

ANNEX 1

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

INTRODUCTION

The Stanford Environmental Law Clinic recently submitted comments on behalf of CDM Watch that raised serious concerns about the additionality of four coal-fired power generation projects proposed under ACM0013 and the ability of ACM0013 to filter out non-additional projects.¹ As a response to these concerns, we reviewed all projects ever submitted under ACM0013 and reached a stark conclusion: all projects fail in significant ways to comply with the methodology. Moreover, ACM0013 itself fails to produce additional projects. The methodology falls short in significant substantive areas and leaves too many critical issues open to the disparate interpretations of project participants and Designated Operating Entities (DOEs). As a result, projects registered under ACM0013 undermine the emissions caps contained in Annex B of the Kyoto Protocol—the core environmental objective of the Conference of the Parties.

In light of ACM0013’s significant flaws and the potential implications of its necessary revisions, we urge the Executive Board to suspend this methodology with immediate effect, and to stop accepting any further project design documents (PDDs) pending review of ACM0013. In addition, we urge the Executive Board to take our concerns into account and review Project 3020 “GHG Emission Reductions through grid connected high efficiency power generation,” which is currently requesting registration. We also urge the Executive Board to re-open the registration of Project 2716, due to its non-compliance with the existing methodology as outlined in the comments below.

The ability of the CDM to operate without compromising the Kyoto Protocol rests largely on the designs of project methodologies, which are the screening mechanism for

¹ “Comments on the Validation of the Anhui Wenergy Tongling 1000 MW Ultra-Supercritical Coal-Fired Power Project,” Letter from Stanford Environmental Law Clinic on behalf of CDM Watch to Bureau Veritas Certification Holding SAS, Jan. 26, 2010, *available at* <http://cdm.unfccc.int/UserManagement/FileStorage/IUAVZ3IDRAT913Q7HWRILJBWIZ2OYM>; “Comments on the Validation of Grid Connected Energy Efficient Power Generation in Jhajjar, Haryana,” Letter from Stanford Environmental Law Clinic on behalf of CDM Watch to SIRIM QAS International Sdn. Bhd., Feb. 16, 2010, *available at* <http://cdm.unfccc.int/UserManagement/FileStorage/QOO0MM4DP39ZYCBPCI2RGMRSVQZ7NL>; “Comments on Shanghai Caojing 2x1000MW Ultra-Supercritical Project,” Letter from Stanford Environmental Law Clinic on behalf of CDM Watch to Bureau Veritas Certification Holding SAS, Feb. 16, 2010, *available at* <http://cdm.unfccc.int/UserManagement/FileStorage/EGWBRZLZJPSAY9YSFZSCPR20C19LB9>; “Comments on the Validation of the Jiangxi Xinchang 2x660MW Ultra-Supercritical Project,” Letter from Stanford Environmental Law Clinic on behalf of CDM Watch to Bureau Veritas Certification Holding SAS, Feb. 16, 2010, *available at* <http://cdm.unfccc.int/UserManagement/FileStorage/ZKC2IM52U7ZMYJ6JNCOJ0Q1K1KOC1K>.

additional projects. Of course, no methodology can be absolutely accurate in identifying avoided emissions in developing countries, since the concept of avoided emissions is, by definition, abstract and counterfactual. Yet emissions by Annex I countries and these countries' obligations under the Kyoto Protocol are not abstract. To ensure that Annex I countries purchase offsets that are comparable in certainty to real emissions, the CDM requires robust and transparent methodologies. Such methodologies also improve the efficiency of the CDM. By providing a rigorous up-front check on project additionality, robust methodologies narrow the number of projects that require time-intensive review by DOEs and the Executive Board.

ACM0013 fails to provide this rigor due to problems in four key areas: alternatives analysis, investment analysis, sensitivity analysis, and common practice analysis. These provisions—borrowed from and in reference to the Executive Board's Tool for the Demonstration and Assessment of Additionality (Additionality Tool)—intend to create a system of checks and cross-checks that ensures that projects are additional. But due to significant problems with ACM0013's implementation of these provisions, the methodology falls short of this goal. Even projects that comply with ACM0013 are highly likely to be non-additional.

To start, ACM0013's alternatives analysis fails to ensure that projects consider all plausible baseline scenarios. As a result, the investment analysis focuses on too few alternatives. This jeopardizes selection of the most financially attractive scenario. In turn, ACM0013's investment analysis neglects to consider revenues as clearly as costs, distorting the financial calculation. Without a robust investment analysis, sensitivity analysis adds dubious value to the question of additionality. Further, ACM0013's sensitivity analysis can be interpreted so narrowly as to rob it of its intended effect. Finally, common practice analysis is intended to provide a "credibility check" to the additionality analysis, but does not act as a credible safeguard in the ACM0013 context.

In this document, we explain the ambiguities and inherent flaws in ACM0013's major additionality provisions. In Annex II, we also offer specific textual suggestions, as informed by our analysis of the methodology, to revise ACM0013. We offer these suggestions in addition to those the Meth Panel has proposed for the Executive Board's consideration at its fifty-third meeting in Bonn.

We preface our comments below by noting that even if the Executive Board were to adopt our proposed changes, fixing ACM0013 would still require increased oversight by the Executive Board and DOEs. To protect the integrity of the methodology and the Kyoto Protocol, the Executive Board and DOEs must refuse to register and validate deficient projects. Here, and in Annex II, we suggest revisions for alternatives analysis, investment analysis, sensitivity analysis, and common practice analysis only. Other sections of the methodology may also require revisions to comply with the Kyoto Protocol, but we focus on these four provisions to highlight additionality concerns.

Further, we note that many of our recommendations simply clarify the methodology’s existing requirements, in response to the fact that no project proposed to date—including the one project already registered under ACM0013—complies with the plain language of the methodology. Even if our revisions are incorporated, existing projects should not be exempt from complying with ACM0013, as currently adopted. Thus, we urge the Executive Board to review the registration of Project 2716, and to review other ACM0013 projects submitted to date.

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COMMENTS

I. ACM0013’s Alternatives Analysis Must Be Revised To Ensure That Project Participants Consider All Plausible Baseline Scenarios.

A comprehensive alternatives analysis is the first step to an accurate investment analysis. In this step, project participants identify all “plausible baseline scenarios”—those alternatives that could accomplish the goals of the proposed project. These scenarios are then compared in the investment analysis to find the project’s baseline. Alternatives analysis under ACM0013 in particular can also play a key role in meeting sustainable development goals of the United Nations Framework Convention on Climate Change (Convention). This analysis effectively determines whether project participants must ever directly compare conventional power plant proposals, such as coal plants,² to renewable energy and other less-polluting power sources. To the extent that the Convention aims to promote a shift away from fossil fuels toward cleaner energy sources, ACM0013 should reflect, but currently undermines, that objective.

Based on our review of all ACM0013 projects, project participants interpret the alternatives analysis inconsistently and in an under-inclusive way, eliminating plausible baseline alternatives without sufficient justification. We find two main problems. First, project participants wrongly interpret ACM0013’s provisions on comparable outputs and services to reject plausible baseline alternatives. In all cases, ACM0013 projects reject renewable energy at the alternatives stage.³ Second, project participants improperly reject alternatives as “implausible” while providing little to no documentation or explanation, including alternatives that the Additionality Tool affirmatively requires them to consider.

² While ACM0013 covers fossil fuel-fired power plants using fuels other than coal, the majority (fourteen out of seventeen) projects proposed under this methodology are coal-fired power plants. In general, the discussion in this section covers all ACM0013 projects, but focuses more directly on coal plants.

³ No project proposed under ACM0013 considers any renewable energy source (hydro, geothermal, biomass, MSW, wind, and solar) to be a realistic or credible alternative to fossil fuel generated power. The one partial exception here is the Rudeshur Efficient Gas Power Plant in Iran, which concludes that hydro, wind, and biomass are not plausible, but still provides LCOE values for hydro and wind, based on a World Bank study. One project failed to discuss renewable energy alternatives at all (Jhajjar). Further, only two coal projects proposed under ACM0013 have considered natural gas as a plausible alternative to coal. None consider oil-fired power plants.

To correct these problems, we recommend that the Executive Board provide guidance on the meaning of plausible baseline scenarios and establish clearer rules about when alternatives can be eliminated.⁴

A. The alternatives analysis should more clearly define what constitutes “comparable outputs or services.”

The Executive Board should define “comparable outputs or services” more clearly within ACM0013, as project participants frequently eliminate potentially plausible baseline scenarios using only vague and sometimes demonstrably incorrect notions of incomparability.

ACM0013’s alternatives analysis centers around a test for “comparable outputs and services.” The methodology includes limited instructions on these provisions and also relies on the Additionality Tool for guidance. The Additionality Tool defines “plausible baseline scenarios” as “realistic and credible alternatives” that provide outputs or services comparable with the proposed CDM project activity.⁵ “Similar services” refers to elements such as peak or base load.⁶ “Outputs” refers to the total capacity of the project rather than a per unit generating capacity. In other words, alternatives should include “several smaller plants” or a “share of a larger plant” that could provide a capacity similar to the project alternative.⁷ Alternatives that do not provide comparable outputs or services or deliver similar services can be eliminated.⁸ To exclude an alternative as a plausible baseline, a project participant must provide “appropriate explanations and documentation” in support of that decision.⁹

Yet these terms, while simple in concept, raise substantial concerns because project participants interpret them inconsistently. This undermines the additionality and sustainability objectives. The Executive Board should address this issue by revising the ACM0013 to clarify its standards for alternatives analysis.

To ensure compliance with the “comparable services” requirement of ACM0013, the Executive Board should revise the methodology to define the provision’s key elements—“peak load” and “base load.” While ACM0013 identifies provision of peak or base load as an aspect of comparability, neither the Additionality Tool nor the methodology itself defines these terms within the alternatives analysis. Lacking

⁴ We emphasize that selecting a plausible baseline alternative does not foreclose elimination of this alternative later in the investment analysis. Rather it ensures only that the alternatives analysis—the first cut review—proceeds cautiously and conservatively, with the environmental objectives of the CDM in mind.

⁵ Tool for the Demonstration and Assessment of Additionality, Annex 10, Version 5.2, p. 4 EB 39 [hereinafter Additionality Tool].

⁶ ACM0013, Ver. 2.1, p. 3.

⁷ *Id.*

⁸ *Id.*

⁹ *Id.*

direction, project participants eliminate alternatives on the basis of differences between peak or base load but without providing any analysis or justification. For example, five coal projects, four of which are in China, eliminate natural gas as an alternative simply by asserting, without supporting data, that natural gas plants cannot produce base load.¹⁰ Yet CDM monitoring reports for natural gas plants in China indicate that natural gas may be capable of meeting base demand.¹¹

We suggest that ACM0013 adopt definitions for peak and base load consistent with the way other provisions of the methodology use these terms. Specifically, the baseline emissions calculation already defines these terms *for that section* as less than and greater than or equal to 3000 operating hours per year, respectively.¹² The Executive Board should also use these definitions in alternatives analysis.

In addition to addressing “comparable services,” the Executive Board should revise ACM0013 to explain what it means for alternatives to provide “comparable outputs.” ACM0013 states that alternatives need not be of the same individual unit capacities as the project alternative,¹³ yet six ACM0013 projects eliminate renewable alternatives on this exact basis.¹⁴ This practice conflicts with the methodology, but project participants’ frequent misinterpretation of the “comparable outputs” provision suggests that the language should be revised.

If building multiple smaller plants would be truly implausible for project participants or “other stakeholders within the grid boundary” then project participants

¹⁰ Zhejiang Guohua Ninghai Ultra-supercritical Power Project [hereinafter Zhejiang Ninghai]; Guangdong Pinghai Power Plant Phase I Project [hereinafter Guangdong Pinghai]; Anhui Wenergy Tongling 1000MW Ultra-supercritical Coal-Fired Power Project [hereinafter Anhui Tongling]; Jianxi Xinchang 2x660MW Ultra-supercritical Project [hereinafter Jiangxi Xinchang]; Grid Connected Power Generation through Supercritical technology [hereinafter Sophia Power Co.].

¹¹ The following reports show plants operating at capacity factors between 0.54 and 0.84 (equivalent to 4,700 to 7,300 hours per year): Beijing No.3 Thermal Power Plant Gas-Steam Combined Cycle Project Using Natural Gas, CDM Monitoring Report 1, July 1, 2008 (capacity factor of 0.64 between February 15, 2008, and June 30, 2008, based on 849,743.84 MWh generated by a 406.83 MW project); Beijing No. 3 Thermal Power Plant Gas-Steam Combined Cycle Project Using Natural Gas, CDM Monitoring Report 2, November 14, 2008 (capacity factor of 0.54 between July 1, 2008, and October 31, 2008, based on 642,925.54 MWh generated by a 406.83 MW project); Beijing No. 3 Thermal Power Plant Gas-Steam Combined Cycle Project Using Natural Gas, CDM Monitoring Report 3, June 22, 2009 (capacity factor of 0.84 between November 1, 2008, and March 31, 2009, based on 1,234,843.24 MWh generated by a 406.83 MW project); Qinghai Ge-ermu Gas Turbine Power Plant Project, Monitoring Report (Version 01), Oct. 22, 2009 (capacity factor of 0.58 between July 20, 2008, and December 31, 2008, based on 687,728.98 MWh generated by a 300 MW project).

¹² ACM0013 Ver. 2.1, p. 6.

¹³ ACM0013 Ver. 2.1, p. 3.

¹⁴ Shanghai Waigaoqiao coal-fired power project using a less GHG intensive technology [hereinafter, Shanghai Waigaoqiao]; Jiangsu Guodian Taizhou Ultra-supercritical Power Project [hereinafter, Jiangsu Taizhou]; Guangdong Pinghai; Zhejiang Guodian Beilun Ultra-supercritical Power Project [hereinafter, Zhejiang Beilun]; Anhui Tongling; Greenhouse Gas Emissions Reductions Through Super Critical Technology – Sasan Power Ltd. [hereinafter, Sasan Power Ltd].

must provide documented evidence to support this claim. The Executive Board should revise the methodology to make this requirement more explicit.

B. The alternatives analysis should more clearly define what constitutes an implausible alternative that can be eliminated.

In addition to explaining comparable outputs and services, the Executive Board should define more clearly what it means for an alternative to be implausible and clarify the standard for eliminating such alternatives prior to the investment analysis. Project participants currently reject or fail to even discuss project alternatives without making a proper showing of implausibility.

Under ACM0013 and the Additionality Tool, plausible alternatives must include “all possible realistic and credible alternatives . . . i.e. all type [sic] of power plants that *could be constructed* as an alternative.”¹⁵ Alternatives need not be easy, cheap, or very likely; they need only be plausible. For project participants, this means that they may not reject an alternative simply because it is less likely to be implemented (e.g., due to cost). Yet five proposed ACM0013 projects eliminate one or more renewable energy alternatives by asserting that the project type is costly.¹⁶

ACM0013 and the Additionality tool also require project participants to consider certain specific alternatives: imported electricity,¹⁷ the continuation of the current scenario without the project activity (i.e., the “no project” alternative),¹⁸ and power plant technologies that are being constructed or planned in the host country.¹⁹ Yet all ACM0013 projects fail to analyze some or all of these affirmative requirements.

Furthermore, nearly all of the ACM0013 PDDs fail to adequately document or justify their decisions to eliminate several alternatives. Some alternatives may indeed be implausible, but the project participants bear the burden of proving this case.

To address these patterns of non-compliance, the Executive Board should provide examples within ACM0013 of improper rationales for eliminating alternatives. The Executive Board should state that mere assertions of implausibility are insufficient grounds for rejecting alternatives. ACM0013 should also require project participants to reference the power expansion plans of the host country to show that technologies being constructed or planned are included as alternatives.

¹⁵ ACM0013 Ver. 0.3, 3, *emphasis added*.

¹⁶ Jiangxi Xinchang; Sophia Power Co.; Rudeshur Efficient Gas Power Plant [hereinafter, Rudeshur]; Shanghai Caojing 2x1000MW Ultra-supercritical Project [hereinafter, Shanghai Caojing]; Zhejiang Guohua.

¹⁷ ACM0013 Ver. 0.3, p. 3.

¹⁸ Additionality Tool, p. 4.

¹⁹ ACM0013, Ver. 0.3, p. 3.

In addition, we recommend that the Executive Board restrict project participants from eliminating plausible baseline scenarios based on cost factors at the alternatives stage. Investment analysis provides a more appropriate venue for these considerations, as economic plausibility requires a more in depth analysis of costs as well as revenues.

II. ACM0013's Investment Analysis Must Be Revised To Ensure Project Additionality.

ACM0013 relies most extensively on the investment analysis to ensure that proposed projects maintain the integrity of the caps contained in the Kyoto Protocol. To meet this task, investment analysis must (1) identify a proposed project's most economically attractive baseline scenario from among all plausible baseline scenarios, and (2) determine whether a proposed project is additional. To uphold the Kyoto Protocol, non-additional projects cannot receive CDM financing. Yet ACM0013's investment analysis fails to screen for additionality.

As shown in Table 1 (on the following page), no project proposed under ACM0013 to date, including the one registered project,²⁰ complies with even the plain language of the methodology. For these reasons alone, the Executive Board and DOEs must not register and validate any of these projects under ACM0013.

But project-level non-compliance only magnifies inherent flaws in ACM0013's investment analysis. We recommend that the Executive Board address these problems in two principle areas: consideration of revenues and transparency. As long as these flaws remain, ACM0013 will not produce additional projects.

We note that while the Meth Panel recommends revisions to ACM0013's investment analysis, these revisions would address only one issue raised by two project proposals: attempts to claim credit for emissions reduced through fuel switching within the same fuel category (e.g., domestic coal to imported coal) as opposed to technological change. We fully support the Meth Panel's proposal to limit ACM0013 to projects installing more efficient power generation technologies, but the panel's draft revisions do not address ACM0013's other fundamental problems.

A. The investment analysis should require project participants to consider revenues as well as costs in selecting the most plausible baseline scenario.

Because revenues, and not just costs, cut to the heart of economic attractiveness, the Executive Board should ensure that project participants consider both under ACM0013. As written, the methodology instructs project participants to include costs as well as revenues in investment analyses, but is ambiguous about how these factors

²⁰ Project 2716, PDD and validation reports available at <http://cdm.unfccc.int/UserManagement/FileStorage/2CO3V0IUQPY9E4WGTSBD5XMHFCLRZ6>.

influence baseline calculations. This ambiguity creates inconsistency between projects. As Table 1 reveals, all but one project calculates the levelized cost of electricity production (LCOE), but only four of seventeen projects consider revenues in any form.

While many PDDs simply fail to comply with the explicit terms of the methodology, systematic non-compliance suggests that the Executive Board should clarify ACM0013's revenue requirement. This non-compliance underscores conflicting language in the methodology. On the one hand, ACM0013 describes LCOE as "*the* financial indicator for investment analysis" and instructs project participants to calculate this indicator for all plausible baseline scenarios.²¹ On the other hand, ACM0013 also directs project participants to include all revenues, including "subsidies/fiscal incentives, ODA, etc" in their PDD.²² And when ACM0013 directs project participants to identify their baseline by comparing "the" financial indicator, it mentions internal rate of return (IRR), which would also account for revenues, as an example.²³ Nearly all project participants interpret these provisions to require a LCOE comparison only.

By reporting on LCOE alone, project participants obscure their other financial considerations. It should go without saying that no power generator, public or private, would choose to invest in a new, resource-intensive power plant without considering the project's revenue stream. Moreover, as the Executive Board recognized by rejecting several Chinese wind projects at its fifty-first meeting, revenues in the form of electricity tariffs alter project behavior and incentives. To understand additionality and the CDM's true financial signal, project participants must report both their costs and revenues.

While the Executive Board has not yet clarified how revenue-altering policies such as electricity tariffs should be treated under the E+/E- framework, we recommend that the Executive Board err on the side of considering all revenues under ACM0013. As the secretariat's recent working paper on E+/E- recognizes, tariff policies present particular challenges to E+/E-, and blanket exemption of these policies may make it impossible to assess additionality.²⁴ Further, countries such as China and India, hosts to the majority of ACM0013 projects, may adopt revenue-altering policies to meet non-climate goals, including energy security and reduction of local pollution. Excluding these policies from the investment analysis will lead to non-additional projects.

Even if the Executive Board chooses to preserve some aspects of E+/E- under ACM0013, requiring that project participants first list all expected revenues would better

²¹ ACM0013 Ver. 2.1, p. 3 (emphasis added).

²² ACM0013 Ver. 2.1, p. 3 (With respect to subsidies/fiscal incentives, the methodology directs project participants to "[n]ote the guidance by EB 22 on national and/or sectoral policies and regulations," i.e., the E+/E- rule.).

²³ ACM0013 Ver. 2.1, p. 3 ("The baseline scenario alternative that has the best [financial] indicator (e.g., highest IRR) can be pre-selected as the most plausible baseline scenario.").

²⁴ "The Application of E+/E- Policies in the Assessment of Additionality, Working Paper for Policy Discussion by the Executive Board," EB 52, Annex 3, *available at* <https://cdm.unfccc.int/EB/052/eb52annagan3.pdf>.

Table 1: Problems with ACM0013 investment analysis by project and issue

Project Title	Host	Type	Does not calculate LCOE	Does not consider revenues	Does not list parameters/assumptions	Does not justify parameters/assumptions	Varies fuel price without justification ^a	Varies plant loads without justification ^a	Does not provide full spreadsheets	# Problems by project
Thermal Power Plant Manauara CDM Project Activity	Brazil	Oil	•			•			• ^e	3
Thermal Power Plant Ponta Negra CDM Project Activity	Brazil	Oil				•			•	2
Anhui Wenergy Tongling 1000MW Ultra-Supercritical Coal-Fired Power Project	China	Coal		•		•	•	•	•	5
Guangdong Pinghai Power Plant Phase I Project	China	Coal		•					•	2
Jiangsu Guodian Taizhou Ultra-supercritical Power Project	China	Coal		•				• ^d	•	3
Jiangxi Xinchang 2×660MW Ultra-Supercritical Project	China	Coal		•					•	2
Shanghai Caojing 2×1000MW Ultra-Supercritical Project	China	Coal		•					•	2
Shanghai Waigaoqiao coal-fired power project using a less GHG intensive technology	China	Coal		•				•	•	3
Zhejiang Guodian Beilun Ultra-supercritical Power Project	China	Coal		•		• ^b	•	• ^d	•	5
Zhejiang Guohua Ninghai Ultra-supercritical Power Project	China	Coal		•		•			•	3
Energy efficient power generation in Tirora	India	Coal		•		•			•	3
GHG Emission Reductions through grid connected high efficiency power generation	India	Coal					• ^c			1
Greenhouse Gas Emission Reductions Through Super Critical Technology – Sasan Power Ltd.	India	Coal		•		•	• ^c		•	4
Grid connected energy efficient power generation	India	Coal		•					• ^f	2
Grid connected energy efficient power generation in Jhajjar, Haryana	India	Coal	•					•	• ^f	3
Grid Connected Power Generation through Supercritical technology	India	Coal		•		• ^b		•	•	4
Rudeshur Efficient Gas Power Plant	Iran	Gas		•	•	•			•	4
# Problems by issue			2	13	1	9	4	6	16	51

^a This table highlights variation without justification for fuel prices and plant loads only. Some projects also vary other factors without justification (e.g., operations and maintenance costs).

^b Provides some citations but not for all critical parameters and assumptions.

^c Variation in fuel price is between domestic and imported coal, but as per the Meth Panel's recommended revisions, this is not an allowed consideration for additionality under ACM0013.

^d Variation in load is between coal and natural gas alternatives. Most coal projects fail to consider natural gas as a plausible alternative at all.

^e Provides some spreadsheets, but the image quality is poor, rendering the information illegible.

^f Provides some spreadsheets, but for less than the operational lifetime of the project.

ensure that E+/E- is not over-inclusive. Only after project participants present these revenues in their PDD can the Executive Board determine whether particular revenues and associated policies meet the intent of E+/E- and should be excluded from investment analysis. Because project participants surely already have revenue data available, reemphasizing disclosure and consideration of revenues under ACM0013—a requirement that already exists—should not be onerous. In contrast, allowing project participants to exclude revenues without explanation, as nearly all do now, endangers additionality and raises questions about ACM0013's compliance with the Kyoto Protocol.

B. The investment analysis should further emphasize transparency.

As with disclosure of project revenues, we urge the Executive Board to clarify that project participants must present their investment analyses transparently. While the language of ACM0013 already supports transparency, Table 1 shows that project participants consistently omit information needed to reproduce their investment analyses. The CDM Modalities and Procedures state that “[i]nformation used to determine additionality . . . [and to] describe the baseline methodology and its application . . . shall not be considered as proprietary or confidential,”²⁵ so these omissions cannot be justified on the basis of confidentiality. Because investment analysis determines both the project baseline and additionality under ACM0013, project participants violate their CDM obligations when they exclude relevant data and financial calculations.

ACM0013 requires that project participants present their investment analysis transparently and in a manner that can be reproduced both by “a reader” and the DOE. The methodology defines transparency to include clear presentation of “critical techno-economic parameters and assumptions,” including justification and citation of values. Where parameters and assumptions differ between alternatives, these differences must be “well substantiated.”²⁶ The methodology further directs project participants to use the latest version of the Additionality Tool during investment analysis. While duplicative of many of ACM0013's requirements, the Additionality Tool also clarifies that investment analysis must consider the operational life of the project rather than just its (shorter) CDM crediting period.²⁷ Project participants also must provide spreadsheets to the public, for their entire investment analysis and may only redact information if they provide “clear justification” to the UNFCCC secretariat.²⁸

Projects participants fall short of transparency requirements when these requirements are not incorporated in the text of the methodology. For example, while the Additionality Tool instructs project participants to include spreadsheets to support their investment analysis, ACM0013 itself remains silent. Only one project out of seventeen complies with this provision in full. Three others provide spreadsheets, but fail to meet requirements that these spreadsheets be “readable” or to provide spreadsheets covering

²⁵ CDM Modalities and Procedures, FCCC/KP/CMP/2005/8/Add.1, ¶ 27(h), p. 12.

²⁶ ACM0013 Ver. 2.1, p. 3.

²⁷ Additionality Tool, Annex: Guidance on the Assessment of Investment Analysis Ver. 02, p. 12.

²⁸ Additionality Tool, Annex: Guidance on the Assessment of Investment Analysis Ver. 02, p. 13.

the entire operational life of the project, as the Additionality Tool requires. Because these provisions help ensure transparency in the investment analysis, widespread non-compliance undermines the methodology and inhibits assessment of additionality.

To help correct this problem, we recommend that the Executive Board clarify ACM0013's requirements and adopt language similar to the Additionality Tool within the text of the methodology itself. Among these additions, we urge the Executive Board to mandate that project participants include all relevant financial information, including spreadsheets with calculations, either within the PDD or as publicly accessible attachments. We note that ACM0013 already requires that a project participant present its investment analysis "so that a reader can reproduce the analysis and obtain the same results."²⁹ And the Additionality Tool already requires project participants to provide, at a minimum, "an exact read-only or PDF copy" of its spreadsheet calculations for "general publication." Because project participants consistently ignore these requirements, it is often impossible to reproduce a financial analysis and reach the same results as the PDD. Project participants must provide detailed spreadsheets that include both their financial calculations and relevant formulas to comply with ACM0013.

III. ACM0013's Sensitivity Analysis Must Be Revised To Account For Reasonable Variability In Critical Assumptions.

ACM0013 requires that project participants address uncertainty in their investment conclusions by performing a sensitivity analysis. To comply, project participants must vary the critical assumptions behind their investment analysis to determine whether the identified baseline is "robust to reasonable variations."³⁰ Where sensitivity analysis is not "fully conclusive," project participants must "select the baseline scenario alternative with the lowest emission rate among the alternatives that are the most financially and/or economically attractive."³¹ Sensitivity analysis may thus produce a final project baseline that differs from the one identified in the original investment calculation. This has direct consequences for the project's additionality.

We support the use of sensitivity analysis, but ACM0013's requirements—and those of the Additionality Tool—are too vague to provide a meaningful check on investment analysis. The poor quality of sensitivity analyses performed under all ACM0013 projects points to the need for corrective action.

We recommend that the Executive Board revise the sensitivity analysis in the following ways: (1) define "reasonable variations in the critical assumptions;" and (2) explain how project participants must consider reasonable variations when comparing plausible baseline scenarios.

²⁹ ACM0013 Ver. 2.1, p. 3.

³⁰ ACM0013 Ver. 2.1, p. 4.

³¹ ACM0013 Ver. 2.1, p. 4.

A. The sensitivity analysis should define “reasonable variations in critical assumptions.”

What constitutes a “reasonable variation in critical assumptions” is not self-evident. First, ACM0013 provides no definition of “reasonable variation,” and while the Additionality Tool states that project participants should consider a sensitivity range of at least $\pm 10\%$,³² this narrow range is inappropriate in many cases. In recent years, coal prices in China and India, where all ACM0013 coal projects are based, have increased by up to 100% in periods as short as twelve months.³³ Still, no project participant varies its coal price by more than 20%—over the entire operational lifetime of the project (twenty to twenty-five years)—in its sensitivity analysis. Instead, all ACM0013 project participants adopt the $\pm 10\%$ range for at least one of their critical assumptions, and nearly all proposed projects consider sensitivity ranges of only $\pm 10\%$ for all of their critical assumptions.³⁴ ACM0013 does not require project participants to justify their variability assumptions for fuel prices, and participants rarely do.

To ensure that project participants provide robust sensitivity analysis, we recommend that fuel prices, plant loads, and fixed project costs all be included as critical assumptions within the methodology. As written, the methodology fails to define which assumptions are “critical.” Nearly all project participants perform sensitivity analyses for fuel price and plant load. But fewer than half do so for fixed project costs even though differences in fixed project costs are essentially the only reason why less a efficient power plant could be the most economically attractive baseline. This discrepancy may reflect the fact that while the Additionality Tool recognizes fixed project costs as a likely critical assumption, ACM0013 only mentions fuel price and plant load.

To clarify “reasonable variation,” the Executive Board should mandate that project participants provide data on actual observed variability in critical assumptions over a recent multi-year time period (e.g., the last three to five years), and use these data in their sensitivity analyses.

The Executive Board should also require sensitivity analysis to reflect the policy environment of the host country. Some project participants claim that prices for fuel or other inputs are unlikely to rise above a certain amount due to government policies

³² Additionality Tool, Annex: Guidance on the Assessment of Investment Analysis, Ver. 02, p. 15 (“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.”).

³³ See, e.g., Coal shortage threatens China power supply this year, *Business Daily Update*, 28 Aug. 2008 (115% increase in coal prices from July 2007 to July 2008); Spiralling coal prices may push up cement cost further (coal prices up by over 100 percent in last one year), *India Business Insight* (India), May 21, 2008, available at <http://www.thehindubusinessline.com/2008/05/21/stories/2008052151370200.htm>.

³⁴ Two projects consider fluctuations of up to 20% for fuel prices only. GHG Emission Reductions through grid connected high efficiency power generation [hereinafter, Tata Mundra]; Sophia Power Co. Two others fail to perform sensitivity analysis at all. Thermal Power Plant Ponta Negra CDM Project Activity [hereinafter Ponta Negra]; Rudeshur.

restricting prices.³⁵ The Executive Board should require these project participants to explain price controls and justify assumptions that these controls will remain in effect during the entire operational lifetime of the project (i.e., the timeframe required in investment analysis). Where price controls currently exist, the Executive Board should still require project participants to provide data on current pricing and competitive market prices to account for potential shifts in future policies. Where government policies and programs or fuel shortages affect plant loading, especially on the basis of fuel type or technology, as described below, a reasonable range of assumptions must also account for these policies. These requirements are particularly important for China and India, the two countries where the bulk of ACM0013 projects are proposed. In these countries, energy policies are rapidly evolving, and sensitivity analysis must take this into account.

B. The sensitivity analysis should require project participants to assess independent variability of critical assumptions between alternatives.

In addition to capturing reasonable variability in individual assumptions, the sensitivity analysis should require project participants to consider reasonable variations in assumptions between plausible baseline scenarios. That is, the methodology should require project participants to vary their assumptions for critical variables independently between plausible baseline scenarios. A reasonable range of variation for a particular assumption may differ across technologies under different circumstances. None of the ACM0013 projects to date provide this sensitivity.

The problem with sensitivity analysis as currently performed under ACM0013 can be illustrated by comparing Table 2—the format of sensitivity analyses used today—with Table 3—our recommended analysis structure. To show how these approaches differ, we use the load factor sensitivity data from the Shanghai Caojing project, for which we recently provided comments to the DOE. The results of this comparison are not unique to this project.

From Table 2, project participants conclude that a subcritical coal-fired power plant is the most economically attractive within all scenarios of a $\pm 10\%$ sensitivity range. Accordingly, project participants conclude that subcritical technology is their appropriate project baseline because LCOE for this alternative is always the lowest in a $\pm 10\%$ range.

Table 2: Constant variation in LCOE across alternative baseline scenarios³⁶

Alternative	-10%	-5%	0	5%	10%
Ultra-supercritical	0.3756	0.3558	0.3381	0.3220	0.3073
Subcritical	0.3715	0.3519	0.3343	0.3184	0.3039
Supercritical	0.3741	0.3545	0.3367	0.3207	0.3061

³⁵ See, e.g., Tata Mundra.

³⁶ Based on information in the Shanghai Caojing PDD (LCOE in CNY/kWh).

Without addressing the suitability of $\pm 10\%$, which we critique above, we show in Table 3 the importance of varying load factor incongruously between alternatives. Table 2 suggests that LCOE for a subcritical plant will always remain below LCOE for an ultra-supercritical plant, within a $\pm 10\%$ sensitivity range. But Table 3 reveals in blue boxes that many situations exist where a $\pm 10\%$ differential in load factor would make an ultra-supercritical plant the most economically attractive. The pink boxes match up to Table 2, but also reveal areas where the LCOE differential between alternatives is extremely small. These points underscore that uncertainties in data values could shift the final calculation in significant ways.

Table 3: Independent variation in LCOE between alternative baseline scenarios³⁷

LCOE _{Differential} = LCOE _{Ultra-supercritical} - LCOE _{Subcritical}		Ultra-supercritical Load Factor Sensitivity (%)				
		-10	-5	0	5	10
Subcritical Load Factor Sensitivity (%)	-10	0.0041	-0.0157	-0.0334	-0.0495	-0.0642
	-5	0.0237	0.0039	-0.0138	-0.0299	-0.0446
	0	0.0413	0.0215	0.0038	-0.0123	-0.027
	5	0.0572	0.0374	0.0197	0.0036	-0.0111
	10	0.0717	0.0519	0.0342	0.0181	0.0034

Constant variation across alternatives, as in Table 2, may be realistic in cases where the critical assumption is fungible, such as where supercritical and subcritical alternatives rely on the same type of coal. But in other cases, critical assumptions may actually vary independently. Where this is the case, Table 2 fails to produce the proper baseline and Table 3 is needed. Examples of critical assumptions that may vary independently between alternatives include fixed project costs and plant load factors.

Project costs for different technologies are highly likely to change at different rates. One premise of ACM0013 is that CDM financing is needed to offset the higher

³⁷ Based on information in the Shanghai Caojing PDD (LCOE in CNY/kWh).

costs of more efficient power generation technologies. Over time, project costs for efficient technologies could reasonably be expected to drop more quickly than those for already established less efficient technologies.

Load factors may also vary at different rates. For example, during coal shortages—experienced recently in both China and India—more efficient plants may be able to operate for longer periods at lower cost than less efficient ones. Host countries may also incentivize particular fuels or technologies. For example, under China's 2007 energy-saving approach to power dispatching (dispatch rules), more efficient plants receive priority access to the grid.³⁸

As with our E+/E- discussions above, to the extent that policies like China's dispatch rules favor more efficient power generation technologies, we do not believe that these policies, by default, should fall within the Executive Board's E+/E- rules. Countries adopt energy policies for a variety of non-climate reasons, including energy security and local pollution control. To ignore this reality under E+/E- would lead to perverse, non-additional CDM outcomes. Since E+/E- rules are intended both to avoid perverse incentives and to ensure additional carbon reductions, application of E+/E- to complex and sometimes non-transparent areas like the power sector threatens to undermine both the purposes of the E+/E- rules and the objectives of the Kyoto Protocol.

In sum, we recommend that the Executive Board require project participants to perform a more thorough sensitivity analysis that considers a realistic range of assumptions both between and across alternative scenarios. A realistic range of assumptions must be based in actual and anticipated variability and include situations in which critical assumptions vary independently between plausible baseline scenarios.

IV. ACM0013's Common Practice Analysis Must Be Revised To Provide A Credibility Check To A Project's Identified Baseline.

The premise of the common practice analysis is that if activities similar to the proposed project are taking place without CDM funding, then the claim that the project activity is financially unattractive on its own is suspicious.³⁹ The Additionality Tool provides the major requirements for common practice analysis, but ACM0013 also specifies that project participants shall explain any discrepancies between their baseline calculations and technologies recently constructed, under construction, or being planned in the project area.⁴⁰

³⁸ http://www.gov.cn/zwgk/2007-08/07/content_708486.htm. See also Regulatory Assistance Project, *China's Power Sector: A Backgrounder for International Regulators and Policy Advisors*, Feb. 2008, available at http://www.raponline.org/docs/RAP_ChinaPowerSectorBackground_2008_02.pdf.

³⁹ Additionality Tool, 10.

⁴⁰ ACM0013 Ver. 2.1, p. 4.

All projects must overcome the common practice hurdle to be considered additional.⁴¹ Project participants must identify “any other activities that are operational and that are similar to the proposed project activity,” based on region, technology, scale, regulatory framework, investment climate, access to technology and financing, or other such factors.⁴² They must provide documented evidence to describe the prevalence of similar activities,⁴³ and if they identify similar projects occurring without CDM funding, they must distinguish their project from the others. Project participants may exclude similar CDM projects from common practice analysis, but only if these have been registered or are published on the CDM website for stakeholder consultation.”⁴⁴

Common practice analysis is intended to provide a final, “real world” check on additionality calculations, but ACM0013 projects exhibit a high rate of non-compliance with existing requirements. Further, the common practice rules contain ambiguities, and are inconsistent with on-the-ground developments in the ACM0013 context.

We recommend that the Executive Board revise ACM0013’s common practice provisions to reassert common practice analysis as an important component in ensuring additionality. Specifically, we propose changes to both the substantive and transparency requirements of these provisions, and suggest that the Executive Board also incorporate language from the Additionality Tool, with ACM0013-specific stipulations, within the text of the methodology itself.

A. The common practice analysis should more explicitly prevent the improper rejection of similar projects.

The most pervasive error in ACM0013 PDDs is the exclusion of potentially similar projects from the common practice analysis without sufficient justification. For example, seven ACM0013 coal projects assert that all other similar activities are CDM projects, but fail to provide documentation indicating that these projects have been registered or published on the CDM website.⁴⁵

This frequent non-compliance is traceable, at least in part, to ACM0013’s lack of an explicit transparency requirement for common practice analysis. The Executive Board should address this problem by requiring project participants to list and describe all similar projects *before* determining that any such projects are properly excludable. By requiring disclosure, the Executive Board can better police, with assistance from the DOEs and stakeholders, non-compliance with ACM0013’s key additionality provisions.

⁴¹ “If...similar activities can be observed and essential distinctions between the project activity and similar activities cannot reasonably be explained, the proposed CDM project activity is not additional,” Additionality Tool, 11.

⁴² Additionality Tool, 10.

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ Shanghai Waigaoqiao; Jiangsu Taizhou; Guangdong Pinghai; Zhejiang Beilun; Anhui Tongling; Jiangxi Xinchang; Shanghai Caojing.

B. The common practice analysis should better ensure additionality in the ACM0013 context.

As an initial matter, we recommend that the Executive Board explicitly define the geographic area used for common practice analysis. Currently, ACM0013 is ambiguous on this point. The Additionality Tool states that similar projects must be within the same “country/region,” which most project participants interpret to mean the project boundary (e.g., the grid). But others interpret common practice analysis to encompass the host country or the province,⁴⁶ or specify no region at all.⁴⁷ Since the relevant aspect of “similarity” is whether the projects are similar in project type and in terms of the incentives they face, ACM0013 should define the boundary of common practice analysis as areas within the host country subject to the same policies project participants face for the project activity.

We further recommend that the Executive Board address a significant problem: the fact that project participants can exclude all other projects within the CDM pipeline from common practice analysis, even if they have not and may never be registered. The rationale for excluding CDM projects is that these projects (if additional) require CDM funding for implementation. But this rationale becomes weak if the additionality of submitted projects is highly suspect, as is the case under ACM0013. This rationale is particularly weak among Chinese coal plants: a number of PDDs include project timelines that show major project decisions occurred before the Executive Board approved ACM0013. These facts significantly undermine additionality claims. Further, the sheer number of improperly excluded CDM projects divorces the common practice analysis from reality. This is the opposite of what common practice analysis is meant to achieve. Because the “CDM exception” distorts the analysis to the detriment of the Kyoto Protocol’s emissions caps, it should not apply to ACM0013.

CONCLUSION

To fix ACM0013, the Executive Board must make significant revisions to the methodology’s alternatives analysis, investment analysis, sensitivity analysis, and common practice analysis. These provisions speak to the core of the methodology’s ability to filter out non-additional projects, and problems with any one of them undermine the methodology as a whole. Given the numerous problems we have identified in each provision, ACM0013 as written cannot ensure project additionality.

Based on these significant problems, no projects—proposed, validated or registered—under ACM0013 to date should be considered additional.

⁴⁶ Jiangsu Taizhou.

⁴⁷ Ponta Negra; Thermal Power Plant Manauara CDM Project Activity [hereinafter, Manauara]; Rudeshur.

While we have focused our comments on correcting ACM0013's flaws, we also note that all projects proposed under this methodology fail to meet even the weak standards for additionality found in the methodology today. Accordingly, we urge the Executive Board not only to revise the current methodology, but also to provide greater oversight of projects in the pipeline. We ask the Executive Board to start by reviewing Project 3020 "GHG Emission Reductions through grid connected high efficiency power generation," which has requested registration. We also ask that the Executive Board reopen the registration of Project 2716. This project was registered despite explicit violations of ACM0013's current requirements, and credits generated under this project threaten to pollute the offsets pool while undermining the goals of the Kyoto Protocol.

To protect the integrity of the CDM, the Kyoto Protocol, and the Convention, we respectfully request the Executive Board to suspend ACM0013 with immediate effect, and to stop accepting any further PDDs pending comprehensive revisions and review.