

**Annex 45****Guidance on the Assessment of Investment Analysis:**

(Version 02.1)

Background

1. In consideration of issues identified through request for reviews and reviews of requests for registration the Executive Board considers it necessary to provide project participants and DOEs with guidance on the preparation, presentation and validation of investment analysis.
2. This general guidance is to be considered as a complement to existing materials in this area including, the “Tool for the demonstration and assessment of additionality”, “Combined tool to identify the baseline scenario and demonstrate additionality” and “Non-binding best practice examples to demonstrate additionality for SSC project activities”. The general guidance will be revised as appropriate to reflect the evolution of knowledge and best practice in this area.

General issues in calculation and presentation

3. **Guidance:** The period of assessment should not be limited to the proposed crediting period of the CDM project activity. Both project IRR and equity IRR calculations shall as a preference reflect the period of expected operation of the underlying project activity (technical lifetime), or - if a shorter period is chosen - include the fair value of the project activity assets at the end of the assessment period. In general a minimum period of 10 years and a maximum of 20 years will be appropriate. The IRR calculation may include the cost of major maintenance and/or rehabilitation if these are expected to be incurred during the period of assessment. Project participants are requested to justify and DOEs are requested to validate the appropriateness of the period of assessment in the context of the underlying project activity, without reference to the proposed CDM crediting period.
Rationale: The purposes of undertaking an investment analysis is to determine whether or not the project activity would be financially viable without the incentive of the CDM. The actual project activity is not limited in time to the crediting period being requested.
4. **Guidance:** The fair value of any project activity assets at the end of the assessment period should be included as a cash inflow in the final year. The fair value should be calculated in accordance with local accounting regulations where available, or international best practice. It is expected that such fair value calculations will include both the book value of the asset and the reasonable expectation of the potential profit or loss on the realization of the assets.
Rationale: Net Present Value (NPV) or Internal Rate of Return (IRR) calculations are designed to calculate the return on the cost of investment, in cases where the capital expenditures have not been fully devalued this should be reflected as a cash inflow. Not to apply a residual value would imply that the project must repay the full value of the capital expenditure before the value of this expenditure had been consumed.
5. **Guidance:** Depreciation, and other non-cash items related to the project activity, which have been deducted in estimating gross profits on which tax is calculated, should be added back to net profits for the purpose of calculating the financial indicator (e.g. IRR, NPV). Taxation should only be included as an expense in the IRR/NPV calculation in cases where the benchmark or other comparator is intended for post-tax comparisons.
Rationale: Depreciation is not an actual expense incurred by the company and as such does not directly affect the financial viability of the project. To treat both the capital cost of the assets and their depreciation as an expense to the project would be a double counting of this cost. Taxation



can only be considered a relevant expense if the indicator used for comparison purposes is intended for post tax comparisons.

6. **Guidance:** Input values used in all investment analysis should be valid and applicable at the time of the investment decision taken by the project participant. The DOE is therefore expected to validate the timing of the investment decision and the consistency and appropriateness of the input values with this timing. The DOE should also validate that the listed input values have been consistently applied in all calculations.
Rationale: The use of investment analysis to demonstrate additionality is intended to assess whether or not a reasonable investor would or not decide to proceed with a particular project activity without the benefits of the CDM. This decision will therefore be based on the relevant information available at the time of the investment decision and not information available at an earlier or later point. Any expenditures occurred prior to the decision to proceed with the investment in the project will not impact the final investment decision as such expenses sunk costs which remain unaffected by the decision to proceed or not with a project activity.
7. **Guidance:** In the case of project activities for which implementation ceases after the commencement and where implementation is recommenced due to consideration of the CDM the investment analysis should reflect the economic decision making context at point of the decision to recommence the project. Therefore capital costs incurred prior to the revised project activity start date can be reflected as the recoverable value of the assets, which are limited to the potential reuse/resale of tangible assets¹.
Rationale: At the point of taking a decision to restart implementation of a project as a CDM project activity, the key issue of interest to an investor is the costs and revenues including the incentives from the CDM accruing from continuation of the investment.
8. **Guidance:** Project participants should supply spreadsheet versions of all investment analysis. All formulas used in this analysis be readable and all relevant cells be viewable and unprotected. The spreadsheet will be made available to the Executive Board, UNFCCC secretariat and others contracted to assess the request for registration on behalf of the Board including assigned members of the Registration and Issuance Team. In cases where the project participant does not wish to make such a spreadsheet available to the public an exact read-only or PDF copy shall be provided for general publication. In case the PP wishes to black-out certain elements of the publicly available version, a clear justification for this shall be provided to the UNFCCC secretariat by the DOE when requesting registration.
Rationale: Paragraph 6 of Step 2 of the Tool for the demonstration and assessment of additionality (version 4) requires that investment analysis be presented in a transparent manner, to the extent that the reader can reproduce the results.

Specific Guidance on the Calculation of Project IRR and Equity IRR

9. **Guidance:** The cost of financing expenditures (i.e. loan repayments and interest) should not be included in the calculation of project IRR.
Rationale: The purpose of the project IRR calculation is to determine the viability of the project to service debt. Therefore to include the cost of financing as an expense in this calculation would result in a double counting of this cost in the ultimate analysis.

¹ Capital expenditures should be included not at the original investment costs but at the market fair value at the point of the decision to proceed with the investment, demonstrating the value through assessments done by chartered specialists.



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

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

Selection and Validation of Appropriate Benchmarks

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

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

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

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

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

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

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



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

Investment comparison analysis and benchmark analysis

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

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

Sensitivity analysis

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

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

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

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

**History of the document**

Version	Date	Nature of revision(s)
02.1	EB 41, Annex 45, 12 August 2008	Inclusion of the annex number in the history box
02	EB 41, Annex XX, 02 August 2008	Revision to provide guidance on the treatment of costs incurred prior to the project activity start date
01	EB 39, Annex 35, 16 May 2008	Initial adoption