Draft Methodological tool

"Combined tool to identify the baseline scenario and demonstrate additionality"

(Version 03)

I. SCOPE AND APPLICABILITY

This tool provides ~~for~~ a general framework in a step-wise approach to identify the baseline scenario and simultaneously demonstrate additionality.

~~Project participants proposing new baseline methodologies may incorporate this combined tool in their proposal. Project participants may also propose other tools for the identification of the baseline scenario and demonstrate additionality to the Executive Board for its consideration.~~

~~Methodologies using this tool are only applicable if all potential alternative scenarios to the proposed project activity are available options to project participants.[1] This applies, for example, to project activities that make modifications to an existing installation that is operated by project participants, such as, for example:~~

- ~~Energy efficiency improvements at existing installations operated by project participants;~~
- ~~Fuel switch at existing installations operated by project participants;~~
- ~~Changes in waste management practices at existing solid waste disposal sites operated by project participants;~~
- ~~Reduction of N_2O, HFC-23 or PFC emissions at existing installations operated by project participants.~~

~~Moreover, this applies to the construction of new facilities, if all alternative scenarios to the project activity are available options to project participants, that is, if all alternative scenarios could be implemented by the project participants. This may apply, for example, to a cement manufacturer that plans to construct a new cement plant and has access to all cement production technologies.~~

- ~~However, methodologies using this tool are not applicable to project activities where one or more alternative scenarios to the proposed project activity are not available options to the project participant;~~

[1] ~~In cases where one or more alternatives are not available options to project participants, a different procedure than provided here would be required to demonstrate additionality and identify the baseline scenario. Such cases might include grid-connected power projects (where an alternative might be electricity produced by other facilities not under the control of project participants) or other projects that increase the delivery of a given product to a local, regional or global market. In such cases, baseline scenarios might be rather complex (such as the combined margin scenario in ACM0002), and the methods for comparing alternatives may differ from those provided here (e.g. benchmark analysis or other methods that utilize information about the markets in which such projects might compete). The Meth Panel is considering whether expanding this tool to cover all cases would be appropriate. In the meantime, methodologies that typically involve alternatives are not under the control of project participants can continue to use, if desired, the additionality tool (provides benchmark and other tools), and provide their own methods to develop and/or assess baseline scenario.~~

- ~~In case of newly built projects, i.e. project activities that establish new installations, such as new power, biofuel, cement or aluminum plants, a credible and plausible alternative to the project activity could be the production of power, fossil fuels (instead of biofuel), cement or aluminum in new or existing installations operated by third parties;~~
- ~~In case of programs that address multiple stakeholders, e.g. a program to disseminate or encourage the use of energy efficient appliances by multiple end-users, a credible and plausible alternative to the project activity could be that the end-users (i.e. third parties) continue to use existing appliances and/or start using more efficient appliances – which are not available options to the project participants.~~

~~The tool provides a general framework for identifying the baseline scenario and demonstrating additionality.~~ In some cases particular project types may require adjustments or additional explanations to this framework. This could include, *inter alia*, a listing of relevant alternative scenarios that should be considered in Step 1, any relevant types of barriers other than those presented in this tool and guidance on how common practice should be established.

Project participants may also propose other procedures or tools for the identification of the baseline scenario and assessment and demonstration of additionality to the CDM Executive Board (EB) for its consideration.

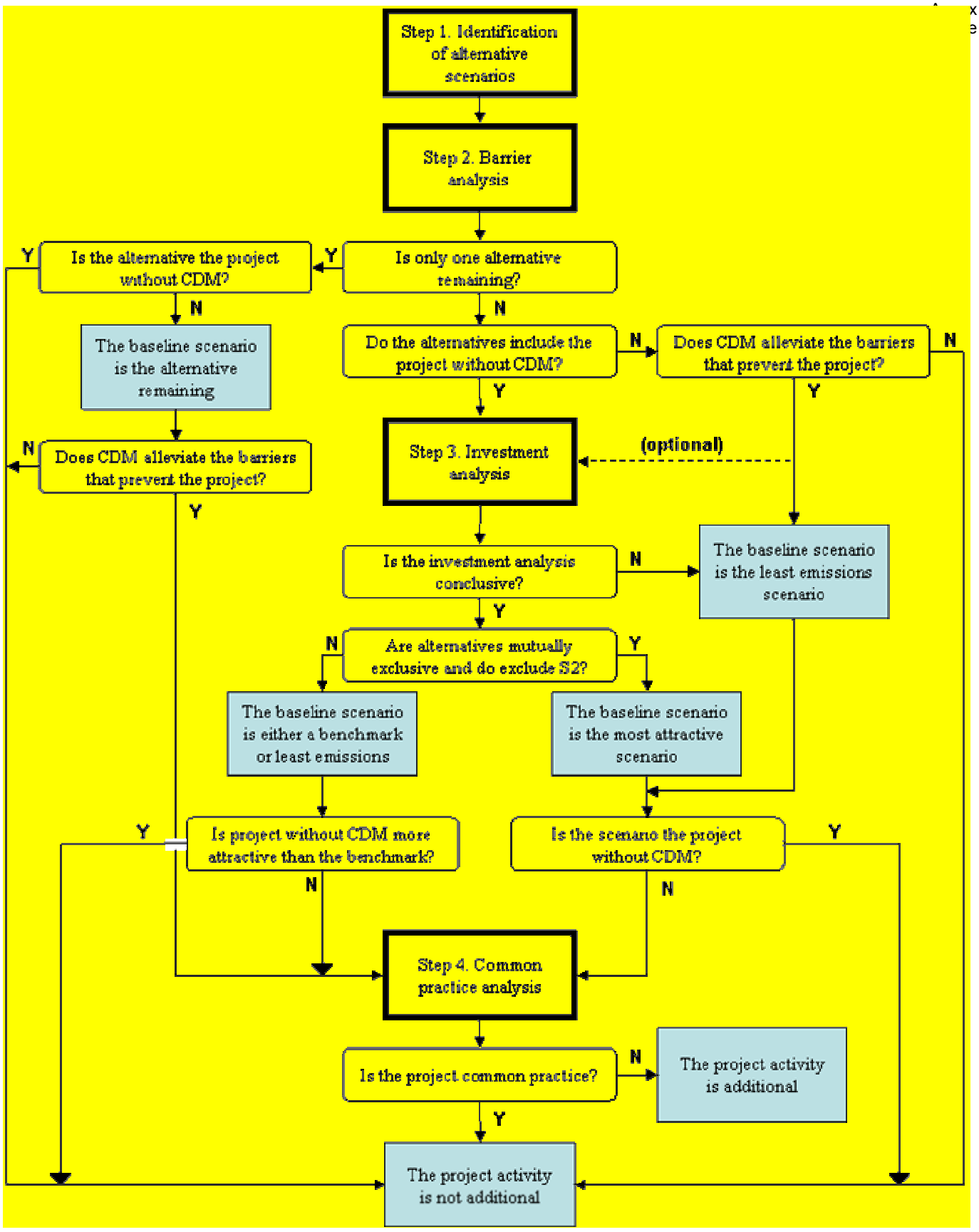
In validating the application of this tool, Designated Operational Entities (DOEs) should carefully assess and verify the reliability and credibility of all data, rationales, assumptions, justifications and documentation provided by project participants to support the selection of the baseline and demonstration of additionality. The elements checked during this assessment and the according conclusions should be documented transparently in the validation report.

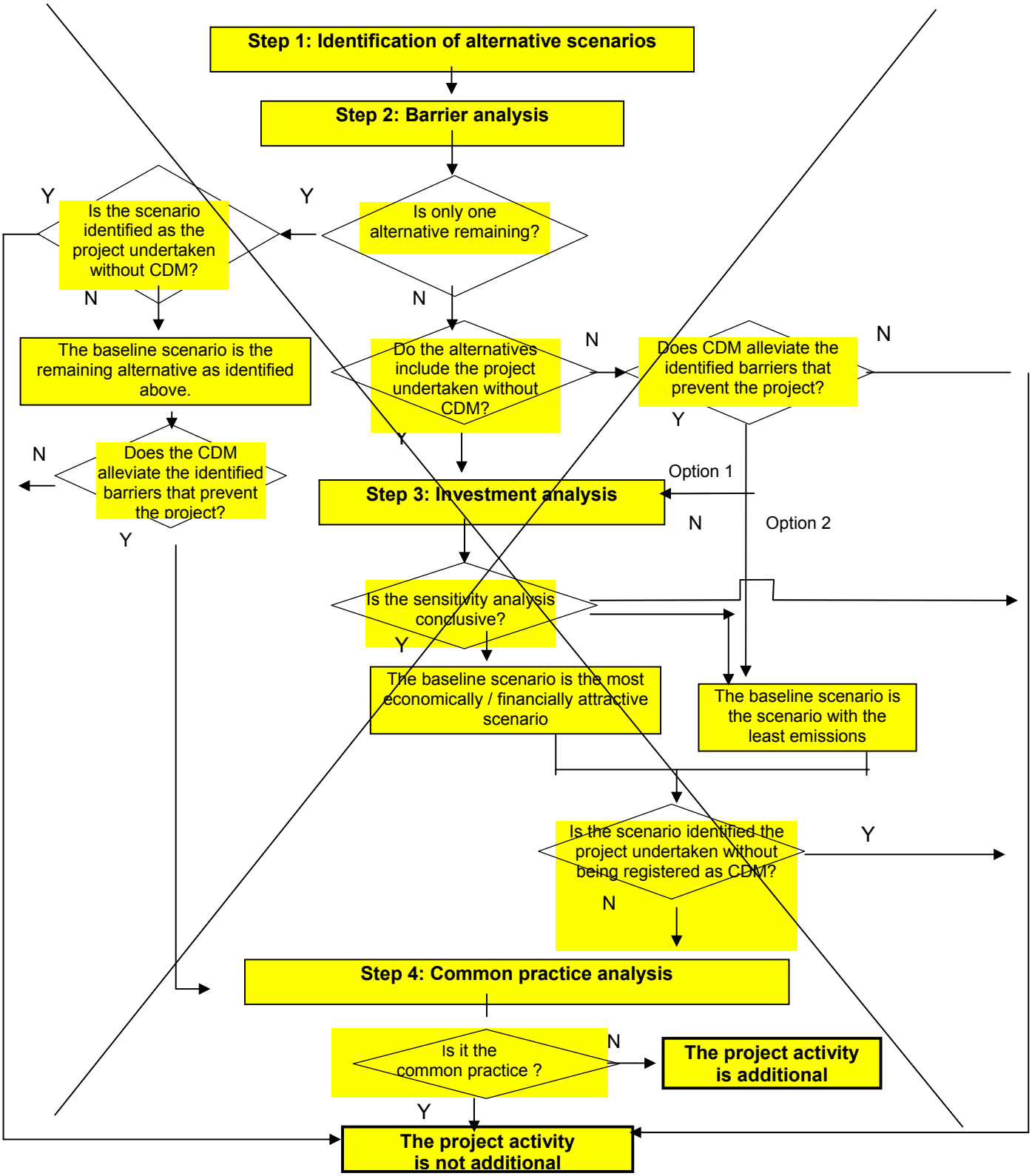
II. METHODOLOGY PROCEDURE

Project participants shall apply the following four Steps:

STEP 1: Identification of alternative scenarios;
STEP 2: Barrier analysis;
STEP 3: Investment analysis (if applicable);
STEP 4: Common practice analysis.

The procedure is summarized in the indicative flowchart below. For more specific detail regarding the flowchart please refer to the text.


Step 1. Identification of alternative scenarios
Step 2. Barrier analysis
Is only one alternative remaining?
Y
Is the alternative the project without CDM?
Y
N
The baseline scenario is the alternative remaining
N
Do the alternatives include the project without CDM?
N
Does CDM alleviate the barriers that prevent the project?
N
Y
Y
N
Does CDM alleviate the barriers that prevent the project?
Y
Step 3. Investment analysis
(optional)
Is the investment analysis conclusive?
N
The baseline scenario is the least emissions scenario
Y
N
Are alternatives mutually exclusive and do exclude S2?
Y
The baseline scenario is either a benchmark or least emissions
The baseline scenario is the most attractive scenario
Y
Is project without CDM more attractive than the benchmark?
Is the scenario the project without CDM?
Y
N
N
Step 4. Common practice analysis
Is the project common practice?
N
The project activity is additional
Y
The project activity is not additional


Step 1: Identification of alternative scenarios
Step 2: Barrier analysis
Is only one alternative remaining?
Y
Is the scenario identified as the project undertaken without CDM?
Y
N
N
The baseline scenario is the remaining alternative as identified above.
Do the alternatives include the project undertaken without CDM?
N
Does CDM alleviate the identified barriers that prevent the project?
N
Y
Y
N
Does the CDM alleviate the identified barriers that prevent the project?
Option 1
Step 3: Investment analysis
N
Option 2
Y
Is the sensitivity analysis conclusive?
Y
The baseline scenario is the most economically / financially attractive scenario
The baseline scenario is the scenario with the least emissions
Is the scenario identified the project undertaken without being registered as CDM?
Y
N
Step 4: Common practice analysis
Is it the common practice ?
N
The project activity is additional
Y
The project activity is not additional

Step 1: Identification of alternative scenarios

This step serves to identify all alternative scenarios to the proposed CDM project activity(s) that can be the baseline scenario through the following sub-steps:

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

Identify all alternative scenarios that are available to the project participants and that provide outputs or services with comparable quality, properties and application areas as the proposed CDM project activity.[2] These alternative scenarios shall include:

S1: The proposed project activity undertaken without being registered as a CDM project activity;

S2: Where applicable, no investment is undertaken by the project participants but third party(ies) undertake(s) investments or actions which provide comparable outputs or services to users of the project activity, for example:

- In the case of a greenfield power project, an alternative scenario may be that the project participants would not invest in another power plant but that power would be generated in existing and/or new power plants in the electricity grid.

S3: Where applicable, the continuation of the current situation, *not* requiring any investment or expenses to maintain the current situation, such as, *inter alia*:

- The continued venting of methane from a landfill;
- The continued release of N_2O from adipic or nitric acid production.

S4: Where applicable, the continuation of the current situation, requiring an investment or expenses to maintain the current situation, such as, *inter alia*:

- The continued use of an existing boiler involving expenses for operation and maintenance;
- The continued use of a specific fuel mix for power generation in an existing power plant.

S5: ~~All o~~ Other plausible and credible alternative scenarios to the project activity scenario, 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, taking into account, where relevant, examples of scenarios identified in the underlying methodology;

S6: Where~~If~~ applicable, ~~continuation of the current situation and, where relevant,~~ the "proposed project activity undertaken without being registered as a CDM project activity" undertaken at a later point in time (e.g., due to existing regulations, end-of-life of existing equipment, financing aspects).

[2] For example:

- 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;
- In the case of a landfill gas capture project, the service provided by the project includes operation of a landfill. Alternatives scenarios to the project could include different ways to operate the landfill, such as no capture of methane, capture and flaring of the methane or capture and combustion of the methane for energy generation.

If the proposed CDM project activity includes several different facilities, technologies, outputs or services, alternative scenarios for each of them should be identified separately. Realistic combinations of these should be considered as possible alternative scenarios to the proposed project activity.[3]

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

Outcome of Step 1a: List of plausible alternative scenarios to the project activity

Sub-step 1b: Consistency with mandatory applicable laws and regulations

The alternative(s) shall be in compliance with all mandatory applicable legal and regulatory requirements, even if these laws and regulations have objectives other than GHG reductions, e.g., to mitigate local air pollution.[4] (This Sub-step does not consider national and local policies that do not have legally-binding status).

If an alternative does not comply with all mandatory applicable legislation and regulations, then show that, based on an examination of current practice in the country or region in which the mandatory law or regulation applies, those applicable mandatory legal or regulatory requirements are systematically not enforced and that non-compliance with those requirements is widespread in the country. If this cannot be shown, then eliminate the alternative from further consideration.

If the proposed project activity is the only alternative amongst the ones considered by the project participants that is in compliance with all mandatory regulations with which there is general compliance, then the proposed CDM project activity is not additional.

[3] For example:

- In case of a cogeneration project activity, alternative scenarios for heat and electricity generation should be established separately;
- 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.

[4] For example, an alternative consisting of an open, uncapped landfill would be non-complying in a country where this scenario would imply violations of safety or environmental regulations pertaining to landfills.

Outcome of Step 1b: List of alternative scenarios to the project activity 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.

Proceed to Step 2 (Barrier analysis).

Step 2: Barrier analysis

This step serves to identify barriers and to assess which alternatives are prevented by these barriers. Apply the following sub-steps:

Sub-step 2a: Identify barriers that would prevent the implementation of alternative scenarios

Establish a complete list of realistic and credible barriers that may prevent alternative scenarios to occur. Such realistic and credible barriers may include:

- Investment barriers, other than insufficient financial returns as analyzed in Step 3, *inter alia*:
    - For alternatives undertaken and operated by private entities: Similar activities have only been implemented with grants or other non-commercial finance terms. Similar activities are defined as activities that rely on a broadly similar technology or practices, are of a similar scale, take place in a comparable environment with respect to regulatory framework and are undertaken in the relevant geographical area, as defined in Sub-step 1a above;
    - No private capital is available from domestic or international capital markets due to real or perceived risks associated with investments in the country where the project activity is to be implemented, as demonstrated by the credit rating of the country or other country investment reports of reputed origin.
- Technological barriers, *inter alia*:
    - 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;
    - 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);
    - 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;
    - The particular technology used in the proposed project activity is not available in the relevant geographical area.
- Lack of prevailing practice:
    - The alternative is the "first of its kind":
- Other barriers, preferably specified in the underlying methodology as examples.

Outcome of Step 2a: List of barriers that may prevent one or more alternative scenarios to occur.

Sub-step 2b: Eliminate alternative scenarios which are prevented by the identified barriers

Identify which alternative scenarios are prevented by at least one of the barriers listed in Sub-step 2a, and eliminate those alternative scenarios from further consideration. All alternative scenarios 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.

Outcome of Step 2b: List of alternative scenarios to the project activity that are not prevented by any barrier.

In applying Sub-steps 2a and 2b, 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 alternative scenarios 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.

Outcome of Step 2: If there is only one alternative scenario that is not prevented by any barrier, and if this alternative is the proposed project activity undertaken without being registered as a CDM project activity, then the project activity is not additional.

If there is only one alternative scenario that is not prevented by any barrier, and if this alternative is not the proposed project activity undertaken without being registered as a CDM project activity, then this alternative scenario is identified as the baseline scenario. Explain – using qualitative or quantitative arguments – how the registration of the CDM project activity will alleviate the barriers that prevent the proposed project activity from occurring in the absence of the CDM. If the CDM alleviates the identified barriers that prevent the proposed project activity from occurring, proceed to Step 4, otherwise the project activity is not additional.

If there are still several alternative scenarios remaining, including the proposed project activity undertaken without being registered as a CDM project activity, proceed to Step 3 (investment analysis).

If there are still several alternative scenarios remaining, but which do not include the proposed project activity undertaken without being registered as a CDM project activity, explain – using qualitative or quantitative arguments – how the registration of the CDM project activity will alleviate the barriers that prevent the proposed project activity from occurring in the absence of the CDM. If the CDM alleviates the identified barriers that prevent the proposed project activity from occurring, project participants may choose to either:

- Option 1: Go to Step 3 (investment analysis); or
- Option 2: Identify the alternative with the lowest emissions[5] (i.e., the most conservative) as the baseline scenario, and proceed to Step 4.

If the CDM does not alleviate the identified barriers that prevent the proposed project activity from occurring, then the project activity is not additional.

[5] For alternative scenarios where the project participants do not undertake investments (i.e., scenarios as described in S2 or S3), the respective emissions should be determined in accordance with underlying methodology.

Step 3: Investment analysis

~~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.~~The objective of Step 3 is to compare the economic or financial attractiveness of the alternative scenarios remaining after Step 2 by conducting an investment comparison analysis. The analysis should include all alternative scenarios remaining after Step 2, including scenarios where the project participants do not undertake an investment (S2 or S3).

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. If one of the alternative scenarios remaining after Step 2 corresponds to the situation described in S2 or S3, then use either the NPV or the IRR as financial indicator in the analysis.

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,[6] ODA, etc. where applicable), and, as appropriate, non-market costs and benefits in the case of public investors *(the following sentence is from the AT)* if this is standard practice for the selection of public investments in the host country.[7] For alternatives that correspond to the situation described in S2 or S3, use the following values to reflect the situation where no investment would be undertaken by the project participants:

- If the financial indicator is the NPV: assume a value of zero;
- If the financial indicator is the IRR: use the financial benchmark, as determined through the options (a) to (e) below.

(The following text is from the AT) The financial/economic analysis shall be based on parameters that are standard in the market, considering the specific characteristics of the project type, but not linked to the subjective profitability expectation or risk profile of a particular project developer. In the particular case where the project activity can only be implemented by the project participant, the specific financial/economic situation of the company undertaking the project activity can be considered.[8]

[6] Note that according to guidance by the EB (EB 22, Annex 3), subsidies and incentives may be excluded from consideration in certain cases.

[7] In the case that (a) there are only two alternatives remaining after Step 2, which include the proposed CDM project activity and one other alternative, (b) both scenarios do not incur any revenue other than CDM related revenue or incur exactly the same revenue other than CDM related revenue and (c) the project incurs costs and the other remaining alternative does not incur costs, then a simply cost analysis can be applied. In this case it is sufficient to document that the proposed project activity undertaken without being registered as a CDM project incurs costs.

[8] For example, when the project activity upgrades an existing process or uses a resource (i.e., some waste) available on the project site and that is not traded.

(The following *text is from the AT – chapeau is slightly adapted)* The discount rate (in the case of the NPV) or the financial benchmark (in the case of the IRR) shall be derived from:

(a) Government bond rates, increased by a suitable risk premium to reflect private investment and/or the project type, as substantiated by an independent (financial) expert or documented by official publicly available financial data;

(b) Estimates of the cost of financing and required return on capital (e.g. commercial lending rates and guarantees required for the country and the type of project activity concerned), based on bankers views and private equity investors/funds' required return on comparable projects;

(c) A company internal benchmark (weighted average capital cost of the company), only in the particular case that the project activity can only be implemented by the project participant. The project developers shall demonstrate that this benchmark has been consistently used in the past, i.e. that project activities under similar conditions developed by the same company used the same benchmark;

(d) Government/officially approved benchmark where, it can be demonstrated that such benchmarks are used for investment decisions;

(e) Any other indicators, if the project participants can demonstrate that the above options are not applicable and their indicator is appropriately justified.

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 scenarios 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.

Present in the CDM-PDD submitted for validation a clear comparison of the financial indicator for all alternative scenarios and rank the alternative scenarios according to the financial indicator.

Include a sensitivity analysis to assess whether the conclusion regarding the financial attractiveness is robust to reasonable variations in the critical assumptions. ~~The investment comparison analysis provides a valid argument in identifying the baseline scenario only if it consistently supports (for a realistic range of assumptions) the conclusion that one alternative is the most economically and/or financially attractive.~~

Outcome of Step 3: Ranking of the short list of alternative scenarios according to the most suitable financial indicator, taking into account the results of the sensitivity analysis.

If the investment analysis, supported by the sensitivity analysis, is not conclusive, then the alternative scenario to the project activity with least emissions[5] among the alternative scenarios is considered as baseline scenario. If this alternative is the proposed project activity undertaken without being registered as a CDM project activity, then the project activity is not additional. Otherwise, if this alternative is not the proposed project activity undertaken without being registered as a CDM project activity, then proceed to Step 4.

If the investment analysis, supported by the sensitivity analysis, is conclusive, then the following applies:

- If all alternative scenarios considered in this step are technically mutually exclusive[9] and none of the alternative scenarios corresponds to the situation described in S2:, then the most economically or financially attractive alternative scenario is considered as baseline scenario. If this alternative is the proposed project activity undertaken without being registered as a CDM project activity, then the project activity is not additional. If this alternative is not the proposed project activity undertaken without being registered as a CDM, then proceed to Step 4;

- If one of the alternative scenarios considered in this step is not technically mutually exclusive[9] to the other alternatives or if any of the alternative scenarios corresponds to the situation described in S2:, then:

[9] "Technically Mutually Exclusive" means that the implementation of one alternative scenario would physically prevent the other alternative scenarios from being executed. For example, in the case of a landfill, the following three alternatives are mutually exclusive: (a) continuation of venting all methane, (b) capturing and flaring all methane, and (c) capturing and using all methane for electricity generation. If these three alternatives are considered in the investment analysis, the least cost option can be regarded as the baseline scenario. "Technically mutually exclusive" does not mean mutually exclusive based on economic reasons. For example, an electric utility may have limited funds to invest in a portfolio of electricity generation projects, including wind power plants, natural gas power plants and coal power plants. In this case, these investments are not technically mutually exclusive. The distinction between alternative scenarios which are "technically mutually exclusive" and alternative scenarios which are not "technically mutually exclusive" affects the outcome of the investment analysis. In the case where all alternative scenarios are technically mutually exclusive, the economically or financially most attractive alternative can be regarded as the baseline scenario. However, this approach does not work if the alternatives are not "technically mutually exclusive". This is illustrated with the following example: A utility may have different investment alternatives of which power generation with coal is the economically most attractive alternative, wind power generation is the least attractive, and natural gas power generation is in between coal and wind. Given this cost structure, the utility would invest without the CDM in three coal power plants and one natural gas power plant. As a result of the CDM, a wind power investment becomes more attractive than the natural gas power investment and, hence, the utility may decide to replace the natural gas power investment with the wind power investment in its portfolio. Thus, in this case, the economically most attractive technology (coal power generation) is not the baseline but another option within the portfolio of the utility is. In such situations, most methodologies (e.g., ACM0002) use an emissions benchmark (the grid emission factor) as baseline scenario. Otherwise, the alternative with the lowest emissions could be used, when not specified in the underlying methodology.

(a) The baseline scenario, depending on the underlying methodology, is:

- Either an emission factor or benchmark (e.g. the grid emission factor) as specified in the underlying methodology, or
- The alternative with least emissions amongst all alternatives which are economically or financially attractive and the alternative scenario corresponding to the situation described in S2:;

(b) If the proposed project activity undertaken without being registered as a CDM project activity is economically or financially more attractive than the financial benchmark (i.e., the NPV is equal or larger to zero or the IRR is equal or greater to the IRR benchmark), then the project activity is not additional. If the proposed project activity undertaken without being registered as a CDM is economically or financially less attractive than the financial benchmark, then proceed to Step 4.

~~*If the sensitivity analysis is not conclusive, then alternative to the project activity with least emissions among the alternative scenarios is considered as baseline scenario. If the sensitivity analysis confirms the result of the investment comparison analysis, then the most economically or financially attractive alternative scenario is considered as baseline scenario.*~~
~~*If the alternative considered as baseline scenario is the "proposed project activity undertaken without being registered as a CDM project activity", then the project activity is not additional. Otherwise, proceed to Step 4.*~~

Step 4: Common practice analysis

The previous steps shall be complemented with an analysis of the extent to which the proposed project type (e.g., technology or practice) has already diffused in the relevant sector and geographical area. This test is a **credibility check** to demonstrate additionality which complements the barrier analysis (Step 2) and, where applicable, the investment analysis (Step 3).

Provide an analysis to which extent similar activities to the proposed CDM project activity have been implemented previously or are currently underway. Similar activities are defined as activities (i.e., technologies or practices) that are of similar scale, take place in a comparable environment, *inter alia*, with respect to the regulatory framework and are undertaken in the relevant geographical area, as defined in Sub-step 1a above. Other registered CDM project activities are not to be included in this analysis. Provide documented evidence and, where relevant, quantitative information. On the basis of that analysis, describe whether and to which extent similar activities have already diffused in the relevant geographical area.

If similar activities to the proposed project activity are identified, then compare the proposed project activity to the other similar activities and assess whether there are essential distinctions between the proposed project activity and the similar activities. If this is the case, point out and explain the essential distinctions between the proposed project activity and the similar activities and explain why the similar activities enjoyed certain benefits that rendered them financially attractive (e.g., subsidies or other financial flows) and which the proposed project activity can not use or why the similar activities did not face barriers to which the proposed project activity is subject.

Essential distinctions may include a serious change in circumstances under which the proposed CDM project activity will be implemented when compared to circumstances under which similar projects were carried out. For example, new barriers may have arisen, or promotional policies may have ended, leading to a situation in which the proposed CDM project activity would not be implemented without the incentive provided by the CDM. The change must be fundamental and verifiable.

Outcome of Step 4: If Sub-step 4 is satisfied, i.e., (i) similar activities cannot be observed or (ii) similar activities are observed but essential distinctions between the proposed CDM project activity and similar activities can reasonably be explained, then the proposed project activity is additional.

If Sub-step 4 is not satisfied, i.e., similar activities can be observed and essential distinctions between the proposed CDM project activity and similar activities cannot reasonably be explained, then the proposed CDM project activity is not additional.

Annex

Guidance on the Assessment of Investment Analysis

(Version 02)

I. Background

1. In consideration of issues identified through request for reviews and reviews of requests for registration the Executive Board considers it necessary to provide project participants and DOEs with guidance on the preparation, presentation and validation of investment analysis.

2. This general guidance is to be considered a as complement to existing materials in this area including, the "Tool for the demonstration and assessment of additionality", "Combined tool to identify the baseline scenario and demonstrate additionality" and "Non-binding best practice examples to demonstrate additionality for SSC project activities". The general guidance will be revised as appropriate to reflect the evolution of knowledge and best practice in this area.

General issues in calculation and presentation

3. **Guidance:** The period of assessment should not be limited to the proposed crediting period of the CDM project activity. Both project IRR and equity IRR calculations shall as a preference reflect the period of expected operation of the underlying project activity (technical lifetime), or - if a shorter period is chosen - include the fair value of the project activity assets at the end of the assessment period. In general a minimum period of 10 years and a maximum of 20 years will be appropriate. The IRR calculation may include the cost of major maintenance and/or rehabilitation if these are expected to be incurred during the period of assessment. Project participants are requested to justify and DOEs are requested to validate the appropriateness of the period of assessment in the context of the underlying project activity, without reference to the proposed CDM crediting period.

> **Rationale:** The purposes of undertaking an investment analysis is to determine whether or not the project activity would be financially viable without the incentive of the CDM. The actual project activity is not limited in time to the crediting period being requested.

4. **Guidance:** The fair value of any project activity assets at the end of the assessment period should be included as a cash inflow in the final year. The fair value should be calculated in accordance with local accounting regulations where available, or international best practice. It is expected that such fair value calculations will include both the book value of the asset and the reasonable expectation of the potential profit or loss on the realization of the assets.

> **Rationale:** Net Present Value (NPV) or Internal Rate of Return (IRR) calculations are designed to calculate the return on the cost of investment, in cases where the capital expenditures have not been fully devalued this should be reflected as a cash inflow. Not to apply a residual value would imply that the project must repay the full value of the capital expenditure before the value of this expenditure had been consumed.

5. **Guidance:** Depreciation, and other non-cash items related to the project activity, which have been deducted in estimating gross profits on which tax is calculated, should be added back to net profits for the purpose of calculating the financial indicator (e.g. IRR, NPV). Taxation should only be included as an expense in the IRR/NPV calculation in cases where the benchmark or other comparator is intended for post-tax comparisons.

> **Rationale:** Depreciation is not an actual expense incurred by the company and as such does not directly affect the financial viability of the project. To treat both the capital cost of the assets and their depreciation as an expense to the project would be a double counting of this cost. Taxation can only be considered a relevant expense if the indicator used for comparison purposes is intended for post tax comparisons.

6. **Guidance:** Input values used in all investment analysis should be valid and applicable at the time of the investment decision taken by the project participant. The DOE is therefore expected to validate the timing of the investment decision and the consistency and appropriateness of the input values with this timing. The DOE should also validate that the listed input values have been consistently applied in all calculations.

> **Rationale:** The use of investment analysis to demonstrate additionality is intended to assess whether or not a reasonable investor would or not decide to proceed with a particular project activity without the benefits of the CDM. This decision will therefore be based on the relevant information available at the time of the investment decision and not information available at an earlier or later point. Any expenditures occurred prior to the decision to proceed with the investment in the project will not impact the final investment decision as such expenses sunk costs which remain unaffected by the decision to proceed or not with a project activity.

7. **Guidance:** In the case of project activities for which implementation ceases after the commencement and where implementation is recommenced due to consideration of the CDM the investment analysis should reflect the economic decision making context at point of the decision to recommence the project. Therefore capital costs incurred prior to the revised project activity start date can be reflected as the recoverable value of the assets, which are limited to the potential reuse/resale of tangible assets.[10]

> **Rationale:** At the point of taking a decision to restart implementation of a project as a CDM project activity, the key issue of interest to an investor is the costs and revenues including the incentives from the CDM accruing from continuation of the investment.

[10] Capital expenditures should be included not at the original investment costs but at the market fair value at the point of the decision to proceed with the investment, demonstrating the value through assessments done by chartered specialists.

8. **Guidance**: Project participants should supply spreadsheet versions of all investment analysis. All formulas used in this analysis be readable and all relevant cells be viewable and unprotected. The spreadsheet will be made available to the Executive Board, UNFCCC secretariat and others contracted to assess the request for registration on behalf of the Board including assigned members of the Registration and Issuance Team. In cases where the project participant does not wish to make such a spreadsheet available to the public an exact read-only or PDF copy shall be provided for general publication. In case the PP wishes to black-out certain elements of the publicly available version, a clear justification for this shall be provided to the UNFCCC secretariat by the DOE when requesting registration.

> **Rationale:** Paragraph 6 of Step 2 of the "Tool for the demonstration and assessment of additionality" (version 4) requires that investment analysis be presented in a transparent manner, to the extent that the reader can reproduce the results.

Specific Guidance on the Calculation of Project IRR and Equity IRR

9. **Guidance:** The cost of financing expenditures (i.e., loan repayments and interest) should not be included in the calculation of project IRR.

> **Rationale:** The purpose of the project IRR calculation is to determine the viability of the project to service debt. Therefore to include the cost of financing as an expense in this calculation would result in a double counting of this cost in the ultimate analysis.

10. **Guidance:** In the calculation of equity IRR only the portion of investment costs which is financed by equity should be considered as the net cash outflow, the portion of the investment costs which is financed by debt should not be considered a cash outflow.

> **Rationale:** The purpose of the equity IRR calculation is to determine the final return on the initial equity investment. In such calculations cost of servicing debt (interest and principle payments) are considered as costs. Therefore to consider all investment costs to be a cash outflow would double count the cost of debt to the equity investor.

Selection and Validation of Appropriate Benchmarks

11. **Guidance:** In cases where a benchmark approach is used the applied benchmark shall be appropriate to the type of IRR calculated. Local commercial lending rates or weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR. Required/expected returns on equity are appropriate benchmarks for an equity IRR. Benchmarks supplied by relevant national authorities are also appropriate if the DOE can validate that they are applicable to the project activity and the type of IRR calculation presented.

> **Rationale:** For the same project activity the project IRR and equity IRR will be different, therefore the benchmark shall be appropriate to the type of calculation applied.

12. **Guidance:** In the cases of projects which could be developed by an entity other than the project participant the **benchmark** should be based on publicly available data sources which can be clearly validated by the DOE. Such data sources may include local lending and borrowing rates, equity indices, or benchmarks determined by relevant national authorities. The DOE's validation of such benchmarks shall also include its opinion of the suitability of the benchmark applied in the context of the underlying project activity.

Rationale: If the project could be developed by a different entity the unwillingness of one investor to assume the associated risks is not sufficient evidence that the project is additional, as this may be based on the subjective profit expectations of that investor. The applied benchmark must be suitable for the specific proposed project activity. It is not suitable to compare the return of low risk investments with the returns achieved or achievable by higher risk investments.

13. **Guidance:** Internal company benchmarks/expected returns (including those used as the expected return on equity in the calculation of a weighted average cost of capital - WACC), should only be applied in cases where there is only one possible project developer and should be demonstrated to have been used for similar projects with similar risks, developed by the same company or, if the company is brand new, would have been used for similar projects in the same sector in the country/region. This shall require as a minimum clear evidence of the resolution by the company's Board and/or shareholders and will require the validating DOE to undertake a thorough assessment of the financial statements of the project developer - including the proposed WACC - to assess the past financial behavior of the entity during at least the last 3 years in relation to similar projects.

Rationale: Paragraph 4 of the "Tool for the demonstration and assessment of additionality" (version 3) requires that benchmarks should not include the subjective profitability expectations or risk profile of a particular project developer.

14. **Guidance:** Risk premiums applied in the determination of required returns on equity shall reflect the risk profile of the project activity being assessed, established according to national/international accounting principles. It is not considered reasonable to apply the rate general stock market returns as a risk premium for project activities that face a different risk profile than an investment in such indices.

Rationale: The required rate of return for any project activity will necessarily reflect the underlying risk profile of this project. To apply generalized risk profiles may result in an over statement of the rate of return required to attract investment in a specific project type.

Investment comparison analysis and benchmark analysis

15. **Guidance:** If the proposed baseline scenario leaves the project participant no other choice than to make an investment to supply the same (or substitute) products or services, a benchmark analysis is not appropriate and an investment comparison analysis shall be used. If the alternative to the project activity is the supply of electricity from a grid this is not to be considered an investment and a benchmark approach is considered appropriate.

Rationale: The purpose of an investment analysis in the context of the CDM is to determine whether the project is less financially attractive than at least one alternative in which the project participants could have invested. In cases where the alternative requires investment anyhow and baseline emissions are based on that alternative, the only means of determining that the project activity is less financially attractive than at least one alternative is to conduct an investment comparison analysis. The benchmark approach is therefore suited to circumstances where the baseline does not require investment or is outside the direct control of the project developer, i.e. cases where the choice of the developer is to invest or not to invest.

Sensitivity analysis

16. **Guidance:** Only variables, including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues should be subjected to reasonable variation (all parameters varied need not necessarily be subjected to both negative and positive variations of the same magnitude), and the results of this variation should be presented in the PDD and be reproducible in the associated spreadsheets. Where a DOE considers that a variable which constitute less than 20% have a material impact on the analysis they shall raise a corrective action request to include this variable in the sensitivity analysis

Rationale: The initial objective of a sensitivity analysis is to determine in which scenarios the project activity would pass the benchmark or become more favorable than the alternative.

17. **Guidance:** The DOE should assess in detail whether the range of variations is reasonable in the project context. Past trends may be a guide to determine the reasonable range. As a general point of departure variations in the sensitivity analysis should at least cover a range of +10% and –10%, unless this is not deemed appropriate in the context of the specific project circumstances. In cases where a scenario will result in the project activity passing the benchmark or becoming the most financially attractive alternative the DOE shall provide an assessment of the probability of the occurrence of this scenario in comparison to the likelihood of the assumptions in the presented investment analysis, taking into consideration correlations between the variables as well as the specific socio-economic and policy context of the project activity.

Rationale: The ultimate objective of the sensitivity analysis is to determine the likelihood of the occurrence of a scenario other than the scenario presented, in order to provide a cross-check on the suitability of the assumptions used in the development of the investment analysis.

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History of the document

Version	Date	Nature of revision(s)
03	EB 48, Annex # 17 July 2009	The tool was revised to include situations in which not all potential alternative scenarios to the proposed project activity are available options to the project participants. To that end, Sub-step 1a was revised with the inclusion of scenarios S2, S3 and S4. And, Step 3 was revised with the inclusion of procedures to assess scenarios S2 and S3 through a benchmark analysis.
02.2	26 August 2008	Addition of the "Guidance on the assessment of investment analysis", version 2, as an annex to the tool.
02.1	21 February 2007	The revision was made to version 2 to clarify the flow diagram of the tool.
02	EB 28, Annex 14 15 December 2006	The revision was made to expand the applicability of the tool to newly built facilities where the alternative scenarios to the project activity are available options to project participants.
01	EB 27, Annex 9 01 November 2006	Initial adoption.