

 <p style="text-align: center;">CDM: Proposed new methodology expert form (version 04) (To be used by methodology experts providing desk review for a proposed new methodology)</p>	
Name of expert responsible for completing and submitting this form	A. Ricardo J. Esparta
Related F-CDM-NM document ID number	NM0089
<p><i>Note to those completing this form, as applicable: Please provide recommendations on the proposed new baseline and monitoring methodologies based on an assessment of CDM-NMB and CDM-NMM 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.</i></p>	
A. Evaluation of the proposed new methodologies by desk reviewers:	
I. Evaluation of the proposed new baseline methodology:	
Title of new baseline methodology:>> CECL methodology for power generation for captive use, which is grid connected, using non-renewable and less GHG intensive fuels	
<p>i. Conditions under which this methodology is applicable to other potential projects (e.g. project type, region, data availability):</p> <p>>> The baseline methodology is applicable to grid connected natural gas fired power generation project activities under the following conditions:</p> <ul style="list-style-type: none"> • Applies to electricity capacity additions • The geographic and system boundaries for the relevant electricity grid can be clearly identified and information on the characteristics of the grid is available <p>ii. Strengths and weaknesses of the methodology:</p> <p>>> Strengths:</p> <ol style="list-style-type: none"> 1. Wide applicability; 2. Simplicity of the intuitive approach. <p>Weaknesses:</p> <ol style="list-style-type: none"> 1. Lack of overall clarity in the documentation; 2. Key dependence on subjective data ("performance ratio") 3. High dependence on indirect calculation/estimation 4. Energy imports to the relevant grid are not taken into consideration. 5. Confuse (Unnecessary? Unjustified?) applicability assumptions; <p>iii. Any changes needed to improve the methodology:</p> <ol style="list-style-type: none"> a. Minor changes:>> Clarify point 5 of the weaknesses in item A.I.ii. b. Major changes:>> Clarify points 1 to 4 of the weaknesses in item A.I.ii. 	
II. Evaluation of the proposed new monitoring methodology:	
Title of new monitoring methodology: >> CECL methodology for power generation for captive use, which is grid connected, using non-renewable and less GHG intensive fuels.	
<p>i. Conditions under which this methodology is applicable to other potential projects (e.g. project type, region, data availability):</p> <p>>>The monitoring methodology is applicable to grid connected power generation project activities under the following conditions:</p> <ul style="list-style-type: none"> • Applies to electricity capacity additions • The geographic and system boundaries for the relevant electricity grid can be clearly 	

identified and information on the characteristics of the grid is available

ii. Strengths and weaknesses of the methodology:

>> Strengths:

1. Wide applicability;
2. Simplicity.

Weaknesses:

1. Lack of overall clarity in the documentation;
2. High level of indirect monitoring (the great majority of the data is either calculated or estimated).
3. Some of the monitored data have no indication on how they will be acquired (measured, calculated or estimated?).
4. Unclear assumptions while calculating and/or estimating the monitoring data;
5. Energy imports to the grid are not taken into consideration.

iii. Any changes needed to improve the methodology:

- a. Minor changes:>>
- b. Major changes:>> Thoroughly clarify all the points of the weaknesses in item A.II.ii.

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

I. Proposed new baseline methodology (specify title here): >> CECL methodology for power generation for captive use, which is grid connected, using non-renewable and less GHG intensive fuels.

(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 has the following steps:

- Establish additionality of the proposed activity
- Determine the relevant grid.
- Determine the baseline emission factor as a combined margin consisting of the average combination of operating and build margins.
 - The set of plants in the operating margin are selected based on ratio of annual dispatched power to the “design dispatch”.
 - The set of plants in the build margin are either:
 - Five power plants that have been built most recently [including plants under construction], or
 - Power plants that have been built most recently [including plants under construction], whose capacity additions in the electricity system, comprise 20% of the total power generation in the system.

b) State the approach selected:

>>Existing actual or historical emissions, as applicable.

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:

>>It is the most appropriate because vintage data from the past two to three years are used for the operating and build margin emission factors calculations.

(2) Basis for determining the baseline scenario:

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

>>It is explained, even though in a poorly manner.

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

>>Estimated marginal operating and build margin vs. project activity emissions.

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 approved "Tool for the demonstration and assessment of additionality" (CDM-Executive Board 16th Meeting Report, Annex 1) is used.

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

>>For determining the baseline, perhaps (further clarification is needed), for assessing additionality, yes.

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

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

>>No.

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 CDM-NMB):*

>>The methodology may be appropriate if all weaknesses in item A.I.ii. are properly addressed.

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.*

>> The methodology may be appropriate if all weaknesses in item A.I.ii. are properly addressed.

Please explain:

>> Example of weaknesses to be addressed are:

- At one point of the documentation (p. 8) it is stated that "the average OM emission factor ($E_{OM,average,y}$) is calculated as the generation-weighted average emissions ... of all generation sources serving the system" but neither $E_{OM,average,y}$ is used elsewhere nor what is meant with "the system" is defined (only "lowest level of the grid" in page 3 or "grid/third party where the project proponent has a full control" are mentioned, without further clarification);
- As it is, the methodology has a critical dependence on a subjective variable ("performance ratio"). A less subjective variable is highly desirable while selecting the plants in the operating margin.
- Energy imports are not considered anywhere in the documentation;
- There is no reasonable justification for the 60 MW power generation addition threshold.

(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):*

>>Yes.

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

>>No. Local, state, regional and national spatial levels of data are not properly/thoroughly explained/defined. Also, there is a critical dependence on subjective data ("design capacity" in contrast to objective available installed capacity) as well as unclear indirect calculations, for example, project emissions are calculated through "plant load factor" while it would be much more straightforward to be directly calculated using fuel used and energy generated.

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:

>>A maximum of the past three years for the operating margin and, two year for the build margin (including plants under construction). The vintage used in the ACM0002 (3-year average, based on the most recent statistics available, for the OM and, the sample group m that comprises the larger annual generation, from the five power plants that have been built most recently or the capacity additions that comprises 20% of the system generation) would be more appropriate.

(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

>>Only carbon dioxide emissions are considered.

ii) Physical delineation

>>From the proposed methodology, "the project boundary will cover the following items:

- storage and transportation (by the project proponent) of fuel,
- power generation facility,
- dispatch to the grid, and
- captive consumption (within the power generation plant) units".

b) Indicate whether this project boundary is appropriate:

>>No. "Dispatch to the grid" demands a more detailed definition.

(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:

>> Implicit assumptions:

- Plants under construction will operate as forecasted (problematic if there is no historic evidence or monitoring/verification);
- The variable "performance capacity" is a reasonable one to demonstrate the dispatch merit (problematic as the value is subjective);
- The project activity will only use natural gas as fuel (problematic if there is no direct monitoring/verification);
- The variable "plant load factor" is a reasonable one to derive the power generation of the plants under consideration (problematic, directly fuel consumption and power generation monitoring would be more appropriate).
- "IPCC factors" are enough to calculate CO₂ contributed by all the plants (problematic. Individual fuel consumption and thermodynamic efficiency will be necessary).

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

>>No

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

>>No

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

expert judgement):

>>Data sources are generically presented ("published at any public domain by any level of government authority and is verifiable").

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

>>Unclear, therefore no.

f) State possible data gaps:

>>Data on fuel consumption and/or thermodynamic efficiency of individual plants.

(7) Assessment of uncertainties:

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

i) The basis for determining the baseline scenario:

>> No systematic assessment of uncertainties is included.

ii) Algorithms/formulae:

>> No systematic assessment of algorithms/formulae uncertainties is included.

iii) Key assumptions:

>> No systematic assessment of key assumptions uncertainties is included.

iv) Data:

>> No systematic assessment of data uncertainties is included.

b) State whether the uncertainties presented are reasonable:

>> No. Simply mentioning uncertainties without addressing them is not enough.

(8) Leakage:

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

>> It is stated that "losses of power are duly accounted for in baseline emission formula."

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

>>Possible leakages are emissions arising due to power plant construction and fuel handling. As the transportation of the fuel is included in the project boundary, only effects due the construction are not being considered. If no significant effect occurs during construction no leakage will occur.

(9) Transparency and "conservativeness":

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

>>No

b) State whether the baseline methodology is conservative:

>> Unclear without explicit data on fuel consumption and/or thermodynamic efficiency (or best available technology) for individual plants.

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

>>Strengths:

1. Wide applicability;
2. Simplicity of the intuitive approach

Weaknesses:

1. Lack of overall clarity in the documentation;
2. Key dependence on subjective data ("performance ratio")
3. High dependence on indirect calculation/estimation

<p>4. Energy imports to the relevant grid are not taken into consideration.</p> <p>5. Problematic assumptions;</p>
<p>(11) Other considerations, such as a description of how national and/or sectoral policies and circumstances have been taken into account (please explain):</p> <p>>> From the proposed methodology, "the policy articulations preferring one fuel over the other, one technology over the other, is not accounted for in the operating and combined margin determination."</p>
<p>(12) Applicability of the proposed methodology across project types and regions (please indicate):</p> <p>>> The concept of the methodology may be applicable to any natural gas fired power plant addition (more widely if the assumption of only using natural gas is substituted by any fuel as long as monitored) providing geographic and system boundaries for the relevant electricity grid can be clearly identified and information on the characteristics of the grid is available.</p>
<p>(13) Any other comments:</p> <p>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:</p> <p>>> The following literature has been used in preparing the present review: Revised 1996 IPCC Guidelines for GHG Inventories; Approved consolidated baseline methodology ACM0002; and various documents on other proposed methodologies available on the UNFCCC CDM website.</p> <p>b) Indicate any further comments:</p> <p>>> Please revise the language of the text, as some passages are not completely clear, both grammatically and regarding the content.</p>
<p>II. Proposed new monitoring methodology (specify title here): >> CECL methodology for power generation for captive use, which is grid connected, using non-renewable and less GHG intensive fuels.</p>
<p><i>In respect of the proposed new monitoring methodology, evaluate each section of CDM-NMM to the draft CDM-PDD. Please provide your comments section by section:</i></p>
<p>(1) Brief description of new methodology:</p> <p>Describe new methodology:</p> <p>>> According to the proposed monitoring methodology, it is intended to screen the parameters related to:</p> <ul style="list-style-type: none"> • "operating and build margin plants in the grid to which the captive plant will be connected, for estimating the baseline emissions; • annual process parameters which can be used to calculate the process emissions, and • Potential leakages due to fuel transportation and power dispatch pattern".
<p>(2) Key assumptions/parameters:</p> <p>a) List the implicit and explicit key assumptions. Identify those, if any, which are problematic and explain:</p> <p>>> Implicit assumptions:</p> <ul style="list-style-type: none"> • Plants under construction will be built and operated as forecasted (problematic if there is no historic evidence or monitoring/verification); • Enough data on future operation of plants under construction will be available to reasonably calculate the emission factor of the build margin; • The variable "performance capacity" is a reasonable one to demonstrate the dispatch merit (problematic as the value is subjective); • The variable "plant load factor" is a reasonable one to derive the power generation of the

<p>relevant power plants and indirectly the operating margin emission factor (problematic, directly fuel consumption and power generation monitoring would be more appropriate).</p> <ul style="list-style-type: none"> • The power consumed by the user industry is a reasonable one to determine the power generation of the project activity (problematic. Directly measurement would be more appropriate) • "IPCC factors" are enough to calculate CO₂ contributed by all the plants (problematic. Individual fuel consumption and thermodynamic efficiency would be more appropriate). <p>b) State whether the key assumptions are arrived at in a transparent manner: >>No.</p> <p>c) Give your expert judgement on whether the assumptions/parameters are adequate: >>No.</p>
<p>(3) Data sources and data quality:</p> <p>a) Indicate which data sources are used and how the data are obtained (e.g. official statistics, expert judgement): >>Unclear, therefore, no.</p> <p>b) Give your expert judgement on whether the data used are adequate, consistent, accurate and reliable: >>No.</p> <p>c) State possible data gaps: >> Data on fuel consumption, thermodynamic efficiency and actually power generation of individual plants (including project activity).</p>
<p>(4) Assessment of the description of the proposed methodology and its applicability:</p> <p>a) State whether the proposed methodology has been described in an adequate manner: >>No.</p> <p>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 CDM-NMM): >>No without clarification and filling the data gaps.</p> <p>c) State whether this proposed monitoring methodology is compatible with the proposed baseline methodology described in CDM-NMB of the draft CDM-PDD: >> No without clarification and filling the data gaps.</p>
<p>(5) Leakage (please elaborate, if appropriate): >> No monitoring for leakage is considered as no associate leakage is assumed.</p>
<p>(6) Quality assurance and control procedures (please explain): >>Only generic QA/QC control procedures are mentioned ("protocols of the project proponent"). As many variables are indirectly estimated/calculated thoroughly procedures are highly recommended.</p>
<p>(7) Potential strengths and weaknesses of the proposed monitoring methodology (please explain):</p> <p>>> Strengths:</p> <ol style="list-style-type: none"> 1. Wide applicability; 2. Simplicity. <p>Weaknesses:</p> <ol style="list-style-type: none"> 1. Lack of overall clarity; 2. High level of indirect monitoring (the great majority of the data is either calculated or

<p>estimated).</p> <p>3. Some of the monitored data have no indication on how they will be acquired (measured, calculated or estimated?).</p> <p>4. Unclear assumptions while calculating and/or estimating the monitoring data;</p> <p>5. Energy imports to the grid are ignored.</p> <p>6. Data sources are not clearly specified.</p>	
<p>(8) Applicability of the proposed methodology across project types and regions <i>(please indicate):</i></p> <p>>> The proposed monitoring methodology might be applicable (with required clarifications and all the gaps filled) to any natural gas fired power plant addition providing geographic and system boundaries for the relevant electricity grid can be clearly identified and information on the characteristics of the grid is available.</p> <p>Region is unconstrained.</p>	
<p>(9) Any other comments:</p> <p><i>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:</i></p> <p>>> The following literature has been used in preparing the present review: Revised 1996 IPCC Guidelines for GHG Inventories; Approved consolidated monitoring methodology ACM0002; and various documents on other proposed methodologies available on the UNFCCC CDM website.</p> <p><i>b) Indicate any further comments:</i></p> <p>>> Please revise the language of the text, as some passages are not completely clear, both grammatically and regarding the content.</p>	
<p>Signature of desk reviewer</p> <p>Date: / /</p>	
<p>Information to be completed by the secretariat</p>	
F-CDM-NMEX doc id number	
Date when the form was received at UNFCCC secretariat	
Date of transmission to the Meth Panel and EB	
Date of posting in the UNFCCC CDM web site	