

CDM-MP58-A20

Information note on proposed draft
guidelines for determination of baseline and
additionality thresholds for standardized
baselines using the performance-
penetration approach

Version 01.0

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United Nations
Framework Convention on
Climate Change

COVER NOTE

1. Procedural background

1. At its sixty-ninth meeting, the Executive Board (hereinafter referred to as the Board) of the clean development mechanism (CDM) considered the draft “Guidelines for determination of baseline and additionality thresholds for standardized baselines using the performance-penetration approach” (the guidelines) prepared by the secretariat. The Board provided comments and requested the secretariat, in its preparation of a final draft for the Board's consideration at its seventieth meeting, to revise the guidelines taking into account the relevant comments to the annotated agenda to this meeting received from stakeholders and Board members' comments during the meeting and to launch a call for public inputs on the revised draft guidelines.
2. The Board further requested the secretariat to consult with the Methodologies Panel and Small-Scale Working Group on the guidelines.

3. Purpose

4. This information note serves to present the feedback/comment from the Methodologies Panel on the draft guidelines.

5. Key issues and proposed solutions

6. The Methodologies Panel provided comments on the draft guidelines and in the meantime, listed a number of issues associated with the approach proposed therein, for example validity of the major assumption behind the approach, the way of plotting the curves, the appropriateness of the quantitative parameters (50%, 20%), the vintage of technologies and scale of economies and its impact on sector. As a conclusion, the Methodologies Panel recommends continuing the work on the robustness of the guidelines on threshold setting. In doing so, other approaches should be explored, which may have to take into account more than just the shape of the performance-penetration curve. Also, the determination of thresholds should be seen in the context of the current work towards the revision of the standardized baseline guidelines.
7. In addition, the Methodologies Panel recommended that, before their adoption, further methodological developments in the area of standardized baseline should systematically road tested on the basis of real world data and not solely developed on the basis of “idealized data”.

8. Impacts

9. In order to address all the issues raised by the Methodologies Panel as well as other stakeholders, more time is needed before recommending to the Board for final approval (according to the workplan, the draft guidelines was originally planned to recommend to the Board at its seventieth meeting).

10. Proposed work and timelines

11. Not applicable.

12. Budget and costs

2. No budget implication.

13. Recommendations to the Board

14. The Meth Panel recommended that the Board take note that it provided feedback to the secretariat on the "Guidelines for determination of baseline and additionality thresholds for standardized baselines using the performance-penetration approach".

15. References

(a) "Guidelines for the establishment of sector specific standardized baselines".

TABLE OF CONTENTS	Page
1. INTRODUCTION	5
2. CONSULTATION WITH THE METHODOLOGIES PANEL	5
2.1. The draft guidelines.....	5
2.2. The main assumption behind the proposed approach and its validity	6
2.3. Example: Illustrative case for situation where resulting threshold seems not robust.....	6
2.4. More examples.....	7
3. CONCLUSIONS AND PROPOSED NEXT STEPS	9
APPENDIX 1. OTHER ISSUES WITH THE PROPOSED APPROACH.....	10

1. Introduction

3. The Board, at its sixty-second meeting, adopted the “Guidelines for the establishment of sector specific standardized baselines” (the SB guidelines), and at its sixty-fifth meeting, further requested the secretariat to develop, in consultation with relevant stakeholders and experts, the options for the setting and approval of values of the relevant thresholds for baseline and additionality (Xa, Xb, Ya, and Yb) used in the SB guidelines, as well as an analysis of the implications of these options for sectors covered by the guidelines.
4. At its sixty-ninth meeting, the Board considered draft “Guidelines for determination of baseline and additionality thresholds for standardized baselines using the performance-penetration approach” prepared by the secretariat. The Board provided comments and requested the secretariat, in its preparation of a final draft for the Board's consideration at its seventieth meeting, to revise the guidelines taking into account the relevant comments to the annotated agenda to this meeting received from stakeholders and Board members' comments during the meeting and to launch a call for public inputs on the revised draft guidelines.
5. The Board further requested the secretariat to consult with the Methodologies Panel and the Small-Scale Working Group on the guidelines. This information note serves to present the feedback/comment from the Methodologies Panel on the draft guidelines.

2. Consultation with the Methodologies Panel

2.1. The draft guidelines

6. The draft guidelines propose a step-wise approach for the determination of thresholds for baseline and additionality for standardized baselines for the measure of “technology switch”. The thresholds define the boundary between potentially additional technologies and current-practice technologies and define the “baseline technology” which is the basis of the baseline emission factor. The adequate determination of these thresholds is very important in order to avoid situations of: (i) too stringent thresholds that lead to no projects; or (ii) over crediting and breach of environmental integrity in case of too lenient thresholds.
7. The standardized approach is based on a performance curve that depicts the design efficiency of the technologies in the market as a function of the cumulative market share covered by each technology. The draft guidelines seek to derive a so called “common practice segment” in the performance curve.
8. To put it simply, the proposed approach derives the common practice segment by looking only at the shape of this performance curve: if this curve shows a long segment (>50%) over which the carbon intensity of the technology does not change much (within a range of 20%), this segment is defined as the common practice segment. Technologies with lower carbon intensity than this segment are deemed (potentially) additional.

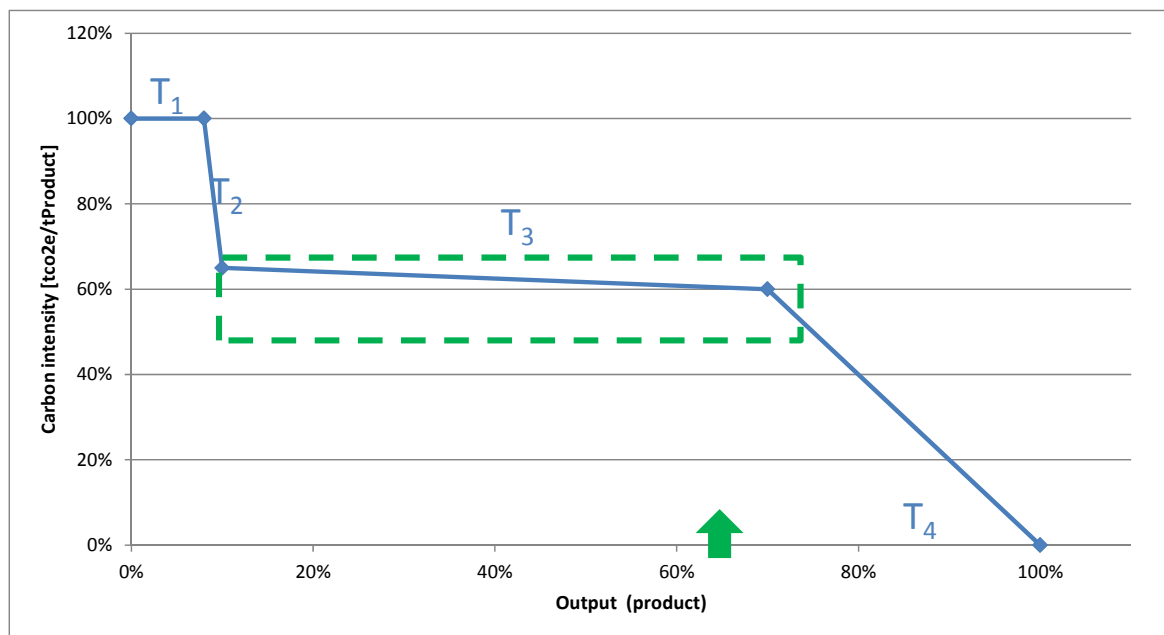
2.2. The main assumption behind the proposed approach and its validity

9. The basic rationale of the approach builds on the following assumptions:
 - (a) A large population of technologies with similar emission intensity represents the “common practice segment”;
 - (b) In the sections where the performance curve is more heterogeneous, the population of technologies smaller and displays larger steps in carbon intensity, this cannot be common practice anymore.
10. This difference in the shape of the curve is then used to define the threshold values.
11. However, the Methodologies Panel is of the view that these assumptions may not hold in all situations, because real life situations may differ from the theoretical and idealized curve displayed in the guidelines and display significant inhomogeneity challenging the appropriateness of selecting the common practice case with the proposed procedure. Spotting heterogeneities in carbon intensity seems not to be a robust indicator for differentiating additional from non-additional technologies.
12. Further issues with the proposed approach are summarized in the Appendix.

2.3. Example: Illustrative case for situation where resulting threshold seems not robust

13. The following example illustrates how the proposed approach may lead to results that are rather counter intuitive: Here four different technologies are plotted T1-T4. The proposed approach identifies the segment of low “slope”, the “common practice segment (green box). From this, the threshold is derived (green arrow) and all technologies on the right hand side of the arrow would be (potentially) additional, that is T4.
14. It seems rather challenging to imagine that a technology that covers 30% of the market would be deemed additional without further investigation. According to the procedure this would be the case even if T4 covers 45% of the range. This would be particularly counter intuitive if all recently built plants in the host country would have used the technology T4. This point illustrates that the vintage of technologies should probably also play a role especially for Greenfield project activities.
15. Also please note that the proposed approach is also very sensitive to small changes in the dataset: If technology T2 which covers only 2% would not be present in the market, proposed approach could not be applied and the default threshold of 90% would need to be applied instead of the 65% with T2.

Figure 1: Example to illustrate a typical situation in which the proposed approach may lead to threshold values that seem not robust. (Example: Technologies T1 (8% share in output produced, 100% that is highest carbon intensity), T2 (2% share in output, 65% carbon intensity), T3 (60% share in output, 60% carbon intensity) and T4 (30% share in output and lowest carbon intensity of all technologies)

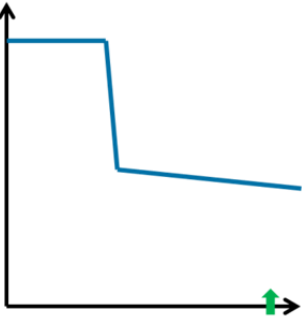
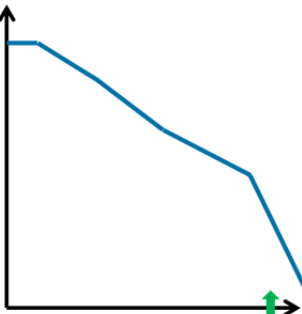
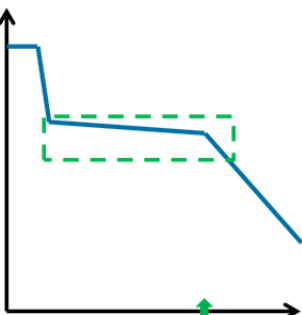
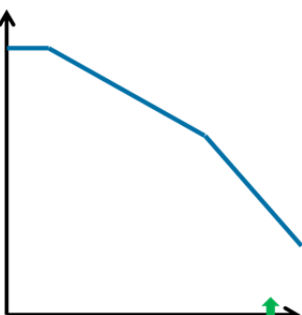


2.4. More examples

16. In the following, we list a few illustrative curves and examine for which shapes the proposed approach would allow for deviation from the default threshold values provided in annex 23 of the EB 65 meeting report.

Figure 2: Testing of the approach on different illustrative shapes of performance curves. (Please note that here performance curves are plotted in absolute terms, whereas for the application of the approach they are converted to relative curves that always go from 100% to 0%, in contrast to Figure 1)

Shape of performance curve	Does proposed approach lead to threshold?	Resulting threshold value
	No	Default threshold 90%

Shape of performance curve	Does proposed approach lead to threshold?	Resulting threshold value
	No	Default threshold 90%
	No	Default threshold 90%
	Yes	Threshold 65%
	No	Default threshold 90%

17. These shapes illustrate that the proposed approach may in many cases not be applicable and, if applicable, may lead to the arbitrary result of significantly lower thresholds than for other shapes of curves, which have to use the default values.

3. Conclusions and proposed next steps

18. The Methodologies Panel recommends continuing the work on the robustness of the guidelines on threshold setting as the fundamental assumption behind this approach does not seem to hold in all instances and its application may lead to arbitrary threshold values in some situations.
19. It is proposed that further work is needed to develop robust guidelines for the determination of threshold values. Other approaches should be explored, which may have to take into account more than just the shape of the performance-penetration curve. Also, the determination of thresholds should be seen in the context of the current work towards the revision of the SBL guidelines (please refer to annex 23 of the EB 65 meeting report). The clarification and improvement of the guidelines may also foster the development of more robust threshold setting approaches.
20. Finally, the Methodologies Panel would like to recommend that further methodological developments in the area of SBL are systematically road tested before adoption on the basis of real world data and not solely developed on the basis of “idealized data”, as only the application in the context of real data can assure that the approaches can eventually be used by stakeholders.

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Appendix 1. Other issues with the proposed approach

1. The Methodologies Panel has also identified the following points which are not clear in the draft guidelines and would require further work:
 - (a) The plotting of technologies T1, T2, T3, etc. seems not to depict the performance per technology, as the carbon intensity of one technology is not drawn as a horizontal line. The fact that these “join-the-dots”-curves in the guidelines do not represent performances makes description of steps difficult and not very clear;
 - (b) The appropriateness of the quantitative parameters (50%, 20% ...);
 - (c) Issues with the proposed approach that result from the fact that the vintage of technologies is not accounted for;
 - (d) Issues related to scale of economies and its impact on sector;
 - (e) Definition of a “technology that is not available anymore“ (Step 2, 11.) This may probably not exist, as older technologies just lose their economic competitiveness over time. The only applicable case would seem to be one in which a technology is outlawed or limited by national regulation;
 - (f) Why does the segment with the *least slope* automatically define the common practice segment (Step 2(c))?;
 - (g) The definition of “staggered shape” is confusing (Section D.1, appendix 3);
 - (i) This approach seems to contradict the general approach that seeks for large steps in the curve;
 - (ii) If the “staggered shape” is defined very stringently, a performance curve can be disaggregated further and further until everything is common practice;
 - (iii) The concept builds on the similar problematic assumption above;
 - (h) Also, the example of the power sector performance curve combines technology and fuel measures. The issues arising from these combinations are not clear (also an issue with underlying SB guidelines). The guidelines on thresholds does not describe with which fuels carbon intensities of technologies have to be defined;
 - (i) The fact that the SB guidelines use design data tends to make carbon intensities much more homogenous than if actual data would be used. This again may lead to arbitrary identification of “common practice” segments;
 - (j) It is not clear if the use of the default thresholds in case the proposed approach does not result in a common practice segment is a robust fall back solution;
 - (k) The proposed approach considers only the relative change in shape of the curve, normalized by the difference between the highest and the lowest carbon intensity found in technologies in the market. In cases of rather flat performance curves

(i.e. with small difference between maximum and minimum carbon intensity), very small changes in absolute performance may lead to large changes in the resulting thresholds (see also last illustrative curve in Figure 2);

- (I) Determination of threshold value: in “scenario 1” the threshold is defined as “*set the threshold on the X-Axis that corresponds to the weighted average of emission factors of those technologies contributing to the production of least carbon intensive 20% of the cumulative output in the common practice segment*”. The calculated weighted average may or may not represent one of the technologies in the market. In the latter case, the underlying SBL guidelines would need to be adjusted as no technology represents this value.

Document information

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01.0	05 November 2012	MP 58, Annex 20 To be considered at EB 70.
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