

## ANNEX II

### Proposed Revisions to “Consolidated baseline and monitoring methodology for new grid connected fossil fuel fired power plants using a less GHG intensive technology” (ACM0013)

The Stanford Environmental Law Clinic on behalf of CDM Watch recommends that the Executive Board adopt the revisions below for ACM0013. Annex I presents justification and background for these revisions. Here, we use the Meth Panel’s proposed revisions as our base document. The Meth Panel’s revisions are highlighted in yellow and follow strikeout-and-underline formatting, as per the Meth Panel’s original document. Our revisions are also in strikeout-and-underline format and are presented in red text. We focus on alternatives analysis, investment analysis, sensitivity analysis, and common practice analysis to highlight additionality concerns, but other sections of the methodology may also require revisions to comply with the Kyoto Protocol.

#### **Draft revision to the approved consolidated baseline and monitoring methodology ACM0013**

**“Consolidated baseline and monitoring methodology for new grid connected fossil fuel fired power plants using a less GHG intensive technology”**

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## II. BASELINE METHODOLOGY PROCEDURE

### Identification of the baseline scenario

Project participants shall use the following steps to identify the baseline scenario:

#### *Step 1: Identify plausible baseline scenarios*

The identification of alternative baseline scenarios ~~should~~shall include all possible realistic and credible alternatives that provide outputs or services comparable with the proposed CDM project activity (including the proposed project activity without CDM benefits), i.e., all type of power plants that could be constructed as alternative to the project activity within the project boundary, as defined in the section “Project boundary” and in Step 2 of the section “Baseline emissions” below. A clear description of each baseline scenario alternative, including information on the technology, such as the efficiency and technical lifetime, shall be provided in the CDM-PDD.

Alternatives to be analysed ~~should~~shall include, *inter alia*:

- The project activity not implemented as a CDM project;

- The construction of one or several other power plants instead of the proposed project activity, including:
  - Power generation using the same fossil fuel type category as in the project activity, but technologies other than that used in the project activity;
  - Power generation using fossil fuel types categories other than that used in the project activity;
  - Other power generation technologies, such as renewable power generation.
- Import of electricity from connected grids, including the possibility of new interconnections.
- Continuation of the current scenario (i.e., the “no project” alternative).
- All other relevant power plant technologies that have recently been constructed or are under construction or are being planned (e.g. documented in official power expansion plans)

In establishing these scenarios, project participants ~~should~~shall clearly identify and document which category and type of fuel would be used in each alternative, taking into account the requirements of the technology.

These alternatives need not consist solely of power plants of the same capacity, load factor and operational characteristics. ~~(i.e. several smaller plants, or the share of a larger plant, may be a reasonable alternative to the project activity).~~ In other words, realistic combinations of smaller power plants shall be considered as possible alternative scenarios to the proposed project activity. These combinations should approximate, as much as is technically feasible, the capacity of the project activity. If such combinations are not realistic, project participants must provide documented evidence to prove why that is the case. Conversely, if the alternative has greater capacity than the project activity, then the project activity shall be “bundled” into a larger unit for purposes of comparison with the alternative.

Project participants shall provide references to the power expansion plans of the host country, in order to show that technologies that have recently been constructed or are under construction or are being planned are included as alternatives.

If one or more scenarios are excluded, project participants shall provide explanations and documentation to prove that the exclusion is justified, such as CDM monitoring reports of other power plants in the project boundary, government documents, scholarly articles, or corporate documents.

The following are examples of acceptable reasons to exclude an alternative.

- ~~however they should~~ Alternatives that do not deliver similar services, i.e. the same load type (e.g. peak vs. baseload power) as the project activity, shall be eliminated. Base load refers to any technology that operates for more than 3000 hours per year. Projects participants shall provide documented evidence for whether a particular technology meets base or peak load. If there is data indicating that a power plant of a particular type (e.g., natural gas, hydropower) within the project boundary operates for greater than 3000 hours, then the project participants shall not eliminate that type of power plant as an alternative on the basis of its being unable to meet base load.
- The project participant may shall exclude baseline scenarios that are not in compliance with all applicable legal and regulatory requirements. In doing so, project participants

must provide documentation to explain what the legal and regulatory requirements are, and how the alternative fails to meet them.

The following are examples of improper reasons for eliminating an alternative. Participants should note that this list is not exhaustive.

- Project participants shall not eliminate alternatives on the basis of capacity alone, since the project activity shall be compared to multiple power plants of an alternative technology with lesser capacity.
- Project participants shall not eliminate an alternative on the basis of its being unavailable to the participants for the project in question. Note further that the ~~baseline~~ baseline scenario candidates identified may not be available to project participants, but could be available to other stakeholders within the grid boundary (e.g. other companies investing in power capacity expansions).
- Project participants shall not eliminate an alternative on the basis of its being more difficult to implement (e.g., due to technical challenges, or resource constraints), unless they prove that these barriers make the alternative in fact implausible, and not merely more difficult than the project activity. Project participants may not simply assert or claim implausibility of an alternative, but must provide documentation showing that it would not be possible to implement that alternative within the project boundary.
- Project participants shall not eliminate alternatives based on cost factors at the alternatives stage. Cost considerations are only appropriate in the investment analysis, which serves the purpose of determining and comparing the costs (and revenues) of alternatives.

~~Ensure that all relevant power plant technologies that have recently been constructed or are under construction or are being planned (e.g. documented in official power expansion plans) are included as plausible alternatives. A clear description of each baseline scenario alternative, including information on the technology, such as the efficiency and technical lifetime, shall be provided in the CDM PDD.~~

~~The project participant ~~may~~ shall exclude baseline scenarios that are not in compliance with all applicable legal and regulatory requirements.~~

~~If one or more scenarios are excluded, appropriate explanations and documentation to support the exclusion of these scenarios shall be provided.~~

### ***Step 2: Identify the economically most attractive baseline scenario alternative***

The economically most attractive baseline scenario alternative is identified using investment analysis. The investment analysis shall consider both costs and revenues. The levelized cost of electricity production (LCOE) in \$/kWh ~~should~~ shall be used as financial ~~the financial~~ indicator ~~of cost for in the~~ investment analysis. Calculate ~~the suitable financial indicator~~ LCOE for all alternatives remaining after Step 1. Include all relevant costs (including, for example, the investment cost, fuel costs and operation and maintenance costs).

~~and~~ The CDM-PDD shall also include all sources of project revenues (including electricity sales/tariffs, tax benefits, subsidies/fiscal incentives,<sup>+</sup> ODA, etc. where applicable), ~~and,~~ Revenues shall be presented in a format that allows a reader and the DOE to compare the likely profitability of each alternative remaining after Step 1. as As appropriate, also include non-market costs and benefits in the case of public investors.

The costs and revenues in the investment analysis ~~should~~shall be presented in a transparent manner and all the relevant assumptions ~~should~~shall be provided in the CDM-PDD, so that a reader can reproduce the analysis and obtain the same results. Include spreadsheets with all data calculations and formulas visible for all years over the entire operational lifetime of the project.

Critical techno-economic parameters and assumptions used in the LCOE and revenue calculations (such as capital costs, fuel price projections, lifetimes, the load factor of the power plant, ~~and~~ discount rate or cost of capital, and tariff rates) ~~should~~shall be clearly presented. Justify and/or cite every assumptions in a manner that can be followed by a reader and validated by the DOE. Justification shall include documentation, including citation to specific, publicly available sources relied on for each parameter and assumption. Where parameters and assumptions are estimated values, the CDM-PDD shall explain these estimates and potential uncertainties. Where uncertainties exist, parameters and assumptions shall always be construed conservatively in favor of arriving at a better financial indicator (e.g., lower LCOE or higher revenues) for a less GHG emission intensive technology relative to more GHG intensive technology.

In calculating the financial indicators, the risks of the alternatives 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). Where assumptions, input data, and data sources for the investment analysis differ across the project activity and its alternatives, differences ~~should~~shall be well substantiated. A CDM-PDD shall not be validated if any difference in assumptions, input data, and data sources between alternatives is not explained and substantiated.

The CDM-PDD submitted for validation shall present a clear comparison of the financial indicators for all scenario alternatives. The baseline scenario alternative that has the best indicators (e.g. the highest IRR profitability after considering both LCOE and revenues) can be pre-selected as the most plausible baseline scenario.

A sensitivity analysis shall be performed for all alternatives, to confirm that the conclusion regarding the financial attractiveness is robust to reasonable variations in the critical assumptions (e.g. fixed project costs, fuel prices and the load factor). Reasonable variations in critical assumptions shall reflect anticipated variability over the project's operational lifetime. Project participants shall justify all of their assumptions about anticipated variability, and provide data on actual variability in critical assumptions—including minimum and maximum values—over at least the previous three years. Where projected variability is less, on a scaled basis, than recent observed variability, project participants shall clearly explain this discrepancy.

If variability in certain critical assumptions (e.g., fuel prices) has historically been limited by host country policies, project participants shall explain whether these limitations are likely to persist in the future—for the full operational lifetime of the project—and, where possible, note differences

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<sup>+</sup> ~~Note the guidance by EB 22 on national and/or sectoral policies and regulations.~~

between variability in government-controlled costs and costs of similar goods or services observed in competitive markets.

The investment analysis provides a valid argument in selecting the baseline scenario only if it consistently supports (for a realistic range of assumptions) the conclusion that the pre-selected baseline scenario is likely to remain the most economically and/or financially attractive.

A realistic range of assumptions shall include both across-the-board variation in critical assumptions (e.g., fuel prices) and scenarios where critical assumptions vary independently between alternatives. For example, fixed project costs may vary independently between different technologies depending on manufacturing processes, suppliers, and other technological and market factors. The load factors of different alternatives also may vary differently for a variety of reasons, including fuel availability (e.g., in the case of fuel shortages, more efficient plants may operate for longer periods) and host country policies (e.g., direct and indirect incentives and disincentives for particular fuels or technologies). A realistic range of assumptions, therefore, must include situations in which costs for one alternative increase or decrease relative to similar cost categories for different alternatives.

If sensitivity analysis confirms the result, then select the most economically attractive alternative as the most plausible baseline scenario. In case the sensitivity analysis is not fully conclusive, select the baseline scenario alternative with the lowest emission rate among the alternatives that are the most financially and/or economically attractive.

If the type of power plant identified as the baseline scenario is different from the power plant technologies that have recently been constructed or are under construction or are being planned (e.g. documented in official power expansion plans), the project participants shall provide explanations to this apparent discrepancy between observations and what should be considered as rational economic behavior.

If the emission rate of the selected baseline scenario is clearly below that of the project activity (e.g. the baseline scenario is hydro, nuclear or biomass power), then the project activity ~~should~~shall not be considered to yield emission reductions, and this methodology cannot be applied.

The methodology is only applicable if the most plausible baseline scenario is the construction of (a) new power plant(s) using the same fossil fuel **type category** as used in the project activity. This means that if the most likely baseline scenario identified through the baseline identification procedure is the import of electricity or the construction of a new power plant(s) that (partly) use renewable energy sources, nuclear sources or other **types categories** of fossil fuels than the fossil fuel **type category** fired in the project activity plant, then this methodology is not applicable.

### **Additionality**

The latest version of the “Tool for the demonstration and assessment of additionality”, agreed by the CDM Executive Board, ~~should~~shall be applied to assess the additionality of the proposed project activity. Ensure consistency with the procedure to determine the most likely baseline scenario as provided above. In the case Option II (Investment comparison analysis) is applied in Sub-step 2b, it ~~should~~shall be demonstrated that the baseline alternative is available to the project participant(s).

Project participants under ACM0013 shall adhere to the following stipulations with respect to Sub-steps 4a and 4b of the Additionality Tool's common practice analysis. Project participants shall adhere to all other steps of the common practice analysis in the Additionality Tool.

Sub-step 4a: Analyze other activities similar to the proposed project activity:

(1) Project participants shall provide a list of any other activities that are operational and that are similar to the proposed project activity. Projects are considered similar if they are in the project boundary or rely on a broadly similar technology, are of a similar scale, and take place in a comparable environment with respect to regulatory framework, investment climate, access to technology, access to financing, etc. If there are no similar activities, project participants must provide documented evidence to that effect. On the basis of documented evidence, project participants shall describe whether and to which extent similar activities have already diffused in the relevant region.

After listing similar activities, project participants may exclude project activities that have been validated under the CDM from further common practice analysis.

Sub-step 4b: Discuss any similar Options that are occurring:

(2) If similar activities are widely observed and commonly carried out, it calls into question the claim that the proposed project activity is financially unattractive (as contended in Step 2) or faces barriers (as contended in Step 3). Therefore, if similar activities are identified above, then project participants must prove why the existence of these activities does not contradict the claim that the proposed project activity is financially/economically unattractive or subject to barriers. If project participants fail to meet this burden, then the project cannot be registered under the CDM.

To do so, project participants shall compare the proposed project activity to the other similar activities, and point out, explain, and provide documentation for essential distinctions between them. If necessary data/information of some similar projects are not accessible for project participants to conduct this analysis, such projects can be excluded from this analysis. In case data on similar projects are not accessible, the PDD should include justification about non-accessibility of data/information.

(3) Essential distinctions include whether the similar activities enjoyed certain benefits that rendered it financially/economically attractive (e.g., subsidies or other financial flows) and which the proposed project activity cannot use, or whether the similar activities did not face the barriers to which the proposed project activity is subject. Essential distinctions may also include a serious change in circumstances under which the proposed CDM project activity will be implemented when compared to circumstances under which similar projects were carried out. For example, new barriers may have arisen, or promotional policies may have ended, leading to a situation in which the proposed CDM project activity would not be implemented without the incentive provided by the CDM. The change must be fundamental and verifiable.