

Agenda item 3(b)

Paragraph 18 of the annotated agenda

Revision of AM0001: „Incineration of HFC 23 Waste Streams”

CDM EB 61

Bonn, Germany, 30 May to 3 June 2011



Overview

- Background
- Issues in the existing version of AM0001
- How the draft revision addresses the key issues
- Options for consideration by the Board on:
 1. the default value of waste generation ratio w
 2. the boundary of project emissions
- Other modifications in the methodology
- Impact assessment

Background

1. The Meth Panel conducted an extensive study on HCFC22 production and HFC23 generation as related to methodology AM0001, based on a request by the Executive Board. The study identified several **issues** in AM0001.
2. The EB requested the panel to revise the AM0001 to address the identified **issues** and report to EB61 on the progress of work.
3. The Meth Panel 49 recommended a draft revision of AM0001 for the consideration of the Board and prepared an information note highlighting the main issues.

Issues in the existing version of AM0001

1. Disincentive to reduce the w ratio.
2. CDM plants may displace HCFC-22 production in less efficient plants.
3. Operation of CDM plants beyond their operational lifetime.
4. Replacement of key plant equipment.
5. Displacement of production of HCFC22 in Annex-I countries.
6. Disincentive to shut-down CDM plants in the course of the phase-out of HCFC-22 under the Montreal Protocol.

How the draft revision addresses the key issues

Disincentive to reduce the w ratio

Solution: The w ratio is now the minimum between the lowest value achieved by the plant and a conservative default value.

Two options for the default value:

Option A: $w = 1.0\%$

Option B: $w = 1.4\%$

With the new cap the incentives for the project participants to reduce the waste generation rate will be retained.

How the draft revision addresses the key issues

CDM plants may displace HCFC-22 production in less efficient plants.

Solution: Incentive for production shift is reduced because of:

1. A conservative w value;
2. Reduced amount of eligible HCFC-22 production due to use of historical average in place of maximum

**Operation of CDM plants beyond their operational lifetime; and
Replacement of key plant equipment.**

A conservative cap on w ensures that emission reductions are very unlikely to be overestimated if the HCFC-22 production plant would be operated longer than in the absence of the CDM, or if key plant equipment affecting the waste generate rate would be replaced.



How the draft revision addresses the key issues

Potential displacement of HCFC22 production in A-I countries

Considered approach:

Discount the CERs by a factor (e.g. as in AM0037).

The factor could be determined based on the net global export of HCFC-22 from the group of non-Annex-I countries to the group of Annex-I countries (potentially using the data provided by the UNEP).

Limitations of this approach:

1. May adversely impact some plants, or be generous for other plants;
2. Trade data is only available for emissive applications;
3. There is a data vintage of about 2 years.

Solution: A conservative value of w may address this issue.

How the draft revision addresses the key issues

Disincentive to shut-down CDM plants in the course of the phase-out of HCFC-22 under the Montreal Protocol

Considered approach:

Introduce an additional cap on the amount of HCFC-22 that is eligible for crediting for those production lines that produce HCFC-22 for emissive purposes. The cap would have limited the HCFC-22 production in line with the phase-out schedule under the MP.

Limitation of this approach:

Under a national phase-out programme, different plants would stop operation at different points in time and may not simultaneously reduce HCFC-22 production. Using the same cap for all plants may adversely impact some plants, or be generous for other plants.

Solution: A conservative value of w may address this issue.

Options on the default value of waste generation rate w

The Board may wish to select one from the following options:

Option A: w is set at 1%. The IPCC/TEAP reported that thermal oxidation would be required to reduce HFC-23 formation below a 1% level. This value also corresponds approximately to the lowest reported and verified waste generation rates achieved by plants in developing countries.

Option B: w is set at 1.4%. This value corresponds to the lower end of the range of values reported by the IPCC/TEAP and in the 2006 IPCC Guidelines.

Options on the default value of waste generation rate w

The Board may wish to note:

Operating a HCFC-22 reactor outside its operating conditions, limited by reactor design, can increase the risk of corrosion which may give rise to safety issues, and avoidance of which is of the highest priority for the plant operators.

For most reactors in CDM plants, operation under stable condition has resulted in an observed long-term average w of 1.8% to 3.3%.

In the absence of the CDM, most CDM plants are likely to operate within the stable range of conditions that are specific to the reactors (with w likely to stay well above 1.4%).

There is little evidence that HCFC-22 plants can achieve a long-term waste generation rate w of 1.4% or below. However, one CDM plant operated for a period of six months at an average w of 1.06% (from 0.88% to 1.47%).



Justification of the default value of waste generation rate w

Arguments for using value of 1.4% for w

1. It avoids disincentives to reduce the waste generation rate w for plants which cannot reduce the waste generation rate below this value. However, the plants which could reduce the waste generation rate below this value would still have a disincentive to reduce their waste generation rate below this value. Also, if a CDM plant would displace production in a specific (newer) non-CDM plant which operates at a lower value than 1.4%, the issue would not be sufficiently addressed.
2. Using a lower value (1%) is very conservative and may not fully reward those operators who could not achieve this performance in their specific plant arrangement.

Justification of the default value of waste generation rate w

Arguments for using value of 1% for w

- This value practically eradicates the incentive not to reduce waste.
- Furthermore, w values below 1% have been observed on a monthly basis in one of the CDM plants.
- This provides a very high probability that the issues of export of HCFC-22 to Annex I countries and the disincentive to shut down plants in the course of the phase-out of HCFC-22 under the Montreal Protocol are addressed.

Options on the boundary for project emissions

Option 1: All HFC-23 emissions from the plant are accounted for as project emissions. This would provide strong incentives for the plant operators to also reduce HFC-23 emissions from the quantity of HCFC-22 production that is not eligible for crediting (many plant operators reported that they abate these emissions regardless of their eligibility for crediting);

Option 2: Limit project emissions to undestroyed HFC-23 emissions from HCFC-22 production lines that are eligible for crediting. It could be argued that accounting undestroyed HFC-23 from production lines which are excluded from crediting may lead to inconsistencies and may be overly punitive.



Other modifications in the methodology

1. A section is added to provide definitions of key terms;
2. The calculation of project and baseline emissions is separated;
3. Emission reductions are calculated for monitoring periods (instead of years). Some elements taken from the “Guidance on accounting eligible HFC-23”;
4. The possibility of different production lines and different HFC-23 destruction facilities is fully accounted for;

Other modifications in the methodology

5. Provisions made that credits can not be gained from releasing stored HFC-23 to atmosphere after the end of the crediting period;
6. Additional guidance included on fluorine balance and carbon balance (for baseline) and measurement (for project) of HFC-23;
7. Provisions for the renewal of crediting period are included;
8. Clearer and more rigorous monitoring requirements are included, requiring monthly reporting of key parameters;

Impact of the revision

- 13 out of 19 registered projects provide the necessary data to assess the impact of the revision
- The impact of including project emissions from all production lines can not be assessed
- The impacts are different for each project type
- The revision reduces the maximum amount of CERs as follows compared to version 5.2:
 - a) For $w = 1.4\%$: in the range from 46% to 67%
 - b) For $w = 1.0\%$: in the range from 61% to 77%