CDM: Proposed new methodology expert form (version 04)

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

Name of expert responsible for completing and submitting this form	Urs Brodmann
Related F-CDM-NM document ID number	NM0101

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.

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

I. Evaluation of the porposed new baseline methodology:

Title of new baseline methodology:>>Grasim baseline methodology for the energy efficiency improvement in the heat conversion and heat transfer equipment system

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

>> The methodology aims for broad applicability across project types. As a result, it is too general and provides insufficient guidance for the proposed project activity as well as for other activities for which it aims to be applicable.

The following applicability conditions specified in the methodology are adequate in principle (NMB Section A.3):
– Constant useful heat output of equipment;
– Historical and current data required for heat balance is available;
– Efficiency of heat conversion and transfer can be regularly monitored;
– Impacts of the project activity on electricity consumption, if any, can be accounted for in the calculation of emission reductions.

The following applicability conditions specified in the same section should be double-checked and possibly reworded and explained:
– Why not applicable to systems where efficiency can be greater than unity (Section A.2)?

ii. Strengths and weaknesses of the methodology:

>> No particular strengths identified.

Weaknesses:
The methodology aims to calculate emission reductions based on periodic, comprehensive calculations of the overall efficiency of heat conversion and transfer equipment. For the proposed project activity, this is not appropriate for the following reasons:

- Uncertainty / insufficient accuracy: A comprehensive heat balance of a cement plant has a relatively high inherent uncertainty due to the large mass streams involved and the complexity of the process. For example, internal recycling of dust back to the kiln often leads to double-counting at scales measuring the raw material input into the kiln, resulting in a need for manual data correction. Furthermore, clinker production is usually not measured directly, but calculated from clinker consumption in the cement mill, product deliveries, and changes in clinker stocks. As a

result, the mass balance of a clinker line (which is a precondition for the heat balance) is usually an iterative process, and detailed approaches are often highly plant-specific. The remaining uncertainty is likely to be substantial vis-à-vis the small efficiency gain resulting from the proposed project activity. The latter is less than 3%, according to the predicted change in fuel consumption given in the PDD (p.3).

- Complexity and impracticality: The heat consumption (and efficiency) of an existing kiln line can vary due to several factor, including e.g. the kiln load factor, frequency of stops, but also the composition of the raw materials and fuel mix. For example, addition of fly ash as a raw material to the kiln can reduce the specific heat consumption per tonne of clinker, because fly ash is already calcined. On the other hand, the specific heat consumption can increase if biomass or other non-conventional fuels with relatively high water content are used. The proposed methodology – implicitly – requires to account for these factors in each heat balance, i.e. on a daily (shift-wise) basis, since emission reductions will otherwise be either over- or underestimated. This seems overly complex given the relatively small emission impact of the project.

- Potential for gaming: Due to its complexity, the methodology is prone to biasing of results. This applies in particular for the baseline system efficiency, which is to be determined based on observed performance during only a limited period (at least three months, see NMB p. 5).

- Verifiability: The complexity of the methodology will make verification highly difficult.

These weaknesses are reflected in Annex 3 and Enclosures 1 and 2 of the PDD, where the efficiency of the affected kiln lines are calculated in a very intransparent and seemingly inappropriate way.

iii. Any changes needed to improve the methodology:

a. Minor changes:>>--

b. Major changes:>>
The proponents should envisage a radically different, more simple and more project-specific methodological approach, where the energy savings associated with the 6th preheater stage are pre-defined conservatively in one of the following ways:
a) in % of the actual heat consumption of the kiln during the project activity;
b) in MJ per tonne of raw material passing through the preheater (or possibly per tonne of clinker).

The pre-defined energy savings could be based on a signed statement of the equipment supplier. Suppliers should be able to project the energy savings impact of a preheater stage with adequate accuracy based on past experience. In addition, the methodology could possibly require determination of actual achieved energy savings through monitoring and calculations, for control purposes.

Pre-defining the energy savings in some way seems justified because the effectiveness of a preheater stage, once in operation, seems likely to be relatively stable.
Approach a) would be analogous to AM-0017, where steam savings from repair of steam traps are calculated based on empirically derived, constant steam loss rates per trap failure type (see AM-0017, Table 2). Ultimately, the choice of approach should take into account expert opinions from equipment suppliers.

If the current main approach is maintained, the methodology should be substantially improved, including:
– Ensure sufficient accuracy and transparency in the calculation of pre-project (= baseline) and with-project system efficiencies by providing detailed guidance.

– Ensure practicality of the methodology and verifiability of results.
– Extend reference period for determination of baseline efficiency to at least 2 years prior to implementation of the project activity.
– Consider tailoring the methodology more closely to the underlying project activity.
– Synthesize the separate approaches for "Equipment with not more than 2 fluid streams" and "Equipment with more than two steams exchanging heat" into a single approach (NMB p.10).

II. Evaluation of the proposed new monitoring methodology:

Title of new monitoring methodology: >> Grasim monitoring methodology for the energy efficiency improvement in the heat conversion and heat transfer equipment system

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

>>Same as for NMB.

ii. Strengths and weaknesses of the methodology:

>>Same as for NMB.

iii. Any changes needed to improve the methodology:

a. Minor changes:>>
– Define H_{Input} (NMM p.25) and how it will be derived.
– Indicate parameter symbols in Sections B.2.1 and B.2.3.
– Account for electricity consumption in the NMM by listing the relevant parameters and formulae (consistent with NMB).

b. Major changes:>>
– Explicitly list the mass streams which need to be analysed for the efficiency calculation in a clinker line and indicate how their volumes and composition are to be monitored. Explicitly account for changes in composition of raw materials and fuels, including but not limited to water content.

– If NMB is changed drastically as suggested in Section I.iii.b above, the NMB will need to be changed accordingly.

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

I. Proposed new baseline methodology *(specify title here):* >> Grasim baseline methodology for the energy efficiency improvement in the heat conversion and heat transfer equipment system

(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:

>>

While the underlying project activity is specific for the cement sector (upgrading of the preheater of two clinker production lines from 5 to 6 stages), the methodology aims for broad applicability across various types of (combined) heat conversion & transfer equipment.

The methodology aims to quantify emission reductions related to efficiency improvements in heat conversion & transfer equipment. It requires to determine the overall efficiency of the affected equipment before and after the efficiency improvement project is implemented. The pre-project efficiency is fixed as the baseline efficiency for the crediting period. The with-project efficiency is monitored regularly (shift- or batch-wise). Emission reductions are calculated from the monitored increase in system efficiency over the baseline level, and the monitored fuel consumption.

Efficiencies are to be determined for "normal" output ranges in order to eliminate the impact of differences in load on the energy consumption.

Changes in electricity consumption resulting from the project activity are quantified against a fixed pre-project consumption level. The resulting changes in emissions from captive or grid-connected power plants are quantified using an appropriate small-scale methodology.

In the event that the system efficiency increases further due to factors not related to the project activity (e.g., future retrofitting), the methodology requires to estimate and deduct the associated emission reductions, but does not provide any detailed instructions. The corresponding wording (NMB Section D.9) is taken from AM0018. No specific guidance on how to do so is provided.

b) State the approach selected:

>> Approach 48. a), 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:

>> Approach 48.a) is appropriate for the context of the proposed project activity, where an existing preheater is retrofitted from 5 to 6 stages. However, use of approach 48.a) – and the resulting requirement to measure the pre-project system efficiency - effectively limits the application of the methodology to retrofit projects, as opposed to new (greenfield) clinker lines. In addition, considering the aim of the methodology to be broadly applicable, approach 48.b) would be more appropriate.

(2) Basis for determining the baseline scenario:

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

>> In line with the overall approach chosen (48.a), the project does not require to identify and assess potential baseline scenarios other than the existing (pre-project) situation and the project activity.

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

>>The basic rationale is to determine the overall efficiency of an energy conversion & transfer system pre- and post-project through heat balance, taking into account all heat forms (specific heat; latent heat incl. phase transformations; heat of combustion and chemical reactions; thermal equivalent of electricity used). The system efficiency is defined as "Useful Energy Output, divided by Energy Input" (NMB p.12).

According to the PDD (p.36), the methodology follows AM-0018. The latter determines emission reductions from steam efficiency improvements based on the monitored decrease in specific steam consumption below a fixed baseline level (pre-project level, expressed in kg steam per unit product), to be multiplied with the monitored product output. The approach of NM-0101 is effectively analogous but inverted, i.e. the amount of clinker produced (implicitly defined by the reaction heat or "Useful Energy Output") is placed in the numerator and the energy consumption in the denominator. However, the fuzzy definition of "Useful Energy Output" is a clear deviation from the spirit of AM-0018 (see details below).

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 recommends to use the additionality tools adopted by EB-16. It does not provide further guidance on how to apply these tools in the specific project context.

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

>>The basis for determining additionality is appropriate.

The basis for determining the baseline scenario is appropriate where the only conceivable scenario besides the project activity is the continuation of current situation (which seems to be the case for the particular activity for which the methodology was developed). However, the basis is not sufficient where other possible baseline scenarios exist, for example if the project activity is one of several retrofit options with differing impacts on efficiency. The methodology should provide guidance on how to determine the most likely baseline scenario in the latter case.

(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, description not adequate.
The methodology provides a, partly redundant, collection of basic physical formulae for calculating the heat input and output associated with various mass and energy streams (see especially NMB p.11 and 14). However, the methodology fails to provide guidance on the crucial question which heat inputs and outputs are actually relevant for the calculation of the system efficiency in a given project context. As a result, the parameters "Useful Energy Output" and "Energy Input", used to calculate the system efficiency (NMB p.12 and 15), are not properly defined.

This is reflected in Annex 3 and Enclosures 1 and 2 of the PDD, where the approach taken to calculate the overall efficiencies of the two affected clinker lines is intransparent and seemingly inappropriate for several

reasons:
– The specific heat contents of various mass streams entering the kiln (air, coal, raw material) are counted as “heat input” and added to the calorific value of the coal consumed. This seems inappropriate since the specific heat content of these mass streams will not contribute to the chemical process of clinker formation.
–The calculation is inconsistent in itself because both the heat content and calorific value of petcoke (2^{nd} fuel, contributing 40% - 95% of total heat consumption) is neglected.
– It seems surprising that air streams entering the kiln and a stream of cooling air are treated in the same way, despite their different function.
– Mass streams are not consistently accounted for in the baseline scenario and the with-project scenario. For example, the heat contained in cooler water appears in the projection of the with-project system efficiency, but not in the analysis of the baseline efficiency (see PDD Enclosures 1 and 2 vs. Annex 3). Note that the unit of solid mass streams is incorrectly given as Nm3/hr, but should probably be kg/hr.

– The heat of reaction (= “Useful Energy Output”) is not derived in a transparent way in Annex 3. According to p.8 of the PDD, the “Useful Heat Output” is the heat of clinkerisation. However, no value or data source for the specific heat of clinkerisation (e.g., in MJ/t clinker) is indicated. Presumably, “clinkerisation” is used to denote the full process of clinker production in the PDD. However, it should be noted that pyroprocessing of raw materials in a cement kiln involves two chemically distinct phases: 1. calcination of raw materials (an endothermic process), and 2. clinkerisation of the calcined materials (exothermic).

In short, the insufficient guidance in crucial sections of the methodology goes along with an inappropriate application of the same in the PDD.

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):

>>No, methodology is not appropriate.
In principle, the approach of calculating emission reductions based on the monitored increase in overall system efficiency over a pre-determined baseline efficiency level is correct.

For the proposed project activity, however, this approach seems not appropriate for several reasons:

- Uncertainty: A comprehensive heat balance of a cement plant has a relatively high inherent uncertainty due to the large mass streams involved and the complexity of the process. For example, internal recycling of dust back to the kiln often leads to double-counting at scales measuring the raw material input into the kiln, resulting in a need for manual data correction. Furthermore, clinker production is usually not measured directly, but calculated from clinker consumption in the cement mill, product deliveries, and changes in clinker stocks. As a result, the mass balance of a clinker line (which is a precondition for the heat balance) is usually an iterative process, and detailed approaches are often highly plant-specific. The remaining uncertainty is likely to be substantial vis-à-vis the small efficiency gain resulting from the proposed project activity. The latter is less than 3%, according to the predicted change in fuel consumption given in the PDD (p.3).

- Complexity and impracticality: The heat consumption (and efficiency) of an existing kiln line can vary due to several factor, including e.g. the kiln load factor, frequency of stops, but also the composition of the raw materials and fuel mix. For example, addition of fly ash as a raw material to the kiln can reduce the specific heat consumption per tonne of clinker, because fly ash is already calcined. On the other hand, the specific heat consumption can increase if biomass or other non-conventional fuels with relatively high water content are used. The proposed methodology – implicitly- requires to account for these factors in each heat balance, i.e. on a daily (shift-wise) basis, since emission reductions will otherwise be either over- or underestimated. This seems overly complex given the relatively small emission impact of the project.

- Potential for bias: Due to its complexity, the methodology is prone to biasing of results. This applies in particular for the baseline system efficiency, which is to be determined based on observed performance during only a limited period (at least three months, see NMB p. 5).

- Verifiability: The complexity of the methodology will make verification highly difficult.

Due to these problems, a radically different, more simple and more project-specific methodological approach should be considered, where the energy savings associated with the 6th preheater stage are pre-defined conservatively in one of the following ways:
a) in % of the actual heat consumption of the kiln during the project activity;
b) in MJ per tonne of raw material passing through the preheater (or possibly per tonne of clinker).

The pre-defined energy savings could be based on a signed statement of the equipment supplier. Suppliers should be able to project the energy savings impact of a preheater stage with adequate accuracy based on past experience. In addition, the methodology could possibly require determination of actual achieved energy savings through monitoring and calculations, for control purposes.

Pre-defining the energy savings in some way seems justified because the effectiveness of a preheater stage, once in operation, seems likely to be relatively stable.
Approach a) would be analogous to AM-0017, where steam savings from repair of steam traps are calculated based on empirically derived, constant steam loss rates per trap failure type (see AM-0017, Table 2). Ultimately, the choice of approach should take into account expert opinions from equipment suppliers.

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 in principle, but various problems as described above.

Please explain:
>>See above.

(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 very general as it stands. However, it is proposed to make it more specific for the project context.

b) Explain the spatial scope of data used to determine the baseline and whether the scope is appropriate:
>>Data are mostly specific to the project plant, which is appropriate. Section E.4 allows for IPCC, local and national emission factors, and for national as well as international technical data.

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 reference period of at least three months is required for the determination of the baseline system efficiency. This is clearly too short. The reference period should be at least 2 years, for several reasons:

- A mass and heat balance of a cement plant established on a 3-month basis will be overly sensitive to changes in clinker and raw material stocks. The latter are inherently difficult to estimate. For example, the EU ETS Monitoring Guidelines (Annex 7) allow a maximum uncertainty of ±10% for the estimation of clinker stock changes. The shorter the period of analysis, the higher will be the uncertainty of stock estimates relative to the clinker production in that period.

- Generally, a reference period of only 3 months may not be representative for the year, e.g. if the fuel mix varies seasonally. A short period also invites for gaming of the baseline.

(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 fuel consumption only

ii) Physical delineation

>>Heat conversion and transfer equipment

b) Indicate whether this project boundary is appropriate:

>>Gas boundary is appropriate.

The physical boundary should, in the context of the proposed project activity, include the raw mill in addition to the clinker line, because a part of the heat exchange between the kiln gas and the raw material can take place there (if offgas is cycled through the raw mill after leaving the preheater). This may be relevant since the 6^{th} stage will reduce the gas temperature at the preheater outlet (see PDD p.5), i.e. the heat transfer in the raw meal will likely be impacted, but the net effect will not necessarily be material.

(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:

>>Key assumption: Impact of project on overall system efficiency can be reliably and verifiably determined, and adjusted for other influencing factors. In the context of the proposed activity, this assumption is clearly not correct, because the necessary heat balances are overly complex.

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

>>Yes

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

>>No, see above

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

>>Data sources specified in Section E.2. include:
- A handbook for chemical engineers
- Bureau of Energy Efficiency, Government of India (for equipment efficiencies)
- IPCC 1996 Guidelines
- UNFCCC, Simplified Modalities and Procedures for SSC projects.

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

>>Yes, except regarding data source and calculation approach for "Useful Heat Output" (reaction heat of clinker production), which is not sufficiently transparent, hence accuracy cannot be judged.

f) State possible data gaps:

>>None identified

(7) Assessment of uncertainties:

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

i) The basis for determining the baseline scenario:

>>No

ii) Algorithms/formulae:

>>No

iii) Key assumptions:

>>No

iv) Data:

>>No

b) State whether the uncertainties presented are reasonable:

>>No, uncertainty is a key problem of this methodology (see Section 3 above).

(8) Leakage:

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

>>No relevant source of leakage is identified.

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

>>Yes

(9) Transparency and "conservativeness":

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

>>No, the methodology is too general and therefore the application to the proposed project activity is not sufficiently transparent.

b) State whether the baseline methodology is conservative:

>>No particular provisions for ensuring conservativeness except for the requirement to determine system efficiency only under "normal" load conditions (±5% of average rated output capacity).

The complexity of the methodology opens room for errors and gaming, which is anti-conservative.

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

>>No particular strengths identified.
Weaknesses: Uncertainty, complexity, insufficient practicality and verifiability (see Section 3 for detail).

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

>>National or sectoral policies are not explicitly accounted for (NMB Section G).

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

>>The methodology aims for broad applicability across project types. As a result, it is too general and provides insufficient guidance for the proposed project activity as well as for other activities for which it aims to be applicable.

(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:

>>EU ETS Monitoring Guidelines (2004)

b) Indicate any further comments:

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II. Proposed new monitoring methodology *(specify title here):* >>Grasim monitoring methodology for the energy efficiency improvement in the heat conversion and heat transfer equipment system

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:

(1) Brief description of new methodology:

Describe new methodology:

>>The methodology serves to quantify the overall efficiency of heat conversion & transfer equipment based on a heat (or energy) balance of input and output streams. The methodology is applied in a reference period for determination of the baseline efficiency, and shift- or batch-wise during the crediting period for determination of the with-project efficiency. Emission reductions are calculated from the monitored increase in system efficiency over the fixed baseline efficiency level, and the monitored fuel consumption.

The methodology aims to be applicable to a broad range of efficiency improvement measures for heat conversion & transfer systems. As a result, the methodology is very generic.

(2) Key assumptions/parameters:

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

>>The key assumption is that a comprehensive heat balance of complex systems such as a clinker production line can be determined for each batch or shift while ensuring:
- Sufficient accuracy;
- Verifiability by a DOE
- Practicality and reasonable transaction costs in relation to the achieved emission reductions.

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

>>No, the above-mentioned assumption seems largely implicit.

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

>>No, not adequate, due to the problems described in Section B.I.3.b above.

In particular, given the relatively small efficiency gain resulting from the proposed project activity, accuracy is not sufficiently ensured.

(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):

>>Indicated data sources include (see e.g. NMM Section B.2.1):
- Measurement instruments installed at the project site (e.g. for input and output mass streams and their temperatures, and electricity consumption)
- Scientific publications and handbooks (e.g. for specific heats of materials and reactions)
- IPCC default carbon emission factors for fuels

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

>>The indicated sources are adequate in principle. However, due to the inherent complexity of the systems which the methodology is targeting (in particular clinker production lines), substantial reservations regarding accuracy and verifiability apply. See Section B.I.3.b above for details.

c) S*tate possible data gaps:*

>> Due to its generic nature, the methodology does not list any specific input or output streams and related parameters which need to be accounted for in the calculation of the the system efficiency.

In the cement context, in particular, various parameters can have an influence on the overall system efficiency, e.g.:
- The composition of the fuel mix (fuels with relatively high water content such as biomass can increase heat consumption);
- The chemical composition of raw feed and clinker will influence heat consumption. E.g., calcined materials in the raw feed (e.g. from fly ash) can decrease heat consumption;
- Technical parameters influencing combustion efficiency.

Due to its limited level of detail (which is a necessary consequence of the methodology's broad applicability across industry sectors), the methodology does not ensure that such factors are correctly accounted for.

(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:

>>Largely yes. Shortcomings include:
- Critical parameters are not sufficiently defined (e.g., H_{input} on NMM p.25: How derived? Using lower or higher heating value?).
- Symbols for parameters used should be indicated in Sections B.2.1 and B.2.3.
- Parameters needed to account for changes in electricity consumption (see NMB p.17) are not covered in the NMM.

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 - see issues listed in Sections B.I.3.b.

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

>>Yes.

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

>>Not applicable.

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

>>The NMM (Section B.7) indicates that “QA/QC procedures need to be defined” for a number of parameters including e.g.:
- Useful heat output (= heat of reaction in the underlying project)
- Flow rate of input streams
- Flow rate of output streams

Contrary to the indication in the NMM, the uncertainty related to many of these parameters is likely to be “medium” to “high” rather than “low”. Consequently, QA/QC procedures need to be defined in substantially more detail.

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

>> No particular strengths identified.
Weaknesses are the same as for the NMB: Uncertainty, complexity, insufficient practicality and verifiability (see Section B.I.3.b for details).

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

>>The methodology aims to be applicable across a broad range of industry sectors and, implicitly, also countries. As a result, it is very general and does not address critical issues in sufficient detail.
Many of the problems identified above could be solved by making the methodology more specific for the underlying proposed project activity.

(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:

>>WBCSD Working Group Cement: CO2 Emissions Monitoring and Reporting Protocol for the Cement Sector, Version 1.6. www.ghgprotocol.org

b) Indicate any further comments:

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Signature of desk reviewer ……………………………………………..

Date: / /

Information to be completed by the secretariat	
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	