

 <p style="text-align: center;"><b>CDM: Proposed new methodology expert form (version 03)</b> (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	Yvonne Hofman
Related F-CDM-NM document ID number	NM0073
<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 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.</i></p>	
<b>A. Evaluation of the proposed new methodologies by desk reviewers:</b>	
<b>I. Evaluation of the proposed new baseline methodology:</b>	
<p>Title of new baseline methodology:&gt;&gt;Fuel switching from naphtha to natural gas in power plant project without extension of capacity and lifetime of the facility.</p>	
<p>i. Conditions under which this methodology is applicable to other potential projects (e.g. project type, region, data availability):</p> <p>&gt;&gt;This methodology is applicable to projects that meet the following conditions:</p> <ul style="list-style-type: none"> <li>(1) The project involves a fuel switch from naphtha to natural gas in a power plant;</li> <li>(2) The local regulations/ programs do not constrain the facility from using higher GHG intensive fuels like naphtha, coal or any other fuel, i.e. fuel switching is purely voluntary;</li> <li>(3) The fuel switch involves additional capital investments and the risk the fuel price variability</li> <li>(4) The facility would not have major efficiency improvements during the crediting period;</li> <li>(5) The project activity does not increase the capacity of final outputs and lifetime of the existing facility during the crediting period (i.e. this methodology is applicable up to the end of the lifetime of existing facility if shorter than crediting period).</li> <li>(6) Use of naphtha is less expensive than natural gas per unit of energy in the country and sector;</li> </ul> <p>ii. Strengths and weaknesses of the methodology:</p> <p>&gt;&gt;Strengths of the methodology:</p> <ul style="list-style-type: none"> <li>- The project data will be from actual verifiable site project records</li> </ul> <p>Weaknesses of the methodology:</p> <ul style="list-style-type: none"> <li>- The methodology is only applicable for fuel switch from naphtha but could be easily made applicable for other fuels.</li> <li>- The methodology is not transparent and not conservative.</li> <li>- The steps to showing additionality are formulated in a very general manner and do not give sufficient guidance</li> <li>- The description of leakage is not transparent and inconsistent with the PDD</li> <li>- The establishment of the baseline emission is not appropriate and not conservative</li> </ul> <p>iii. Any changes needed to improve the methodology:</p> <ul style="list-style-type: none"> <li>a. Minor changes:&gt;&gt;The factor 4.18 in section D6 should be explained</li> <li>b. Formulas 2 does not uses the PLF but the PLF is mentioned below the formula</li> <li>c. PLF should be deleted from formula 3</li> <li>d. Major changes: &gt;&gt;</li> </ul>	

- e. The methodology and all texts included should be critically reviewed on inconsistencies;
- f. Section D3 need to be fully revised based on the approved Tool for demonstration and assessment of additionality.
- g. The baseline emissions need to be made relative to project electricity generation
- h. The investment analysis under D3 needs to give more guidance for assessing additionality
- i. Leakage needs to be appropriately addressed
- j.

## II. Evaluation of the proposed new monitoring methodology:

Title of new monitoring methodology: >>Fuel switching from naphtha to natural gas in power plant project without extension of capacity and lifetime of the facility.

- i. Conditions under which this methodology is applicable to other potential projects (e.g. project type, region, data availability):  
>>This methodology is applicable to projects that meet the following conditions:
  - (1) The project involves a fuel switch from naphtha to natural gas in a power plant;
  - (2) The facility would not have major efficiency improvements during the crediting period;
  - (3) The local regulations/ programs do not constrain the facility from using higher GHG intensive fuels like naphtha, coal or any other fuel;
  - (4) Data required for the methodology can be monitored using available on-site project monitoring facilities; and
- ii. Strengths and weaknesses of the methodology:  
>>Strenghts of the methodology:
  - The project data will be from actual verifiable site project records
 Weaknesses of the methodology:
  - The methodology is only applicable for fuel switch from naphtha but could be easily made applicable for other fuels.
  - The methodology is not transparant and not conservative.
  - Leakage is assumed to be zero, but this is not conservative
- iii. Any changes needed to improve the methodology:
  - a. Minor changes:>>The factor 4.18 in section D6 should be explained
  - b. Formulas 2 does not uses the PLF but the PLF is mentioned below the formula
  - c. PLF should be deleted from formula 3
  - d. Major changes: >>The methodology and all texts included should be critically reviewed on inconsistencies;
  - e. Leakage needs to be appropriately addressed
  - f. It should be described how fuel consumption and the GCV are respectively measured and estimatred.
  - g.

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

I. Proposed new baseline methodology (*specify title here*): >>Fuel switching from naphtha to natural gas in power plant project without extension of capacity and lifetime of the facility.

(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 is proposed for project activities that reduce CO2 emissions through fuel switching in power plants. The project consists of an investment to replace the use of naphta by natural gas. The required conversion would be financed in part by income derived from the sale of carbon credits. The methodology is based on the approved methodology AM0008, for industrial fuel switching from coal to natural gas, and adapted for power production. The baseline scenario is that current fuels are continued to be used in the project situation, but also (and different from AM0008) that the production level is continued in the project situation. The methodology is applicable to CDM projects that seek to switch fuel in an existing facility that does not increase the capacity and lifetime of the existing facility. Baseline emissions are derived ex-ante from the historical consumption of naphta. The methodology applies a general additionality test that can be interpreted in various manners.

*b) State the approach selected:*

>>Approach of “The existing actual or historical emissions, as applicable ” as outlined in paragraph 48 (a) of the CDM modalities and procedures, is selected.

*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:*

>>The calculation of emissions reductions is based on historical fuel consumption and the approach outlined in paragraph 48 (a) is most appropriate of the three options.

**(2) Basis for determining the baseline scenario:**

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

>>Yes. However, the main argument for selecting a baseline of existing and historical emissions, as applicable' is the that the data availability and objectivity of baseline establishment will be high. This is not the type of argument that should be used here.

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

>>The rational for formulae used is:

(1) The facility would not have major efficiency improvements during the crediting period

(2) The project activity does not increase the capacity of final outputs and lifetime of the existing facility during the crediting period

(3) The power production in baseline and project situation are exactly the same

(4) The emission reductions are based on the difference of the emission factors between naphta and natural gas

*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?*

>>No.

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

>>No, the basis for determining the baseline scenario and for assessing addiotionality are both not appropriate and adequate.

The baseline is described as the scenario in which the same amount of naphta is consumed as in the last three years before the implemtation of the fuel switch project. At least that it how it Qn in formula 1 is currently described in section D6. This does not take into account possible changes in power production volume. In stead the baseline should be described relative to power production, e.g. as applied in AM0008:  $Qn_{Fi,y} * eff_{Fi} = Qn_{NG,y} * eff_{NG}$ , where  $eff_{Fi}$  and  $eff_{NG}$  are fuel efficiency for use of fuel i (baseline scenario) and natural gas (project) and  $Qn_{NG}$  the gas consumption quantity in the project situation.

The steps to showing additionality are formulated in a very general manner and do not give sufficient guidance. The investment analysis and the barrier analysis are both described do not provide a test against which additionality can be assessed. In addition, the common practice analysis does not give sufficient guidance either. Common practice is defined as: "in the country or region where the project activity is located, not many similar fuel shift projects constituting fives times the power generation proposed by the project activity have taken place in the recent three years." It is unclear what exactly is meant here and why this is a reasonable definition of common practice.

**(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 Annex 3):*

>>In principle the proposed methodology could be appropriate for the proposed project, provided it is significantly revised.

*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.*

>>Not in its current state.

Please explain:

>>The baseline should be described relative to power production, see under 2d of this review.

**(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):*

>>After revision it will be applicable to other potential project activities involving fuel switching from naphta to natural gas.

It is unclear why the Plant Load Factor is also mentioned as a key parameter in section E2 of the proposed methodology as the PLF is not used in formulae (2) and should be deleted from formulae (3).

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

>>Most data used to determine the baseline are collected on site of the existing plant. Also IPCC default data are used as appropriate. The spatial scope of the data is appropriate.

*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:*

>>Based on the baseline approach selected, i.e. paragraph 48 (a) of CDM modalities and procedures, the historical fuel consumption data are ex ante considered for three years prior to the possible project implementation date, while the data used for calculation of actual baseline emissions are ex post collected from the project operation records during the crediting period. The vintage of data is 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*

>>CO<sub>2</sub> only

*ii) Physical delineation*

>>According to the proponent the project boundary encompasses the following:

- the physical, geographical site of the plant under the management control of the Project Partners/Sponsors;

- activities and facilities one step upstream and one step down stream of the facilities set up as part of the project activity, if these are under control of the project participants;

The project boundary is applicable both for the baseline analysis and for monitoring of emissions following project implementation and emissions reductions.

*b) Indicate whether this project boundary is appropriate:*

>>From section D8 of the proposed methodology it becomes clear that transport of gas is considered to be leakage and it is thus assumed that this "one step upstream" to be not under the control of the project participants. However, in section B4 of the PDD it is stated that gas transport is included in the project boundary. This should be clarified.

**(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 parameters include the base year, GCV, emission factors, NG consumption, naphta consumption. It is not clear how GCV is determined.

Key assumptions are:

- (1) The local regulations/ programs do not constrain the facility from using higher GHG intensive fuels like coal or any other fuel, i.e. fuel switching is purely voluntary;
- (2) The facility would not have major efficiency improvements during the crediting period;
- (3) The project activity does not increase the capacity of final outputs and lifetime of the existing facility during the crediting period
- (4) Use of naphtha is less expensive than natural gas per unit of energy in the country and sector;
- (5) natural gas is adequately available for power generation in a country or regional scenario;
- (6) during the project activity, natural gas would be transported through pipeline, and fugitive emissions will be negligible as compared to the baseline/ project emissions;
- (7) IPCC default emission factor for naphtha and natural gas is applicable to a country situation where the project would occur

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

>>Most of them are except from assumption 6 as (a) it is not clear if gas transport should indeed be included in the project boundary and (b) in section D8 it is stated that a conservative approach is adopted by putting leakage emissions at zero as baseline leakage from tanker transportation of naphtha would be higher than project leakage. This is however not be substantiated and should be proved by the project proponent in the PDD and not be included as a fixed assumption.

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

>>Most assumptions are made in a transparent manner, apart from assumption 6 as stated above.

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

>>The CO<sub>2</sub> emission factors are obtained from the IPCC (1996). All other data are obtained ex post by the plant operator. The baseline emissions are obtained ex ante from historical naphtha consumption. .

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

>>The data for determining project emissions are adequate. The data for establishing the baseline are not. Currently a fixed (ex ante) baseline is used, while a dynamic ex post baseline should be applied. The baseline should reflect actual changes in fuel use over time.

*f) State possible data gaps:*

>>In order to use ex post baseline determination the power generation efficiencies in project and baseline situation should be assessed.

## **(7) Assessment of uncertainties:**

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

*i) The basis for determining the baseline scenario:*

>>Yes, the following uncertainties are mentioned:

Likely changes in regulations or policies at country level requiring use of any other type of fuel instead of natural gas.

Costs of natural gas may rise to prohibitive levels due to increases in the global market making the project activity unviable in the future.

Likely change in the supply/ demand situation for natural gas.

*ii) Algorithms/formulae:*

>>No

*iii) Key assumptions:*

>>No

<p>iv) Data:</p> <p>&gt;&gt;No</p> <p>b) State whether the uncertainties presented are reasonable:</p> <p>&gt;&gt;No, I assume with the first uncertainty the proponent wants to indicate possible changes in regulations that may require the use of other type of fuel instead of naphta, since natural gas is nor required at the moment. It is unclear what exactly is meant here.</p> <p>In the PDD it is stated that many power plants in Gujarat (where the project is located) also use gas but that these are only partly operating due to non-availability of gas. It is unclear why this has not been included as a barrier in the additionality assessment or as an uncertainty in section F.</p>
<p><b>(8) Leakage:</b></p> <p>a) State how the baseline methodology addresses any potential leakage due to the project activity:</p> <p>&gt;&gt;Possible fugitive emissions from transport of gas through pipelines is considered leakage.</p> <p>b) Indicate whether the treatment for leakage is appropriate and adequate:</p> <p>&gt;&gt;The proponent states that baseline tanker transport of naphta generates more emissions than project transport of gas. It is not appropriate to include this as an assumption in the methodology as this should be shown in the PDD.</p>
<p><b>(9) Transparency and “conservativeness”:</b></p> <p>a) Indicate whether the baseline methodology was developed in a transparent way:</p> <p>&gt;&gt;No, issues such as leakage and baseline scenario should be described more clearly.</p> <p>b) State whether the baseline methodology is conservative:</p> <p>&gt;&gt;No, the methodology is not conservative as the baseline is defined in absolute terms and should be relative to project power generation.</p>
<p><b>(10) Potential strengths and weaknesses of the proposed baseline methodology (please explain):</b></p> <p>&gt;&gt;Strenghts of the methodology:</p> <ul style="list-style-type: none"> <li>- The project data will be from actual verifiable site project records</li> </ul> <p>Weaknesses of the methodology:</p> <ul style="list-style-type: none"> <li>- The methodology is only applicable for fuel switch from naphta but could be easily made applicable for other fuels.</li> <li>- The methodology is not transparant and not conservative.</li> <li>- The steps to showing additionality are formulated in a very general manner and do not give sufficient guidance</li> <li>- The description of leakage is not transparant and inconsistent with the PDD</li> <li>- The establishment of the baseline emission is not appropriate and not conservative</li> </ul>
<p><b>(11) Other considerations, such as a description of how national and/or sectoral policies and circumstances have been taken into account (please explain):</b></p> <p>&gt;&gt;</p>
<p><b>(12) Applicability of the proposed methodology across project types and regions (please indicate):</b></p> <p>&gt;&gt;This methodology is applicable to projects that meet the following conditions:</p> <ol style="list-style-type: none"> <li>(1) The project involves a fuel switch from naphta to natural gas in a power plant;</li> <li>(2) The local regulations/ programs do not constrain the facility from using higher GHG intensive fuels like naphta, coal or any other fuel, i.e. fuel switching is purely voluntary;</li> <li>(3) The fuel switch involves additional capital investments and the risk the fuel price variability</li> </ol>

- (4) The facility would not have major efficiency improvements during the crediting period;
- (5) The project activity does not increase the capacity of final outputs and lifetime of the existing facility during the crediting period (i.e. this methodology is applicable up to the end of the lifetime of existing facility if shorter than crediting period).
- (6) Use of naphtha is less expensive than natural gas per unit of energy in the country and sector;

**(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:*

>>AM0008

*b) Indicate any further comments:*

>>

**II. Proposed new monitoring methodology (specify title here):** >>Fuel switching from naphtha to natural gas in power plant project without extension of capacity and lifetime of the facility.

*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:*

>>

- (1) The monitoring plan records natural gas and naphtha consumption of the plant on an annual basis.
- (2) The Gross Calorific Value of naphtha and natural gas are estimated on an annual basis.
- (3) The power load factor (PLF) is estimated on an annual basis.
- (4) CO<sub>2</sub> emissions from natural gas and naphtha combustion in the project activities are determined from the above data using IPCC emissions factors.
- ) The monitoring plan describes the very straightforward routine procedures for data collection, and auditing required for the project, in order to determine and verify emissions reductions achieved by the project.
- Proposed data to be monitored
- Volume (m<sup>3</sup>) of natural gas used at the plant.
- Volume (tonne) of naphtha used at the plant
- Gross Calorific Value of natural gas
- Gross Calorific Value of naphtha
- Plant Load Factor

**(2) Key assumptions/parameters:**

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

>>The key assumptions of the monitoring methodology and its application are strongly linked and compatible with those for the baseline methodology and the development of the baseline scenario for the project.

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

>>The same as above in section B. I. (6) (b)

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

>>The same as above in section B. I. (6) (c)



**(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):*

>>The same as above in section B. I. (6) (d)

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

>>The same as above in section B. I. (6) (e). In addition:

It is unclear how the gross caloric value of naphta and natural gas are estimated.

It is also unclear how gas and naphta consumption are measured. Both should be explained.

c) *State possible data gaps:*

>> Power production of the plant in baseline and project situation in order to be able to define a relative baseline.

Methane emissions from natural gas pipeline leakage

**(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, formulae are not consistent with the data monitored and it is not described adequately how the data are monitored.

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):*

>>In principle the proposed methodology could be appropriate for the proposed project, provided it is revised.

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):**

>>As described in section B. I. (8), the proponent assumes that baseline tanker transport of naphta generates more emissions than project transport of gas and that emissions from . It is not appropriate to include this as an assumption in the methodology as this should be shown in the PDD.

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

>>Quality control (QC) and quality assurance (QA) procedures are assumed to be sufficiently covered under the ISO:9001: 2000 or similar quality management standards that should be applied by the project proponent. It however not described what the QC/QA involve and hence the appropriateness can not be assessed.

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

>>Strenghts of the methodology:

- The project data will be from actual verifiable site project records

Weaknesses of the methodology:

- The methodology is only applicable for fuel switch from naphta but could be easily made applicable for other fuels.

- The methodology is not transparant and not conservative.

- Leakage is assumed to be zero, but this is not conservative

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

>> This methodology is applicable to projects that meet the following conditions:

- (1) The project involves a fuel switch from naphtha to natural gas in a power plant;
- (2) The facility would not have major efficiency improvements during the crediting period;
- (3) The local regulations/ programs do not constrain the facility from using higher GHG intensive fuels like naphtha, coal or any other fuel;
- (4) Data required for the methodology can be monitored using available on-site project monitoring facilities; and

**(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:*

>> AM0008

*b) Indicate any further comments:*

>>

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	
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