

**MONTREAL PROTOCOL  
ON SUBSTANCES THAT DEplete  
THE OZONE LAYER**



**UNEP**

**REPORT OF THE  
TECHNOLOGY AND ECONOMIC ASSESSMENT PANEL**

**MAY 2014**

**VOLUME 5**

**RESPONSE TO DECISION XXV/6**



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# Foreword

## The May 2014 TEAP Report

The May 2014 TEAP Report consists of six volumes:

**Volume 1:** May 2014 TEAP Progress Report

**Volume 2:** May 2014 TEAP Essential Use Nominations Report

**Volume 3:** May 2014 TEAP Critical Use Nominations Report

**Volume 4:** TEAP Decision XXV/5 Task Force Report on information on alternatives to ODS

**Volume 5:** TEAP Decision XXV/6 Report on TOC appointment processes, future configurations and the streamlining of annual (progress) reports

**Volume 6:** TEAP Decision XXV/8 Task Force on the funding requirement for the 2015-2017 replenishment of the Multilateral Fund for the Implementation of the Montreal Protocol

- **Volume 1** contains the TOC progress reports, and a chapter “Other TEAP Matters”, discussing the status of (re-) nominations and challenges to the participation of experts, as well as an annex with the list of TEAP and TOC members, status May 2014
- **Volume 2** contains the assessment of the 2014 essential use nominations by the CTOC and the MTOC
- **Volume 3** contains the assessment of the 2014 critical use nominations by the MBTOC
- **Volume 4** is the report of the TEAP Task Force responding to Decision XXV/5 on information on alternatives to ODS in the refrigeration and air conditioning, foams, medical uses, fire protection and solvent sectors
- **Volume 5** contains a description by the TEAP on the TOC appointment processes and their future configurations and the streamlining of the annual (progress) reports in response to Decision XXV/6
- **Volume 6** is the report of the TEAP Task Force responding to Decision XXV/8 on the funding requirement for the 2015-2017 replenishment of the Multilateral Fund for the Implementation of the Montreal Protocol.

***This is Volume 5 on the TOC appointment processes and future configurations and streamlining of annual reports in response to Decision XXV/6.***

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# 1. Mandate and scope of the report

Decision XXV/6 reads:

*..... To encourage the Technology and Economic Assessment Panel to continue its implementation of the revised terms of reference as approved by the parties in decision XXIV/8;*

*.... To request the Technology and Economic Assessment Panel to provide the following information in its 2014 progress report:*

- a) An update on its processes for the nomination of members to its technical options committees, taking into account section 2.2.2 of its terms of reference;*
- b) Its proposed configuration of the technical options committees from 1 January 2015 (for example, the combination or division of the existing technical options committees, or maintaining the status quo thereof);*
- c) Options, if considered appropriate, to streamline the Panel's annual technology updates to the parties;*

## 1.1 Organisation of work

In response to Decision XXV/6, TEAP assigned a working group amongst its members, including one representative from each TOC, to address the pending tasks. Work was conducted initially by electronic communication, and a face-to-face meeting was held on 4 May in Montreal, directly before the start of the TEAP meeting, taking place from 5-9 May, 2014.



## 2. Nomination process for TOC members

As stated earlier, Decision XXV/6 requests TEAP to provide,

*“...an update on its processes for the nomination of members to its technical options committees, taking into account section 2.2.2 of its terms of reference...”*

The process for the appointment of new members and re-appointment of existing members has been reviewed by TEAP based on the relevant elements of Decision XXIII/10 (especially clause 9) and Decision XXIV/8 (notably clauses 2.1.2, 2.2.2 and 2.5). In order to provide a uniform approach across all of the TOCs, the following principles have been established:

- In order to be consistent with the Decisions, TEAP considers that appointment and re-appointment should proceed as follows:
  - The nomination for appointment or re-appointment of TOC members may be submitted to the relevant TOC co-chairs by a party or TEAP co-chairs. Additionally, the TOC co-chairs may themselves nominate candidates for appointment or re-appointment.
  - Unless the nomination for appointment or reappointment originates, or has been forwarded, from the relevant national ozone focal point, the TOC co-chairs will inform and seek comment from the national ozone focal point of the relevant party (with copy to the Ozone Secretariat and TEAP co-chairs).
    - This may be done directly or, where appropriate, through the Ozone Secretariat in cases where there may be value in aggregation of a number of similar proposals from different TOCs to the same individual party.
    - Standardised letter formats will be used, wherever possible.
    - Only formal communications with the national ozone focal point need to copy the Ozone Secretariat and TEAP co-chairs in order to avoid duplicative communications.
  - TOC co-chairs will inform the party via email and request party consideration and any comments be provided within 30 days, after which the TOC co-chairs will decide whether or not to appoint/re-appoint and the timing, taking into account any comments that may have been received.
  - When the nomination is received from a party, TOC co-chairs will acknowledge receipt and provide a response within 30 days giving the status of their consideration of the nomination.
- Wherever possible, proposals by TOCs for nomination for appointment and re-appointment will be staggered to ensure that there is no risk of discontinuity of technical or economic expertise. This will involve careful planning in the early period of a new membership cycle.
- The Ozone Secretariat will establish and maintain a record on its website of the current appointment terms in order that proposals for re-appointment can be initiated in good time.



### **3. Proposed configurations of TOCs as of 1 January 2015**

Decision XXV/6 requests TEAP to submit,

*“...its proposed configuration of the technical options committees from 1 January 2015 (for example, the combination or division of the existing technical options committees, or maintaining the status quo thereof)...”*

As discussed in the previous TEAP Decision XXIII/10 Task Force Report, TOC co-chairs are continually reviewing and recruiting new members to satisfy TOC requirements for expertise and balance. TOC co-chairs solicit widely for new members. Parties are an important source of nominations, and TOC co-chairs also look for qualified candidates through recommendations from existing TOC members, presentations at research conferences, recommendations from experts, professional and academic organizations, and other sources. Appointments can happen throughout the year, particularly when existing members retire from a TOC, or when a lack of expertise is identified. More commonly, this review of TOC membership balance is done after the completion of a TEAP progress report or task force report. The TOC co-chairs refresh their TOC membership in preparation for Assessment Reports, undertaken every four years, by managing the addition or removal of experts as assessment needs change.

Since 2012, the TOC co-chairs have been planning for the requirement in Decision XXIII/10, paragraph 9 that in the absence of re-appointment - following the procedures in paragraphs 6, 7 and 8 of the same decision - all other TOC member appointments would expire at the end of 2014. To date, the TOC co-chairs have made progress in implementing this requirement with limited difficulties. While each TOC is at a different stage of completion, with some being close to completion and others just beginning the process, the TEAP does not anticipate the need for the parties to extend the 2014 expiration date based on the experience to date. As TEAP continues to implement the process for the appointment or re-appointment of TOC members as described in this report, TEAP believes that any difficulties that would result in not meeting this deadline will be identified before the 34th OEWG meeting.

In response to Decision XXIV/8, TEAP considered the near- and long-term issues related to the on-going transition under the Protocol and recommended a re-configuration of its TOCs to support Parties' deliberations and decisions on these issues. With Decision XXV/6, Parties have requested further consideration by TEAP on the proposed configuration of its TOCs after 1 January 2015. In response to Decision XXV/6, TEAP considered the options of combining TOCs, dividing TOCs, creating new TOCs, and of maintaining the status quo. All TOCs are reviewing their required membership for the future and making adjustments accordingly. From 1 January 2015, many TOCs will have reduced their membership intentionally from their 2014 Assessment Report period membership levels. This allows for renewal of new expertise where required or a reduced level of membership going forward. At this time, TEAP does not see benefits in changing the current TEAP/TOC structure, and, in fact, doing so may have significant disadvantages including loss of needed expertise. TEAP provides its further considerations and proposed configurations of its TOCs in the following sections.

### **3.1. CTOC (Chemicals TOC)**

#### ***3.1.1 Proposed configuration as presented in TEAP Decision XXIV/8 Task Force Report***

CTOC covers a wide range of issues, from fundamental laboratory and analytical uses to process agents and feedstock uses in commercial manufacturing, solvent applications, and destruction technologies. Its future workload is focused as follows.

Although the number of ODS process agents has been decreased, there are still some process agents remaining where CTOC needs to assess the feasibility of phasing them out. Feedstock uses of ODS is another key issue for CTOC as the emission of ODSs from feedstock uses is not negligible.

CTC, manufactured as a byproduct of chloromethanes in tens of thousands of tonnes annually, is used predominantly as process agents and feedstocks. As there is still concern with the discrepancy between bottom up and top down analysis of CTC emissions, CTOC will monitor the issue and coordinate with the SAP, as required.

The key issue for solvent application is to assess the technical and economic feasibility of the phase out of HCFC solvents in A5 Parties. As nPB future use will be reduced due to its toxicity, CTOC needs to keep monitoring its use in both A5 and non-A5 Parties. Also, unsaturated chemicals such as HBFOs (hydrobromofluoroolefins), HFOs (hydrofluoroolefins), HCFOs (hydrochlorofluoroolefins) and CFOs (chlorofluoroolefins) are expected to come to the market as new alternatives with ultra-low GWP. CTOC needs to review these chemicals as potential replacements for HCFCs, and HFCs and HFEs with medium to high GWPs.

New alternative methods for laboratory and analytical use are still expected to be developed. CTOC will review and report on the status of these to the Parties as requested. In addition, CTOC will continue to assess emerging destruction technologies.

#### ***3.1.2 Further considerations***

The assessment of emerging destruction technologies and CTC issues will remain the key mandates for CTOC. On the other hand, the Essential Use Exemptions for solvents, some ODS uses as process agents, and other applications will decline as new alternatives, including low GWP HFCs, are developed and adopted in the near future. Therefore, the anticipated workload within CTOC requires more members with industry experience. It is hard to recruit new members from non-A5 Parties, partly because of difficulty in securing financial support. Members could be sought from A5 Parties with relatively large chemical industries and markets, such as Brazil, China India, South Africa and others. Furthermore, the CTOC would like to recruit ODS destruction and solvents experts from both A5 and non-A5 Parties.

#### ***3.1.3 Proposed configuration from 1 January 2015***

The current CTOC configuration consists of 14 members for the 2014 Assessment Report membership period. The CTOC configuration from 1 January 2015 will not necessarily change for the 2018 Assessment Report and is anticipated at about 17 members. CTOC will continue to consider what portion of its future membership may be comprised of Corresponding Members<sup>1</sup> and/or Consulting Experts<sup>2</sup> in order to have available the required expertise.

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<sup>1</sup> As described in the TEAP Decision XXIV/8 Task Force Report (May 2013), a Corresponding Member is a member of the committee (i.e., nominated in full consultation with the national focal point of the relevant party and appointed by the TOC

## **3.2. FTOC (Foams TOC)**

### **3.2.1 *Proposed configuration as presented in TEAP Decision XXIV/8 Task Force Report***

The commercialisation of a number of key alternatives is planned for 2014-2015 and the implications for HPMP implementation will be a critical area for further input to the Parties from the FTOC in the 2014-2018 timeframe. This is particularly the case for applications identified in the report of Decision XXIV/7 as being currently dependent on high GWP blowing agents.

### **3.2.2 *Further considerations***

Input from FTOC members drawn from non-Article 5 Parties will remain important, but is anticipated to be managed via Corresponding Members. These will typically be members whose ability to travel has been eroded or who are entering a stage of (semi) retirement. It will remain difficult to recruit any new non-Article 5 members (corresponding or not) unless their sponsors have a direct interest in technology solutions. Such an interest, if fully disclosed and managed, is not seen to act as a barrier to membership, subject to the agreement of the relevant Party.

### **3.2.3 *Proposed configuration as of 1 January 2015***

The FTOC co-chairs are making strenuous efforts to identify and recruit members who have particular expertise in sectors which still have transitions ahead of them. In particular, there is a need to strengthen the representation on the committee of extruded polystyrene producers and technology suppliers, since this is an area where the future transition strategies remain unclear. There will also be a need to keep access to specific expertise on bank management issues, but this is likely to be via Consulting Experts directly to the FTOC or through membership of Temporary Subsidiary Bodies.

The current FTOC configuration consists of 18 members for the 2014 Assessment Report membership period. The FTOC configuration from 1 January 2015 will not necessarily change for the 2018 Assessment Report and is anticipated at about 18-24 members. The overall configuration and operation of the FTOC is expected to continue as it has previously, although efforts are also being made to broaden the membership by the inclusion of members with direct regulatory experience. This is important in order to provide an appropriate counter-balance to the technology driven inputs from other sources.

The size of the membership base is expected to remain as indicated in Table 3.1.

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co-chairs for a period of no more than four years) who participates solely by electronic/telephonic means and will not attend any physical meetings of the TOC.

<sup>2</sup> As described in the TEAP Decision XXIV/8 Task Force Report (May 2013), a Consulting Expert is not a member of the committee and is generally available or may be called upon to participate in committee discussions or activities as needed. They may participate in physical meetings or they may participate through electronic/telephonic means only. Consulting Experts do not participate in decision-making. As much as possible, TOC co-chairs strive to recruit and retain the needed expertise as members of the committee but when that is not possible, they may supplement the expertise with Consulting Experts.

### **3.3. HTOC (Halons TOC)**

#### **3.3.1 *Proposed configuration as presented in TEAP Decision XXIV/8 Task Force Report***

HTOC foresees a need to retain a significant portion of the current expertise but also anticipates opportunities to reduce the overall size of the committee.

There are three new low-GWP chemicals currently in various states of development: two for streaming agents to replace halon 1211 and one total flooding agent to replace halon 1301. Owing to the lengthy process of testing, approval, and market acceptance of new fire protection equipment types and agents, it is anticipated that the effect of these new agents will just begin to be observed in time for inclusion in the anticipated 2018 assessment and that the committee could begin but not yet fully assess their viability as halon alternatives at that time.

The committee will need to continue to work with the International Civil Aviation Organization (ICAO) to monitor and affect progress in the civil aviation sector. Since the ICAO General Assembly occurs only once every 3 years, it is anticipated that the HTOC will be needed to provide technical assessment and assistance to develop additional changes to the Chicago Convention during 2015 – 2016 for consideration during the 2016 ICAO General Assembly. In particular, there is the question of the implementation date for halon alternatives in cargo bays of newly designed aircraft. As previously reported to the Parties, the HTOC is concerned that the civil aviation sector does not possess the halon that they will need to support aircraft that will continue to rely on halons for the foreseeable future, 50 years or more under their current approach. The HTOC will continue to work with the ICAO and its stakeholders to reduce the likelihood of a shortage of halon for the civil aviation fleet. Additionally, HTOC will continue to assess and work actively within the fire protection community, consensus organizations, environmental regulatory bodies, etc., to resolve supply and quality issues in order to avoid the likelihood of an Essential Use Nomination for halons.

The issue of halon quality is becoming more important. As the banks become older, the likelihood of significant contamination is increasing, although with the proper equipment almost all halon can be reclaimed to adequate purity levels. However, the equipment and infrastructure required to reclaim a significantly larger percentage of the available halon is very expensive and not available in most regions of the world. The committee plans to increase its expertise from the civil aviation sector and to retain adequate expertise in agent/system technologies, standards, halon distribution, banking options, global, regional, and local markets, emissions and regulations.

#### **3.3.2 *Further considerations to proposed configurations***

The committee believes that after the 2014 assessment, the needed membership level will likely decline over the following few years by as much as 25%. This will be made possible by members taking on agreed upon additional areas of responsibility where they can collect the needed information through colleagues or through other means.

#### **3.3.3 *Proposed configuration as of 1 January 2015***

The current HTOC configuration consists of 21 members for the 2014 Assessment Report membership period. As of April 2014, several members have decided to step down from the committee and will not be re-appointed or will have appointment terms less than the full four years allowed. As discussed above, as of 1 January 2015, HTOC proposes to continue with a reduced membership of approximately 18 members excluding any Consulting Experts that may be appointed by the co-chairs. Further reductions in membership will occur over the following few years with an eventual membership of approximately 15.



### **3.4. MTOC (Medical TOC)**

#### **3.4.1 *Proposed configuration as presented in TEAP Decision XXIV/8 Task Force Report, May 2013***

CFC MDI phase-out is expected to conclude during the period 2015-2016. Non-Article 5 Parties are likely to continue the phase-out of HCFCs in sterilisation. At the time, it was thought that these changes would allow a wholly corresponding membership from 2014-2015 onwards. Only a brief 2018 assessment report would be required to update progress with ODS phase-out in sterilisation, and document global CFC MDI phase-out.

#### **3.4.2 *Further considerations***

Since last year, CFC MDI phase-out is still expected to conclude during the period 2015-2016. Parties will continue the phase-out of HCFCs in sterilisation. These changes allow a revision of membership and function from 2015 onwards (2016 if there are any late essential use nominations). Only a brief 2018 assessment report is likely to be required to update progress with ODS phase-out in sterilisation, and document global CFC MDI phase-out.

Further consultation on future configurations and the option of an amalgamated membership was undertaken by MTOC at its meeting in April 2014.

One option, proposed last year, was to amalgamate membership into another TOC (such as CTOC). For example, two sitting members on a TOC could be responsible for coordinating a small group of corresponding MDI and sterilants membership. There are a number of disadvantages. First, other TOCs may not appreciate important emerging issues within the medical sector, and may not give them priority when required. Second, it may be even more difficult to get employer support for member participation in a TOC that does not appear to have any relevance to a member's area of expertise. Third, and most important, after further consideration, MTOC does not believe that this would provide sufficient flexibility or range of opinions to advise Parties on emerging medical issues.

MTOC (currently 27 members, including 3 co-chairs) considers that a reduced and corresponding membership would be feasible while there are fewer issues to report. The advantage of fewer members is efficiency, while the disadvantage is a loss of the wisdom and balance needed to report on important emerging issues, such as the on-going assessment of ODS alternatives. *Wholly* corresponding membership has the advantage of a reduction in travel costs, but has the major disadvantage of potential loss of balance, more challenging consensus processes, and poor working group outcomes.

After further consideration, MTOC's preferred option is now (similar to HTOC) to maintain a core group of reduced membership, operating with a wider circle of Consulting Experts in order to maintain the range of opinions and balance. The core group of members would be about half the size of the current MTOC, with 13-15 members (including 3-4 corresponding sterilants members) to maintain balance of expertise, and geography, managed by two co-chairs within a separate TOC. This core group would work mostly electronically, only meeting face-to-face when there was the opportunity and/or the need due to important emerging issues. The wider group of consulting experts (possibly 10-12 additional experts) would be consulted entirely via correspondence, as the preferred way to continue to acquire relevant information and for balance. Maintaining medical experts who are responsive to Parties requests is a priority, and this option provides the greatest flexibility to report important medical issues as they emerge.

### **3.4.3 Proposed configuration as of 1 January 2015**

As of May 2014, nine members have indicated that they do not wish to continue as MTOC members and will not be nominated for re-appointment in 2014. As discussed above, as of 1 January 2015, MTOC proposes to continue with a reduced membership of a core group of about 15 members, who operate by correspondence where possible or meet face to face when necessary and from time to time, and a wider circle of Consulting Experts whose advice is sought on a corresponding basis only.

## **3.5. MBTOC (Methyl bromide TOC)**

### **3.5.1 Proposed configuration as presented in TEAP Decision XXIV/8 Task Force Report**

MBTOC members are experts in three main areas relating to methyl bromide use: 1) soils (pre-plant) uses, 2) post-harvest and structures, and 3) quarantine and pre-shipment (QPS). When the Decision XXIV/8 Report was submitted, MBTOC found it difficult to predict its workload for the period of 2014 to 2018, mainly due to uncertainty regarding the critical use nomination (CUN) or QPS scenarios occurring at that time. Progress and CUN reports are expected to continue, as well as the quadrennial Assessment Reports. With the first round of CUNs now coming in from A5 Parties and two more rounds of CUNs from non-A5 Parties since the Task Force report was prepared, the workload has become clearer.

### **3.5.2 Further considerations**

In early 2014, MBTOC received ten CUNs from four A5 Parties and three CUNs from three non A5 Parties. It is anticipated that some additional A5 CUNs could be submitted in the coming years. The workload for CUN assessments in the preplant soil sectors has roughly doubled in 2014 ahead of the 2015 phase out for A5 Parties and is predicted to maintain this level for a few years and then decline. However only one nomination was received in the postharvest and structures sectors and the need for expertise in this area is being reduced.

MBTOC also undertakes additional tasks not directly related to CUN assessment, in response to various Decisions of the Parties. These have included assessing QPS uses and alternatives, information on the registration of MB and its alternatives in countries requesting CUNs, documenting health effects of MB, assessing destruction technologies for MB and various others. Updates on developments related to methyl bromide alternatives and analysis of methyl bromide consumption and production trends, for both controlled and exempted uses is important as well as identifying the main categories of use, where alternatives are most needed.

Because the phase-out of controlled uses of MB is so well advanced, MB tonnage for QPS uses is now more than twice as large as that used for controlled uses. Moreover, QPS consumption is increasing, particularly in A5 Parties. As a result, QPS-MB causes the largest exempted ODS production and consumption at present. Work on QPS uses and their possible alternatives, has thus become especially important, in line with various Decisions urging Parties to reduce such uses when possible, adopt alternatives and characterize categories of use.

To best address these tasks, the three co-chairs have reunited MBTOC into a single body. Working groups are now assigned to the different tasks the committee needs to respond to (including CUNs), and recommendations are discussed and signed off by consensus in plenary. This allows for members with specific expertise to participate in those issues they know best, but for all the committee to fully participate in the decision making process.

This structure also ensures wider participation in the preparation of the 2014 Assessment Report, where chapters will have lead authors and specific group of members contributing in

those areas where their expertise is strongest. MBTOC has already tested this new strategy during its first meeting of the year, where MBTOC prepared its Progress and CUN Reports with a high level of success.

### **3.5.3 Proposed configuration as of 1 January 2015**

As decided by the Parties, the number of MBTOC co-chairs has been reduced from four to three, one from a non-A5 Party and two from A5s. The membership has been reduced from 36 to 29 members in 2014 as a result of several resignations due to lack of funding and also personal reasons. The co-chairs will undertake further reorganization as of 2015 – once the 2014 Assessment is finalised and the sectors submitted for CUEs from A5 Parties are clarified - with a view to ensuring the best possible expertise and geographical balance are maintained.

As of 1 January 2015, a membership of 20-25 members is envisioned and the working structure described in the previous section will be maintained. This adjustment may include nominating new members to replace outgoing members or to strengthen critical areas of expertise. It is important that some existing and any additional members have significant expertise in the remaining non A5 CUNs, on A5 issues, and that members are aware of the phase-out efforts already conducted in the A5 countries submitting CUNs. MBTOC co-chairs consider it essential to retain expertise in QPS and some specific Soils and Structures and Commodity (SC) uses for both non-A5 and A5 Parties.

## **3.6. RTOC (Refrigerants TOC)**

### **3.6.1 Proposed configuration as presented in TEAP Decision XXIV/8 Task Force Report**

The RTOC is set up as a committee developing assessment reports that address different subsectors by chapters, each organised with a chapter lead author and co-authors. All chapters deal with vapour compression technology for providing cooling (or heat) at different temperature levels, and different applications in size or cooling demand, whether called refrigeration or air conditioning. There are two general chapters describing refrigerant data and issues related to conservation and, more generally, to sustainability issues in refrigeration and air conditioning. There is a strong inter-linkage between the chapters, even if they have separate chapter lead authors and co-authors each (a co-author can be a co-author in more than one chapter). When addressing vapour compression in the different subsectors, one has to deal with refrigerants that are HCFCs, HFCs or short-lived non-fluorocarbons and fluorocarbons.

The HCFC refrigerant phase-out has been virtually completed in non-Article 5 countries. However, it is still a major challenge for Article 5 countries in the coming 5-10 years. Vapour compression is expected to continue as the dominant refrigeration technology used in all system configurations in the next decade, and for this reason further new refrigerants will be developed, evaluated and marketed. The need to critically follow the development of new (HCFC) replacement options and their equipment, as well as analysing the achievable energy efficiency levels, whether similar or increased compared to HCFC- based equipment, requires thorough assessment. If any new assessment reports will be required in the upcoming period after 2014 to address the task, the current size of the RTOC needs to be maintained at the same level as for the 2014 assessment. Splitting the committee into two different parts, e.g., for refrigeration and air conditioning, is an option but was considered to provide no significant benefits and could potentially undermine the needed collaboration among the subsectors where related issues may arise. It is important to the work of the committee to work closely together in discussing and reviewing issues within the various subsectors then come to a common understanding of how to present its information and recommendations consistently and clearly to best support the deliberations of the parties. Of course, the

emphasis on developments in the various subsectors in the HCFC (and high GWP HFC) replacement process will vary over time, but that is an issue that one cannot predict on the basis of current experience. Continuing assessment of replacement processes to transition to low GWP refrigerants will require substantial study. This has already been very clear in the 2012-2014 Task Force reports on the availability of these substances; when necessarily a large portion of the membership had to be drawn from the RTOC committee.

### ***3.6.2 Further considerations***

RTOC further considered potential changes in the structure and focus of its future work based on changes related to the sub-sectors. One possible future change to be considered could be to handle differently the chapters related to domestic and mobile air conditioning, where there is no HCFC replacement challenge, as a sort of annex. These applications have replaced CFC-12 refrigerant with HC-600a and HFC-134a (in the case of domestic refrigeration) and with HFC-134a (in mobile air conditioning equipment). However, the situation is not static for these sub-sectors. Several companies manufacturing domestic refrigeration appliances that have not (yet) replaced HFC-134a, will be replacing HFC-134a with HC-600a. In the case of mobile air conditioning, owing to legislation now adopted in certain regions, HFC-134a has to be substituted in the near term. CO<sub>2</sub> and the short-lived HFC-1234yf are the options being considered. The development of HFC-1234yf and its likely use by car manufacturers will also impact other refrigeration and air conditioning applications, which are also considering the use of this refrigerant. These two sub-sectors/chapters no longer need to consider the replacement of ODSs, but they are in a dynamic situation experiencing technology changes. This is, in fact, a situation that is also likely to be faced during the coming years in other sub-sectors, where non-ozone depleting, high- and low-GWP replacements will have to be considered. It would therefore be only logical and prudent to retain these sub-sectors within the framework of the RTOC Assessment. This needs to be one of the focuses in the evaluation of the 2014 Assessment to be developed after 2014, and it also has to be part of the discussion for any 2018 Assessment. For the reasons described above, RTOC determined that retaining the currently existing chapters (chapters describing the various subsectors) will continue to be integral to the future RTOC effort.

In the HCFC (and high GWP HFC) replacement framework, subsectors such as commercial refrigeration and stationary air conditioning are areas where additional expertise may be needed. During the last two years, RTOC has received many nominations because of increasing interest of many stakeholders in the refrigerant replacement process. Together with some other nominations that have been accepted, the size of the committee has increased from about 30 to 38 members. This implies that the total membership will need critical analysis (even with several members retiring after 2014), since further efforts will be needed in the near future to rejuvenate and to further select new, appropriate experts from both Article 5 and non-Article 5 countries.

Banks and emissions of refrigerants from the different applications have been addressed in the 2010 Assessment Report, and will again be addressed in the 2014 Assessment Report, but this is clearly an area where further expertise will always be needed. It also forms a reason to keep the RTOC as one committee, since the study of emissions and banks is common to the sectors and needs to be considered in aggregate form in order to draw firm conclusions regarding trends. Costs are an important element in conversions; in particular this applies to manufacturing conversion costs. This topic has never been considered in-depth in the past RTOC Assessment reports (although it has been an important item in many RTOC discussions), because the reports have always been considered as pure technical options reports. However, with the whole replacement process more and more focussing on the economic aspect of the replacements, the economic cost issue has to be an increasingly important topic in RTOC Assessment Reports.

Adjustments in the membership for future assessments will be evaluated, preliminary discussed at the 2014 RTOC meetings and finalised once the 2014 Assessment Report has been completed.

### 3.6.3 Proposed configuration as of 1 January 2015

For future assessments, there might be a slightly different treatment for the domestic refrigeration and mobile AC chapters where it concerns the number of experts and how to place these chapters in the RTOC Assessment report. This may imply a somewhat different split where it concerns chapters addressing specific types of equipment. RTOC sees significant benefits in maintaining its current membership configuration and in the form the assessment reports are (and have been) developed. RTOC can consider if changes in the emphasis amongst or between chapters is warranted, but this will not have a major impact on the size of the committee as a whole. So, even where change in emphasis may occur, i.e., by adding new members to strengthen the chapters on commercial refrigeration and stationary air conditioning, the size of the committee is estimated to remain at more or less the existing level (35-38 members).

## 3.7 Summary

These recommendations for TOC configurations were made based on the current Protocol phase out and priorities. Any significant changes to that would necessitate a re-evaluation of these recommendations with the challenge remaining to ensure that the TOCs are structured in size and expertise to continue supporting the future efforts of the Parties.

Table 3-1 below summarizes the proposed TOCs configurations as of 1 January 2015.

**Table 3-1: Summary of current and estimated future TOCs membership**

	<b>2014 Assessment</b>	<b>2015-2018 (2018 Assessment Period)</b>	<b>Post-2018 (Assumed 2022 Assessment Period)</b>
<b>CTOC</b>	14	~17	~15
<b>FTOC</b>	18	18-24*	12-18**
<b>HTOC</b>	21	~18	~15
<b>MTOC</b>	26	~15***	~15
<b>MBTOC</b>	29	20-25	20-25
<b>RTOC</b>	39	33-38	35-38

\* One third Corresponding Members

\*\* Two thirds Corresponding Members

\*\*\* 3-4 corresponding sterilants members, 10-12 metered dose inhalers (MDI) members, mostly corresponding, unless issues emerge



## 4. Options for Technology updates submitted by TEAP

Decision XXV/6 has further asked TEAP to provide

*“... options, if considered appropriate, to streamline the Panel’s annual technology updates to the parties...”*

At present, and since 1997, TEAP submits an annual Progress Report in accordance with Decision VII/34, in which TOCs address developments and new information of a technical character that are relevant to the Montreal Protocol. Responses to specific tasks mandated by Decisions of the Parties and other matters are also included in these reports. Further, specific circumstances such as CUNs and EUNs make it necessary to prepare separate chapters addressing the issues involved. Progress reports provide delegates with an excellent source of updated new information and TEAP with a very important means of highlighting relevant, important, emerging technical matters that impact the Protocol.

To ensure that TEAP continues to provide Parties with the most current information related to its discussions, TEAP considered a number of options to streamline its annual Progress Report to Parties and recommends as follows:

- All TOCs chapters will continue to follow a similar format for consistency and ease of consultation, and focused on information relevant to the upcoming meetings of Parties.
- The TOCs chapters will indicate when there is no significant new technical or economic information or, if there is new information, that this is incorporated in another report,
- CUNs, EUNs, and reports responding to specific Decisions will no longer be part of progress reports but be in separate volumes.
- Decisions that are relevant to a report will continue to be included in an Annex; for further consideration is the option of providing in future reports the corresponding web link (URL) to Decisions that link to the Ozone Secretariat website.
- Although the option was considered for reporting every other year, TEAP considered that two years was too long of a lag for providing updated information to parties.

## ANNEX A – DECISION XXV/6

### **Decision XXV/6: Operation and organization of the Technology and Economic Assessment Panel**

*Taking note* of decision XXIV/8, which updated the terms of reference for the Technology and Economic Assessment Panel,

*Taking note also* of the information provided by the Technology and Economic Assessment Panel in volume 3 of its 2013 progress report,

*Recognizing* that the Technology and Economic Assessment Panel has commenced implementation of its revised terms of reference as approved by the parties in decision XXIV/8,

*Recognizing also* the need to consider adjustments to the technical options committees so as to reflect evolving workloads, the need for relevant expertise, and the requirements of the parties,

1. To encourage the Technology and Economic Assessment Panel to continue its implementation of the revised terms of reference as approved by the parties in decision XXIV/8;
2. To request the Technology and Economic Assessment Panel to provide the following information in its 2014 progress report:
  - (a) An update on its processes for the nomination of members to its technical options committees, taking into account section 2.2.2 of its terms of reference;
  - (b) Its proposed configuration of the technical options committees from 1 January 2015 (for example, the combination or division of the existing technical options committees, or maintaining the status quo thereof);
  - (c) Options, if considered appropriate, to streamline the Panel's annual technology updates to the parties;