

CDM-EB78-AA-A05

Concept note

Consideration of facilities with registered CDM project activities for the development of standardized baselines

Version 01.0



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1. Procedural background

1. The Executive Board of the clean development mechanism (hereinafter referred to as the Board), at its seventy-fifth meeting (EB 75), provided feedback on the draft revised guidelines for the development of sector-specific standardized baselines (SBs) (EB 75 annotations, annex 7), which contained options on the inclusion of facilities with registered clean development mechanism (CDM) projects in the development of SBs. With regard to the issue of the inclusion of facilities with registered CDM projects in developing sector-specific SBs, the Board (EB75 report, paragraph 38a) agreed that further analysis is required for different types of sectors, including the determination of the right threshold of percentage output covered by facilities with registered CDM projects that should trigger the inclusion of such facilities when developing sector-specific SBs. The Board requested the secretariat to conduct such an analysis for a future revision.
2. The secretariat prepared the first draft of this concept note and consulted with sixty second meeting of Methodologies Panel and forty-third meeting of small-scale working group. Appendix to this document provides information on how the comments from panel/working group were taken in account.

2. Purpose

3. The purpose of this document is to present and analyse the impact of different possible options for consideration of facilities that have registered CDM project activities for the development of sector-specific SBs. This guidance will be used for the development of SBs using the “Guidelines for the establishment of sector specific standardized baseline”(EB 65, annex 23).

3. Key issues and proposed solutions

4. An SB is developed using the actual or design performance and the actual output from the facilities of a sector of the host country, according to an appropriate level of aggregation. Some of these facilities may have registered CDM projects (referred to as “CDM facilities”), which would have improved the performance of these facilities as a result of the CDM incentives. While it is impractical to determine the performance and outputs of these facilities in the absence of the CDM, simply including or excluding such facilities is likely to impact the stringency of the SB developed for that sector, and guidance on this issue would reduce uncertainty for the SB developers and project developers.
5. This document presents the options for addressing this issue, analyses the impact of these options and recommends one option based on the analysis, for the consideration of the Board.

4. Analysis of different options with justification

4.1. Treatment of CDM facilities in methodologies and tools using benchmark approaches

6. Many approved methodologies and tools have adopted various benchmark approaches¹ for additionality demonstration, baseline identification, and/or determination of baseline emission factors. The approach to establish sector-specific SBs also falls into this general category of approaches, as it determines the baseline emissions against the performance of the facilities that produce the same output.

¹ The benchmark approaches are approaches where the additionality, the baseline scenarios and/or baseline emissions are determined based on the performance of similar facilities/units.

7. The requirement and treatment of CDM facilities in the benchmark methodologies are presented in the table below:

Table 1. Approved methodologies using benchmark approaches

Methodology/tool number	Name of the methodology/tool	Requirement for the existing CDM projects	No. of registered CDM projects	Treatment of CDM facilities (included/excluded/no guidance)
AM0017	Steam system efficiency improvements by replacing steam traps and returning condensate	Identification of five similar facilities in the same sector for baseline and additionality	0	No guidance
AM0026	Methodology for zero-emissions grid-connected electricity generation from renewable sources in Chile or in countries with merit order based dispatch grid	For the calculation of operating margin (dispatch data analysis)	11	To be included
AM0044	Energy efficiency improvement projects - boiler rehabilitation or replacement in industrial and district heating sectors	An alternative approach to determine the baseline boiler's efficiency	1	No guidance
AM0046	Distribution of efficient light bulbs to households	Baseline sample group to determine baseline scenario and emission factor	3	No guidance (to be included)
AM0063	Recovery of CO ₂ from tail gas in industrial facilities to substitute the use of fossil fuels for production of CO ₂	Requirement of five similar plants for the baseline emission factor	2	No guidance
AM0067	Methodology for installation of energy efficient transformers in a power distribution grid	Top 20% of the manufactures having low loss transformers. It will be difficult to find the transformer in CDM projects, and therefore it can be considered that the CDM projects are to be included	0	No guidance (to be included)
AM0070	Manufacturing of energy efficient domestic refrigerators	Market benchmark of energy consumption; however in this case too it will be difficult to make distinctions for the refrigerators from other CDM projects	2	No guidance (to be included)

Methodology/tool number	Name of the methodology/tool	Requirement for the existing CDM projects	No. of registered CDM projects	Treatment of CDM facilities (included/excluded/no guidance)
AM0071	Manufacturing and servicing of domestic and/or small commercial refrigeration appliances using a low GWP refrigerant	Market share of the project technology before the project. No specific guidance, however the methodology suggests all the equipments in the market.	0	No guidance (to be included)
AM0084	Installation of cogeneration system supplying electricity and chilled water to new and existing consumers	Reference plant for baseline	2	Not included
AM0086	Distribution of zero energy water purification systems For safe drinking water	Survey to determine the baseline technology of the water purifiers	1	No guidance
AM0091	Energy efficiency technologies and fuel switching in new buildings	Top 20% of similar buildings	0	Not included
AM0094	Distribution of biomass based stove and/or heater for household or institutional use	Baseline sample group to determine baseline efficiency and fuel	0	No guidance
AM0095	Waste gas based combined cycle power plant in a Greenfield iron and steel plant	Top 20% for baseline efficiency	0	To be included
AM0102	Greenfield cogeneration facility supplying electricity and steam to a Greenfield Industrial Consumer and exporting excess electricity to a grid and/or project customer(s)	Reference facility to determine the baseline emission factors	2	Not included
AM0104	Interconnection of electricity grids in countries with economic merit order dispatch	Baseline isolated grid emission factor	1	To be included
AM0105	Energy efficiency in data centres through dynamic power management	Survey for determining the market share of the baseline technology	0	Not included
AM0107	New natural gas based cogeneration plan	Included in OM of heat generation network and exclude in some cases for identifying reference new heat generation plant	10	To be included

Methodology/tool number	Name of the methodology/tool	Requirement for the existing CDM projects	No. of registered CDM projects	Treatment of CDM facilities (included/excluded/no guidance)
AM0108	Interconnection between electricity systems for energy exchange	OM & BM calculation for electricity emission factor	0	Not included
AM0109	Introduction of hot supply of Direct Reduced Iron in Electric Arc Furnaces	Survey for baseline technology	1	Not included
AM0111	Abatement of fluorinated greenhouse gases in semiconductor manufacturing	Survey for determining the market share of the baseline technology	0	No guidance
ACM0005	Increasing the blend in cement production	For determining the share of clinker in the blended cement types produced in the host country	76	Not included
ACM0012	Consolidated baseline methodology for GHG emission reductions from waste energy recovery projects	For determining the baseline WECM use in a greenfield plant	421	Not included
ACM0013	Construction and operation of new grid connected fossil fuel fired power plants using a less GHG intensive technology	For identifying the baseline technology, CDM facilities are not included while for determining the baseline efficiency CDM facilities are included	55	To be Included
ACM0018	Electricity generation from biomass residues in power-only plants	As one option to determine the baseline efficiency, use the average efficiency of the top 20% facilities	85	No guidance

8. As shown in the table above, in most situations the CDM facilities are not included in the baseline emission factor and baseline scenario identification. Although the treatment of CDM facilities is not strictly consistent among the methodologies, proper justifications may be available for the different circumstances.
9. It is also noted that while it is considered in general more conservative to include CDM facilities in the benchmark approaches, it is more conservative to exclude CDM facilities in the market survey of the baseline technology in AM0105 and AM0111, because the market share is used to discount emission reductions.
10. Three methodological tools have specified the treatment of CDM facilities. The “Tool for the demonstration and assessment of additionality” and the “Combined tool to identify the baseline scenario and demonstrate additionality” have excluded CDM projects for the common practice analysis² and for defining the geographical area to identify the relevant alternative scenario³ respectively. In the “Tool to calculate the emission factor for an electricity system”, CDM facilities are included in the operating margin calculation, while CDM facilities are excluded in the build margin calculation unless there are not enough new plants for build margin sample plants.

4.2. Possible impact of including CDM facilities on an SB

11. In the development of the SB, the baseline technology and emission factor are derived from the outputs and performances of the facilities of the same sector. This can be illustrated from the following hypothetical example. The table below depicts the list of facilities in a sector of a country, arranged in descending order of their emission factors, and their respective annual output quantities. Case 1 and case 2 are two independent scenarios. For each case the table indicates which facilities have registered CDM projects.

Table 2. Illustration of impact of excluding CDM facilities

Facility	Annual output (tonnes)	Emission factor (tCO ₂ /tonne)	Case 1	Case 2
Facility 1	15 000	1.9		
Facility 2	18 000	1.75		
Facility 3	17 000	1.7	CDM	
Facility 4	14 000	1.6	CDM	

² Based on common practice analysis step 3 “within the projects identified in Step 2, identify those that are neither registered CDM project activities, nor project activities submitted for registration, nor project activities undergoing validation.”

³ Paragraph 17 of the combined tool: “For the purpose of identifying relevant alternative scenarios, provide an overview of other technologies or practices that provide the same output as the proposed CDM project activity and that have been implemented previously or are currently underway in the applicable geographical area. The applicable geographical area should include preferably ten facilities (or projects) that provide the same output as the proposed CDM project activity. If less than ten facilities (or projects) that provide the same output as the proposed CDM project activity are found in the applicable geographical area, the applicable geographical area may be expanded to an area that covers if possible, ten such facilities (or projects). Other registered CDM project activities are not to be included in this analysis.”

Facility	Annual output (tonnes)	Emission factor (tCO ₂ /tonne)	Case 1	Case 2
Facility 5	19 000	1.55		
Facility 6	9 000	1.4		
Facility 7	10 000	1.3		CDM
Total	102 000		71 000	92 000

12. Considering the default baseline threshold at 90%, the impacts of excluding CDM facilities on the identification of the baseline facility using the approach of the “Guidelines for the establishment of sector-specific standardized baselines” are presented in table 3 below:

Table 3. Baseline facility with baseline threshold at 90%

Case	Include CDM facilities	Exclude CDM facilities
Case 1 – Facilities 3 and 4 have CDM project activities	Facility 6 (1.4)	Facility 7 (1.3)
Case 2 – Facility 7 has CDM project activities	Facility 6 (1.4)	Facility 5 (1.55)

13. In the example, the baseline emission factor is less stringent without the inclusion of CDM facilities in case 1 whereas it is more stringent in case 2. This may help to illustrate that the specific situations of a sector and a country decide whether it is more conservative to include or exclude the CDM facilities for the development of SBs. This can be explained by the following two types of CDM projects:

- (a) CDM facilities with performance above the SB threshold: The performance of technologies implemented under CDM projects may potentially enable the respective facilities to attain a higher order (towards better performance) in ranking when the facilities are ranked according to their carbon intensity. The inclusion of CDM facilities will increase the cumulative output above the threshold and push the baseline threshold (90% of cumulative output) to fall on more a conservative baseline emission factor, as in case 2;
- (b) CDM facilities with performance below the SB threshold: This is illustrated by case 1. Upon inclusion of CDM facilities in the development of the SB, the baseline facility will shift to the more carbon-intensive side of the ranking and results in a less conservative baseline emission factor.

14. The performance and output of the CDM facilities may play an important role in determining the baseline facility that falls on the threshold. This also depends on the relative difference in the performance of the facilities which are just above or below the threshold.

4.3. Possible options for the treatment of CDM projects in an SB

15. Based on the above analysis it can be concluded that:

- (a) The majority of the approved methodologies and tools exclude CDM facilities from baseline determination and additionality demonstration, recognizing that the CDM projects would not have been implemented in the absence of the CDM;

- (b) The inclusion of CDM facilities for the development of SBs can result in a more or less conservative SB depending on the influence of the CDM projects on the performance of the CDM facilities, and the contribution of the CDM facilities in the entire sector in terms of output;
 - (c) It is also relevant whether the CDM projects are implemented in old and inefficient facilities or in new and efficient facilities;
 - (d) The performance of the non-CDM facilities in the sector also plays an important role, which can potentially determine the facility that falls on the 90% threshold and thereby influence the baseline emission factor of the SB.
16. The Board may consider the following options, on the issue of inclusion or exclusion of facilities with CDM projects in the development of SBs:
- (a) **Option 1:** CDM facilities shall not be included in the development of an SB;
 - (b) **Option 2:** A CDM facility may be excluded in the development of an SB only if both of the following conditions are met:
 - (i) The output of all CDM facilities implementing similar project activities in the sector is less than 20% of the total output in the sector; and
 - (ii) The underlying CDM project activity implements a measure applicable under the SB;
 - (c) **Option 3:** The CDM facilities shall be included only if this results in a more conservative baseline emission factor;
 - (d) **Option 4:** CDM facilities shall always be included in the development of an SB;
 - (e) **Option 5:** CDM facilities shall not be included in the development of an SB, except for any facility with a CDM project meeting both of the following conditions:
 - (i) The technology/fuel/feedstock implemented by the CDM project has been implemented by at least one facility without registering it as a CDM project; and
 - (ii) The CDM project has been registered under the CDM as a project that is the first of its kind or facing barriers.

5. Impacts

17. **Option 1** is simple to implement and is consistent with the majority of the approved methodologies and tools using benchmark approaches, recognizing that the CDM projects are implemented due to support from additional CDM revenue and would not have been implemented in the absence of the CDM. However, this option may miss the efficient technologies/fuels/feedstocks that required the CDM support earlier in time and are currently well penetrated and attractive.
18. **Option 5** is a slight variation of Option 1. Although it is a little more complex to implement, it is less likely to exclude attractive and efficient technologies/fuels/feedstocks in comparison with Option 1. This option recognizes that

the CDM has helped in overcoming the barriers of the technology/fuel/feedstock penetration in the country and those barriers may no longer exist. Evidence may be required from the designated national authority (DNA) to demonstrate that it is the CDM that facilitated the penetration of technologies/fuels/feedstocks in the sector in the host country.

19. **Option 4** is the opposite of Option 1 and is also simple to implement. It considers that a CDM project may be a very minor part of the entire facility whose performance may not be significantly affected by the CDM project.
20. **Option 3** is the most conservative option, although it does not have a clear conceptual or policy basis. It is also the most cumbersome to implement, as it requires the SB developer in effect to develop the SB twice and select the more conservative of the two.
21. **Option 2** considers that if any technology/fuel/feedstock adopted by the CDM projects becomes common practice, then these CDM projects should be included for the development of SBs, similar to any other technology/fuel/feedstock. Facilities with registered CDM projects using the methodology with overlapping applicability with the SB under development are excluded, assuming that the projects that the proposed SB promotes cannot take place in the sector in the absence of the CDM. Therefore such facilities should not be part of the baseline. The 20% threshold is consistent with the "Guidelines on common practice", where it is used to demonstrate common practice based on the presence of a similar technology as adopted by the CDM project in the geographical area.

6. Subsequent work and timelines

22. The option agreed on by the Board will be incorporated in the revised guidelines on the establishment of sector-specific SBs. The draft revised guidelines will be submitted to the Board for its consideration at EB 79.

7. Recommendations to the Board

23. The secretariat recommends Option 2 to the Board, as it is in line with the rules and guidelines provided by the Board so far. This option achieves a good balance in terms of environmental integrity and simplicity.

Appendix. Comments from the Methodologies Panel (62nd meeting) and Small-Scale Working Group (43rd meeting)

Comments from Meth Panel 62/SSC WG 43	Secretariat's response
MP62: Option 1 and option 2 are the panel's preferred options over option 3 and 4.	-
MP62: One additional proposal for option 2 is to include an additional applicability condition that the SB developer shall not use the barrier analysis when the CDM projects in the sector are more than 20%.	This condition shall be checked during the assessment of the SB.
MP62: The other proposals by Meth Panel members include: (i) this should be decided on a case-by-case basis, based on the sector in the country, nature of baseline etc.; (ii) another option is to include the CDM projects where it is proven that after registration of the CDM project, based on first of its kind, it has helped the development of a similar technology in the sector of a country.	The first proposal will be difficult to implement as the basis of decision-making (e.g. threshold of certain number of CDM projects, technology penetration etc.) is not known to DNAs, who will apply some logic in inclusion or exclusion of facilities with CDM projects but will risk rejection at the Board level. The second proposal is included as option 5 for the Board's consideration.
MP62: An option can be included to do an analysis on whether the CDM technology becomes common practice without CDM revenues. For example if technology A is introduced through the CDM in 2009, an analysis should be performed to check if this technology is common practice in 2014 (while developing the SB) without the CDM.	This is included in option 5 for the Board's consideration.
MP62: CDM plants should be included in the penetration curve analysis. As the assumption is that CDM plants have a lower emission factor, they will always be on the right side of the curve. This does push the baseline emission factor towards the lower emission factor side, but this influence will be dependent on the percentage of output contributed by the CDM project, thus will impact only when the CDM project contribution to the output is 10% or more. To avoid a situation where one large CDM plant has an influence, such inclusion could be made when more than five such CDM facilities exist.	This proposal is a variation of option 2.

Comments from Meth Panel 62/SSC WG 43	Secretariat's response
SSC WG 43: The opinion was expressed that preference should be given to inclusion of registered CDM projects in the development of standardized baselines if they become common practice for the sector. Therefore the working group supported option 2 in the concept note which requires establishing a common practice in the sector based on the 20% threshold. Care should be taken to ensure that such common practice is analysed only in the context of the measure for which the standardized baseline is developed.	Option 2 is included in the note.

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Document information

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