



## Methodological Tool

### Draft “tool for the determination of the most attractive alternative of a CDM project component”

(Version 01)

#### I. SCOPE AND APPLICABILITY

1. The tool provides a general framework for identifying the most attractive alternative for a project component in case the baseline scenario is: the project proponent will invest in the absence of CDM in an alternative to the CDM project.
2. Project participants may also propose other procedures or tools for the identification of the most attractive alternative to the CDM Executive Board (EB) for its consideration.
3. In validating the application of this tool, Designated Operational Entities (DOEs) should carefully assess and verify the reliability and credibility of all data, rationales, assumptions, justifications and documentation provided by project participants to support the determination of the most attractive scenario. The elements checked during this assessment and the according conclusions should be documented transparently in the validation report.

#### II. METHODOLOGY PROCEDURE

4. Project participants shall apply the following four Steps:

STEP 1. Identification of alternative to the proposed CDM project;

STEP 2. Barrier analysis;

STEP 3. Investment analysis (if applicable);

##### **Step 1: Define alternative scenarios to the proposed CDM project activity**

5. Identify all alternatives to the CDM project component (i) that are available to the project participants, (ii) that are in compliance with mandatory legislation and regulations taking into account the enforcement in the region or country and EB decisions on national and/or sectoral policies and regulations and (iii) that provide outputs or services with comparable quality, properties and application areas as the proposed CDM project activity component.
6. These alternative shall include all other plausible and credible alternative to the project component, including the common practices in the relevant sector, that deliver outputs or services (e.g. electricity, heat or cement) with comparable quality, properties and application areas.

**Note 1**

- In the case of a project reducing emissions in the aluminium or cement production, the output provided by the alternative scenarios should be the production of the same quality of aluminium or the production of a cement type that can be used in the same applications as the cement type produced by the project activity;
- In the case of a project improving the energy efficiency of motors in a facility, the service provided is mechanical energy. Different scenarios to produce the same quantity of mechanical energy should be considered;

Note 2: In case of a project that improves energy efficiency in several boilers with rather different characteristics (e.g. size, technology, age, etc), alternative scenarios should be established for each boiler or for types of boilers with broadly similar characteristics.

7. For the purpose of identifying relevant alternative, provide an overview of other technologies or practices that provide outputs (e.g. electricity, heat or cement) with comparable quality, properties and application areas as the proposed CDM project component and that have been implemented previously or are currently underway in the relevant geographical area.

8. The relevant geographical area should in principle be the host country of the proposed CDM project activity. A region within the country could be the relevant geographical area if the framework conditions vary significantly within the country.

Note 1: The relevant geographical area should include preferably ten facilities (or projects) that provide outputs or services with comparable quality, properties and application areas as the proposed CDM project activity component. If less than ten facilities (or projects) that provide outputs or services with comparable quality, properties and application areas as the proposed CDM project activity component are found in the region/Host country, the geographical area may be expanded to an area that covers if possible, ten such facilities (or projects). In cases where the above described definition of geographical area is not suitable, the project proponents should provide an alternative definition of geographical area. Other registered CDM project activities are not to be included in this analysis. Provide relevant documentation to support the results of the analysis.

Note 2: The outcome of Step 1 is a list of plausible alternatives to the project activity components that are in compliance with mandatory legislation and regulations taking into account the enforcement in the region or country and EB decisions on national and/or sectoral policies and regulations.

**Step 2: Barrier analysis**

9. Identify barriers and assess which alternatives are prevented by these barriers. Apply the following Sub-steps:

10. Establish a complete list of realistic and credible barriers that may prevent one or several alternatives to the project component to occur.

Such realistic and credible barriers may include:

- Technological barriers, inter alia:
  - o Skilled and/or properly trained labor to operate and maintain the technology is not available in the relevant geographical area, which leads to an unacceptably high risk of equipment disrepair, malfunctioning or other underperformance;
  - o Lack of infrastructure for implementation and logistics for maintenance of the technology (e.g. natural gas can not be used because of the lack of a gas transmission and distribution network);
  - o Risk of technological failure: the process/technology failure risk in the local circumstances is significantly greater than for other technologies that provide services or outputs comparable to those of the proposed CDM project activity, as demonstrated by relevant scientific literature or technology manufacturer information;
  - o The particular technology used in the proposed project activity is not available in the relevant geographical area.
- Lack of prevailing practice:
  - o The alternative is the “first of its kind”:
- Other barriers, preferably specified in the underlying methodology as examples.

Note 1: The outcome is a list of barriers that may prevent one or more alternative scenarios to occur.

12. Eliminate alternative scenarios which are prevented by the identified barriers by identifying which alternatives to the project component are prevented by at least one of the barriers listed in 11, and eliminate those alternative scenarios from further consideration. All alternatives shall be compared to the same set of barriers. The assessment of the significance of barriers should take into account the level of access to and availability of information, technologies and skilled labour in the specific context of the industry where the project type is located. For example, projects located in sectors with small and medium sized enterprises may not have the same means to overcome technological barriers as projects in a sector where typically large or international companies operate.

Note 1: The outcome is a list of alternatives to the project component that are not prevented by any barrier.

13. In applying Steps 2, provide transparent and documented evidence, and offer conservative interpretations of this evidence, as to how it demonstrates the existence and significance of the identified barriers and whether alternatives are prevented by these barriers. The type of evidence to be provided should include at least one of the following:

- (a) Relevant legislation, regulatory information or industry norms;

- (b) Relevant (sectoral) studies or surveys (e.g. market surveys, technology studies, etc) undertaken by universities, research institutions, industry associations, companies, bilateral/multilateral institutions, etc;
- (c) Relevant statistical data from national or international statistics;
- (d) Documentation of relevant market data (e.g. market prices, tariffs, rules);
- (e) Written documentation from the company or institution developing or implementing the CDM project activity or the CDM project developer, such as minutes from Board meetings, correspondence, feasibility studies, financial or budgetary information, etc;
- (f) Documents prepared by the project developer, contractors or project partners in the context of the proposed project activity or similar previous project implementations;
- (g) Written documentation of independent expert judgements from industry, educational institutions (e.g. universities, technical schools, training centres), industry associations and others.

14. If there is only one alternative that is not prevented by any barrier then this alternative is the baseline scenario.

15. If there are still several alternative scenarios remaining, project participants may choose to either:

Option 1: Go to Step 3 (investment analysis); or

Option 2: Identify the alternative with the lowest emissions (i.e. the most conservative) as the baseline scenario, and proceed to Step 4.

### **Step 3: Investment analysis**

16. This Step serves to determine which of the alternative scenarios in the short list remaining after Step 2 is the most economically or financially attractive. For this purpose, an investment comparison analysis is conducted for the remaining alternative scenarios after Step 2. If the investment analysis is conclusive, the economically or financially most attractive alternative scenario is considered as the baseline scenario.

17. Identify the financial indicator, such as IRR, NPV, cost benefit ratio, or unit cost of service (e.g., levelized cost of electricity production in \$/kWh or levelized cost of delivered heat in \$/GJ) most suitable for the project type and decision-making context.

18. Calculate the suitable financial indicator for all alternative scenarios remaining after Step 2. Include all relevant costs (including, for example, the investment cost, the operations and maintenance costs), and revenues (including subsidies/fiscal incentives,

Note 1: ODA, etc. where applicable), and, as appropriate, non-market costs and benefits in the case of public investors are to be accounted for.

19. Present the investment analysis in a transparent manner and provide all the relevant assumptions, preferably in the CDM-PDD, or in separate annexes to the PDD, so that a reader can reproduce the analysis and obtain the same results. Refer to critical techno-economic parameters and assumptions (such as capital costs, fuel

prices, lifetimes, and discount rate or cost of capital). Justify and/or cite assumptions in a manner that can be validated by the DOE. In calculating the financial indicator, the risks of the alternative can be included through the cash flow pattern, subject to project-specific expectations and assumptions (e.g. insurance premiums can be used in the calculation to reflect specific risk equivalents). Assumptions and input data for the investment analysis shall not differ across alternative scenarios, unless differences can be well substantiated.

Note 1: According to guidance by the EB (EB 22, Annex 3), subsidies and incentives may be excluded from consideration in certain cases.

20. Present, in the CDM-PDD submitted for validation, a clear comparison of the financial indicator for all alternatives and rank them according to the financial indicator.

21. Include a sensitivity analysis to assess whether the conclusion regarding the financial attractiveness is robust to variations in the critical parameters that cover what is observed in the region. The investment comparison analysis provides a valid argument in identifying the most attractive alternative only if it consistently supports (for a range of assumptions covering what was experienced in the region) the conclusion that one alternative is the most economically and/or financially attractive.

Note 1: The outcome of Step 3 is a ranked short list of alternatives according to the most suitable financial indicator, taking into account the results of the sensitivity analysis.

22. If the sensitivity analysis is not conclusive, then the alternative to the project activity with least emissions among the alternative is considered as the most attractive scenario. If the sensitivity analysis confirms the result of the investment comparison analysis, then this most economically or financially attractive alternative is considered as the baseline scenario.