CDM: Proposed new methodology expert form (version 03)

(To be used by methodology experts providing desk review for a proposed new methodology)

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Related F-CDM-NM document ID number	NM0072

Note to those completing this form, as applicable: Please provide recommendations on the proposed new baseline and monitoring methodologies based on an assessment of annexes 3 and 4 and of their application in sections A to E of the draft CDM PDD, desk reviews and public input. Please ensure that the form is entirely filled and that arguments and expert judgements are substantiated.

A. Evaluation of the proposed new methodologies by desk reviewers:

I. Evaluation of the proposed new baseline methodology:

Title of new baseline methodology:>> Energy Efficiency Through Mandatory National -Level Appliance Standards

i. Conditions under which this methodology is applicable to other potential projects (e.g. project type, region, data availability):

>>Applicable to mandatory standards for a range of appliances in places where such standards either don't exist or could be strengthened through use of the CDM; in places where there is available national level government, industry and survey data on the efficiency, sales, and use of relevant types of equipment.

ii. Strengths and weaknesses of the methodology:

>>Strengths - sensible calculation methodology, broad applicability to a range of appliances, gives impetus to policy improvements. Weaknesses - potentially incompatible with the CDM (recommend this be discussed by EB/meth panel), requires good data

iii. Any changes needed to improve the methodology:

a. Minor changes:>>Error correction/ clearer presentation of formulas as indicated in section 4a, below; addition of more information about historical application of the methodology elsewhere

b. Major changes: >>would depend on outcome of higher-level discussion of policy change as a project

II. Evaluation of the proposed new monitoring methodology:

Title of new monitoring methodology: >>Energy Efficiency Through Mandatory Appliance Standards

i. Conditions under which this methodology is applicable to other potential projects (e.g. project type, region, data availability):

>>Applicable to the same range as the baseline methodology: unitary appliances for which there is adequate sales and use data, through national or industry statistics, and though careful surveys. Additionally, there is a need for data about emissions factors of the fuel used, or the electricity grid if attached to the grid. A range of necessary data is encompassed in the four possible methodologies for calculating the operating margin listed in AM0002; the difficulty of obtaining it ranges anywhere from simple, for an average calculation, to complex, for dispatch data.

ii. Strengths and weaknesses of the methodology:

>>Strengths: the emissions factor portion of the methodology relies on a standardized (AM0002) and thus well-established methodology. The monitoring plan for data about the appliances is conceptually straightforward and relies on experience gathered through well-known initiatives and

institutes (such as CLASP and LBNL).

Weaknesses: although the plan is conceptually straightforward, in practice it may be difficult and expensive to obtain the data: scientific surveys, a testing centre, etc. are not easily accomplished. A weakness of the methodology as written is that it fails to describe how the surveys are to be done, or anything else about the actual means of gathering data.

iii. Any changes needed to improve the methodology:

a. Minor changes:>>Rewriting the description of the methodology so that it describes the monitoring methodology, and isn't just a repeat of the baseline methodology

b. Major changes: >>Description of the actual data collection methodology, in particular the scientific surveys. Where more detailed information would be too complex to reproduce in the methodology, a specific reference could be given for more information.

B. Details of the evaluation of the proposed new methodology by the desk reviewer:

I. Proposed new baseline methodology *(specify title here):* >>Energy Efficiency Through Mandatory National -Level Appliance Standards

(1) Short description of the methodology, including an assessment of which approach from paragraph 48 of the CDM modalities and procedures was used:

a) Describe the methodology:

>>The methodology describes the means for estimating the baseline emissions from fuel use or from the national electricity system attributable to the baseline use of appliances, once that population has been altered due to introduction of a mandatory energy efficiency standard. Such a standard changes the energy use of the sector as new, more efficient equipment is bought, on average. The methodology therefore must estimate what kind of equipment would have been installed without the standard (including the efficiency thereof, which tends to evolve even absent standards), the number of units, the days and the hours of use. Then, the emissions due to fuel or electricity use need to be estimated, which is done according to the approved methodology AM0002.

b) State the approach selected:

>>Actual/historical emissions

c) Indicate (in summary form) why the approach selected is the most appropriate. Please provide your expert judgement on the appropriateness of the selected approach to the project category:

>>This is the only logical choice given the nature of the project. It isn't a matter of comparing options on economic terms (second approach), and one can't compare a policy change with a similar policy change (equivalent of third approach).

(2) Basis for determining the baseline scenario:

a) State whether the documentation explains how the baseline scenario is to be chosen and identified:

>>The baseline, while somewhat challenging to determine accurately, is easily chosen and identified - it is the continuation of the status quo with allowances made for two kinds of shifts: estimates of the 'natural' rate of efficiency improvement that would have occurred anyway, and the potential for changes in the carbon intensity of the fuel/electricity supply, which can be measured.

b) State the basic underlying rationale for algorithms/formulae used (e.g. marginal vs. average basis) (see also section 4 below):

>>There are two separate kinds of calculations: one to determine what the energy use of baseline appliances would have been, and the second to determine the carbon emissions implications thereof. In the first case, once the monitored factors in the equation are determined (discussed below) the calculation is straightforward. The factors in question are data from appliance use following introduction of the standard, where corrections are made for the difference between new efficiencies and the assumed efficiencies under the baseline - with assumptions made that the total sales and amount of use of new and baseline equipment would be similar.

The methodology opts for the combined margin approach to determining the emissions factor of avoided electricity use, reasoning that saved electricity will affect electricity use much as introduction of a new renewable energy supply source would do. It includes the documentation from AM0002 version 1 (without reference, it should be pointed out - this would be helpful for tracking future versions of that document), "Consolidated baseline methodology for grid-connected electricity generation from renewable sources." This seems a reasonable approach. It must be noted that AM0002, under the heading 'applicability,' states that it is 'applicable to grid-connected renewable power activities' and notes that it applies to 'capacity additions.' The fact that avoided emissions through efficiency measures rather than addition of zero-carbon capacity has not been considered in this methodology is no doubt fully due to the nature of the projects forming the background to the AM, and not due to inapplicability. This should be take up by the meth panel and broadening the scope of AM0002 should be considered, if they concur.

c) State whether the documentation explains how, through the use of the methodology, it can be demonstrated that a project activity is additional and therefore not the baseline scenario. If so, what are the tools provided by the project participants?

>>The methodology simply provides the tool outlined by the executive board and leaves it up to whoever would use the methodology to work it out. Presumably this is the idea behind having an approved tool. Nevertheless, one might like to see some general discussion about how this kind of project is likely to be additional as a service to users of the methodology. This is particularly true given the peculiarity of the project vis-à-vis the logic of CDM to date, and the likelihood, which the project developers recognize by mentioning the originality of the concept, that some special explanation will be required.

d) State whether the basis for determining the baseline scenario and for assessing additionality is appropriate and adequate:

>>The developers are well aware that their project falls outside of the usual conception of a CDM project (calling it a "relatively unique methodology" on page 2, and therefore should be aware that the additionality tool is going to be little help determining whether these are additional projects or not. Every government policy implies costs, whether for the government, industry, or citizens. CDM precedent is building wherein it is understood that funding can assist industry with compliance to meet regulations - if compliance isn't common practice already. But the argument presented in the PDD (but sidestepped in the baseline methodology by simply reproducing the additionality tool) is that the government itself lacks the funds to support the policy through establishment of a testing centre. If the government has insufficient funds, is that a case of a financial barrier in the sense mentioned in the additionality tool? Hardly - the government certainly has enough money, it's just a question of priorities: unlike options for an investment project where IRRs or other measurable factors can be compared, one can't easily weigh government spending priorities off against each other. It should be noted that Ghana has gone a long way toward the establishment of an air conditioning standard - it has been a process of years. Many costs were incurred for surveys, establishment

of an energy foundation, etc. That the testing lab is a hurdle to enactment of the law may be true (the only published information I have found states that the lab would be done by 2004, without any mention of the CDM (CLASP 2002)- but this may be old information), but it seems somewhat arbitrary to point to this particular cost as opposed to another as a specific hurdle. This is not to say that there aren't hurdles and the CDM shouldn't be used in this case - it is only to point out the issue for further discussion.

(3) Assessment of the description of the proposed methodology and its applicability

a) State whether the methodology has been described in an adequate manner:

>>The methodology is relatively well explained, with four exceptions: by using the additionality tool provided by the EB, it opts out of the needed discussion of additionality in this particular and unusual case. Secondly, there are a couple of minor problems in formulas, mentioned below in section 4. Third, by using the AM0002 for determining avoided emissions through a combined margin approach, it neglects a full, and relatively simple, explanation of how that methodology, though developed for capacity additions, is applicable to efficiency. Fourth, there are no supporting references for further information- the methodology repeatedly makes reference to the successful international use of similar methodologies without stating which ones, or providing a bibliography. That would both be academically correct (giving a reference one could turn to prove that their assertions are correct) and useful to users because they don't actually provide the detail in the methodology itself.

b) State whether the proposed methodology is appropriate for the referred proposed project activity and the referred project context (described in Sections A-E of the draft CDM-PDD and submitted along with Annex 3):

>>It is - the methodology has clearly been designed that way.

c) State whether the application of the methodology could result in a baseline scenario that reasonably represents the anthropogenic emissions by sources of greenhouse gases that would occur in the absence of the proposed project activity.

>>Yes

Please explain:

>>Although there are some assumptions, the main factor involved in the accuracy of the baseline is the quality of the data collection. Assuming the data are reasonably accurate, the methodology makes good efforts to estimate the counterfactual reasonably and conservatively.

(4) Assessment of algorithms/formulae and type of data needed:

a) State whether the description of the methodology includes algorithms and generic formulae that can be applied to other potential project activities (if not, the proposed new methodology will be considered as a project-specific methodology):

>>The methodology is appropriate to a wide range of appliance standards - while the PDD is about room air conditioners, the methodology is not specific. It would only depend on the standard being one that affects a sector in a similar way, i.e. covering new unitary equipment for which there is sales data, for which energy use can be measured in a standards lab, and where field data about days and hours of use is collectable. Given that the full range of options is reproduced from AM0002 for determining the combined margin, that should cover most cases. The methodology points out in several cases that the range of options presented (sales vs. survey data, the CM calculation options, etc.) should be chosen as appropriate to a particular project, with oversight from the DOE.

There appears to be an error in the formula on page 11, the last option of three for calculating TBEx: the formula says TAEx rather than TBEx.

Secondly, it is unclear what is meant by the statement, under the first formula for calculating TBEx: " and x-1?b" : this isn't an equality and it's hard to see what is being expressed.

In fact, these formulae are pretty straightforward but the way they are presented takes more figuring out than it should.

Finally, there is need for a datum AEI[sub]b, but this is not in the list of data needed in section E2 on page 19: only AEI[sub]n is. In other words, average energy input of new appliances is recognized to be needed,

but there's no mention of collecting the data for average energy input of baseline appliances (presumably needed from the first year prior to the project year - the figure to which the annual baseline efficiency improvement assumption is added).

b) Explain the spatial scope of data used to determine the baseline and whether the scope is appropriate:

>>As it is about national standards, the data is national, which seems the most appropriate - in the case of regional electricity grids within a single nation, there would have to be a further calculation to determine total national impact; were there to be vast differences between regions in terms of both appliance use and emissions factors, this might have to be taken into account.

c) Explain the vintage of data used (in relation to the duration of the project crediting period) and whether the vintage of data is appropriate, indicating the period covered by the data:

>>There are apparently annual updates to the sales and use data of new equipment, which is assumed to be the same for baseline equipment. The only vintage question not expressly discussed is whether average retirement age of equipment would change over time, but that seems minor.

(5) Definition of the project boundary related to the baseline methodology:

a) State how the project boundary is defined in terms of:

i) Gases and sources

>>CO2 from the electricity grid or from fuel use, if appliance uses fuel directly.

ii) Physical delineation

>>national in the case of the appliances, national or regional in the case of the electricity grid.

b) Indicate whether this project boundary is appropriate:

>>as noted above, if there are strong regional differences to the grid, these will have to be aggregated to a national level; if for some reason appliance use is also strongly varying between regions with difference emissions factors, this might need to be taken into account.

(6) Key assumptions/parameters (including emission factors and activity levels) and data sources:

a) List the implicit and explicit key assumptions. Identify those, if any, which are problematic and explain:

>>Sample data and statistics will be available, accurate and if necessary interchangeable; new appliances purchased in the year of crediting will operate at least 50% of the year; the same number of appliances will be purchased annually following introduction of the standard as would have been under the baseline.

b) State whether the key assumptions are arrived at in a transparent manner:

>>yes, though with too little discussion of the gathering of statistics, though that should be in the monitoring plan.

c) Give your expert judgement on whether the assumptions/parameters are adequate:

>>Yes.

d) Indicate which data sources are used and how the data are obtained (e.g. official statistics, expert judgement):

>>Survey data, government statistics, industry statistics.

e) Give your expert judgement on whether the data used are adequate, consistent, accurate and reliable:

>>This is the main failing of the methodologies, because it is clear that this data is crucial but not necessarily easy to obtain. A fuller discussion or reference to a fuller discussion of the survey methodology and its accuracy, and discussion of whether government and industry data required are typically available, would be beneficial.

f) State possible data gaps:

>>As just noted, if any of the above are unavailable there would be gaps.

(7) Assessment of uncertainties:

a) State whether the methodology includes an assessment of uncertainties regarding:

i) The basis for determining the baseline scenario:

>>The baseline scenario is pretty straightforward: continuation of current patterns of appliance use and of policy in relation to it. The methodology, by specifying annual recalculation of emissions factors and of appliance use and sales, allows for changes in either - noting the possibility of fuel switching for example being thereby accounted for (this is probably mentioned because it is a possibility in the Ghana situation).

There isn't really a discussion of the implications of a policy-based project, for example, if there's any reason to believe that a relevant policy could have been or would at some point during the project lifetime be introduced for its own merits. In the Ghana case, for example, years of effort have already been made, the legislation is in place and is being promoted as a model for Western Africa - I have not found any reference to the CDM. A similar policy with a testing lab funded by the Egyptian government, UNDP and GEF is in place in Egypt (CLASP 2004). Economics dictate major savings by putting such standards in place. Thus there is reason to believe that such policies are both logical and could gain momentum with assistance from international institutions on a grant basis. Indeed, such legislation is a good example of creating an 'enabling environment' much discussed in the technology transfer context; whether this is distinct and incompatible with a market-based instrument like the CDM is part of the broader discussion the EB should probably have.

ii) Algorithms/formulae:

>>there is only mention of one measure of building conservatism into the formula by rounding down data that comes with margins of error. Many of the formulas are simply those reproduced from AM0002.

iii) Key assumptions:

>>

iv) Data:

>>There is a short discussion of the uncertainties around data gathering, stating that a third-party consultant, or help fro a DOE may be necessary. As noted elsewhere, this whole issue could be more fully discussed.

b) State whether the uncertainties presented are reasonable:

>>There could be expansion as noted above, but there are no glaring omissions.

(8) Leakage:

a) State how the baseline methodology addresses any potential leakage due to the project activity:

>>It assumes there is none, reasoning that there would be no more energy input to make efficient equipment than standard equipment.

b) Indicate whether the treatment for leakage is appropriate and adequate:

>>Leakage can also refer to the displacement of generation to other uses - if this project is done in a supply-limited country, then it may be that there would be no corresponding reduction in emissions due to efficiency improvements. However, this presumably has value and as such isn't to be penalized.

(9) Transparency and "conservativeness":

a) Indicate whether the baseline methodology was developed in a transparent way:

>>Yes, with the exception of the multiple references to existing methodologies internationally that it doesn't explain or reference in detail for further study/verification.

b) State whether the baseline methodology is conservative:

>>A good effort has been made to make it conservative.

(10) Potential strengths and weaknesses of the proposed baseline methodology *(please explain)*:

>>The applicability to a wide range of appliances, and the possibility that this opens up a new methodology encouraging the adoption of improved appliance standards in the developing world are strengths. The weaknesses are the dependence on data that needs to be gathered accurately and which will require significant effort to do so, and the fact that this methodology is new and may or may not fall into the understanding of the CDM, particularly in relation to policy changes being defined as 'projects.'

(11) Other considerations, such as a description of how national and/or sectoral policies and circumstances have been taken into account *(please explain)*:

>>As noted above, there has been no discussion of this kind of project to date, and it is therefore a matter for further discussion by the EB as to whether it is applicable to the CDM. The baseline methodology notes that "implementing an appliance standard - as with any policy - is a political process," and indeed once when enters into politics rather than simple project finance, the questions get tougher. The methodology simply reproduces the draft additionality tool and doesn't discuss it further, but the PDD tries to pin down a particular aspect of the "political process" that can be recognized as the barrier to the policy that can be measured and can be facilitated with CDM funding. This is the appliance standards measurement laboratory. However, it seems somewhat arbitrary that this is chosen as the barrier given there are a wide range of other costs involved, such as assembling the data, holding stakeholder meetings to decide the standard, etc. The fact is that a wide range of costs are assumed by government for the passage and maintenance of a required standard, and it is somewhat of a stretch to pin down the point at which government funding is unable to extend to a particular activity. In any case, this is a discussion to be had by the EB. That passing such standards costs money and that doing so is an exceptionally good idea there can be no doubt.

I the context of the Ghana PDD, the technology needs assessment of 2003 (January, Version 1) identifies the problem: “Lack of the necessary financial resources…ha[s] undermined the laudable policy directives.”

“There is a national drive to achieve a comprehensive energy efficient economy. The main hurdles have been the development of appropriate regulations, policies, uneconomic tariffs, and availability of financial resources.”

(12) Applicability of the proposed methodology across project types and regions *(please indicate)*:

>>applicable to a wide range of efficiency standards improvements in unitary equipment, in a wide range of countries.

(13) Any other comments:

a) State whether any other source of information (i.e. other than documentation on this proposed methodology available on the UNFCCC CDM web site) has been used by you in evaluating this methodology. If so, please provide specific references:

>>Wiel, Stephen and James McMahon, "Energy efficiency labels and standards: a guidebook for appliances, equipment and lighting" Collaborative Labelling and Appliance Standards Program, Washington, DC, February 2001.

Collaborating Labelling and Appliance Standards Program, "Transforming the West African Market for Energy Efficiency: Ghana Leads the Way with Mandatory Standards and Labels" Draft, April 2002.

Ofosu-Ahenkorah, A.K. "Promoting Energy Efficiency & Conservation in West Africa: The Case of Ghana’s Energy Foundation" Presentation to the renewable energy & energy efficiency partnership, West African Regional Consultation meeting. No date.

UNDP, "New Laboratory will be an Important Tool in Egypt’s Efforts to Electrical Appliance Labelling System." Press release 31 March 2004. http://www.undp.org.eg/news/press/2004_press/Feb/GEF_22_2_2004.htm

Ghana's Climate Change Technology Needs and Needs Assessment Report under the United Nations Framework Convention on Climate Change. January 2003, Version 1.

Edjekumhene, Ishmael, "Status of Renewable Energy and Energy Efficiency Systems in West Africa." Background Paper (1 st Draft) Prepared for The West African Regional REEEP Consultation Meeting in Accra. Kumasi Institute of Technology and Environment, June 2003.

b) Indicate any further comments:

>>

II. Proposed new monitoring methodology *(specify title here):* >>Energy Efficiency Through Mandatory Appliance Standards

In respect of the proposed new monitoring methodology, evaluate each section of annex 4 to the draft CDM PDD. Please provide your comments section by section:

(1) Brief description of new methodology:

Describe new methodology:

>>The methodology describes the data necessary to apply the corresponding baseline methodology. there are to main sets of data: one about the emissions factor of the electrical grid (or the fuel, when not grid-connected) determined using the combined margin approaches under AM0002, and the second about the number and use of appliances affected by the standard.

(2) Key assumptions/parameters:

a) List the implicit and explicit key assumptions. Identify those, if any, which are problematic and explain:

>>Explicit: accuracy of IPCC emissions factors for the case of direct fuel use; accuracy, relevance and conservative interpretation of data from the sampling plan; assumption that appliances are used 50% of a year in the final year of calculation; no leakage.

Implicit: Availability of national data for calculating emissions factor, availability of data from a sampling plan; existence of a sampling plan (this is not discussed in the methodology)

b) State whether the key assumptions are arrived at in a transparent manner:

>>There could be more discussion of the nature of the data, the reliability, the nature of the sampling plan, etc. Otherwise the assumptions are straightforward.

c) Give your expert judgement on whether the assumptions/parameters are adequate:

>>Insofar as they go, but there are inherent difficulties to the lack of further discussion about the sampling plan, as mentioned below.

(3) Data sources and data quality:

a) Indicate which data sources are used and how the data are obtained (e.g. official statistics, expert judgement):

>>Three primary sources: official government statistics, industry data, and scientifically derived sampling data.

b) Give your expert judgement on whether the data used are adequate, consistent, accurate and reliable:

>>That depends entirely on the particular case; these are the correct data sources upon with to rely, but only if they're reliable.

c) S*tate possible data gaps:*

>> There would be gaps where the data sources were unavailable or unreliable.

(4) Assessment of the description of the proposed methodology and its applicability:

a) State whether the proposed methodology has been described in an adequate manner:

>>No. The methodology description given in the document is simply the same as the one in the baseline methodology, and as such both includes unnecessary information about calculating baseline emissions, and leaves out crucial information about the methods for gaining the data required in the tables. There should be far more extensive discussion of how one goes about getting the data. There are three sources: government and industry statistics, and scientifically derived sampling data. There should be a discussion of whether the first two are regularly available for the data in question, to begin with. The most important gap, however, is the near complete neglect of detailing the heart of the monitoring methodology; the 'scientifically derived sampling data.' There is only the third bullet point on page 3 to give us any information. The rest of the methodology simply reproduces lists of needed data from AM0002, and those obvious for the calculation of the baseline. But how to obtain them really is what needs discussion, after all this is the monitoring methodology - the rest is just tables and calculations. How does one do a survey? It's surely worth at least a couple of pages of explanation. That there is mention of the fact that such a methodology has been done elsewhere and is based on CLASP and LBL work, but without further references. CLASP has a guidebook to labelling and appliance standards but it covers a lot of ground and doesn't provide the detail necessary to actually design a survey instrument and prepare a monitoring plan. Therefore either more information is in this methodology, or a reference to a publicly available methodology should be provided.

b) State whether the proposed methodology is appropriate for the referred proposed project activity and the referred project context (described in Sections A-E of the draft CDM-PDD and submitted along with annex 4):

>>It is

c) State whether this proposed monitoring methodology is compatible with the proposed baseline methodology described in annex 3 of the draft CDM-PDD:

>>yes

(5) Leakage *(please elaborate, if appropriate)***:**

>>not monitored, because none is assumed.

(6) Quality assurance and control procedures *(please explain)***:**

>>There are none: it assumes that the data for the emissions factors are reliable, coming from IPCC standards or government/ industry official statistics. It further assumes that survey data are accurate because QA/QC will be built into the survey design. This is another strange instance of this methodology thinking of the survey as something external to the methodology, whereas it in fact a major part of the methodology. Thus quality control should be discussed just as the whole survey design should be.

(7) Potential strengths and weaknesses of the proposed monitoring methodology *(please explain)***:**

>>Strengths: relies largely on accepted methodologies for emissions factors. Broadly applicable to relevant standards-induced shifts in appliances. Weaknesses: lacks discussion of how to obtain the data, particularly the surveys; assumes accuracy and availability of data.

(8) Applicability of the proposed methodology across project types and regions *(please indicate)***:**

>>Applicable to unitary appliances for which data is available, where a standard has been passed that is new or exceeds previous standards.

(9) Any other comments:

a) State whether any other source of information (i.e. other than documentation on this proposed methodology available on the UNFCCC CDM web site) has been used by you in evaluating this methodology. If so, please provide specific references:

>> Wiel, Stephen and James McMahon, "Energy efficiency labels and standards: a guidebook for

appliances, equipment and lighting" Collaborative Labelling and Appliance Standards Program, Washington, DC, February 2001.

Collaborating Labelling and Appliance Standards Program, "Transforming the West African Market for Energy Efficiency: Ghana Leads the Way with Mandatory Standards and Labels" Draft, April 2002.

Ofosu-Ahenkorah, A.K. "Promoting Energy Efficiency & Conservation in West Africa: The Case of Ghana's Energy Foundation" Presentation to the renewable energy & energy efficiency partnership, West African Regional Consultation meeting. No date.

b) Indicate any further comments:

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Signature of desk reviewer Sent by email ……..

Date: 20 /12 /2004

Information to be completed by the secretariat	
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