

VCS Tool

VT0009

COMBINED BASELINE AND ADDITIONALITY ASSESSMENT

Version 1.0

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This tool was developed by Verra based on Clean Development Mechanism (CDM) tools and guidelines.



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1 SUMMARY DESCRIPTION

This tool provides procedures and requirements for a combined approach to identifying the baseline scenario and assessing the additionality of project activities. It provides the following steps:

- Step 1: Identify alternatives to the project activity
- Step 2: Barrier analysis
- Step 3: Investment analysis
- Step 4: Common practice analysis

This tool:

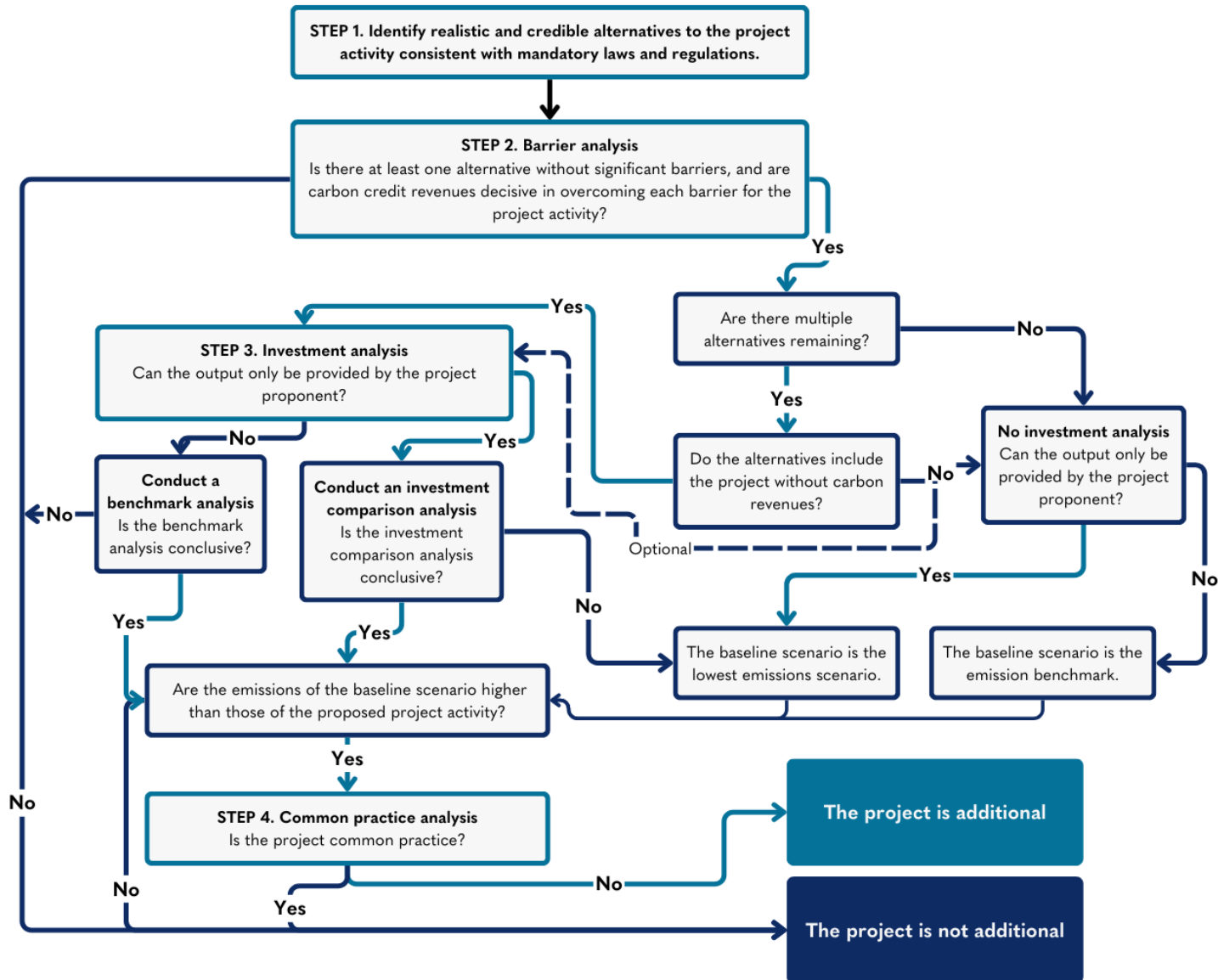
- 1) replaces CDM *TOOL02 Combined Tool to Identify the Baseline Scenario and Demonstrate Additionality* for project activities under the VCS Program.
- 2) consolidates the procedures and requirements for the investment analysis, barrier analysis, and common practice analysis.

This tool must be applied to determine the baseline scenario and assess additionality as indicated in the applicable methodology. Methodologies may require the use of another appropriate additionality tool or provide a different approach to determine the baseline and assess additionality as per the most recent version of the *VCS Methodology Requirements*.

Projects using a methodology that uses CDM *TOOL02* may apply this new tool until a revision of the underlying methodology is published.

Regulatory surplus must be demonstrated in accordance with the VCS Program rules and requirements, in addition to application of this tool, when assessing and demonstrating additionality.

Figure 1: Process flow to determine the baseline scenario and assess additionality under VT0009



2 SOURCES

This tool is based on the following CDM tools and guidelines:

- *TOOL02 Combined Tool to Identify the Baseline Scenario and Demonstrate Additionality, v7.0*
- *TOOL24 Common Practice, v3.1*
- *TOOL27 Investment Analysis, v14.0*
- *Guidelines for Objective Demonstration and Assessment of Barriers, v1.0 (EB50 Annex 13)*

3 DEFINITIONS

Input

Resources used by the project activity, including but not limited to natural resources (e.g., land), energy sources, and raw materials

Output

Goods or services produced by the project activity, including but not limited to finished goods, products, and energy carriers (e.g., heat, steam, electricity)

4 APPLICABILITY CONDITIONS

This tool applies to all types of project activity and is used to determine the baseline scenario and assess additionality.

This tool is applicable under any of the following conditions:

- 1) The applicable methodology requires or permits the use of this tool; or
- 2) The VCS Program rules and requirements require or permit the use of this tool.

Projects using a methodology that uses CDM TOOL02 may apply this new tool until a revision of the underlying methodology is published.

5 PROCEDURES

Regulatory surplus must be demonstrated in accordance with the VCS Program rules and requirements, in addition to application of this tool, when assessing and demonstrating additionality.

Follow these steps to determine the baseline scenario and assess the additionality of the project activity:

- Step 1: Identify alternatives to the project activity
- Step 2: Barrier analysis
- Step 3: Investment analysis
- Step 4: Common practice analysis

5.1 Applicable Geographic Area

The applicable geographic area must be determined for Step 1, Step 2, and Step 4. The same area must be used when applying each of these steps.

Unless the applicable methodology specifies a different approach for determining the geographic region, the following criteria must be applied.

The default applicable geographic area is the entire host country. The project proponent may choose to limit the applicable geographic area to a specific geographic area within the host country. In this case, the project proponent must justify the essential distinctions between the applicable geographic region and the rest of the host country that lead to different investment or implementation conditions specific to the project activity. Relevant factors may include:

- 1) Subsidies, policies, laws, or regulations
- 2) Climatic, topographic, or geological differences
- 3) Socioeconomic conditions
- 4) Infrastructure development and accessibility
- 5) Access to markets and resources
- 6) Cropland suitability related to soil and crop type

5.2 Step 1: Identify Alternatives to the Project Activity

This step identifies all realistic and credible alternative scenarios to the proposed project activity.

5.2.1 Step 1a: Define Alternative Scenarios to the Proposed Project Activity

Identify all plausible alternative scenarios that provide a comparable output and/or use a comparable input as the proposed project activity.¹ These alternative scenarios include:

- 1) **S1:** The proposed project activity is implemented without being registered under a greenhouse gas (GHG) program.
- 2) **S2:** No investment is undertaken by project proponents, meaning that the same output of the proposed project activity can also be provided by entities other than the project proponent (i.e., the project proponent is not the only output provider). For example:
 - a) For a greenfield power project, an alternative scenario S2 may be that the project proponents would not invest in the greenfield power plant, but that power would be generated in existing or new power plants in the electricity grid.
 - b) For a transportation project, an alternative scenario S2 may be that third parties rather than the project proponent would invest in alternative modes of transport (e.g., rail or pipelines).
- 3) **S3:** The continuation of the current situation without additional investment or ongoing operational expenses. For example:
 - a) Continued venting of methane from a landfill
 - b) Continued agricultural land use practice
- 4) **S4:** The continuation of the current situation, with additional investment or requiring ongoing expenses. For example:
 - a) Continued use of an existing boiler involving expenditures for maintenance and operation
 - b) Continued use of existing transportation infrastructure

¹ For example:

- 1) For projects reducing emissions in aluminum or cement production, the output provided by the alternative scenarios should be the production of the same quantity of aluminum or of a cement with comparable quality and characteristics as in the project activity.
- 2) For improved energy efficiency of power generators in a manufacturing plant, different scenarios to supply the same amount of electricity (such as continued operation of the existing generators without retrofit or supply by the electricity grid) must be considered.
- 3) For a landfill gas capture project, different scenarios to manage and operate the landfill must be considered, including the methane vented to the atmosphere, captured and flared, and captured and combusted for energy generation.
- 4) For rice cultivation projects, both the cultivated land area (input) and rice yield (output) may be relevant factors when establishing alternative scenarios.
- 5) For projects recycling solid wastes (e.g., plastic), alternative scenarios with the same quantity of solid wastes (input) and recycled plastic material (output) must be considered. A realistic alternative could be disposing of the solid waste in a landfill or incinerating it, and supplying the same quantity of plastic to the market from virgin plastic production.

- 5) **S5:** Other plausible alternative scenarios to the project activity that deliver a comparable output or use a comparable input, including the common practices in the relevant sector and applicable geographic region.
- 6) **S6:** Where applicable, the proposed project activity is undertaken without being registered as a project activity, and is implemented at a later point in time (e.g., due to existing regulations, end-of-life of existing equipment, financing aspects).

Where the proposed project activity includes different facilities, technologies, inputs, or outputs, alternative scenarios for each should be identified separately. Realistic combinations of these should be considered as possible alternative scenarios to the proposed project activity.²

To identify relevant alternative scenarios, provide an overview of technologies or practices (including projects registered under a GHG program) that are similar to the proposed project activity that have been implemented previously or are currently underway in the applicable geographic area.³ Provide relevant documentation to support the analysis, including a justification where scenario S2 is excluded.

5.2.2 Step 1b: Consistency with Mandatory Applicable Laws and Regulations

Identify the alternative scenarios from Step 1a that comply with all mandatory applicable legal and regulatory requirements within the applicable geographic region. The alternative scenarios must be compatible with all applicable laws and regulations, including those that have objectives other than GHG emission reductions and/or carbon dioxide removals (e.g., for local air pollution control).⁴ Policies that do not have legally binding status must not be considered.

Where any of the alternative scenarios of Step 1a do not comply with all mandatory applicable legislation and regulations, follow these steps:

- 1) Assess the current practice in the applicable geographic region:
 - a) For high-income countries,⁵ all legal requirements are deemed to be enforced.
 - b) For other countries, where the mandatory legal or regulatory requirements are systematically not enforced and non-compliance is widespread in the applicable

² For example:

- 1) For a cogeneration project activity, alternative scenarios for heat and electricity generation should be established separately.
- 2) For a project that improves energy efficiency in several boilers with specific different characteristics (e.g., size, technology, age), alternative scenarios should be established for each boiler or for types of boilers with broadly similar characteristics.

³ Determined per Section 5.1

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

⁵ As defined by the World Bank. Available at: <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>

geographic region, include the alternative scenarios in the list for further consideration. Demonstration of non-enforcement must be based on authoritative and up-to-date information that is relevant and applicable to the alternative scenario.

- 2) Where the mandatory legal or regulatory requirements are enforced, eliminate the alternative scenario from further consideration.

Provide a list of alternative scenarios to the project activity that comply with mandatory legislation and regulations considering enforcement in the applicable geographic region.

Outcome of Step 1

- 1) Where the only alternative scenario is S1 (i.e., the proposed project activity implemented without being registered as a project activity under a GHG program), the proposed project activity is not additional.
- 2) Otherwise, proceed to Step 2 (barrier analysis).

5.3 Step 2: Barrier Analysis

This step identifies barriers to implementation and assesses which alternative scenarios they prevent. The project proponent must:

- 1) Step 2a: identify realistic and credible barriers that may prevent implementation of the project activity and the alternative scenario(s).
- 2) Step 2b: demonstrate that the identified barriers would prevent implementation of the project activity.
- 3) Step 2c: demonstrate that the identified barriers would not prevent implementation of at least one of the alternative scenarios.
- 4) Step 2d: demonstrate that carbon credit revenues are the decisive element in overcoming each identified barrier to the project activity.

The barrier analysis must be conducted according to the following steps and all relevant requirements in Appendix 1.

In applying Steps 2a, 2b, 2c, and 2d provide transparent and verifiable evidence. Make conservative interpretations as to how the evidence demonstrates the existence and significance of the identified barriers and whether alternative scenarios are prevented by these barriers.

5.3.1 Step 2a: Identify Realistic and Credible Barriers

Establish a complete list of realistic and credible barriers that may prevent the alternative scenarios from occurring. The barriers must be based on the actual context of the project

activity and alternatives, and the applicable geographic area,⁶ reflecting practical challenges to implementation. Unless the applicable methodology identifies other barriers specific to the project activity (e.g., technological barriers), such barriers are limited to:

- 1) Financial barriers, other than insufficient financial returns as analyzed in Step 3 (investment analysis), for example:
 - a) Similar activities have only been implemented with grants or other non-commercial financing terms. Similar activities are defined as activities that rely on broadly similar technologies or practices, are of a similar scale, take place in a comparable regulatory environment, and are undertaken in the applicable geographic area.
 - b) No capital is available from domestic or international capital markets due to real or perceived risks associated with investments in the applicable geographic region where the project activity is implemented. This may be demonstrated, for example, by the credit rating of the country or other investment reports from recognized sources (e.g., country investment grade or country risk reports).
- 2) Information barriers, for example:
 - a) Lack of awareness of financial and non-financial benefits for final users⁷
 - b) Low acceptance of new or alternative practices, services, or products associated with the project activity in the relevant sector due to lack of knowledge⁸
- 3) Institutional barriers, for example:
 - a) The investor is not the beneficiary of financial or non-financial benefits (e.g., cost savings) associated with implementation of the project activity.⁹
 - b) Decentralized corporate structures that treat energy costs as an overhead instead of direct costs provide little incentive for organizational units to reduce energy use.

Note – The applicable methodology may identify other barriers specific to the project activity and/or region where the project activity is implemented.

⁶ Determined per Section 5.1

⁷ For example, households may not be aware of the life cycle cost savings associated with the use of energy-efficient appliances.

⁸ For example, construction companies may perceive that high-additive cement blends are of inferior quality to traditional Portland cement.

⁹ For example, misaligned incentives between taxi owners and drivers may prevent implementation of fuel reduction measures. Taxi owners that lease their vehicles to drivers who cover fuel costs do not have a financial incentive to invest in improvements, while drivers lack ownership and will not make such investments.

5.3.2 Step 2b: Demonstrate That Barriers Would Prevent Project Activity Implementation

Demonstrate that at least one of the barriers identified in Step 2a would prevent implementation of the project activity without revenues from carbon credits, following the guidelines in Appendix 1.

Provide verifiable evidence to demonstrate the existence of each identified barrier that would prevent implementation of the project activity and, where possible, quantify the barrier(s).

5.3.3 Step 2c: Demonstrate That Barriers Would Not Prevent Implementation of at Least One Alternative

Identify which alternative scenarios are prevented by at least one of the barriers identified in Step 2a, following the guidelines in Appendix 1. All alternative scenarios must be compared to the same set of barriers, including those faced by the project activity.

Eliminate from further consideration the alternative scenarios that are prevented by at least one barrier. Demonstrate that at least one other alternative to the project activity does not face significant barriers.

Explain and demonstrate with verifiable evidence how the the identified barrier(s) affect the alternative(s) less than the proposed project activity. Where possible, quantify the barriers for the alternatives.

Assessment of the significance of barriers should consider the level of access to capital, availability of information, and institutional conditions in the specific context of the project activity and sector.¹⁰

5.3.4 Step 2d: Demonstrate That Carbon Credit Revenues Are Decisive in Overcoming Barriers

Provide verifiable evidence demonstrating that carbon credit revenues are the decisive element in overcoming each identified barrier to the project activity. Evidence must be relevant and appropriate to the project circumstances.

Outcome of Step 2

- 1) Where there is at least one alternative without significant barriers and carbon credit revenues are the decisive factor in overcoming each identified barrier for the project activity, apply the following:

¹⁰ For example, projects in industries with small- and medium-sized enterprises may not have the same means to access capital or overcome information barriers as projects in sectors where typically large or international companies operate.

- a) Where only one alternative scenario is not prevented by any barrier and it is not scenario S1:
 - i) Where the output can only be provided by the project, this alternative is the baseline scenario.
 - ii) Where the output can also be provided by others (e.g., other market participants), an emission benchmark approach is required, unless otherwise specified in the applicable methodology.¹¹ The baseline scenario corresponds to the scenario representing the emission benchmark.¹²
 - b) Where more than one alternative scenario is not prevented by any barrier and one of these is S1, proceed to Step 3 (investment analysis).
 - c) Where more than one alternative scenario is not prevented by any barrier and none of these is S1, the project proponent may choose one of the following options:
 - i) Option 1: Proceed to Step 3 (investment analysis)
 - ii) Option 2: Where the service or product can only be provided by the project, the baseline scenario is the alternative with the lowest emissions among the remaining alternatives.
 - iii) Option 3: Where the service or product can be provided by others, an emission benchmark approach must be applied unless specified otherwise in the applicable methodology.¹³ The baseline scenario corresponds to the scenario representing the emission benchmark.
- 2) For 1(a)(ii), 1(c)(ii), and 1(c)(iii), where the emissions of the baseline scenario are:
 - a) lower than or equal to those of scenario S1, the project activity is not additional
 - b) higher than those of scenario S1, proceed to Step 4 (common practice analysis).
 - 3) Where all alternatives face significant barriers and/or carbon credit revenues are not the decisive factor in overcoming each barrier for the project activity, the project is not additional.

¹¹ Guidance on developing the emission benchmark is provided in the applicable methodology.

¹² For example, the emission benchmark could be the grid emission factor, and the corresponding baseline scenario is the operation of the power grid.

¹³ Guidance on developing the emission benchmark is provided in the respective methodology. Where applicable, the methodology may also specify other scenario(s) for the determination of baseline emissions (e.g., it may provide specific guidance on whether an emission benchmark alone is sufficient, or whether it must still be compared against the emission levels of the most attractive alternative scenario).

5.4 Step 3: Investment Analysis

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 must include all alternative scenarios remaining after Step 2.

The investment analysis must be conducted in accordance with the following steps and the requirements in Appendix 2.

For project activities spanning multiple countries, the investment analysis must be conducted separately for each individual country.

Select one of the following options and explain and justify the choice of investment analysis type:¹⁴

a) **Option 1: Investment comparison analysis**

Use this option to compare the financial indicator of the project activity with that of the alternative scenarios and demonstrate that the project activity is less financially attractive in the absence of carbon credits. Where relevant, the alternative scenarios considered must provide the same output or use the same input as the project activity.¹⁵

b) **Option 2: Benchmark analysis**

Use this option to compare the financial indicator of the project activity with a benchmark. Typically, benchmark analysis is suitable where the proposed project activity is developed as part of a portfolio of technologies or practices, or where entities other than the project proponent could provide the same output of the project activity.¹⁶

5.4.1 Investment Comparison Analysis

- 1) Identify a financial indicator, such as internal rate of return (IRR), net present value (NPV), cost-benefit ratio, or levelized cost,¹⁷ suitable for the project type and decision-making context.
- 2) Calculate the financial indicator for all alternative scenarios remaining after Step 2. Where the IRR or NPV are used as the financial indicator, apply the following values for the alternative scenarios S2 and S3:
 - a) The NPV is equal to zero.

¹⁴ The option “simple cost analysis” that was provided in CDM *TOOL02* has been removed. Where the project activity and the alternatives do not generate any financial or economic benefits, the project proponent may apply investment comparison analysis (Option 1) without cash inflows.

¹⁵ For example, investment comparison analysis is suitable for a project activity in a manufacturing plant that has different alternative scenarios to supply the same level of electric and thermal energy for the manufacturing process.

¹⁶ For example, benchmark analysis is suitable for a grid-connected solar power plant.

¹⁷ For example, levelized cost of electricity production in USD/kWh or delivered heat in USD/GJ

- b) The IRR is equal to the financial benchmark as determined in Appendix 2.
- 3) Present a clear comparison of the financial indicator for all alternative scenarios and rank the alternative scenarios according to the financial indicator.
- 4) Demonstrate that the project activity would not be the most economically attractive scenario in the absence of carbon credits.
- 5) Conduct a sensitivity analysis to demonstrate that the condition in (4) is met under reasonable variations in the critical assumptions (i.e., the sensitivity analysis is conclusive).

5.4.2 Benchmark Analysis

The financial indicator used must be the IRR (either project IRR or equity IRR).

- 1) Calculate the IRR for the project activity.
- 2) Demonstrate that:
 - a) the project activity would not meet the required financial benchmark without carbon credit revenues;

Note – Where it is demonstrated that a project activity meets the condition above but not the conditions below, it is considered additional but may not be eligible for Core Carbon Principles labels.

- b) the economic performance of the mitigation activity increases decisively through carbon credit revenues; and
 - c) carbon credit revenues raise the financial indicator to or above the required financial benchmark.
- 3) Conduct a sensitivity analysis to demonstrate that the conditions in (2) are met under reasonable variations in the critical assumptions.

Outcome of Step 3

- 1) For the **investment comparison analysis**:
 - a) Where the sensitivity analysis is not conclusive (Section 5.4.1, steps 3–5), the baseline scenario is the alternative scenario with the lowest emissions.
 - b) Where the sensitivity analysis conclusively confirms the result of the investment comparison analysis (Section 5.4.1, steps 3–5), the baseline scenario is the most economically or financially attractive alternative scenario.

If the baseline scenario is scenario S1 (i.e., the proposed project activity undertaken without being registered as a VCS project activity), the project activity is not additional.

- 2) For the **benchmark analysis**:
 - a) Where the sensitivity analysis confirms that the project activity meets requirement 2a) in Section 5.4.2, an emission benchmark approach is required unless otherwise specified in the methodology. The baseline scenario is the scenario representing the emission benchmark.¹⁸
 - b) Where the sensitivity analysis fails to confirm that the project activity meets requirement 2a) in Section 5.4.2, the project activity is not additional.
- 3) If the emissions of the baseline scenario are:
 - a) lower than or equal to those of scenario S1, the project activity is not additional.
 - b) higher than those of scenario S1, proceed to Step 4 (common practice analysis).

5.5 Step 4: Common Practice Analysis

The previous steps (Steps 1–3) must 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 geographic area.¹⁹

5.5.1 Step 4a: Determining Procedure for Common Practice Analysis

The approach applied to common practice analysis is determined based on the project type. For the following measures,²⁰ apply Step 4b:

- 1) Fuel or feedstock switch (e.g., switch from naphtha to natural gas for energy generation, switch from limestone to gypsum in cement clinker production)
- 2) Switch of technology with or without change in energy source (e.g., energy efficiency improvements, power generation based on renewable energy)
- 3) Methane destruction (e.g., landfill gas flaring)
- 4) Methane formation avoidance (e.g., use of biomass for energy generation that would otherwise have been left to decay and emit methane)
- 5) Carbon capture and storage (e.g., technology-based carbon capture and storage where CO₂ is sourced from industrial facilities or the atmosphere)

¹⁸ For example, the emission benchmark may be the grid emission factor, for which the baseline scenario would be the power grid.

¹⁹ Determined per Section 5.1

²⁰ In the context of this tool, a measure is a broad class of greenhouse gas emission reduction and carbon dioxide removal activities with common features.

For all other measures apply Step 4c.

5.5.2 Step 4b: Common Practice Analysis for Measures Listed in Step 4a

- 1) Calculate the applicable capacity or output range as $\pm 50\%$ of the proposed project activity's total design capacity or output.
- 2) Identify similar projects (both VCS and non-VCS) that meet all of the following conditions:
 - a) The projects are located in the applicable geographic area.
 - b) The projects apply the same measure (per Step 4a) as the proposed project activity.
 - c) Where a technology switch is implemented by the proposed project activity, the projects use the same energy source/fuel and feedstock as the proposed project activity.
 - d) The plants in which the projects are implemented produce goods or services with comparable quality, properties, and application areas (e.g., clinker) to the proposed project plant.
 - e) The capacity or output of the projects is within the applicable capacity or output range calculated in 5.5.2(1).
 - f) The projects started commercial operation before the proposed project is published for public stakeholder consultation or before the start date of the proposed project activity, whichever is earlier.²¹
- 3) Identify which of the similar projects are not registered, submitted for registration, or undergoing validation under the VCS program. Note their number as N_{all} . Projects under other GHG programs may optionally be excluded from N_{all} .
- 4) Identify which of the projects in N_{all} differ by at least one of the following (as appropriate in the context of the measure applied in the project activity and applicable geographic area):
 - a) Energy source/fuel (e.g., energy generation by different energy sources such as wind and hydro and different types of fuels such as biomass and natural gas);
 - b) Feedstock (e.g., production of fuel ethanol from different feedstocks such as sugar cane and starch, production of cement with varying percentages of alternative fuels or less carbon-intensive fuels);

²¹ To identify similar projects, project proponents may also use publicly available information (e.g., from government departments, industry associations, international associations) on the market penetration of different technologies.

- c) Investment climate on the date of the investment decision, such as access to technology, subsidies or other financial flows, promotional policies, or legal regulations; or
- d) Other features and conditions, such as the nature of the investment (for unit cost of capacity or output,²² technologies/activities are considered different where their costs are at least 20% lower).

Note the number of projects that have essential distinctions as N_{diff} .

- 5) Calculate factor $F = 1 - N_{diff} / N_{all}$ representing the share of similar projects without essential distinction in the applicable geographic area.

The proposed project activity is considered a common practice where factor F is greater than 20% and $N_{all} - N_{diff}$ is greater than 3.²³ Methodologies may establish a different threshold specific to the project activity.

5.5.3 Step 4c: Common Practice Analysis for Measures Not Listed in Step 4a

Provide an analysis of the extent to which similar activities to the proposed project activity have been implemented previously or are currently underway in the applicable geographic area. Similar activities are those with comparable technologies or practices, scales, and regulatory environments. Exclude activities that are under validation or registered under the VCS Program. Activities under other GHG programs may optionally be excluded. Note the number N_{all} of the remaining similar activities. Provide documented and verifiable evidence to support the analysis and, where relevant, quantitative information.

Where similar activities to the proposed project activity are identified, compare the project activity to these other activities. Identify and explain any essential distinctions between the proposed project and similar activities. Such essential distinctions may include significant changes in circumstances, such as new barriers that have emerged or the end of promotional policies, that affect implementation of the proposed project activity compared to other similar activities. The distinction must be essential and verifiable.

Essential distinctions²⁴ may be related to, for example:

- Access to resources and prices
- Market conditions

²² In general, capacity values should be considered in the common practice analysis. The use of output values should be justified and consistently applied in the analysis.

²³ Where F is greater than 20% but $N_{all} - N_{diff}$ is 3 or less, the project is not considered a common practice.

²⁴ Note that Section 5.1 broadly defines the geographic area for analysis using similar criteria. However, the common practice analysis focuses on specific activities within that area. Even within a region with similar circumstances, individual activities may face varying implementation conditions.

- Economic conditions, subsidies, or other incentives
- Socioeconomic conditions
- Infrastructure development and accessibility
- Labor force and expertise
- Climatic, topographic, or geological differences
- Cropland suitability related to soil and crop type

Note the number of projects in N_{all} that have essential distinctions as N_{diff} .

Calculate factor $F = 1 - N_{diff} / N_{all}$ representing the share of similar projects without essential distinction in the applicable geographic area.

The proposed project activity is considered a common practice where factor F is greater than 20% and $N_{all} - N_{diff}$ is greater than 3.²⁵ Methodologies may establish a different threshold specific to the project activity.

Outcome of Step 4

- 1) Where the outcome of Step 4 is that the proposed project activity is not considered common practice, and all other relevant steps in this tool or the applicable methodology are met, then the proposed project activity is additional.
- 2) Where the outcome of Step 4 is that the proposed project activity is considered common practice, then it is not additional.

6 REFERENCES

Not applicable.

²⁵ Where F is greater than 20% but $N_{all} - N_{diff}$ is 3 or less, the project is not considered a common practice.

APPENDIX 1: BARRIER ANALYSIS REQUIREMENTS

The following requirements must be applied to demonstrate the existence of barriers.

- 1) Evidence to demonstrate the existence of each barrier and that carbon credit revenues are the decisive element in overcoming each barrier must be verifiable. The evidence must be relevant and appropriate to the project circumstances. Such evidence may include:

- Relevant legislation, regulatory information, or industry norms
- Publicly available studies or surveys
- Relevant third-party studies or surveys (e.g., market surveys, technology studies) undertaken by universities, research institutions, industry associations, companies, bilateral/multilateral institutions, etc.
- Data from national or international statistics
- Documentation of relevant market data (e.g., market prices, tariffs, policies)
- Written documentation from independent experts from research institutions, industry associations, or similar
- Written documentation from the project proponent in the context of the proposed project activity or similar projects implemented in the past (e.g., minutes from board meetings, correspondence, internal feasibility studies) may be used to support the analysis, but must not be the only evidence provided.

Rationale: Verifiable evidence relevant and appropriate to the project circumstances is required to objectively demonstrate the existence of barriers and determine whether the carbon credit revenues are a decisive element in overcoming each barrier.

- 2) The evidence used must be interpreted and applied conservatively to assure that it is very unlikely that the effect of the barrier is overestimated.

Rationale: Barriers may have a level of uncertainty and evidence should be interpreted with conservativeness to reduce the risk of false positives in the additionality assessment.

- 3) While demonstrating barriers, project proponents must provide relevant information on the company, and other entities and users involved, such as the nature of the entities involved in the financing, company organization, and ownership, or relevant financial information.²⁶

²⁶ For example, a subsidiary of a multinational group may have different access to capital or information than local small- and medium-sized enterprises.

Rationale: This complementary information is relevant in assessing the existence and significance of barriers faced in the actual context of the project activity and alternatives.

- 4) Assessment of the significance of barriers should consider the level of access to capital, availability of information, and institutional conditions in the specific context of the project activity and sector.²⁷

Rationale: The assessment should account for the specific context of the project activity and sector to ensure that only relevant barriers are identified.

- 5) In order to make an objective claim for a specific barrier, the project proponent may demonstrate that in similar circumstances (in similar industries/sectors, in companies of similar size and ownership structure, in similar projects), the barriers prevented the implementation of other projects.

Rationale: The evidence of the existence of the barrier for other projects under similar circumstances makes the barriers more objective and provides a strong argument that a project is additional.

- 6) Barriers that can be mitigated by additional financial means may be quantified and represented as costs. They should not be identified as a barrier but considered in the investment analysis.²⁸

Rationale: A barrier that can be monetized and quantified as an additional cost in an investment analysis provides a much more objective demonstration than simply showing that a barrier prevents investment from being pursued.

- 7) Project proponents claiming a financial barrier must demonstrate that project implementation is reliant on the benefit of carbon credits, where applicable. Therefore, it must be demonstrated that the lender explicitly considers the project registration when approving the loan or that carbon credits are otherwise decisive for accessing capital.²⁹

Rationale: Demonstrating that the lender considers the project registration or that carbon credits are otherwise essential for accessing capital or securing funding provides clear evidence of the role in decision-making and that carbon credit revenues are decisive in overcoming financial barriers.

²⁷ For example, projects in industries with small- and medium-sized enterprises may not have the same means to access capital or overcome other barriers as projects in sectors where typically large or international companies operate.

²⁸ For example, trained labor and the required knowledge to operate and maintain new technologies may initially not be available for a company. However, this does not necessarily prevent implementation of the project activity. Most equipment suppliers are able to provide sufficient training and/or provide staff to operate the plant. However, this adds additional costs (salaries, training costs, service fees) that may be considered in the investment analysis.

²⁹ For example:

- 1) The investment is made by a company that also purchases the verified carbon units (VCUs), and the loan agreement requires the registration of the project activity and generation of VCUs.
- 2) A significant part of the project investment is provided upfront by a company as pre-payment for expected VCUs, to enable project implementation.

- 8) Proponents of projects in Least Developed Countries (LDCs), Small Island Developing States (SIDS),³⁰ and Low-Income Countries (LICs):³¹
- a) should apply the procedures for barrier analysis in Section 5.3 and requirements 1) to 7) in this appendix, as applicable.
 - b) may alternatively apply a simplified approach if they demonstrate that the standard approach is not feasible due to a lack of sufficient evidence or data. In such cases, project proponents:
 - i) must provide a transparent description of the relevant barriers and why carbon credit revenues are the decisive element in overcoming each barrier.
 - ii) must provide an opinion from an independent expert with relevant experience in the sector, supporting the description of the barriers.
 - iii) must provide a clear justification for why the standard procedures and requirements could not be reasonably applied (e.g., due to lack of information available).
 - iv) may use verifiable internal documentation in the context of the proposed project activity or similar projects implemented in the past (e.g., minutes from board meetings, correspondence, internal feasibility studies) to support the analysis.

³⁰ As defined by the United Nations, available at: <https://www.un.org/ohrlls/content/list-sids>

³¹ As defined by the World Bank, available at: <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>

APPENDIX 2: INVESTMENT ANALYSIS REQUIREMENTS

A2.1 General Requirements

- 1) Project proponents must provide an Excel spreadsheet with the detailed investment analysis.
 - a) All formulas must be readable, and all relevant cells must be viewable and unprotected.
 - b) The data and equations in the spreadsheet must be clearly traceable, with references to the relevant sources provided.
 - c) Justify and cite assumptions in a verifiable manner.
 - d) The spreadsheet will be made available to Verra reviewers.
 - e) The spreadsheet will be published alongside the project description on the Verra website.
 - f) Commercially sensitive information may be protected as per the *VCS Standard*, where it is demonstrated, to Verra's satisfaction, that such information is commercially sensitive.

Rationale: Investment analysis must be presented in a transparent manner, to the extent that the reader can reproduce the results.

- 2) The assessment period for the selected financial indicator (such as IRR or NPV) should reflect the expected project lifetime.³² Alternatively, a shorter assessment of at least ten years may be used.

Rationale: The purpose of undertaking an investment analysis is to determine whether or not the project activity would be financially viable without the incentive of carbon credits. This analysis must consider the full operational lifespan, since the actual project activity may extend beyond the crediting period.

- 3) The investment analysis must reflect all cash flows associated with the project activity during the assessment period, including:
 - a) All investment, operational, and maintenance costs. Such costs must be included for the alternative scenarios but may be conservatively excluded for the project activity.
 - b) All revenues, such as incomes from sales of products or services, subsidies, fiscal incentives, and official development aid. Cost savings associated with implementation of the project activity (e.g., tax benefits) must also be included as revenues. Revenues must

³² This refers to real project lifetime (e.g., technical lifetime, period of the operational permit), not the crediting period.

be included for the project activity, but may be conservatively excluded for the alternative scenarios.

- c) The project's risks may be accounted for as costs. Such risks and their associated costs must be supported by verifiable third-party evidence, such as insurance premiums from reputable insurance providers or reports from industry associations.

Rationale: All cash flows associated with the project activity and alternative scenarios are relevant for establishing the financial indicator. Excluding costs for the project activity and excluding revenues for alternative scenarios is conservative in demonstrating additionality and, where applicable, determining the baseline scenario.

- 4) All parameters and assumptions used in the analysis must be consistent:
 - a) with the financial indicator applied.
 - b) across alternative scenarios unless differences are well substantiated.

Rationale: Consistency is important to guarantee an accurate investment analysis and comparison of alternatives and to provide reliable conclusions about the additionality of the project activity.

- 5) The input values used in the investment analysis and the benchmark analysis must be valid and applicable at the time that the investment decision for the project activity was made. Any expenditures that occurred prior to the investment decision of the project activity must be excluded from the investment analysis.

Rationale: Use of the investment analysis to demonstrate additionality is intended to assess whether an investor would implement the project activity without carbon credit revenues. This decision is based on information available at the time of the investment decision. Expenditures made prior to the investment decision, such as costs for feasibility studies or testing, are sunk costs and do not influence the final investment decision.

- 6) Where implementation of a project activity ceases and is recommenced at a later point:
 - a) The investment analysis must reflect the economic decision-making context at the time of the decision to recommence the project activity.
 - b) Capital expenditures incurred in tangible assets between the initial decision and the decision to recommence the project activity may be included as the recoverable value from the potential reuse or resale of the assets. Such capital expenditures are included at the market fair value at the point of the decision to recommence and must be based on assessments from independent third-party experts.
 - c) Expenditures other than capital expenditures in tangible assets incurred prior to the decision to recommence must be excluded.

Rationale: At the time of the decision to recommence implementation of the project activity, the decision is based on information available at that time. Prior expenditures, such as feasibility studies or testing costs, do not affect the final decision unless they involve tangible assets that can be reused or resold.

- 7) All assumptions, data, and conclusions in the investment analysis must be:
- a) transparently documented in the project description.
 - b) appropriately justified and substantiated by verifiable evidence.
 - c) relevant and appropriate to the project circumstances.
 - d) consistent with information presented to the company's decision-making management and to investors/lenders.
- 8) The fair value of the assets at the end of the assessment period must be included as a cash inflow in the final year. The fair value should be calculated in accordance with local accounting regulations or international best practice. The fair value must include both the book value of the assets and the expected profit or loss on the realization of the assets (where applicable).

Rationale: In determining a financial indicator, capital expenditures that have not been fully depreciated should be reflected as a cash inflow. Excluding their fair value would incorrectly assume that the assets have no value remaining, although they may still be used by the project proponent in other projects or sold to other market participants.

- 9) Where the financial indicator selected requires a discount rate (e.g., for NPV in investment comparison analysis), the discount rate must be determined following the requirements for the calculation of IRR benchmarks in Section A2.3.

Rationale: The discount rates must align with the benchmark to ensure consistency and that the NPV reflects a true measure of profitability relative to the project's risks and the cost of capital.

- 10) The investment analysis must be conducted with post-tax cash flows.

Rationale: The weighted average costs of capital (WACC)³³ and cost of equity³⁴ are post-tax IRR benchmarks. By using post-tax cash flows, the investment analysis provides the net cash flows consistent with the WACC or cost of equity.

- 11) Depreciation and other non-cash items deducted from gross profits for tax calculations must be added back when determining the financial indicator.

³³ The WACC is determined in Section A2.3

³⁴ The cost of equity is determined in Section A2.3.1

Rationale: Depreciation is a non-cash expense and not an actual cash outflow. To avoid double counting asset costs, depreciation is added back when calculating the financial indicator.

- 12) For Section 5.4.2 2b) and 2c), forecasted carbon credit prices must be based on verifiable evidence available at the time of investment decision. The evidence must be relevant to the project activity and VCUs. Such evidence may include, for example:
- a) Existing contracts for comparable projects
 - b) Actual sale of comparable carbon credits
 - c) Third-party market reports and studies
 - d) Published price forecasts
 - e) Government or regulatory body projections
 - f) Industry or sector-specific pricing reports and forecasts
 - g) Benchmark pricing data from recognized carbon exchanges or trading platforms

Rationale: Sections 5.4.2 2b) and 2c) require demonstrating the impact of carbon credit revenues on the economic performance of the project activity, which must reflect the actual market conditions and carbon credit price forecast relevant to the project activity and VCUs at the time of the investment decision.

A2.2 Application of Project IRR and Equity IRR

- 13) The investment analysis must be consistent with the indicator used (such as project IRR or equity IRR) and the type of benchmark selected in accordance with Section A2.3.
- 14) When calculating the project IRR, the cost of financing expenditures (i.e., loan repayments and interest) must be excluded.

Rationale: The purpose of the project IRR calculation is to determine the viability of the project to service debt. Including the cost of financing as an expense would result in double counting of this cost.

- 15) When calculating the equity IRR, only the portion of the investment costs financed by equity is included as a cash outflow. The portion of the investment costs which is financed by debt must be excluded from the cash flows.

Rationale: The purpose of the equity IRR calculation is to determine the final return on the initial equity investment. In such calculations, the cost of servicing debt (interest and principle payments) is a real cash outflow. Considering the investment costs financed by debt as cash outflow would result in double counting of the cost of debt.

A2.3 Selection of Appropriate Benchmarks

16) The applied benchmark must be appropriate for the type of IRR calculated, based on parameters that are standard in the market, and commonly applicable to the country, sector, and type of mitigation activity:

a) WACC for the project IRR

$$WACC = r_e \times W_e + r_d \times (1 - T_c) \times W_d \quad (1)$$

Where:

r_e	=	Cost of equity (unitless)
W_e	=	Portion of equity for financing (%)
r_d	=	Cost of debt (unitless)
W_d	=	Portion of debt for financing (%)
T_c	=	Corporate tax rate (unitless)

b) Required/expected returns on equity for the equity IRR

Rationale: For the same project activity, the project IRR and equity IRR are different. The benchmark should be appropriate to the type of IRR calculation applied and be representative of the country, sector, and type of mitigation activity.

17) All cash flows and the financial benchmark (where applicable) must be consistently used in either real or nominal terms. Where an investment analysis is carried out in nominal terms and the available IRR benchmark is in real terms, the benchmark must be converted to nominal values by adding the inflation rate.

18) The inflation rate must be obtained from the following sources (use the highest listed available option):

- Inflation forecast of the central bank of the host country for the duration of the crediting period
- Target inflation rate of the central bank
- Average forecasted inflation rate for the host country published by the International Monetary Fund (IMF) or the World Bank for the next five years after the time of decision-making

A2.3.1 Cost of Equity (Expected Return on Equity) in the Market

19) The cost of equity must be determined by any of the following, applicable to the country, sector, and type of mitigation activity:

a) The appropriate default value determined as per Section A2.5;

- b) 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;
- c) Estimates of the required return on capital, based on bankers' views and private equity investors/funds' required return on comparable projects;
- d) Government/official approved benchmark where such benchmarks are used for investment decisions; or
- e) Calculating the cost of equity using a capital asset pricing model (CAPM) as per Section A2.3.1(20), where all of the following conditions are satisfied according to the most recent datasets from the World Federation of Exchanges and Gross Domestic Product (GDP) from the World Bank or UNSTAT:
 - i) The stock exchange has existed for more than 10 years;
 - ii) The stock market is representative of the domestic economy (i.e., ratio of stock market capitalization to GDP is greater than 20%);
 - iii) The average share turnover ratio over the last calendar year is greater than 20%;
 - iv) There are at least three domestic pure players³⁵ that belong to the same sector as the project,³⁶ allowing beta to be calculated with at least three years of daily stock market data, and daily values are available; and
 - v) There are domestic government securities labeled in the domestic currency with maturities over 10 years.

Where a project activity involves multiple project types or sectoral scopes, the most conservative cost of equity or expected return on equity among them must be used.

Rationale: The values in Section A2.5 reflect approximate returns on equity expected by the market for different sectors and countries. The expectation of return depends on conditions of the market that can be modeled, taking into account the history (time series) of the market's key variables.

- 20) The cost of equity using CAPM is calculated as follows, using official data sources from financial institutions (e.g., central banks, stock exchanges). Other reputable third-party sources may be used where official data from financial institutions are unavailable.

³⁵ A "domestic pure player" refers to a company that operates primarily within a single country and focuses on one core business or sector, without significant diversification into other industries or geographies. In the context of financial assessments, such companies are important for calculating sector-specific performance metrics, like beta, because they reflect the pure risk and return characteristics of their particular industry within the domestic economy.

³⁶ Where this data requirement cannot be met, the sector may be defined more broadly (e.g., by extending from the solar photovoltaic sector to the renewable energy sector and even to the utilities sector), so that at least three players can be identified.

$$r_e = r_f + \beta \times (r_m - r_f) \quad (2)$$

Where:

r_e	=	Cost of equity (unitless)
r_f	=	Risk-free rate (unitless)
β	=	Beta (unitless)
r_m	=	Expected market return (unitless)

The parameters must be established as follows:

- a) The risk-free rate must be based on local sovereign debt and have a maturity date close to the project lifetime (at least 10 years) and sufficient liquidity. The most recent sovereign debt data available at the time of the investment decision must be used.
- b) Beta³⁷ must be calculated as the weighted arithmetic mean of the beta of all the pure players that have been in business for at least three years and over the longest common lifetime for the companies in the sample of pure players, weighted by the total capitals (i.e., equity and long-term debt) of the pure players. The individual betas must be calculated independently without deleveraging by the debt-equity ratios of the pure players.
- c) The expected market return must be calculated using the mean of the following three annualized rates of return of the stock market for:
 - (i) the longest time series available,
 - (ii) a 20-year horizon (if existing), and
 - (iii) a 10-year horizon (if existing).

Daily values must be used. Where there are multiple stock exchange indices, stock issues for a given company, or sovereign debt issues, the most liquid or most frequently traded one must be used. For stock market indices, liquidity is assessed with the volume of trading for the component stock issues.

A2.3.2 Cost of Debt

- 21) The cost of debt must be calculated as the cost of financing in the capital markets (e.g., commercial lending rates and guarantees required for the country and the type of project activity concerned), based on documented evidence from financial institutions regarding the cost of debt financing for comparable projects. Where a project activity involves multiple project types or sectoral scopes, the most conservative cost of debt among them must be used.

³⁷ Measure of the risk (volatility of returns)

A2.3.3 Weighting of Debt and Equity

- 22) The typical debt/equity finance structure observed in the sector and host country must be used based on verifiable third-party information. Where such information is not available, 50% debt and 50% equity financing must be used.

A2.4 Sensitivity Analysis

- 23) Variables (including revenues and costs) constituting more than 20% of either total project costs or revenues must be subjected to reasonable variation. Any other variables with a material impact must also be varied. The sensitivity analysis must be included in the Excel spreadsheet, and the results and conclusions must be presented in the project description.

Rationale: The initial objective of the sensitivity analysis is to determine in which scenarios the project activity would pass the benchmark or become more favorable than the alternative(s). Reasonable variations must be applied to assess likely scenarios that may change the conclusions.

- 24) To determine the reasonable range of variations in the project context, market data and third-party studies³⁸ relevant to the project circumstances may be used. Past trends may also be used where they are based on verifiable evidence. Where such information is not available, variations must at least cover a range of $\pm 10\%$.
- 25) In cases where a scenario will result in the project activity passing the benchmark or becoming the most financially attractive alternative, the validation/verification body must 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 among the variables as well as the specific socioeconomic and policy context of the project activity.

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

A2.5 Default Values for Cost of Equity (Expected Return on Equity)

- 26) Default values for the cost of equity or expected return on equity in the host country are calculated as the sum of the following parameters, adjusted to reflect the different risk levels across sectoral scopes:

³⁸ For example, reasonable variations in energy generation may be based on studies conducted by a third-party consultant.

- a) Risk-free rate of return: calculated based on the inflation-adjusted geometric mean of annualized real return on long-term US government bonds for 1973–2022.³⁹ A value of 3.1% is used.⁴⁰
 - b) Equity risk premium: derived from the inflation-adjusted geometric mean return on equity in the US market relative to long-term US government bonds for 1973–2022. A value of 2.7% is used.
 - c) Country risk premium: based on Moody’s rating and Standard & Poor’s (S&P), for countries with available ratings,⁴¹ PRS Composite Risk Score for frontier markets, and Fitch rating. For countries where none of the above is available, a statistical algorithm developed by the United Nations Framework Convention on Climate Change (UNFCCC) is used to derive the values, based on the most recent available macroeconomic data⁴² published by the World Bank, IMF, and the Fragile State Index (these countries are marked with an asterisk in Table 1).
- 27) The sectoral scopes are organized into three different groups to determine the adjustment factor reflecting the risk of a project.
- a) Group 1 (no adjustment):
 - 1. Energy (renewable/non-renewable)
 - 2. Energy distribution
 - 3. Energy demand
 - 13. Waste handling and disposal
 - b) Group 2 (cost of equity is increased by 1.0 percentage point):
 - 4. Manufacturing industries
 - 5. Chemical industry
 - 6. Construction
 - 7. Transport
 - 8. Mining/mineral production
 - 9. Metal production
 - 10. Fugitive emissions – from fuels (solid, oil, and gas)
 - 11. Fugitive emissions – from industrial gases (halocarbons and sulphur hexafluoride)

³⁹ US dollar values are used because USD has the longest recorded historical data for both government bonds and stock markets.

⁴⁰ Credit Suisse Research Institute. (2023). *Credit Suisse Global Investment Returns Yearbook 2023 – summary edition* (page 42). Available at: <https://www.credit-suisse.com/about-us/en/reports-research/studies-publications.html>

⁴¹ Damodaran A. (2023). “Risk Premiums for Other Markets” July 2023. https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datacurrent.html

⁴² The estimates may not reflect the most recent events or extreme circumstances experienced in some countries at the time of publication.

- 12. Solvents use
- 16. Carbon capture and storage

c) Group 3 (cost of equity is reduced by 0.5 percentage points):

- 14. Agriculture, forestry and other land use (AFOLU)
- 15. Livestock and manure management

28) Select the relevant benchmark value for the project activity based on the country and sector. The values are expressed in percentages in real terms. Where a project activity involves multiple sectoral scopes, the most conservative benchmark value among them must be used.

Table 1: Default values for the cost of equity (expected return on equity) in real terms

Country	Group 1	Group 2	Group 3
Afghanistan*	24.03	25.03	23.53
Albania	12.63	13.63	12.13
Algeria	11.26	12.26	10.76
Angola	15.66	16.66	15.16
Argentina	24.01	25.01	23.51
Armenia	11.26	12.26	10.76
Azerbaijan	9.60	10.60	9.10
Bahamas	12.63	13.63	12.13
Bahrain	14.15	15.15	13.65
Bangladesh	12.63	13.63	12.13
Belize	19.46	20.46	18.96
Benin	12.63	13.63	12.13
Bhutan*	13.19	14.19	12.69
Bolivia	17.18	18.18	16.68
Bosnia and Herzegovina	15.66	16.66	15.16
Botswana	7.62	8.62	7.12
Brazil	10.37	11.37	9.87
Brunei Darussalam	6.71	7.71	6.21
Burkina Faso	17.18	18.18	16.68
Burundi*	21.62	22.62	21.12
Cambodia	14.15	15.15	13.65
Cameroon	14.15	15.15	13.65
Cape Verde	15.66	16.66	15.16
Central African Republic*	17.33	18.33	16.83

Chad*	22.04	23.04	21.54
Chile	7.08	8.08	6.58
China	6.87	7.87	6.37
Colombia	8.69	9.69	8.19
Comoros*	17.43	18.43	16.93
Congo	19.46	20.46	18.96
Cook Islands	14.15	15.15	13.65
Costa Rica	14.15	15.15	13.65
Côte d'Ivoire	11.26	12.26	10.76
Cuba	24.01	25.01	23.51
Democratic People's Republic of Korea	24.01	25.01	23.51
Democratic Republic of the Congo	15.66	16.66	15.16
Djibouti*	16.68	17.68	16.18
Dominican Republic	11.26	12.26	10.76
Ecuador	20.98	21.98	20.48
Egypt	15.66	16.66	15.16
El Salvador	20.98	21.98	20.48
Equatorial Guinea*	12.87	13.87	12.37
Eritrea*	15.98	16.98	15.48
Ethiopia	19.46	20.46	18.96
Fiji	12.63	13.63	12.13
Gabon	17.18	18.18	16.68
Gambia	14.15	15.15	13.65
Georgia	10.37	11.37	9.87
Ghana	24.01	25.01	23.51
Grenada*	14.15	15.15	13.65
Guatemala	9.60	10.60	9.10
Guinea	19.46	20.46	18.96
Guinea-Bissau	14.15	15.15	13.65
Guyana	8.23	9.23	7.73
Haiti	24.01	25.01	23.51
Honduras	12.63	13.63	12.13
India	9.13	10.13	8.63
Indonesia	8.69	9.69	8.19
Iran (Islamic Republic of)	15.66	16.66	15.16
Iraq	17.18	18.18	16.68

Israel	6.87	7.87	6.37
Jamaica	14.15	15.15	13.65
Jordan	12.63	13.63	12.13
Kazakhstan	8.69	9.69	8.19
Kenya	15.66	16.66	15.16
Kiribati*	11.19	12.19	10.69
Kuwait	6.87	7.87	6.37
Kyrgyzstan	15.66	16.66	15.16
Lao People's Democratic Republic	20.98	21.98	20.48
Lebanon	30.62	31.62	30.12
Lesotho	11.25	12.25	10.75
Liberia	20.98	21.98	20.48
Libya	8.69	9.69	8.19
Madagascar	15.66	16.66	15.16
Malawi	24.01	25.01	23.51
Malaysia	7.62	8.62	7.12
Maldives	17.18	18.18	16.68
Mali	19.46	20.46	18.96
Mauritania*	15.80	16.80	15.30
Mauritius	9.13	10.13	8.63
Mexico	8.69	9.69	8.19
Micronesia (Federated States of)*	17.00	18.00	16.50
Mongolia	15.66	16.66	15.16
Montenegro	12.63	13.63	12.13
Morocco	9.60	10.60	9.10
Mozambique	19.46	20.46	18.96
Myanmar	20.98	21.98	20.48
Namibia	12.63	13.63	12.13
Nepal*	18.74	19.74	18.24
Nicaragua	15.66	16.66	15.16
Niger	15.66	16.66	15.16
Nigeria	15.66	16.66	15.16
North Macedonia	11.26	12.26	10.76
Oman	10.37	11.37	9.87
Pakistan	20.98	21.98	20.48

Panama	8.69	9.69	8.19
Papua New Guinea	14.15	15.15	13.65
Paraguay	9.60	10.60	9.10
Peru	8.23	9.23	7.73
Philippines	8.69	9.69	8.19
Qatar	6.71	7.71	6.21
Republic of Korea	6.55	7.55	6.05
Republic of Moldova	13.58	14.58	13.08
Republic of South Sudan*	22.00	23.00	21.50
Rwanda	14.15	15.15	13.65
Saint Lucia*	12.72	13.72	12.22
Saint Vincent and the Grenadines	15.66	16.66	15.16
Samoa*	18.28	19.28	17.78
San Marino	12.94	13.94	12.44
Sao Tome and Principe*	21.82	22.82	21.32
Saudi Arabia	6.87	7.87	6.37
Senegal	11.26	12.26	10.76
Serbia	10.37	11.37	9.87
Sierra Leone	24.01	25.01	23.51
Singapore	5.80	6.80	5.30
Solomon Islands	17.18	18.18	16.68
Somalia	24.01	25.01	23.51
South Africa	10.37	11.37	9.87
Sri Lanka	24.01	25.01	23.51
Sudan	30.62	31.62	30.12
Suriname	20.98	21.98	20.48
Swaziland	15.66	16.66	15.16
Syrian Arab Republic	30.62	31.62	30.12
Tajikistan	15.66	16.66	15.16
Thailand	8.23	9.23	7.73
Timor-Leste*	17.99	18.99	17.49
Togo	15.66	16.66	15.16
Tonga*	9.08	10.08	8.58
Trinidad and Tobago	10.37	11.37	9.87
Tunisia	19.46	20.46	18.96

Turkmenistan	8.69	9.69	8.19
Uganda	14.15	15.15	13.65
United Arab Emirates	6.55	7.55	6.05
United Republic of Tanzania	14.15	15.15	13.65
Uruguay	8.69	9.69	8.19
Uzbekistan	11.26	12.26	10.76
Vanuatu*	11.91	12.91	11.41
Venezuela	30.62	31.62	30.12
Viet Nam	10.37	11.37	9.87
Yemen	20.98	21.98	20.48
Zambia	24.01	25.01	23.51
Zimbabwe	17.18	18.18	16.68

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