会成员根据第 77/59 号决定(c)段提供的信息。在适当考虑了将要提出的信息量之后，决定将本议程项目分成三个分项目，即：(一) 供资标准草案；(二) 扶持活动，以及 (三) 体制强化，并就每一分项目提出一份单独文件；
- (e) 关于“确定现有氟氯烃淘汰活动中有待审议的问题”的议程项目 6 (b)，是根据第 77/59 号决定(b)(四)分段列入的，其中概述了在氟氯烃淘汰过程中，通过核准和执行氟氯烃淘汰管理计划，特别是采用低全球升温潜能值技术而查明的主要问题；
- (f) 关于“与副产品三氟甲烷 (HFC-23) 的控制技术相关的关键问题”的议程项目 6 (c)，是根据第 77/59 号决定(b)(三)分段编制的，为的是便于审议 HFC-23 排放的现状，以及通过流程优化、销毁、为使用而进行收集或将其转变为无害环境的化学品以减少 HFC-23 排放的可能手段；以及
- (g) 关于“氢氟碳化合物消费基准年在 2020 年至 2022 年之间的第 5 条国家为开展扶持活动获得额外捐款的程序”的议程项目 7，是根据第 77/59 号决定(d)段编制的，介绍已正式表明有意批准《基加利修正案》和尽早履行逐渐减少氢氟碳化合物义务的第 5 条国家为开展扶持活动获得额外快速启动捐款的可能程序。

11. 根据 77/59 号决定(c)段，阿根廷、德国、日本和美利坚合众国政府同秘书处分享了相关的信息。这些国家政府所提供信息的全文载于本文件的附件二。

12. 编制第七十八次会议的文件之前，全面审查了多边基金的政策、准则和决定，审议了执行委员会成员根据第 77/59 号决定(c)段提供的信息，秘书处以及各双边和执行机构之间还于 2017 年 2 月机构间协调会议期间，就落实《基加利修正案》一事交换了意见。<sup>5</sup> 在机构间协调会议上，臭氧秘书处应主任的邀请介绍了《基加利修正案》和缔约方第二十八次会议的相关决定。<sup>6</sup>

13. 根据第 77/59 号决定(b)段，秘书处为每一议程项目/分项目编制的文件仅载有初步的信息，没有分析。所有与逐步减少氢氟碳化合物相关的信息均列入其中，因此，一些情况下，个别的文件篇幅很长。每份文件的信息来源均附有参考资料。

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<sup>5</sup> 执行委员会成员可从第七十八次会议网站查阅机构间协调会议报告 (MLF/IACM.2017/1/19)。

<sup>6</sup> 第 XXVIII/2 号决定涉及逐步减少氢氟碳化合物的修正案，第 XXVIII/3 号决定涉及能效，第 XXVIII/4 号决定涉及建立安全标准问题的定期磋商，第 XXVI/8 号决定涉及促进监测氢氟碳化合物和替代物质的贸易的措施。

## 附加说明的临时议程

### 1. 会议开幕

执行委员会主席致开幕辞。

### 2. 组织事项：

#### (a) 通过议程

UNEP/OzL.Pro/ExCom/78/1 号文件载有执行委员会第七十八次会议的临时议程。

谨建议执行委员会根据 UNEP/OzL.Pro/ExCom/78/1 号文件所载临时议程，并在必要时根据全体会议的口头修正，通过会议的议程。

#### (b) 工作安排

主席将向全体会议提出关于工作安排的建议。

### 3. 秘书处的活动

UNEP/OzL.Pro/ExCom/78/2 号文件介绍了关于自第七十七次会议以来，秘书处为处理关于与第 XXVIII/2 号决定所产生的与《基加利修正案》相关的事项以及可能对多边基金的额外捐款的第 77/59 号决定所开展活动的报告。

谨建议执行委员会注意到 UNEP/OzL.Pro/ExCom/78/2 号文件所载秘书处的活动。

### 4. 向多边基金提供额外捐款的现况

UNEP/OzL.Pro/ExCom/78/3 号文件介绍了根据第 77/59 号决定(d)(五)分段编制的关于额外快速启动捐款的报告。

谨建议执行委员会注意到关于对多边基金额外捐款的现状 UNEP/OzL.Pro/ExCom/78/3 号文件。

### 5. 关于第 5 条国家氢氟碳化合物消费和生产情况的现有信息

UNEP/OzL.Pro/ExCom/78/4 号文件系根据第 77/59 号决定(b)(一)分段编制，分析了第 5 条国家氢氟碳化合物的消费和生产情况，该分析依据的是技术和经济评估小组工作队的报告（第一节），以及来自截至 2017 年 2 月 27 日各执行机构提交的消耗臭氧层物质替代品调查报告的关于氢氟碳化合物消费情况的初步信息（第二节）。其中还包括了关于副产品三氟甲烷（HFC-23）的一些信息。

谨建议执行委员会注意到关于第 5 条国家氢氟碳化合物消费和生产情况的现有信息的 UNEP/OzL.Pro/ExCom/78/4 号文件。

### 6. 缔约方会议第 XXVIII/2 号决定中供执行委员会审议的与《蒙特利尔议定书基加利修正案》有关的要素

#### (a) 与制定第 5 条国家逐步减少氢氟碳化合物的费用准则有关的信息：

##### (一) 供资标准草案

UNEP/OzL.Pro/ExCom/78/5 号文件介绍与制定逐步减少氢氟碳化合物供资标准相关的信息。将要为逐步减少氢氟碳化合物制定的费用准则的拟议要素的提出，依循了

氟氯烃供资标准的要素。每一拟议要素提出时，附带了第 XXVIII/2 号决定的相关段落或分段、执行委员会成员根据第 77/59 号决定(c)段提供的相关信息，以及执行委员会的以往决定和惯例。

谨建议执行委员会注意到关于供资标准草案的 UNEP/OzL.Pro/ExCom/78/5 号文件。

## (二) 扶持活动

UNEP/OzL.Pro/ExCom/78/6 号文件审查了《蒙特利尔议定书》缔约方和执行委员会通过的与扶持活动相关的决定和准则，这些决定和准则可以作为以可持续、成本效益高的方式成功地逐步减少第 5 条国家氢氟碳化合物消费和生产的框架。这些信息还会有助于执行委员会决定哪些扶持活动可以获得一批捐助国提供的用作氢氟碳化合物消费基准年在 2020 年至 2022 年之间的第 5 条国家执行《基加利修正案》的快速启动行动的 2,700 万美元的额外自愿捐款。

谨建议执行委员会：

- (a) 注意到关于“与制定第 5 条国家逐步减少氢氟碳化合物的费用准则有关的信息：扶持活动”的 UNEP/OzL.Pro/ExCom/78/6 号文件；
- (b) 就如何将这些活动视为逐步减少氢氟碳化合物的费用准则的一部分，对秘书处提供指导意见；以及
- (c) 就哪些扶持活动可以，如同关于氢氟碳化合物消费基准年在 2020 年至 2022 年之间的第 5 条国家为开展扶持活动获得额外捐款的程序的文件（UNEP/OzL.Pro/ExCom/78/10）所述，纳入一批捐助国提供的 2,700 万美元额外捐款的供资提供指导意见。

## (三) 体制强化

UNEP/OzL.Pro/ExCom/78/7 号文件审查和更新 UNEP/OzL.Pro/ExCom/74/51 号文件中的信息，特别是有关体制强化活动以及《基加利修正案》方面的预期挑战的信息。文件的附件一概述了制定体制强化项目供资规则和政策的情况，附件二提供了体制强化政策的主要文件清单。

谨建议执行委员会注意到关于“与制定第 5 条国家逐步减少氢氟碳化合物的费用准则有关的信息：扶持活动”的 UNEP/OzL.Pro/ExCom/78/7 号文件。

### (b) 确定现有氟氯烃淘汰活动中有待审议的问题

UNEP/OzL.Pro/ExCom/78/8 号文件概述了第 5 条国家在氟氯烃淘汰期间，通过核准和执行氟氯烃淘汰管理计划第一和第二阶段中积累的经验而查明的若干主要问题。文件概述了大多数第 5 条国家主要在泡沫塑料以及制冷和空调制造行业以及较小程度上在气雾剂和溶剂行业中，为采用低全球升温潜能值技术而采取的行动。文件简要说明了在采用低全球升温潜能值技术时遇到的挑战，包括同制冷维修行业相关的主要问题。文件还包括执行委员会成员根据第 77/59 号决定(c)段提供的相关信息。

谨建议执行委员会注意到关于确定现有氟氯烃淘汰活动中有待审议的问题的 UNEP/OzL.Pro/ExCom/78/8 号文件。

**(c) 与副产品三氟甲烷（HFC-23）的控制技术相关的关键问题**

UNEP/OzL.Pro/ExCom/78/9 号文件介绍了各种来源提供的关于同副产品 HFC-23 控制技术相关的主要问题的初步信息，包括关于第 5 条国家 HFC-23 排放情况的概述；以及关于减少 HFC-23 排放的可能机会的说明，其中包括关于相关费用的有限的初步信息。文件还简要说明了可以启动 HFC-23 排放报告和削减进程的扶持活动。

谨建议执行委员会注意到关于有关副产品 HFC-23 控制技术的关键问题的 UNEP/OzL.Pro/ExCom/78/9 号文件。

**7. 氢氟碳化合物消费基准年在 2020 年至 2022 年之间的第 5 条国家为开展扶持活动获得额外捐款的程序**

UNEP/OzL.Pro/ExCom/78/10 号文件是根据第 77/59 号决定(d)段编制的，提出了氢氟碳化合物消费基准年在 2020 年至 2022 年之间，并正式表示其打算批准《基加利修正案》和尽早开始逐步减少氢氟碳化合物的第 5 条国家为开展扶持活动获得额外捐款的可能程序。

谨建议执行委员会：

- (a) 注意到关于氢氟碳化合物消费基准年在 2020 年至 2022 年之间的第 5 条国家为开展扶持活动获得额外捐款的程序草案的 UNEP/OzL.Pro/ExCom/78/10 号文件；
- (b) 考虑：
  - (一) 文件中所载的扶持活动是否是执行《基加利修正案》的快速启动行动所需要的扶持活动；
  - (二) 文件中说明的可能供资模式是否可用于在第 5 条（第一类）国家中分配额外的资金；以及
  - (三) 是否请各双边和执行机构严格依循提交业务计划的同样要求，编制一份特别业务计划，其中载有为第 5 条（第一类）国家扶持活动提出的获得一批捐助国向多边基金提供的额外捐款的供资申请。

**8. 其他事项**

已商定列入议程项目 2(a)的实质性事项将在本议程项目下审议。

**9. 通过报告**

执行委员会将收到供其审议和通过的第七十八次会议的报告草案。

**10. 会议闭幕**

预期会议将与 2017 年 4 月 7 日星期五闭幕。





附件一

摘自执行委员会第七十七次会议报告 (UNEP / OzL.Pro / ExCom / 77/76)

议程项目 10: 蒙特利尔议定书缔约方第二十八次会议产生的与执行委员会相关的问题

205. 秘书处代表介绍了秘书处的说明(UNEP/OzL.Pro/ExCom/77/70/Rev.1), 该项说明旨在征求执行委员会的指导意义, 以明确今后如何处理缔约方第二十八次会议关于逐步减少氢氟碳化合物修正案的第 XXVIII/2 号决定, 其中请执行委员会除其他外, 在《基加利修正案》通过后两年内制定第 5 条缔约方逐步减少氢氟碳化合物消费和生产的供资指南。

206. 委员会所有成员都就这一事项的各个方面发了言。大家普遍认识到通过《基加利修正案》的历史重要性, 以及执行委员会在对第 XXVIII/2 号决定作出及时和适当反应时面临的挑战。关于所采取的总方针, 一些成员说, 既有必要迅速采取果断行动, 又有必要以周详、审慎和充分知情的方式向前迈进, 必须在这两者之间取得平衡。这个过程应该是迭代的, 在采取每一步骤时都应该咨询执行委员会。一位成员说, 整个进程应该公正、透明和高效。成员们一致认为, 委员会需要采取结构性的战略方针, 在确定具体行动和活动之前采用适当的准则和参数。

207. 一些成员说, 秘书处的说明提供了与《基加利修正案》有关问题的有用的背景资料, 并为执行委员会或许考虑的可能行动提供了有用的建议。一些成员说, 该说明本应与执行委员会协商制定, 无论如何还不成熟, 因为并不是委员会要求编写的。一位成员说, 第 XXVIII/2 号决定应构成委员会制订的关于《基加利修正案》的任何工作方案以及确定将列入该方案的重要主题和优先事项的基础。

208. 在下一步工作方面, 成员们一致认为, 应在 2017 年初举行执行委员会特别会议, 若干成员赞成安排在 4 月的第一个星期, 以讨论与《基加利修正案》有关的事项, 以及如何处理来自捐助方的潜在的额外捐款。一些成员说, 最好让执行委员会请秘书处编写相关战略文件以指导该次会议的讨论。

209. 若干成员说, 执行委员会的当务之急是决定是否接受和如何处理旨在为执行氢氟碳化合物逐步减少的活动提供资金的一组捐助国提供的额外自愿捐款。与捐款有关的模式可以通过捐助国和财务主任之间的双边讨论来决定, 因为不同国家采用的融资机制各不相同, 这就需要采用一种定制的办法。一位成员说, 执行委员会应首先广泛界定这些捐款的目的, 然后再考虑执行机构提出的更具体的要求和建议。一些成员说, 最初应将重点放在快速开始为执行工作提供支持, 包括第 5 条国家的扶持性活动, 以便早日获得势头。确定的优先领域包括能源效率以及制冷和空调行业。一位成员强调了应特别注意的一些问题, 包括安全性和数据收集。另一位成员说, 重点应该是那些已经参与并准备采取进一步措施, 为减少氢氟碳化合物尽早采取行动的国家。

210. 关于处理氢氟碳化合物所形成的新挑战, 一位成员说, 较有成效的做法是, 把为处理氟氯烃制定的模式作为起点并使其适应氢氟碳化合物活动的特殊需要, 因为遵守《基加利修正案》需要有更大的灵活性。另一位成员强调了资金来源和实施方式的不确定性, 包括

来自基金会的资金不能通过多边基金提供的事实。他还说，在就资金分配作出决定时应优先考虑公平问题。

211. 经讨论后，主任澄清了编写说明的程序。根据在这种情况下的正常做法，主任已就是否应将有关《基加利修正案》的项目列入本次会议的议程一事与主席和副主席进行了磋商。经确认后，秘书处编写了情况说明，以便通知执行委员会就此事项所作的各项决定、捐助国的坚定承诺、制定筹资方式的必要性，以及迫切需要采取行动执行《基加利修正案》的总体需要，同时考虑到缔约方第二十八次会议之前进行的复杂和广泛的讨论。他还说，除非政策机构作出指示，秘书处在编写文件时没有与成员协商；在目前情况下也没有时间这样做。文件中强调了两个主要领域需要采取特别紧急行动：制冷维修行业和能源效率。文件没有提出任何建议，但旨在提供信息，以协助委员会的决策进程。

212. 执行委员会同意设立一个联络小组，由加拿大代表负责召集，讨论委员会应如何推进处理与《基加利修正案》和缔约方第二十八次会议第 XXVIII / 2 号决定有关的事项，以及捐助国可能提供额外捐款的问题。

213. 在联络小组召集人提出报告后，执行委员会决定：

- (a) 在 2017 年初举行为期四天的特别会议，处理与缔约方大会第 XXVIII/2 号决定引起的与《蒙特利尔议定书基加利修正案》有关的事项以及可能对多边基金提供的额外捐款；
- (b) 请秘书处根据缔约方大会第二十八次会议第 XXVIII / 2 号决定中要求执行委员会采取行动的内容，编写一份载有初步信息的文件，并处理下列问题：
  - (一) 关于氢氟碳消费和生产情况以及关于 HFC-23 副产品的现有信息，包括来自多边基金和其他来源资助的消耗臭氧层物质替代品调查所提供的信息；
  - (二) 为协助第 5 条国家开始就氢氟碳控制措施开展报告和管制活动所需要扶持活动；
  - (三) 与 HFC-23 副产品控制技术有关的主要问题；
  - (四) 确定执行委员会可能需要考虑的与当前氟氯烃淘汰活动有关的问题；
  - (五) 与制定执行委员会要求的费用准则有关的信息；
- (c) 鉴于 2016 年底之前的时间有限，作为特例，请第七十七次会议的执行委员会成员至迟于 2017 年 1 月 31 日向秘书处提供与上文(b)(一)至(五)分段所列要素有关的信息，并提供其他信息；
- (d) 关于某些非第 5 条缔约方打算在 2017 年提供 2,700 万美元快速启动捐款的问题：
  - (一) 赞赏地接受一些非第 5 条缔约方宣布的用于为执行《基加利修正案》提供快速启动支助的额外捐款，指出这些供资是一次性的，不会取代捐助者的捐款；

- (二) 上文(d)(一)分段所述额外捐款应提供给其氢氟碳消费量基准年度在 2020 年至 2022 年之间，并且正式表示愿意批准《基加利修正案》，接受了及早削减氢氟碳的义务的第 5 条国家，以便支持其使能活动，如进行处理氢氟碳替代品、第 4B 条许可证发放、报告和项目筹备活动方面的能力建设和培训，同时考虑到，但不限于，相关准则和执行委员会的决定；
  - (三) 请秘书处编制一份文件，说明上文(d)(二)段确定的国家在获得额外快速捐款用于使能活动方面可能采取的程序；
  - (四) 财务主任将与提供捐款的非第 5 条国家沟通，讨论向基金提供额外捐款以便及早就《基加利修正案》采取行动的程序；
  - (五) 秘书处除了报告对多边基金的认捐捐款外，将另行向执行委员会报告所收到的额外快速启动捐款；
- (e) 请秘书处根据上文(b)至(d)段确定的问题，制定上文(a)分段所述特别会议的议程。

**(第 77/59 号决定)**

**Annex II****ARGENTINA  
COMMENTS SUBMITTED RELATED TO DECISION 77/59**

In response to Decision 77/59 where ExCom members were invited to share relevant information on certain specific elements, but not limited to, of Decision XXVIII/2 of the Twenty-Eighth Meeting of the Parties, Argentina is submitting for consideration at the 78<sup>th</sup> Meeting of the ExCom the following comments/proposals.

- (i) Available information on HFC consumption and production, as well as on HFC-23 by-product, including from surveys of ODS alternatives funded by the Multilateral Fund and other sources;

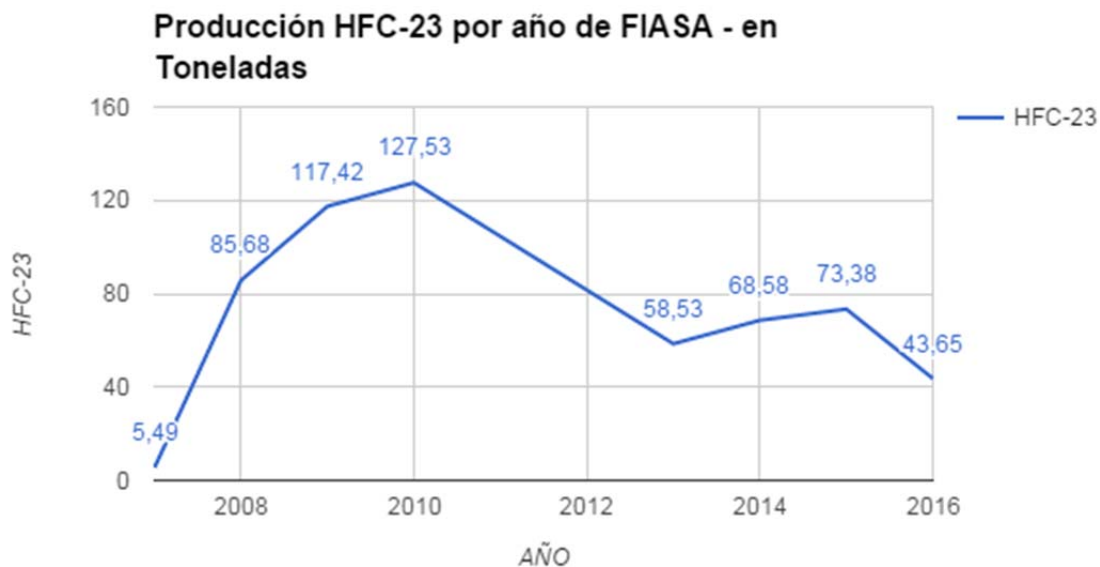
**BRAZIL – HFC IMPORTS 2014-2015**

Substances	2014	2015
HFC-23	1.82	0.46
HFC-32	1,219.17	1,541.05
HFC-125	2,065.59	2,688.24
HFC-134A	10,832.33	9,418.71
HFC-143A	828.25	794.41
HFC-152A	32.20	52.16
HFC-43ME	0.0	0.00
HFC-365	0.00	17.86
HFC-227	0.0	1.82
HFO 1234yf	0.00	0.52
HFC-236fa		0.32
<b>Total</b>	<b>14,979.37</b>	<b>14,515.55</b>

- (ii) The enabling activities required to assist Article 5 countries in commencing their reporting and regulatory activities in relation to the HFC-control measures;

Are included in paragraph 20 of Decision XVIII/2.

- (iii) Key aspects related to HFC-23 by-product-control technologies;
- (iv) The following information refers to Argentina's report production of HFC-23 from FIASA. Since 2013, the Ministry of Production of Argentina carries out the audit of the company FIASA on a quarterly basis, under the coordination of UEPRO - PRESAO of the National Directorate of Sustainable Industry Development.
- (v) Based on the audits and considering the relationship between the production of HCFC-22 and its by-product, HFC-23 gas, the present generation is of approximately 6TN of HFC-23 per month. In the following table, the production of HFC-23 in the last 10 years can be observed:



The company FIASA SA does not perform any treatment of destruction of the HFC-23, but that the gas is vented.

At the time that FIASA worked under the CDM, a project was implemented from which the production of HFC-23 was destroyed in a tower they had for this purpose. This tower is currently in disuse and the company believes that to start up the HFC-23 destruction plant again, investments should be made to:

- Replace damaged absorption tower.
- Repair valves.
- Buy zeolite for the oxygen generator PSA, among other issues.

According to the company, the estimated operating cost for the destruction of HFC-23 is 90 Argentinian pesos per kilogram of HFC-23 for a monthly production of 200TN of HCFC-22 and 6TN of HFC-23.

Please find below our comments on different items of Decision XXVIII/2:

Decision XXVIII/2	Element	Comments/Proposals
<i>Financial Issues</i>		
<i>Overarching principles and timelines</i>	9. To recognize that the Amendment maintains the Multilateral Fund for the Implementation of the Montreal Protocol as the financial mechanism and that sufficient additional financial resources will be provided by parties not operating under paragraph 1 of Article 5 to offset costs arising out of HFC obligations for parties operating under paragraph 1 of Article 5 under the Amendment;	
	10. To request the ExCom to develop, within two years of the adoption of the Amendment, guidelines for financing the phase-down of HFC consumption and production, including cost-effectiveness thresholds, and to present those guidelines to the Meeting of the Parties for the parties' views and inputs before their finalization by the ExCom;	Since the ExCom only has 2 years to develop the financing guidelines for HFC phase down, including the c.e. thresholds and submitting them for consideration of the Parties, this delegation thinks it should be ranked as a first priority in the ExCom work.
	11. To request the Chair of the ExCom to report back to the Meeting of the Parties on the progress made in accordance with this decision, including on cases where ExCom deliberations have resulted in a change in a national strategy or a national technology choice submitted to the ExCom;	To ensure transparency and equity across ExCom approvals, the Secretariat should prepare an overview table for the project review agenda item, summarizing for each and all country proposals (regardless if recommended for blanket approval or not), proposed and agreed strategy, technology choice and recommended level of funding, as well as: information on sectors and selected technologies covered by each project, the total eligible cost and C.E. based on eligible consumption for each sector as well as overall coverage (percentage of the baseline level) and the reason why the Secretariat is suggesting the changing of the proposed strategy chosen by the Country, if this is the case.
	12. To request the ExCom to revise the rules of procedure of the ExCom with a view to building in more flexibility for parties operating under paragraph 1 of Article 5;	Decisions that are clearly directed at individual investment projects approved prior to the performance-based project modality should be retired to prevent misuse (i.e. to limit country flexibility or funding levels). The ExCom should commission a report, to be updated periodically, containing a rolling list of decisions that no longer can be applied to sector/national plans.
<i>Flexibility in implementation that enables parties to select their own strategies and priorities in sectors and technologies</i>		
	13. That parties operating under paragraph 1 of Article 5 will have flexibility to prioritize HFCs, define sectors, select technologies and alternatives and elaborate and implement their strategies to meet agreed HFC obligations, based on their specific needs and national circumstances, following a country-driven approach;	Needs to be included in a Decision

<i>Decision XXVIII/2</i>	Element	Comments/Proposals
	14. To request the ExCom of the Multilateral Fund to incorporate the principle referred to in paragraph 13 above into relevant funding guidelines for the phase-down of HFCs and in its decision-making process;	

**Guidance to the Ex Com with respect to the consumption, production and servicing sectors**

	15. To request the ExCom, in developing new guidelines on methodologies and costs calculations, to make the following categories of costs eligible and to include them in the cost calculation:	
<p><i>Elegible costs in the HFC manufacturing sector</i></p>	(a) Incremental capital costs;	<p>The decision made at the MOP should be the main guiding document as well as the lessons learnt during HPMP implementation, which proved that for some sectors the ICC provided was not sufficient and the IOC should be extended for a much longer period in order to provide sufficient incentive for the conversion to new alternatives. The A2 countries may wish to demonstrate to A5 countries successful conversions to low-GWP alternatives in their countries and share their experience, especially with those countries, which are facing difficulties in introducing new alternatives. • Cost-effectiveness thresholds should be developed using actual incremental costs of HFC phase-out . Those actual incremental cost items should become the basis for a list of standard, eligible equipment for the particular sector. • The ExCom should then approve new C.E. thresholds and the associated standard list of equipment for each subsector. The Secretariat would be required to apply the thresholds and the standard list of equipment in its project review to ensure transparency and equity. • To implement this approach, a cost template should be developed by the Secretariat and Implementing Agencies (as was done for CFCs) for reviewing project costs. • With the above standard costs and set of equipment, there would be no need to maintain artificial levels of IOC. • Where required information for establishing the above thresholds is not available, the ExCom would commission an external technical review by experts selected by the ExCom to determine actual costs as experienced in developed countries and/or approve demonstration projects with an aim to obtain this information.</p>
	(b) Incremental operating costs for a duration to be determined by the ExCom;	
	(c) Technical assistance activities;	
	(d) Research and development, when required to adapt and optimize low-GWP or zero-GWP alternatives to HFCs;	
	e) Costs of patents and designs, and incremental costs of	



<i>Guidance to the Ex Com with respect to the consumption, production and servicing sectors</i>		
	royalties, when necessary and cost-effective;	
	(f) Costs of safe introduction of flammable and toxic alternatives.	
<i>Elegible costs in the HFC production sector</i>	(a) Lost profit due to shutdown/closure of the production facilities as well as production reduction;	<ul style="list-style-type: none"> <li>• Approval of HFC funding guidelines should not preclude the approval of HFC phase-down activities, particularly for HFC-23 emissions that must be eliminated by 2020.</li> <li>• Most important action would be to agree on the HCFC and HFC production guidelines and ensure that funding is swiftly provided to swing plants for production closure/conversion. The most effective way to reduce HFC-23 by-product is to close HCFC-22 production and provide guidance and sufficient funding for that.</li> <li>• Reduction of emission of HFC-23, a byproduct from the production process of HCFC-22, by reducing its emission rate in the process, destroying it from the off-gas, or by collecting and converting to other environmentally safe chemicals, should be funded by the MLF, to meet the obligations of A5 countries specified under the HFCs Amendment.</li> </ul>
	(b) Compensation to displaced workers;	
	(c) Dismantling of production facilities;	
	(d) technical assistance activities;	
	(e) Research and development related to the production of low/zero-GWP alternatives to HFCs with a view to lowering the cost of alternatives;	
	(f) Costs of patents and designs or incremental costs of royalties;	
	(g) Costs of converting facilities to produce low/zero-GWP alternatives to HFCs when technically feasible and cost-effective;	
(h) Costs of reducing the rate of emissions of HFC-23, destroying HFC-23 from off-gas, or collecting HFC-23 and converting it to other environmentally safe chemicals.		
	16. To request the ExCom to increase in relation to the servicing sector the funding available under ExCom Decision 74/50 above the amounts listed in that decision for parties with total HFC baseline consumption up to 360 metric tonnes when needed for the introduction of alternatives to HFCs with low-GWP and zero-GWP alternatives to hydrofluorocarbons and <b>maintaining energy efficiency also in the servicing/end-user sector;</b>	Need a clarification to what is intended with this request. How is servicing sector related to energy efficiency??
<i>Energy efficiency eligible costs</i>	22. to request the ExCom to develop cost guidance associated with maintaining and/or enhancing the energy efficiency of low/zero-GWP replacement technologies and equipment, while taking note of the role of other institutions addressing energy efficiency, when appropriate.	<ul style="list-style-type: none"> <li>• Energy efficiency is not included in agreed incremental costs. Are we going to finance energy efficiency?. This is the first decision that should be taken into account and be taken to the Parties consideration, and then decide whether we should invest time in developing this cost guidance.</li> <li>• There is a need to establish a definition for low-GWP alternatives.</li> </ul>

*Guidance to the Ex Com with respect to the consumption, production and servicing sectors*

		<ul style="list-style-type: none"><li>• In terms of energy efficiency, the Executive Committee has not approved funding for improved energy efficiency of refrigeration and air-conditioning equipment, as this is not considered as an eligible incremental cost under the MLF and because the focus was on phasing-out of ODS. Past Executive Committee decisions determined that technological upgrades go beyond what is covered as eligible incremental costs and would not be funded unless they were unavoidable as part of the project</li></ul>
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**Requests to consider by the secretariat in the preparation of a document containing preliminary information in response to the elements in decision XXVIII/2 of the Twenty-Eighth Meeting of the Parties.**

30.01.2017 prepared by the German Constituency

**Background**

In the Conference Room Paper *UNEP/OzL.Pro/ExCom/77/CRP.3/Rev.1* “DRAFT DECISION ON AGENDA ITEM10: ISSUES RELEVANT TO THE EXECUTIVE COMMITTEE ARISING FROM THE TWENTY EIGHTH MEETING OF THE PARTIES TO THE MONTREAL PROTOCOL: KIGALI AMENDMENT – NEXT STEPS FOR THE EXECUTIVE COMMITTEE”

“The Executive Committee decided:

- a) *To invite members of the 77<sup>th</sup> Executive Committee, to share relevant information with the Secretariat on the elements listed but not limited to the sub-paragraphs (b) (i) to (v) above, no later than 31 January 2017 on an exceptional basis noting the limited time between now and the end of the year”*

The following document entails requests/relevant information of the German Constituency for consideration of the secretariat. The document has been structured according to the decision 77/59 and includes additional issues raised in excom doc. 7770 and decision XXVIII/2 of the MOP. However, in keeping the contextual structure of dec 77/59, there are necessarily a number of overlapping issues that need to be mentioned at multiple places.

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## I. General remarks on funding issues when implementing the Kigali amendment

In the following we describe the challenges we see in developing the HFC guidelines. As a principle we would like to maintain the existing ODS guidelines as much as possible as they are well understood by members and implementing agencies and are operating well. This paper is therefore, mainly associated with the development of guidelines for new issues to the MLF such as energy efficiency, HFC-23 and the integration with the UNFCCC.

In general we believe that the evaluation of requests for financing incremental costs of a given HFC-project shall take into account the following principles:

- the most cost-effective and efficient option should be chosen, taking into account the national industrial strategy of the recipient A5,
- operational policies, guidelines and administrative arrangements, including the disbursement of resources, for the purpose of achieving the objectives of the MLF (Article 10(5)) should:
  - strictly relate to compliance with the provisions of the Protocol, and
  - meet agreed incremental costs (Article 10(6));
  - consequently, all activities which require MLF funding, including energy efficiency, should be strictly related to the phase down of HFCs, and kept within agreed cost thresholds.
- to seek, to the extent possible, co-funding from other multilateral and bilateral funding efforts, for activities not related to compliance and agree operational modalities for effective cooperation that will ensure there is no delay in disbursing funds or double-counting in view of other multilateral and bilateral funding efforts in the targeted sectors, in specific with view on energy efficiency
- when establishing the incremental costs in the various subsectors, to take into account *any savings or benefits that will be gained at both, the strategic and project levels, during the transition process* (dec/4/15)- continue to fund greenhouse gas reductions on the basis of sustained aggregate reductions. Therefore, any request (HFC, energy use) shall be presented with a baseline and the respective reduction targets that are measurable, (independently) verifiable and reportable, matching the requirements of *both, the MP and the UNFCCC*.
- develop together with reknown institutions in the field of energy use reduction on methodologies and procedures for conservatively projecting and measuring greenhouse gas reductions in the RAC sector, for example with view on complex monitoring needs for appliances
- in the evaluation of greenhouse gas reductions, measure and illustrate the impact in tCO<sub>2</sub> eq. on the basis of annual consumption, lifetime emissions and aggregated savings until 2050 vs. a business as usual scenario.
- give priority to funding (incentivize) requests that implement zero/low GWP, HFC-free solutions and eliminate the need for additional conversions and costs (leapfrogging)
- ensure that an overall national (sub)sector management plan will initiate and enforce normative measures, necessary for establishing a qualitative infrastructure that will facilitate a safe supply of alternative services and products.
- when applying a holistic approach in the servicing sector, take into account experiences, components and synergies of ODS management plans and activities (CFC, HCFC, etc.) previously funded under the MLF, such as tools, equipment, infrastructure, vocational sector actors, training

and certification agents

- to design a credible range of enforcement measures in order to raise the perception of risk among recipients of funding.

- when designing guidelines on capital and operational incremental costs, take into account negative experiences of the fund with cash payments for IOCs and consequently the need for seamless monitoring and control on the sustainability of such transitions.

**II. Available information on HFC consumption and production, as well as on HFC-23 by-product, including from surveys of ODS alternatives funded by the Multilateral Fund and other sources;**

Invite the remaining 17 Article 5 countries, that had not yet received assistance to conduct surveys on ODS alternatives from the Multilateral Fund, to provide, consumption and production data for alternatives to ODS in particular HFCs and provide an overall analysis of the results of the surveys for the consideration of the Executive Committee by its first meeting in 2017.

The secretariat should include in its evaluation of the HFC- Inventories

- an overview on the implemented measures of ODS Alternatives inventories (compilation of reports per country) in order to allow the ExCom a differentiated analysis of HFC use patterns in A5 countries
- clearly identify missing information from the ODS Alternatives Surveys
- describe needs to integrate and include emission reporting under the MP
- ways forward to harmonize with tier 2 or 3 (bottom-up) approach used under UNFCCC
- get a full picture on whether the information from ODS Alternatives Surveys are sufficient to build preliminary baselines for HFCs and to include baselines for energy use emissions in the RAC subsectors

Furthermore we support the secretariat to provide information on the studies and investigation of HFC-23 disposal technologies and HFC-23 reductions using best practices that had been funded through the HCFC production phase-out management plan. In addition, we invite other Governments to provide, on a voluntary basis, information on their experience in controlling HFC-23 by-product emissions.

In the evaluation of information on potential HFC-23 funding, we would like include:

- how independent verification of the information on HFC-23 emission will be warranted?
- what the lifetime of existing productions are and timeline for regulations avoid emissions for new productions?
- if and what incentives for early action are needed, incremental costs of establishing HFC-23 destruction capacity

**III. The enabling activities required to assist Article 5 countries in commencing their reporting and regulatory activities in relation to the HFC-control measures;**

According to the XXVIII/2 the following activities would be eligible for funding: implementing HFC phase down strategies and public awareness; data reporting; enforcement and customs training; service sector training and capacity building; measures for safe introduction of hazardous alternatives.

We recommend to integrate service sector funding under the HCFC and HFC phase down as soon as possible in order to support/facilitate early ratification and rapid phase-down of HFCs. Particularly A5 need a systems for import/export licensing, quota, reporting, data collection, customs, amended regulation and new training for f  
UNEP/OzL.Pro/ExCom/78/1/Add.1 alternatives to reduce transition to high-GWP in the me  
Annex II

In the HFC Management Strategy/Plan we would like to see the following issues being addressed:

- activities that will speed up phase-down and limit HFC growth most rapidly and effectively, taking into account the lifetime effects of alternatives at realistic leakage rates as established in the HPMPs (72/42)

#### ***HFC- Inventories*** (see chapter i. above)

- methodologies for establishing baselines for both, HFC and energy consumption in the RAC subsectors

Seek for **synergies** when enabling

- the servicing sector activities for capacity-building and training for HFC alternatives in the manufacturing and production sectors;
- the development of national strategies for a combined institutional HCFC and HFC management and support structure;
- Article 4b on licensing and reporting

#### ***Demonstration projects***

- How to identify key subsectors and select demonstration projects enabling HFC and HCFC management, controls and enforcement, funding could be linked to HPMPs

#### ***Implementation***

- Ask countries to advise on which activities that are particularly important for “fast start” phase-down action

### **IV. Key aspects related to HFC-23 by-product control technologies**

With regard to the potential HFC-23 by-product control technologies, we would like to know:

- what is the state of art, what is the incremental cost of destruction?
- what is the mechanism influencing avoidance of new cases of HFC-23 by-production?
- how will HFC-23 mitigation become mandatory for everybody in the long-term?
- what will be the market demand for HCFC-22 feedstock on view of future products (PTFE, Refrigerants?)

**V. Identification of the issues that the Executive Committee might want to consider in relation to existing HCFC phase-out activities;**

In discussing challenge 6 during the OEWG 38, Parties generally acknowledged the linkage between the HFC and HCFC reduction schedules relevant to subsectors and the preference to avoid transitions from HCFC to high-GWP HFC. They are willing to provide flexibility if no other technically proven and economically viable alternatives are available.

In order to avoid double conversions we recommend that parties acknowledge these linkages with respect to certain subsectors, in particular industrial process refrigeration. *Parties are willing to provide flexibility if no other alternatives are available in cases where HCFC supply may be unavailable from existing allowable consumption, stocks as well as recovered/recycled material, and if it would allow for a direct transition at a later date from HCFCs to low-GWP or zero-GWP alternatives.*

In this proposal parties have signalled their alignment with the principle of using resources most cost-effective manner when seeking synergies between the HCFC and HFC phase-down regimes.

With regard to the integration of the consumption sector we would like to include:

- how could leapfrogging of HFC transitions be further maximised?
- could this also apply to HPMP projects where high-GWP alternatives have been approved already, but have not yet been implemented?
- how to account additional funding resources in view of the starting point for HFC, when avoiding the phase-in of high-GWP HFCs?
- how to rationalise costs following the synergizing effects of implementing servicing simultaneously under the HCFC and HFC phase down

With regard to the integration of production sector we would like to know:

- how will the transition to high-GWP production be avoided/minimized?

**VI. Information relevant to the development of the cost guidelines requested from the Executive Committee;**

**a Sustained aggregate reductions**

*Background Principles*

*“Remaining consumption tonnage eligible for funding will be determined on the basis of the starting point of the national aggregate consumption less the amount funded by previously approved projects in future multi-year agreement templates for HFC phase-down plans (consistent with decision 35/57).”*

We agree that for those Article 5 countries that submit projects in advance of their assessed baseline, the starting point for aggregate reduction in HFC consumption would be established at the time of submission of either the HFC investment project or the HFC-Management plan, whichever was submitted first to the Executive Committee. In cases where calculated HCFC baselines, based on reported Article 7 data, were different from the calculated starting point before the baseline, the starting points could be adjusted.

We want to maintain the practice of fixing a starting point on eligible funding, clearly divided in subsectors and respective eligible HFC consumption in kg substance. This will provide predictable clarity about financial needs for the parties in each of the subsectors.

Generally the Multilateral Fund's strategy is based on a compliance-driven business planning approach. Accordingly, the required reduction level for each country is calculated prior to allocating the resources that are needed to achieve it. This calculation is made in case of HFCs on the basis of an agreed baseline of eligible consumption figures in terms of environmental impact (tCO<sub>2</sub>eq). Energy consumption of HFC technologies shall be as well measured in tCO<sub>2</sub>. When energy consumption of alternatives is funded, a subsector baseline on energy consumption is necessary in order to ensure that the funding provided will result in sustained reductions.

#### *Methodological Issues of Impact Assessment*

We need a paradigmatic change for assessing and reporting climate impact in comparison to the approach we have taken so far under ODS controls, when the impact of GHG reduction was a secondary benefit. With regard to projecting and reporting climate impact we need to dramatically improve transparency and reliability of reporting and clearly distinguish between verified (hard) emission reductions (e.g. HFC) and not verifiable (soft) reductions that depend on unpredictable conditions (as for energy use, unless an agreed conservatively proven methodology is applied).

#### **The evaluation of the environmental impact should include in case of HFCs:**

- lifetime emission of conversion of annual productions
- the aggregated impact (tCO<sub>2</sub>) until 2050
- the separated indication of the impact (tCO<sub>2</sub>) of hard and soft reductions

Each data set should include underlying assumption and a description of means of verification.

Any funding should be used in light of the principle of sustained aggregate reductions, however would like to know also:

- on which principles/decisions could we justify incremental costs of energy efficiency, and
- in case we do so, is it confirmed that EE will fall as well under the agreed subsector cost thresholds
- how to maintain the principle of sustained aggregate GHG reductions of energy use in a RAC subsector and avoid diluting/offsetting GHG reductions and cost effectiveness of the HFC phase down
- how would a possible starting point be assessed in such case (bottom up?)
- will in such case the ExCom agreement complement for individual compliance to targets of the a recipient country with regard to GHG reductions in the energy use subsector

#### **b Multiple staged conversions of HFC -based manufacturing enterprises**

We fully support the principles agreed by the Parties, no additional clarification needed.

#### **c Eligible incremental costs of HFC phase-out projects**

##### **i Guidelines for enabling activities**



The Secretariat recommends using \$27m for enabling activities (→ *see comments chapter I. & II. in this report.*)

The secretariat expects funding for HFC enabling activities to be similar to the HPMP development costs. If though, then very little money (if support costs are included) will be left to do any other than enabling activities. Priority should be given to overcome regulatory and other barriers.

ExCom would request bilateral and implementing agencies to submit funding proposals and prepare capacity assistance.

## **ii Institutional strengthening**

Institutional needs to maintain relationship with regard to the replenishment level. Since there are many similarities between the HFC and HCFC management, costs could be rationalized. Relating costs to the total consumption under implementation could be an important aspect.

## **iii Eligible production costs:**

Eligible production sector costs: lost profit from shutdown or reduction, displaced worker compensation, dismantling facilities, technical assistance, R&D to lower cost of alternatives, patents and royalties, conversion costs to low-GWP, reducing HFC-23 from HCFC-22 production.

Note: similar issues are currently being considered for HCFCs by the production sub-group.

- how should we handle the read-across between HCFC and HFC guidelines
- asking China and other producers to provide info to inform HFC-23 destruction options may need independent verification

## **iv Eligible manufacturing costs:**

ICCs and IOCs for a duration to be determined by ExCom

General market considerations

- Technology deployment will definitely develop faster after the ratification of the Kigali Amendment;
- ICC/IOCs need to be seen in light of the early phase down in many A2 countries, the market will be very different in 5 yrs from now;
- Start with cost effective alternatives, conversions where there are no cost-effective alternatives yet should be backloaded;
- Preference, incentive systems need to be developed for low-/zero-GWP versus technologies based on HFC.

ICCs

- Need to take into account on-going review of prices for components, parts and refrigerants;
- Starting point of cost-effectiveness considerations should be the existing HPMP guidelines, considering that with increasing market introduction, prices will go further down

## IOCs

- approval of IOCs need to take into account negative experiences and possible cases of misuse, consequently there is a need for seamless monitoring and control of the sustainability of such transitions.
- IOCs should not be extended over a longer period of time, because IOCs are only meant to compensate for a loss during the initial market introduction that is caused by a lack of established procedures. New products are generally thought to be overall more competitive than predecessor product/service they replace. Therefore, there is no longer-term need for IOC.
- keep the limit to transfer of funds from eligible ICCs to IOCs at 20%
- considering we have an average implementation of 36 month for approved projects, the application of present market prices for some alternatives, e.g. such as HFOs, with presently only marginal production, is highly volatile and speculative. In these cases IOCs need to be based on real production price, rather than on speculative prices stimulated by initially limited supplies. Ask secretariat to describe marginal production costs of HFOs and HFC-32.

**Prioritisation of funding for manufacturing**

- Ask to prioritize subsectors with highest impact, along both the GWP of the alternative and the lifetime consumption (taking into account initial charge and refill).

**Overview:** Average Lifetimes and leakage-rate per year for equipment assumed in the various RAC subsectors for Article 5 Parties by TEAP and the MLF Secretariat.

Subsector	LIFETIME	ANNUAL LEAK TEAP	ANNUAL LEAK MLF (72/42)	LIFETIME REFILL TEAP	LIFETIME REFILL MLF
Domestic refrigeration	20	2%		40%	
Industrial refrigeration	15-30	15-30%	44%	506%	990%
Transport refrigeration	9-30	15-30%	23%	450%	460%
Commercial refrigeration	20	15-40%	38%	550%	760%
Stationary AC	10-25	2-10%	29%	105%	508%
Mobile AC	15-20	10% - 20%		350%	

This table illustrates that early action would have the largest impact in the industrial, commercial and stationary AC sector. The impact in the domestic sector would be exceptional low (less than 10% compared to the other sectors). This has important implications when giving priority in the selection of subsectors.

Based on above the table below table illustrates an example how the impact of lifetime emissions influences the impact of mitigation scenarios when choosing a subsector:

- If 10% of the HFC-410A is replaced with R32 in stationary A/C, the remaining lifetime emissions (33 Mio tCO<sub>2</sub>) would be still be higher than the total emissions of HFC-134a in the domestic refrigeration sector (29 Mio. tCO<sub>2</sub>) and cause a need for additional conversion in the A/C sector.
- If, alternatively, 10 % of the HFC-410A in stationary A/C sector are replaced with an HFC-free alternative (e.g. Propan) the remaining lifetime emissions would fully offset the existing emissions of HFC-134a in the domestic refrigeration sector (in tCO<sub>2</sub>).

This clearly indicates that in evaluating strategic priorities, both consideration of the GWP of the alternative and the lifetime consumption (charge and refill) are decisive/essential for a cost effective reduction. A/C conversion to zero/low GWP has the highest reduction potential and cost-effectiveness compared to measures in the domestic refrigeration sector or conversion of A/C to HFCs (e.g. R-32) and should be taken into account.

SUBSECTOR BAU	Refrigerant	GWP	LT TCO2/ Unit (C&R)*	CONSUMPTION 2020 (KT)	LT Consumption in MTCO2
Domestic refrigeration	134a	1400	1,4	14610	29
Stationary AC	410A	1920	8,0	134702	938
MITIGATION SCENARIO	Refrigerant	GWP	LT TCO2/ Unit (C&R)*	CONSUMPTION 2020 (KT)	LT Consumption in MTCO2
Domestic refrigeration	600a	6	0,0	14610	1
Stationary AC	290	3	0,0	134702	1
Stationary AC	32	675	3,0	134702	330

\* Emissions from charge plus refill over lifetime (20yrs, no EOL recycling)

This shows that priority setting could help to quickly and sustainably remove emissions, it needs to take into account the actual leakage rates of equipment and how the best environmental outcome is achieved by prioritising HFC-free alternatives.

Therefore, enabling activities need to build framework conditions and capacities to manage flammability and toxicity issues for a safe introduction of HFC-free alternatives and initiate the local adaptation of rules and standards in support of demonstration projects.

#### **d Aspects related to the refrigeration and air conditioning servicing sector**

Include aspects related to the refrigeration servicing sector, taking into account previous policy documents, case studies, and monitoring and evaluation reviews, while developing new guidelines on methodologies and cost calculations.

It is important to review the servicing sector activities. In the past servicing sector activities have not been necessarily designed as a package of policies, regulations, enforcement, skill training and conformity monitoring to build a functioning, qualitative service infrastructure in developing countries. Especially with regard to the formulation and enforcement of regulations countries need more support.

Cost categories considered to be eligible and included in the cost calculation:

- training of customs officers;
- preventing illegal trade of HFCs;
- policy development and implementation;
- public awareness activities;
- training of technicians in good practices and the safety of alternatives, including training equipment and servicing tools;
- certification programmes, monitoring conformity of products, equipment and services in the RAC sectors;
- recycling and recovery of HFCs;
- [best practice on energy efficiency]

It is important to integrate servicing activities for HCFC and HFCs and rationalise the implementation of activities. Thus, a strategy needs to be in place that illustrates the necessary actions with regard to the introduction of low-GWP alternatives under both plans.

This requires a larger degree of differentiation between the various subsectors, alternatives and applications in a country. It will require a stricter formalization of servicing sectors in the countries, specifying requirements in terms of education, quality assurance, tools and conditions at which new technologies with low-GWP alternatives need to be serviced and maintained.

This necessarily includes a review of local standards. Countries need to make sure that there is no concession on safety for users, independent from the fact whether new or refurbished equipment is in use. Furthermore, this should include a review of vocational training systems, the qualification and certification that can be provided through them. In addition, for local quality assurance, certifiers may be needed to confirm the scope of local supplies, compliance of services with standards, product checks, final inspection, as required for certification of equipment, and regular inspection.

The secretariat speaks for a holistic approach. A holistic approach would result in robust local qualitative infrastructure that builds capacity throughout the sectors and institutions: national vocational training system, national certification bodies, policy makers in government and associations, code of practice and skill developers, enforcement authorities, local providers of certification, testing and quality assurances.

Therefore, the delivery of a holistic approach will require longer-term formalised structural changes of processes and institutions. It needs to be assisted by agents, which are sufficiently experienced in delivering institution building in A5 countries in the field of national vocational training and certification.

Altogether developing countries need to provide a qualitative infrastructure to install, operate and disassemble products and equipment operating on low-GWP alternatives, with new operational and safety requirements.

In this regard, it needs to be recognised that the ExCom has already anticipated the need and adapted guidelines to significantly increased servicing sector funding for A5s in view of managing the more difficult introduction of low-GWP alternatives, with a priority on those A5 with consumption below 360mt HCFC.

In summary, addressing the servicing sector can have a big impact on emissions and energy use, it should be addressed holistically. Given flammables and toxicity of alternatives, local needs for certification need to be seen in context of regulations and standards and should be reviewed for all MLF funded activities in this sector.

On the mandate and role of UNEP/CAP in this respect please refer to chapter iv Role of UNEP CAP

**e Key aspects for improving the energy efficiency of refrigeration and air-conditioning equipment**

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

**i Donor coordination and integration with other funding initiatives in the energy sector**

Before hovering into this new aspect we need answer the following questions:

- We need an action plan for parties on how MP and MLF/ExCom can maximise energy efficiency opportunities as part of the HCFC and HFC phase down:
- What are the opportunities?
- What funding is available with us and with others?
- What should we do to release that funding and use it most effectively and in synergy with the HCFC and HFC phase downs? and,
- Do we have a national framework and strategy that is supportive enough that action can start.

There are several sources of environmental and development funding available for energy efficiency, such as the Global Environment Facility (GEF), the \$5.8bn Clean Technology Fund (CTF) administered by the Multilateral Development Banks or the Green Climate Fund which includes as one of its priorities 'reduced emissions from buildings, cities, industries and appliances'. At the moment, these funds are not well integrated with the Multilateral Fund, which means that opportunities to improve energy efficiency as part of MLF funded projects may be missed. Better integration and co-ordination between the funding streams could lead to more rapid and effective improvements in cooling sector energy efficiency, with less disruption for businesses, and achieve greater improvements from the same overall level of funding. The additional funding for the energy efficiency aspects of the plans could come from the existing sources such as the GEF, GCF and CTF. Consequently, mechanisms could be established to ensure funding approval from those sources was co-ordinated with the ExCom to avoid delays in adopting the Management Plans.

A co-ordinated approach of this type could bring energy efficiency benefits more rapidly and maximise the potential benefits for both energy efficiency and HCFC/HFC reduction from the available funding.

- The World Bank announced \$1bn for energy efficiency in urban areas by 2020, which could include high efficiency cooling technologies, other development banks and initiatives have similar targets.
- 53 Mio. will be added by Philanthropic Organisations (Kigali Cooling Efficiency Fund)
- There are many bilateral initiatives on energy efficiency worldwide. At present the German Ministry of Economic Cooperation and Development implements 120 Mio. of energy efficiency projects in developing countries. Altogether in the EU several billions are pledged for energy efficiency programs, including RAC technologies, in the EU but also in developing countries
- The Green Climate Fund is still growing, but it has already started disbursing money and includes in its priorities reduced emissions from buildings, cities, industries and appliances.
- Overall funding for energy efficiency programs supersedes the budget of the MLF for HFCs by far. These other funds may also be able to provide funding for energy efficiency activities which the MLF does not have the resources or expertise to address, such as cooling demand reduction.

- Therefore, to maximise funding for energy efficiency in the RAC sector it will be important to link up with these existing funding mechanisms

## **ii Proofing readiness of A5 to facilitate energy efficiency measures**

The other funds above will already have their own criteria and guidelines for approving energy efficiency funding. For any energy efficiency funding provided by the MLF, cost guidance needs to be conservative in light of the possible climate impact. Therefore, it is first of all important to analyse and describe necessary governing structure for energy efficiency funding that includes baselines, mitigation targets and instruments for measuring, reporting and verification of funded activities.

There are a number of policy, technical and costs barriers for the introduction of high energy efficient refrigeration and air-conditioning equipment in A5 that needs to be identified. These barriers need to be sufficiently addressed.

The readiness of countries should be assessed through the following information:

- List of relevant needs and methodologies to assess national baselines and performance metrics, such as energy productivity, intensity, fossil power efficiency, potential emission of residential, commercial, industrial sector consumption, mandatory energy savings policies & goals, tax credits, loan programs, incentives, relevant R&D efforts.
- Measures to implement EE certification processes and testing,
- Options for attaching EE strictly to HFC phase-down activities (not being a stand-alone activity)
- Options for verifying funded energy efficient products' compliance or non-compliance when in operation.
- Existing institutional and organizational readiness to enable necessary policies, legal and regulatory frameworks and their enforcement
- Necessary support from recipient countries in terms of institutional arrangements, stakeholder coordination
- Options for evaluating the financial and economic readiness including review of energy prices and tariffs, market structures, financial support and incentives
- Options for evaluating readiness of existing awareness, stakeholder information, education, training, prevalent skills, technologies, infrastructure
- Options for ensuring compatibility with the other mitigation initiatives under the UNFCCC such as CDM or NAMAs
- Institutional requirements to build synergies between other EE initiatives
- Options to make sure that the climate impact of verified emission reductions (HFC) is not sacrificed by diluting these with not-verifiable emission reductions, which are unpredictable in nature and often depended on behavioural patterns and change of energy use.

## **iii Strategic planning under the Kigali Amendment**

Secretariat proposes to a project-by-project approach. The analysis of the priority sectors illustrates that almost all strategic subsector are also subject to the HCFC phase-down. Therefore, the HCFC

phase-down provides sufficient level playing field to generate best practice examples based on regular implementation modalities.

#### **iv Role of UNEP CAP**

UNEP CAP, the compliance assistance programme, was entrusted by the Parties in 1991 to the political promotion of the objectives of the Protocol, research and data-gathering and Clearinghouse function. It delivers regional assistance to governments in choosing and enforcing policies required to implement the Protocol, when making informed decisions about alternative technologies and sustain compliance obligations.

UNEP has been chosen to host umbrella bodies under the Montreal Protocol, including convention/protocol and fund secretariat, as well as the CAP programme. The actual implementation of country activities is through the multilateral bilateral and implementing agencies. The parties have always been cognizant of this work division in order to avoid a conflict of interest and double counting of country based activities.

We support the idea that CAP should continue its efforts to ensure compliance of countries with the HFC phase down policies and targets, e.g. through regional efforts on regulations and ensuring measures for controlling imports and exports are harmonized and enforced..In addition, CAP should continue to support the investment and capacity building programmes of bilateral and implementing agencies through facilitation of the regional and global exchange of experiences between agency experts and country representatives. Such exchange is not part of the approved HFC- phase down projects and should be financially supported through CAP.

We would be interested to discuss the extent to which the CAP is currently able to deliver the holistic, structural changes needed in A5 institutions to meet the requirements of the Kigali amendment. Therefore, we support the proposal that CAP should include on the agendas of regional network meetings of ozone officers, beginning in 2017, issues related to the ratification of the Kigali Amendment to the Montreal Protocol and the phase-out of HCFCs and the phase-down of HFCs, with the participation of experts that could address issues of relevance to Article 5 countries, and encourage the Secretariat and the bilateral and implementing agencies to attend those meetings and engage in the discussions.

Before discussing any longer term mandates of CAP, we suggest to wait for the outcome of the evaluation of the CAP programme.

#### **v Plus up Administration**

Governments need to have flexibility from which budgets to take the plus up, which may influence their choice of contribution. Regarding the mechanism for providing the plus up, it is our understanding that it would be treated as an earmarked, voluntary contribution, either in the form of bilateral or cash contributions under the fund. Since the contributions are voluntary, limitations to the share of bilateral contributions shall not apply and those contributions could exceed 20% of the total contribution.

## ANNEX

### Leak rates per subsector :

On average between 22 to 44% /annum (EXCOM document 72/42)

Subsector	Estimated annual emission rates in HPMPs		
	Average (%)	Lowest value (%)	Highest value (%)
Residential air-conditioning	29	4	79
Commercial air-conditioning	40	3	70
Industrial air-conditioning	40	8	54
Transport	23	8	40
Chillers	22	14	30
Commercial refrigeration	38	2	82
Industrial refrigeration	44	7	100

*Source: A sample of 38 approved HPMPs in which this data is available. The data corresponds to estimations made by each country and the methods may differ between countries.*



## Government of Japan

**(i) Available information on HFC consumption and production, as well as on HFC-23 by-product, including from surveys of ODS alternatives funded by the Multilateral Fund and other sources;**

According to the data for FY 2015 reported by operators of more than 10,000 t-CO<sub>2</sub> equivalent HFCs production in the previous FY, the total amount of HFCs production from April 2015 to March 2016 in Japan is 47.73 million t-CO<sub>2</sub>. The total amount of HFCs production is estimated to be 48.52 million t-CO<sub>2</sub>, also taking into account the estimated amount of the operators of less than 10,000 t-CO<sub>2</sub> equivalent HFCs production.

**(ii) The enabling activities required to assist Article 5 countries in commencing their reporting and regulatory activities in relation to the HFC-control measures;**

Regarding the enabling activities (a) to (f) below, which are listed in paragraph 30 of the document ExCom77/70/Rev.1, we believe that priority should be given in particular to the activities of (a), (b) and (f).

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

**(iii) Key aspects related to HFC-23 by-product-control technologies;**

The emission of HFC-23 has been decreasing in Japan since 2004, when all production facilities were equipped with recovery and destructive device. The

substance is destroyed by the Liquid Injection Incineration technology.  
(2014)

Production of HCFC-22: 51,753 ton

Ratio of HFC-23 as by-product: 1.46%

Emission ratio from HCFC-22 production: 0.003%

Emission amount: 2 metric ton (0.02 Million t-CO<sub>2</sub>)

Source: National Greenhouse Gas Inventory Report of Japan 2016

**(iv) Identification of the issues that the Executive Committee might want to consider in relation to existing HCFC phase-out activities;**

We believe that the activities aimed at securing compliance of Article 5 countries with the HCFC phase-out schedule should not be delayed as they commence HFC phase-down activities.

**(v) Information relevant to the development of the cost guidelines requested from the Executive Committee;**

As evaluation criteria and standard for energy efficiency vary among countries, incorporating energy efficiency into the cost guidelines would be a complicated work. Therefore, it should be given very careful consideration.



United States Department of State

*Bureau of Oceans and International  
Environmental and Scientific Affairs*

*Washington, D.C. 20520*

January 31, 2017

Eduardo Ganem  
Chief Officer  
Montreal Protocol Multilateral Fund  
Suite 4100  
1000, De La Gauchetière Street West  
Montreal, Quebec H3B 4W5  
Canada

Dear Mr. Ganem,

Please accept the U.S. response to Decision 77/59 of the Executive Committee of the Multilateral Fund requesting Executive Committee members to share relevant information to help the Fund Secretariat prepare a document containing preliminary information in response to the elements in decision XXVIII/2. I hope this information is helpful to the Secretariat in preparing for the 78th meeting of the Executive Committee in April 2017. Please let me know if you have any questions.

*Global Mitigation of Non-CO<sub>2</sub> Greenhouse Gases: 2010-2030* (U.S. EPA, 2013).<sup>i</sup> This report lays out several strategies for reducing HFC emissions, among other non-CO<sub>2</sub> greenhouse gases, and then assesses the costs of those strategies. Specifically, the report assesses the cost of (1) transition to low-global warming potential (low-GWP) alternatives in several sectors, (2) servicing practices, and (3) HFC-23 capture and destruction. The following sections of the report are relevant:

- Section IV.2 – HFC Emissions from Refrigeration and Air Conditioning
- Section IV.3 – HFC Emissions from Solvent Use
- Section IV.4 – HFC Emissions from Foams Manufacturing
- Section IV.5 – HFC Emissions from Aerosol Product Use
- Section IV.6 – HFC and PFC Emissions from Fire Protection
- Section IV.8 – HFC-23 Emissions from HCFC-22 Production
- Corresponding Appendices D-II, and J.

In addition to the above report, a prior U.S. EPA document published in 2004 also covers abatement costs of substitutes for ozone-depleting substances. While the figures are outdated, the methodology used may be informative: *Analysis of Costs to Abate International Ozone-Depleting Substance Substitute Emissions* (U.S. EPA, 2004).<sup>ii</sup>

*Analysis of Equipment and Practices in the Reclamation Industry, Draft Report* (U.S. EPA, 2010).<sup>iii</sup> This draft report provides an overview of the reclamation industry in the United States.

*Greenhouse Gas Performance Analysis for Commercial Buildings with Large Refrigeration and Air Conditioning Systems* (ICF International, 2012).<sup>iv</sup> This report proposes twelve refrigerant leak reduction measures (outlined pages 3-8) and a handful of energy conservation measures (outlined pages 13-14) for commercial refrigeration and cold storage systems. The report provides relative

costs of implementing the various leak reduction measures and energy conservation measures and provides the net cost savings and environmental impacts avoided through these practices (provided in charts and tables).

*Technical Support Document: Analysis of the Economic Impact and Benefits of Final Revisions to the National Recycling and Emission Reduction Program* (U.S. EPA, 2016).<sup>v</sup> This report analyzes the costs and benefits of refrigerant servicing practices being proposed in a U.S. regulation. In Section 3.1.1.3 (page 45) of the report there is a description of unit costs and savings for leak inspections and repair activities based on U.S. median earnings for HVAC mechanics and installers. In addition, the document estimates costs and savings for the implementation of the proposed servicing practices by "do-it-yourself" technicians (found in Appendix E, page 117).

With respect to the HFC-23 byproduct control obligations, the United States would draw the attention of the Secretariat to the Parties approval in 2011 of the technology for Conversion by Chemical Reaction with Hydrogen and Carbon Dioxide. To date, we are aware of HFC-23 being handled at HCFC production facilities at the commercial scale using conventional destruction technology, but we believe the Secretariat should consider the full range of available technologies in helping inform the Executive Committee at its 78<sup>th</sup> meeting, and we want to draw attention to the conversion technology noted above that has been developed by Midwest Refrigerants. In contrast to destruction technology, this conversion technology allows for production of anhydrous hydrogen fluoride, with small amounts of anhydrous hydrogen chloride. These outputs can either be put back into the production cycle or sold as high purity chemicals. There are other possible products with commercial value that can also be produce in this process with commercial value that can help offset capital and operating costs of the technology. Operating costs of the technology are similar to a thermal oxidizer, and while capital costs may be somewhat higher, they will be offset by the sales of the products noted above. We request the Secretariat include information on this technology in documents being prepared for the 78<sup>th</sup> meeting as it relates both to byproduct control provisions of the amendment as well as demonstration projects, and further information can be found at <http://www.midwestrefrigerants.com/>.

The United States has identified several best practices and standards documents related to servicing that may be useful to the Fund Secretariat. These provide information on the proper installation and maintenance of refrigeration and air-conditioning equipment. As documented in the first article listed below, proper installation and maintenance practices can reduce refrigerant leakage and maintain a system's energy efficiency. The below list is just a sample of the many resources that are available.

The National Institute of Standards and Technology (2014) authored a report on the *Sensitivity Analysis of Installation Faults on Heat Pump Performance*. Of particular interest, sections 5.2.2 and 5.2.3 articulate and quantify the effects of heat pump sizing and duct leakage on HVAC equipment.<sup>vi</sup>

"Smart Maintenance for Rooftop Units," *ASHRAE Journal* (Breuker et al. 2000).<sup>vii</sup> This article provides the decrease in rooftop unit capacity and coefficient of performance resulting from various problems with a system that can be addressed by servicing (e.g., refrigerant leakage).

*ENERGY STAR*<sup>®</sup> *Program Requirements for Room Air Conditioners, Version 4.0* (U.S. EPA).<sup>viii</sup> Section D of the Certification Criteria on page 7 of 11 of this document provides specific installation requirements for window air conditioners to minimize air leakage and thermal losses. We are also providing the Fund Secretariat with an Excel spreadsheet titled "ENERGY STAR Draft 1 Version 4.0 Room Air Conditioners Data Package.xlsx,". Tab 5 shows the additional cost of more energy efficient equipment that meets the criteria and the payback time for the consumer in annual energy

savings. Currently for room air conditioners, the initial purchase price of the more energy efficient appliance is higher than less efficient products in most cases. However, the payback period is only three to four years. For many ENERGY STAR products, there is little to no price increase. ENERGY STAR specifications are set so that if there is a cost differential at time of purchase, that cost is recovered through utility bill savings within the life of the product—generally between two and five years.

*GreenChill Best Practices Guideline: Commercial Refrigeration Leak Prevention and Repairs* and *GreenChill Best Practices Guideline: Ensuring Leak-Tight Installations of Commercial Refrigeration Equipment* (U.S. EPA).<sup>ix</sup> These guides provide food retailers with information on best practices for reducing refrigerant leaks from commercial refrigeration systems. Reducing leaks saves equipment owners money on refrigerant and energy costs, and in the case of commercial refrigeration prevents food spoilage.

Installation and Maintenance Standards from numerous organizations are also available.

- ANSI/ASHRAE/ACCA Standard 180-2012: Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems<sup>x</sup>
- ACCA Standard 4: Maintenance of Residential HVAC Systems<sup>xi</sup>
- ACCA Standard 5: HVAC Quality Installation Specification<sup>xii</sup>
- ACCA Standard 14: Quality Maintenance of Commercial Refrigeration Systems<sup>xiii</sup>

Additionally, we would like to note that minimum energy conservation standards by the United States Department of Energy, combined with our highly-successful ENERGY STAR labeling program have resulted in significant benefits in the United States, both for consumers in lower energy bills and for the environment in fewer greenhouse gas emissions. Without a minimum energy efficiency standard for equipment, the manufacturers of refrigeration and air-conditioning manufacturers are likely to continue to produce least-cost, low-energy efficient equipment because there will continue to be a consumer market for it, even while they convert production lines to manufacture energy efficient units. We request that the Secretariat include consideration of the role that adequate and enforceable minimum energy efficiency standards can play in meeting the Parties' goals outlined in Decision XXVIII/2 in documents being prepared for the 78<sup>th</sup> meeting. Several resources are listed below that may be useful in preparing for the 78<sup>th</sup> meeting of the ExCom:

*Energy Conservation Standard Technical Support Documents:* The U.S. Department of Energy's Building Technology Office is responsible for establishing energy conservation standards for numerous appliances. When updating the minimum standard, the program develops detailed technical support documents evaluating the costs and benefits of the department's actions. These documents contain useful information on the various options for improving energy efficiency in a product, the incremental manufacturing production cost of meeting the new standard, and the payback period for consumers, among other topics. One example is listed below. If the Fund Secretariat finds this type of document useful, the United States will provide a more complete list of relevant Technical Support Documents.

*Technical Support Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment: Small, Large, and Very Large Commercial Package Air Conditioning and Heating Equipment* (U.S. Department of Energy, 2015).<sup>xiv</sup> Chapter 8 of this report provides cost and consumer payback estimates associated with increasing the efficiency standard. This includes the incremental manufacturer production costs, among other elements. Chapter 12, which measures the impacts on manufacturers may also be relevant.

*Lessons Learned from Incenting Programs for Efficient Air Conditioners* (U.S. Department of Energy, 2015).<sup>xv</sup> As shown through this report there are a number of different ways to incentivize more energy efficient appliances. Of particular note, there are a variety of case studies described which cover many countries across the world.

*Achievements of appliance energy efficiency standards and labelling programs* (International Energy Agency, 2016).<sup>xvi</sup> Based on evidence from a wide cross-section of countries with energy efficiency standards and labelling programs, this report finds that energy efficiency standards and labeling programs deliver energy and CO<sub>2</sub> reductions while also reducing total appliance costs as articulated in chapters 3 and 4.

*Cost-Benefit of Improving the Efficiency of Room Air Conditioners in India* (Lawrence Berkeley National Laboratory, 2016).<sup>xvii</sup> In an evaluation of improving the efficiency of room-AC in India, this report found that, despite a small cost increase for manufacturing more energy efficient units requiring a modest increase in retail price, consumers are able to easily recoup the modest retail price increase through significant energy savings leading to short payback periods of 1.2 to 2.4 years.

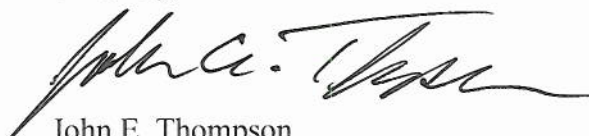
*The Future of Air Conditioning for Buildings* (U.S. Department of Energy, 2016).<sup>xviii</sup> This report provides several useful data points. Section 4.2 shows that many of the low-GWP refrigerant alternatives under consideration can increase energy efficiency with only soft optimization, even in high ambient temperature conditions. Section 6 provides historical equipment cost information for the United States—showing decreasing inflation-adjusted costs even as minimum energy efficiency standards increased and the ODS phaseout took hold—and ways that equipment manufacturers are reducing transition costs.

“A Retrospective investigation of energy efficiency standards: policies may have accelerated long term declines in appliance costs,” *Environmental Research Letters* (Buskirk et al., 2014).<sup>xix</sup> This article also finds decreasing long-term costs for certain refrigeration and air-conditioning equipment while energy efficiency standards became more stringent.

*The Greenhouse Gas Performance Analysis for Commercial Buildings with Large Refrigeration and Air Conditioning Systems* report (ICF 2012) that is referenced above also provides useful information on nine specific energy conservation measures for commercial refrigeration and cold storage, including estimates of costs of installation or implementation of practices, and the environmental and cost savings from these energy efficiency actions over the life of the equipment.

*EPA Energy and Environment Guide to Action* (U.S. EPA, 2015).<sup>xx</sup> Starting on page 4-72, section 4.4 provides an overview of the benefits and best practices when implementing an appliance energy efficiency standard.

Sincerely,



John E. Thompson  
Deputy Director  
Office of Environmental Quality and  
Transboundary Issues

- <sup>i</sup> Available at [https://www3.epa.gov/climatechange/Downloads/EPAactivities/MAC\\_Report\\_2013.pdf](https://www3.epa.gov/climatechange/Downloads/EPAactivities/MAC_Report_2013.pdf) and [https://www3.epa.gov/climatechange/Downloads/EPAactivities/MAC\\_Report\\_2013-Appendixes.pdf](https://www3.epa.gov/climatechange/Downloads/EPAactivities/MAC_Report_2013-Appendixes.pdf)
- <sup>ii</sup> Available at <https://www.epa.gov/sites/production/files/2015-08/documents/odssubstituteemissions.pdf>
- <sup>iii</sup> Available at [https://www.epa.gov/sites/production/files/2015-08/documents/analysis\\_of\\_equipment\\_and\\_practices\\_in\\_the\\_reclamation\\_industry.pdf](https://www.epa.gov/sites/production/files/2015-08/documents/analysis_of_equipment_and_practices_in_the_reclamation_industry.pdf)
- <sup>iv</sup> Available at <https://www.arb.ca.gov/research/apr/past/09-306.pdf>
- <sup>v</sup> Available at <https://www.regulations.gov/document?D=EPA-HQ-OAR-2015-0453-0225>
- <sup>vi</sup> Available at <http://nvlpubs.nist.gov/nistpubs/TechnicalNotes/NIST.TN.1848.pdf>
- <sup>vii</sup> Available at <http://alpinems.com/pdfs/Smarter-Maintenance.pdf>
- <sup>viii</sup> Available at <https://www.energystar.gov/sites/default/files/ENERGY%20STAR%20Version%204.0%20Room%20Air%20Conditioners%20Program%20Requirements.pdf>
- <sup>ix</sup> Available at <https://www.epa.gov/sites/production/files/documents/leakpreventionrepairguidelines.pdf>
- <sup>x</sup> Available at [http://resilientenergymanagement.com/ASHRAE\\_180\\_0010.pdf](http://resilientenergymanagement.com/ASHRAE_180_0010.pdf)
- <sup>xi</sup> Available at [http://www.transductiontechnologies.com/uploads/2/7/5/4/27547719/acca\\_standard\\_4\\_quality-maintenance.pdf](http://www.transductiontechnologies.com/uploads/2/7/5/4/27547719/acca_standard_4_quality-maintenance.pdf)
- <sup>xii</sup> Available at <http://www.acca.org/communities/community-home/librarydocuments/viewdocument?DocumentKey=b1d2a39d-fda8-4af9-b8de-0ae579bfe24a>
- <sup>xiii</sup> Available at <http://www.acca.org/communities/community-home/librarydocuments/viewdocument?DocumentKey=12319f89-e8d1-401c-ba48-e7e5607c9511>
- <sup>xiv</sup> Available at <https://www.regulations.gov/document?D=EERE-2013-BT-STD-0007-0105>
- <sup>xv</sup> Available at <http://www.superefficient.org/Research/PublicationLibrary/2015/Lessons%20Learned%20From%20Incentive%20Programs%20for%20Efficient%20Air%20Conditioners>
- <sup>xvi</sup> Available at <http://www.superefficient.org/Research/PublicationLibrary/2016/IEA-4E-Achievements-of-national-EESL-programs-report-2016>
- <sup>xvii</sup> Available at <http://www.superefficient.org/Research/PublicationLibrary/2016/India%20AC%20Cost%20Benefit%20report%202016>
- <sup>xviii</sup> Available at <https://energy.gov/eere/buildings/downloads/future-air-conditioning-buildings-report>
- <sup>xix</sup> Available at <http://iopscience.iop.org/article/10.1088/1748-9326/9/11/114010/pdf>
- <sup>xx</sup> Available at [https://www.epa.gov/sites/production/files/2015-09/documents/guide\\_action\\_chapter4.pdf](https://www.epa.gov/sites/production/files/2015-09/documents/guide_action_chapter4.pdf)