Ministry of Power

Ministry of Environment,

Forest and Climate Change

METHODOLOGICAL TOOL

BM-T-001

Combined tool to identify the baseline scenario and demonstrate additionality

INDIAN Carbon MARKET

Publication Date: 27 March 2025

Version 1.0

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1. Introduction

1. This tool provides a step-wise approach to identify the baseline scenario and simultaneously demonstrate additionality.

2. Definitions

2. For the purpose of this methodology, the following definitions apply:

(a) **Applicable geographical area** is India. If the non-obligated entity opts to limit the applicable geographical area to a specific geographical area (such as state, district, etc.) within India, then they shall provide justification on the essential distinction between the identified specific geographical area and the rest of India;

(b) **Measure** (for emission reduction activities) is a broad class of greenhouse gas emission reduction activities possessing common features.

(c) **Output** is good/services produced by the project activity including, among other things, heat steam, electricity, methane, and biogas unless otherwise specified in the applied methodology.

3. Scope & Applicability

3.1. Scope

3. Non-obligated entity shall apply the following four Steps:

(a) Mandatory steps:

(i) Regulatory Analysis;

(ii) Analysis of Lock-in Risk;

(b) STEP 1. Identification of alternative scenarios;

(c) STEP 2. Barrier analysis;

(d) STEP 3. Investment analysis (if applicable);

(e) STEP 4. Common practice analysis.

4. The procedure is summarized in Figure 1. For more specific detail regarding the flowcharts please refer to the text.

3.2. Applicability

5. The tool is applicable to all types of proposed project activities. However, in some cases, methodologies referring to this tool may require adjustments or additional explanations as per the guidance in the respective methodologies. 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.

4. Methodology: Procedure

6. This Step shall be addressed in all ICM PDDs.

4.1.1. Regulatory Analysis

Requirement of specific approach

7. PDDs shall include provisions to demonstrate that the emission reductions or net removals resulting from an ICM project activity would not occur as a result of any law or regulation, unless the law or regulation refers to or formally integrates the offset mechanism as an instrument for implementation. A law or regulation applicable to the proposed project activity that may require a certain technological, performance or management action shall be considered, noting that regulatory environments vary.

8. The analysis supporting this demonstration shall confirm that legal requirements, except for those that refer to or formally integrate the offset mechanism as an instrument for implementation, do not:

   (a) Directly require the implementation of a project activity (e.g. a regulation requires capture of landfill gas);

   (b) Indirectly require the implementation of a project activity, by requiring a certain technological, performance or management action or by preventing potential alternative scenarios to the implementation of the project activity (e.g. a regulation establishing air pollution requirements for landfill sites that cannot be met without capturing the landfill gas;

   (c) Establish a support scheme that:

      (i) Is designed to achieve a quantitative target or outcome for the relevant technologies or practices;

      (ii) Is applicable to the project activity; and

      (iii) Would likely result in the same amount of emission reductions or net removals if the project activity would not be implemented.

9. The analysis shall be based on credible and current evidence and be justified.

10. The methodology shall specify the appropriate frequency for updating the analysis, taking into account the context of the type of project activity, as follows:

   (a) Where the analysis is applied by non-obligated entities, the analysis shall be conducted at the latest at each renewal of the crediting period;

   (b) Where the analysis is applied through a standardized baseline, the methodology shall specify for how long the standardized baseline may be valid (i.e. by when the standardized baseline would need to be updated to confirm that the conclusion of the analysis is still valid).

4.1.2. Analysis of Lock-in Risk

11. Lock-in risks shall be analysed in all methodologies or project activities. Analysis of lock-in risk should preferably be applied by the methodology developer but may also be applied by non-obligated entities;

Requirement of specific approach

12. Methodologies or non-obligated entities shall ensure that the analysis of lock-in risk follows a neutral approach with regards to technology and source.

13. The ICM project activity:

    (a) Does not lead to the adoption or the prolongation of the lifetime of technologies or practices that are incompatible with long term goals of the Paris Agreement, taking into account different national circumstances, approaches and pathways;

    (b) For technologies or practices with a long lifetime, relies on a technology or practice that is among those within the lowest greenhouse gas intensity in the relevant region taking into account the lifetime of the technology or practice in line with national circumstances, approaches and pathways; and

    (c) Does not involve a technology or practice that constitutes an inefficient use of a resource that is important for mitigating climate change or achieving other policy objectives.

14. The non-obligated entity shall either provide appropriate justification that the project activity eligible under the methodology meets the above requirements, as per paragraph 14(a) above, or include a methodological procedure to demonstrate the above requirements, as referred to in paragraphs 14(b) and 14(c) above.

15. The analysis shall consider socio-economic contexts, existing infrastructure and any path dependencies. The analysis shall also consider:
    (a) The technical or operational lifetime of the technologies or practices established as part of an ICM project activity.

    (b) The emissions intensity of these technologies and practices;

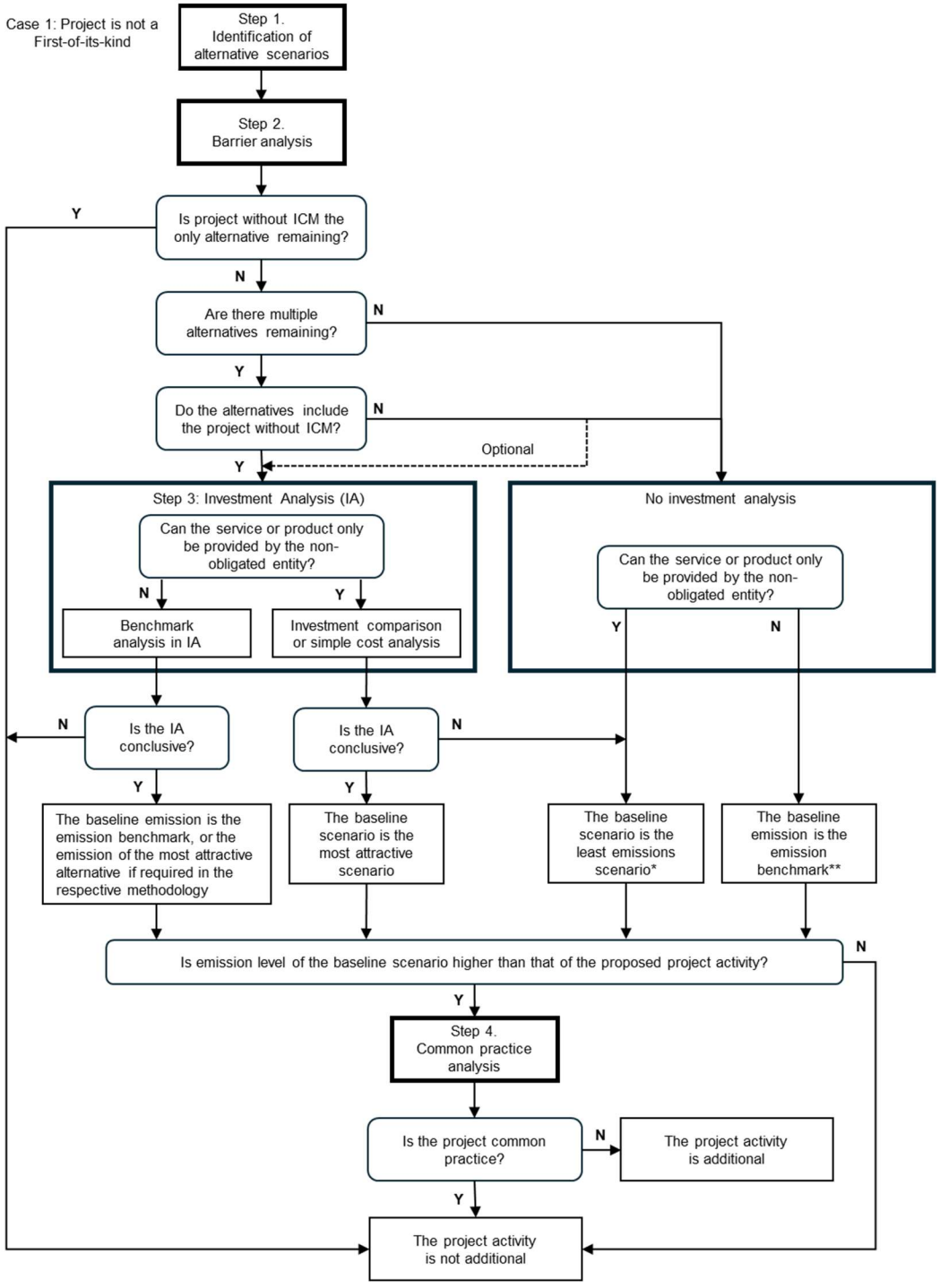
    (c) The scale of the ICM project activity and

    (d) Availability and feasibility of alternative options given national circumstances.

16. Where the technologies or practices applicable under the methodologies have a technical or operational lifetime of no more than 10 years, a methodology may assume that no lock-in risk exists. Appropriate evidence and justification shall be provided for the estimation of the technical or operational lifetime of the technology or practice.

17. The analysis shall be implemented in a conservative manner and be appropriately justified.

Figure 1: Flowchart of the stepwise approach



* In case of only one alternative remaining, the baseline scenario is the remaining alternative;
** If not required otherwise in the respective methodology

4.2. Step 1: Identification of alternative scenarios

18. This Step serves to identify all alternative scenarios to the proposed ICM project activity(s) which can be the baseline scenario:

4.2.1. Step 1a: Define alternative scenarios to the proposed ICM project activity

19. Identify all alternative scenarios that provide the same output (service or product) as the proposed ICM project activity[1]. These alternative scenarios shall include:

    (a) S1: The proposed project activity undertaken without being registered as a ICM project activity;

    (b) S2: Where applicable, no investment is undertaken by the non-obligated entity, i.e., the same output as that produced by the proposed ICM project activity can also be provided by others than the non-obligated entity. For example:

        (i) In the case of a Greenfield power project, an alternative scenario may be that the non-obligated entity would not invest in the Greenfield power plant but that power would be generated in existing and/or new power plants in the electricity grid;

        (ii) In the case of a transportation project, an alternative scenario may be that the non-obligated entities would not invest in alternative modes (e.g. rail or pipelines), but these alternatives would be implemented by third parties.

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

        (i) The continued venting of methane from a landfill;

        (ii) The continued release of N_2O from adipic or nitric acid production.

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

        (i) The continued use of an existing boiler involving expenses for operation and maintenance;

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[1] 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.

(ii) The continued use of a specific fuel mix for power generation in an existing power plant;

(iii) The continued use of existing transportation infrastructure for transporting a product.

(e) S5: Other plausible and credible alternative scenarios to the project activity scenario, including the common practices in the relevant sector, which deliver the same output considering examples of scenarios identified in the underlying methodology where relevant;

(f) S6: Where applicable, the "proposed project activity undertaken without being registered as a ICM project activity" to be implemented at a later point in time (e.g. due to existing regulations, end-of-life of existing equipment, financing aspects).

20. If the proposed ICM project activity includes several different facilities, technologies or outputs, alternative scenarios for each of them should be identified separately. Feasible combinations of these should be considered as possible alternative scenarios to the proposed project activity.[2]

21. For identifying relevant alternative scenarios, provide an overview of technologies or practices (including registered ICM project activities or ICM project activities submitted for registration, or ICM project activities undergoing validation) that provide the same output as the proposed ICM 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), reflecting the variety of the available technologies, that provide the same output as the proposed ICM project activity. If less than ten facilities (or projects) that provide the same output as the proposed ICM 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) or the whole India. Other registered ICM project activities are not to be included in the count to reach 10 facilities in defining the applicable geographical area. Provide relevant documentation to support the results of the analysis, including clear justification on the consideration of S2 if excluded from further consideration.

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

4.2.2. Step 1b: Consistency with mandatory applicable laws and regulations

22. The alternative scenario(s) shall be followed with all mandatory applicable legal and regulatory requirements, even if these laws and regulations have objectives other than

[2] 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 specific 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.

GHG reductions, e.g. to mitigate local air pollution[3] (This Step does not consider national and local policies that do not have legally-binding status).

23. If an alternative scenario 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 scenario from further consideration.

24. If the proposed project activity is the only alternative scenario amongst the ones considered by the non-obligated entities that follows all mandatory regulations with which there is general compliance, then the proposed ICM project activity is not additional.

- Outcome of Step 1b: List of alternative scenarios to the project activity that follow mandatory legislation and regulations considering the enforcement in the region or country and Board decisions on national and/or sectoral policies and regulations.

- If the above-mentioned list contains only one scenario, namely: S1 - the proposed project activity undertaken without being registered as a ICM project activity, then the proposed project activity is not additional and any remaining procedures of this tool are not applicable.

  Otherwise, proceed to Step 2 (Barrier analysis).

4.3. Step 2: Barrier analysis

25. This step serves to identify barriers and to assess which alternative scenarios are prevented by these barriers.

4.3.2. Step 2a: Identify barriers that would prevent the implementation of alternative scenarios

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

    (a) Investment barriers, other than insufficient financial returns as analyzed in Step 3, inter alia:

        (i) For alternatives undertaken and operated by entities: Similar activities have only been implemented with grants or other non-commercial financing 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 applicable geographical area, as defined in Step 1a above;

        (ii) No 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 for example, by the

[3] 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.

credit rating of the country or other country investment reports of reputed origin (e.g. country investment grade or country risk reports).

(b) Technological barriers, inter alia:

(i) Skilled and/or properly trained labor to operate and maintain the technology is not available in the applicable geographical area, which leads to an unacceptably high risk of equipment disrepair, malfunctioning or another underperformance;

(ii) Lack of infrastructure for implementation and logistics for maintenance of the technology (e.g. natural gas cannot be used because of the lack of a gas transmission and distribution network;

(iii) 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 ICM project activity, as demonstrated by relevant scientific literature or technology manufacturer information;

(iv) The particular technology used in the proposed project activity is not available in the applicable geographical area.

(c) 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.

4.3.3. Step2b: Eliminate alternative scenarios which are prevented by the identified barriers

27. Identify which alternative scenarios are prevented by at least one of the barriers listed in 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 consider 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.

28. In applying 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 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 ICM project activity or the ICM 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 the proposed project activity undertaken without being registered as a ICM project activity is the only alternative scenario that is not prevented by any barrier (i.e., answer of "Yes" to the question "Is project without ICM the only alternative remaining?" in Figure 1), the project activity is not additional. In such a case, the remaining procedures of this tool are not applicable.
    - If there is only one alternative scenario that is not prevented by any barrier and it is not the proposed project activity undertaken without being registered as a ICM project activity (i.e., answer of "No" to question "Are there multiple alternatives remaining?" in Figure 1 or Figure 2), then the following applies:
        - If the output can only be provided by the non-obligated entity, then this alternative is identified as the baseline scenario.
        - If the output can also be provided by others than the non-obligated entity (e.g. the market, a third party), an emission benchmark approach is required, if not specified differently in the respective methodology[4]. The baseline scenario corresponds to the scenario representing the emission benchmark. For example, the emission benchmark could be the grid emission factor, and the corresponding baseline scenario is the operation of the power grid.
    - If more than one alternative scenario is not prevented by any barrier (i.e., answer of "Yes" to the question "Are there multiple alternatives remaining?" in Figure 1 or Figure 2), then the following applies:
        - Check whether the remaining alternative scenarios include the proposed project activity undertaken without being registered as a ICM project activity (i.e., the question "Do the alternatives include the project without ICM?" in Figure 1):
            - If Yes, then proceed to Step 3. (Investment Analysis);

[4] The guidance on how the emission benchmark is developed can be found in the respective methodology.

- If No, the non-obligated entity may choose either of the two options below: Option 1: Go to Step 3 (investment analysis); or

  Option 2: Go to the other route "No Investment Analysis" parallel to Step 3 in Figure 1 to justify whether the service or product can only be provided by the non-obligated entity:

  - If Yes, baseline scenario is the alternative with the lowest emissions among the remaining alternatives, after excluding the proposed project activity undertaken without being registered as a ICM project activity from the list of remaining scenarios;

29. If No, an emission benchmark approach (e.g., grid emission factor) is required if not specified differently in the respective methodology[5]. The baseline scenario corresponds to the scenario representing the emission benchmark (e.g., the operation of the power grid).

- If the emission level of the alternative considered as baseline scenario is lower than or equal to that of the "proposed project activity undertaken without being registered as a ICM project activity", then the project activity is not additional.

4.4. Step 3: Investment analysis

30. 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 analysis. The analysis should include all alternative scenarios remaining after Step 2, including scenarios of S2 or S3.

31. The choice between the Benchmark Analysis versus the Investment Comparison Analysis and Simple cost analysis is determined by whether the output can only be provided by the non-obligated entity. The substantiation of the choice with supported evidence shall be clearly presented in the project design document. Furthermore, for the purpose of simplification, the benchmark analysis is mandatory for the following two situations:

(a) The proposed project activity is developed as part of a portfolio of technologies delivering electricity to the power grid[6];

(b) The non-obligated entity is the only power supplier to supply power to the grid in the applicable geographical area (i.e., monopoly).

32. 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.

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[5] The guidance on how the emission benchmark is developed can be found in the respective methodology. If applicable, the methodology may also specify other scenario(s) for the determination of baseline emissions, e.g., it may provide specific guidance on whether emission benchmark alone is sufficient, or it shall still be compared against the emission levels of the most attractive alternative scenario.

[6] For example, the proposed biomass power plant is a part of a programme involving a portfolio of power generation options (e.g., coal, natural gas, biomass power plant etc.) to be implemented by the non-obligated entitiy

33. Calculate the suitable financial indicator for all alternative scenarios remaining after Step 2. Include all relevant costs (including, for example, investment operations and maintenance costs), and revenues (including subsidies/fiscal incentives[7],ODA, etc. where applicable), and, as appropriate, non-market costs and benefits in the case of public investors if this is standard practice for the selection of public investments in the India.

34. For alternative scenarios that correspond to the situation described in S2 or S3, use the following values for the financial indicator to reflect such a situation:

    (a) If the financial indicator is the NPV: Assume a value of NPV equal to zero;

    (b) If the financial indicator is the IRR: Use as the IRR the financial benchmark, as determined through the options (a) to (e) below.

35. 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 non-obligated entity, the specific financial/economic situation of the company undertaking the project activity can be considered.

36. The discount rate (in the case of the NPV) or the financial benchmark (in the case of the IRR) shall be determined as per the procedure mentioned in the "Methodological tool: Investment Analysis".

37. Present the investment analysis in a transparent manner and provide all the relevant assumptions, preferably in the ICM-PDD, or in separate annexes to the PDD, so that a reader can reproduce the analysis and obtain the same results. Refer to critical technoeconomic 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 ACVA. 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.

38. Present in the ICM-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.

39. 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 scenario is the most economically and/or financially attractive.

- Outcome of Step 3:

40. For the case when benchmark analysis has been chosen:

[7] Note that subsidies and incentives may be excluded from consideration in certain cases.

- The baseline scenario corresponds to the scenario representing the emission benchmark (e.g., the operation of the power grid).

- If the sensitivity analysis is conclusive to confirm the result of the benchmark analysis, an emission benchmark approach (e.g., grid emission factor) is required if not specified differently in the respective methodology[8]. The baseline scenario corresponds to the scenario representing the emission benchmark (e.g., the power grid).

- For the case when investment comparison or simple cost analysis has been chosen, rank list of alternative scenarios according to the most suitable financial indicator, taking into account the results of the sensitivity analysis.

  - If the sensitivity analysis is not conclusive, then the alternative scenario to the project activity with least emissions among the alternative scenarios is considered as the baseline scenario;

  - If the sensitivity analysis is conclusive to confirm the result of the investment comparison analysis or simple cost analysis, then the most economically or financially attractive alternative scenario is considered as the baseline scenario;

  - If the alternative considered as baseline scenario is the "proposed project activity undertaken without being registered as a ICM project activity", then the project activity is not additional.

- If the emission level of the alternative considered as baseline scenario is lower than or equal to that of the "proposed project activity undertaken without being registered as a ICM project activity", then the project activity is not additional.

4.5. Step 4: Common practice analysis

41. 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 applicable geographical area. This test is a credibility check to demonstrate additionality and complements the barrier analysis (Step 2) and, where applicable, the investment analysis (Step 3).

42. If the proposed ICM project activity(s) applies measure(s) that are listed in the definitions section above proceed to Step 4 a, otherwise, proceed to Step 4 b:

4.5.2. Step 4a: The proposed ICM project activity(s) applies measure(s) that are listed in the definitions section above

43. Proceed directly to the Outcome of Step 4.

[8] The guidance on how the emission benchmark is developed can be found in the respective methodology. If applicable, the methodology shall also provide specific guidance on whether emission benchmark alone is sufficient, or it shall still be compared against the emission levels of the most attractive alternative scenario.

4.5.3. Step 4b: The proposed ICM project activity(s) does not apply any of the measures that are listed in the definitions section above

44. Provide an analysis to which extent similar activities to the proposed ICM 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 applicable geographical area, as defined in Step 1a above. Other ICM project activities (registered project activities and project activities which have been published portal for global stakeholder consultation as part of the validation process) are not to be included in this analysis. Provide documented evidence and, where relevant, quantitative information. Based on that analysis, describe whether and to which extent similar activities have already diffused in the applicable geographical area.

45. 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 cannot use or why the similar activities did not face barriers to which the proposed project activity is subject.

46. Essential distinctions may include a serious change in circumstances under which the proposed ICM 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 ICM project activity would not be implemented without the incentive provided by the ICM. The change must be fundamental and verifiable.

47. The proposed project activity is regarded as “common practice” if similar activities can be observed and essential distinctions between the proposed ICM project activity and similar activities cannot be identified.

- Outcome of Step 4:

  If outcome of Step 4 is that the proposed project activity is not regarded as “common practice”, then the proposed project activity is additional.

  If outcome of Step 4 is that the proposed project activity is regarded as “common practice” then the proposed ICM project activity is not additional.

Revision/Changes in the Document

Version	*Date*	*Description*
1.0	27 March 2025	Initial Adoption