

 <p style="text-align: center;">CDM: Proposed New Methodology Meth Panel recommendation to the Executive Board (version 06) <i>(To be used by the Meth Panel to make a recommendation to the Board regarding a proposed new methodology)</i></p>	
Date of Meth Panel meeting:	06 - 09 June 2006
Related F-CDM-NM document ID number (electronically available to THE BOARD members)	F-CDM-NM-0118-rev: “Introduction of integrated demand-side energy saving system for existing beer brewing system”
Related F-CDM-NMex document ID number(s) (electronically available to THE BOARD members)	F-CDM-NMex0118-rev: Michaelowa / Maldonado
Related F-CDM-NMpu document ID number(s) (electronically available to THE BOARD members)	F-CDM-NMpu0118-rev: Not applicable
<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. Final recommendations by the Meth Panel	
<p>(1) History of submission (to be communicated by UNFCCC Secretariat):</p> <p>>> First submission (Round 11; 01 June 2005), Clarifications received in response to preliminary recommendation at Meth 17, Final recommendation at Meth 18 (“B”), Second submission (Round 14; 11 January 2005), Final recommendation at Meth Panel 21.</p>	
I. Recommendation on the proposed new baseline methodology: (checkmark the choice made)	
<p>Title of proposed new baseline methodology:>> Introduction of integrated demand-side energy saving system for existing beer brewing system.</p> <p>a. To approve this proposed methodology with minor changes</p> <p><input type="checkbox"/></p> <p>i. Conditions under which this proposed methodology is applicable to other potential CDM project activities (e.g. project type, region, data availability):</p> <p>>></p> <p>ii. Minor changes:</p> <p>>></p>	

b. To reconsider this proposed methodology, subject to required changes



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

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ii. Required changes:

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(Project participants shall make required changes to the proposed new methodology and send it back to the Meth Panel. The proposed new methodology will be reconsidered by the Meth Panel if changes required are made by the project participants. The Executive Board will only consider this proposed new methodology after the revised proposed methodology has been reconsidered by the Meth Panel.)

c. Not to approve the proposed methodology



i. Reasons for non-approval:

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- **Emission reduction estimation using a “theoretical energy audit model”.** In the previous recommendation by the Board it was pointed out that the methodology heavily builds on the application of a theoretical energy audit model. Key parameters for the calculation of emission reductions are determined with this model. However, although mentioned in the last Board recommendation, there is still no sufficient description or requirements provided for this model. It is not clear how the specific energy consumptions in the baseline and project scenario will be estimated and which element processes / production units will be included in the calculations. The theoretical values calculated with a model could substantially deviate from the actual values in the project and the baseline scenario, depending on the quality and type of model used. This model is the core of the emissions reduction estimation of the method and with its current insufficient description in the methodology the calculation of emission reductions is not transparent and can not be reproduced in an objective manner. This is the major reason for the rejection of the methodology.
- **Identification of the baseline scenario.** The Board in its last recommendations pointed out that the procedure to identify the most plausible baseline scenario candidates is not appropriate, since it allows to establish scenarios that involve different production levels of beer. Baseline scenario candidates for this type of energy efficiency improvements are only comparable if they refer to the same amount of output (beer production) as in the project scenario. However, this issue was not modified in the current submission and is still a problem.
- **Lifetime of existing equipment.** In the applicability conditions it is stated that the crediting period should not be set beyond the physical lifetime of the existing system. The Board in its last recommendation pointed out that the methodology should provide methodological options on how project participants can determine the lifetime of the existing equipment and that this should become part of the methodology. Although some indications are given in the current submission, there is still no clear guidance for project participants how to determine the remaining lifetime. In particular, the methodology requires to determine the technical lifetime of each equipment type separately without explaining how the remaining lifetime of the facility is determined from that information. The specification of type of information to be used is not sufficient.
- **Applicability conditions.** It was noted by the Board in its last recommendation that an applicability condition should be added to limit the use of methodology to situations where the existing capacity of the energy utility system is not expanded. Alternatively, a methodological proposal should be provided to account for cases where the energy intensity decreases as a result of increased beer production requiring an expansion of capacity of existing utility system. This issue is still not accounted for in the current submission.

- **Application of the methodology in the draft CDM-PDD.** The methodology seems not fully consistent with the approach to calculate emission reductions in the draft CDM-PDD. For example, in the draft CDM-PDD a regression analysis seems to be used, which is not mentioned as an approach in the baseline methodology.
- **Other Issues:**
 - i. The methodology assumes that no methane emissions are present in the project in case of utilizing an anaerobic wastewater system with methane recovery for energy use. This assumption may not be valid. Physical leakage as well as efficiency of methane destruction in electricity generation should be accounted for. This was raised previously by the Board but has not been addressed in the current revision of the methodology.
 - ii. The methodology does address the situation where heat and electricity are generated in combined heat and power (CHP) plants. The methodology should either exclude such situations in the applicability conditions or provide respective methodological approaches. This was raised previously as per the recommendation of the Board but has not been addressed in the current revision of the methodology.

(A new proposal should be submitted in accordance with the procedures for submission and consideration of proposed new methodologies of the Executive Board.)

II. Recommendation on the proposed new monitoring methodology: (checkmark the choice made)

Title of proposed new monitoring methodology: >>

- a. To approve this proposed methodology with minor changes

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

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- ii. Minor changes:

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b. To reconsider this proposed methodology, subjected to required changes



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

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ii. Required changes:

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(Project participants shall make required changes in the proposed new methodology and send it back to the Meth Panel. The proposed new methodology will be reconsidered by the Meth Panel if changes required are correctly made by the project participants. The Executive Board will only consider this proposed new methodology after required changes proposed have been made and the revised proposed methodology has been reconsidered by the Meth Panel.)

c. Not to approve the proposed methodology



i. Reasons for non-approval:

>> The main problems of this methodology relate to the generic approach to calculate emission reductions, as described in the baseline methodology. Regarding the monitoring methodology, QA/QC procedures for each equipment used to monitor energy consumptions should be specified in the methodology (this reason on its own does not warrant a rejection of the monitoring methodology).

(A new proposal should be submitted in accordance with the procedures for submission and consideration of proposed new methodologies of the Executive Board.)

B. General information on submitted proposed new methodology

(1) Title of proposed new baseline methodology:

>> Introduction of integrated demand-side energy saving system for existing beer brewing system.

(2) One sentence describing the purpose of the methodology.

>> This methodology is designed for project activities in the brewery sector that install integrated retrofit high energy efficiency applications in the beer brewery production process.

(3) Summary description of baseline methodology.

Short statements on each on how the proposed methodology: chooses the baseline scenario, demonstrates additionality, calculates baseline emissions, calculates project emissions, calculates leakage, calculates emission reductions.

>> The methodology consists of three steps:

- Step 1: Check applicability conditions of the methodology to the project activity;
- Step 2: Determination of the most likely baseline scenario, using partly the procedure proposed in the draft consolidated methodology for coal mine methane recovery;
- Step 3: Calculation of baseline emissions based on an energy audit model.

The methodology is supposed to be applicable for project activities in the brewery sector that install integrated retrofit high energy efficiency applications in the beer brewery production process. The methodology is suggested to be applicable to a project activity if:

- The project does not involve the construction of a new/additional beer production facility;
- The project does not set its crediting period beyond the lifetime of existing utility system;
- The project does not export electricity or heat to the outside of the beer factory;
- The project does not emit effluent water under an anaerobic condition in the open air;
- The project participants shall use a theoretical model to have an energy audit for the beer brewery factory energy utility system.

The methodology identifies the most likely baseline scenario with a thorough procedure that is based on the procedure in the consolidated methodology for coal mine methane recovery. The procedure involves the following steps:

1. Identification of technically feasible options, including the project activity not implemented as a CDM project activity;
2. Elimination of options that do not comply with legal or regulatory requirements;
3. Formulation of plausible baseline scenario candidates from the technical options identified;
4. Elimination of plausible baseline scenario candidates that face prohibitive barriers;
5. Choice of either the most conservative or the economically most attractive scenario among the candidate scenarios that remain from Step 4;
6. Check whether the selected baseline scenario is common practice.

Additionality is determined using the “Tool for the demonstration and assessment of additionality”

Baseline emissions comprise CO₂ emissions from fossil fuel combustion for heat and electricity generation (on-site and/or grid) for the production of beer in the absence of the project activity. Baseline emissions due to electricity and heat consumption are the sum of annual production measured ex-post of all specific categories of beer produced, multiplied by an adjustment factor, multiplied by the sum of the product of the specific energy intensity and the CO₂ emission factor for each specific type of energy consumed (electricity, diesel, coal, etc). T&D losses are accounted for. The adjustment factor for each specific category of beer is based on a “Pilsner-equivalence concept”. The specific electricity and heat intensity of beer production (MWh/l) is established through an energy audit model.

Project emissions are estimated as the amount of annual beer production, multiplied by the specific energy intensity of beer production, multiplied by the CO₂ emission factor of the fuel/electricity taking, into account T&D losses for the emission factor of external electricity. The specific energy intensity is estimated based on a theoretical energy model, which is not clearly described in the methodology.

No Leakage is attributed to the project activity.

Emission reductions are estimated as the baseline emissions minus the project emissions minus leakage.

<p>(4) Title of proposed new monitoring methodology:</p> <p>>> Introduction of integrated demand-side energy saving system for existing beer brewing system.</p>
<p>(5) Summary description of the monitoring methodology.</p> <p><i>Short statements on each on how the proposed methodology monitors the baseline and project scenario and calculates leakage and emission reductions.</i></p> <p>>> The methodology is meant to be designed for project activities that install integrated retrofit high energy efficiency applications in the beer brewery production process. The methodology aims at monitoring data for beer production, energy consumption by source before and after implementation of the project activity.</p>
<p>(6) Relationship with approved or pending baseline and monitoring methodologies (if applicable).</p> <p><i>a) Does the proposed new methodology include part of an already-approved methodology or a methodology pending approval (see recent THE BOARD reports)? If so, please briefly note the relevant methodology reference numbers (AMXXXX or ACMXXXX), titles, and parts included.</i></p> <p>>> No.</p> <p><i>b) In particular, is the proposed new methodology largely an amendment or extension of an approved methodology? (i.e. the methodology largely consists of expanding an approved methodology to cover additional project contexts, applicability conditions, etc., and is thus largely comprised of text from an existing methodology) If so, indicate whether the amendments or extensions are appropriate, and explain why.</i></p> <p>>> No.</p> <p><i>c) Indicate whether, and explain how, any other approved methodology (not noted in response to the previous question) could currently, or with minor modifications, be used to calculate emission reductions from the project activity associated with the proposed new methodology. If so, please indicate the reference number and the parts of the methodology that would need modification.</i></p> <p>>> None.</p> <p><i>d) Please briefly note any significant differences or inconsistencies (baseline emission calculations, leakage methods, and boundary definitions, etc.) between the proposed new methodology and already-approved methodology of similar scope.</i></p> <p>>> Not applicable.</p> <p><i>e) To avoid potential repetition, feel free to provide one comprehensive answer here that covers questions a through d.</i></p> <p>>> Not applicable.</p>
<p>C. Details of the evaluation of the proposed new methodology by the Meth Panel:</p>
<p>I. Proposed new baseline methodology: >> Introduction of integrated demand-side energy saving system for existing beer brewing system.</p>
<p>(1) Determining the baseline scenario and demonstrating additionality:</p> <p><i>a) Explain the methodological basis for determining the baseline scenario, and whether this basis is appropriate and adequate.</i></p> <p>>> The identification of the baseline scenario builds on the consolidated methodology for coal mine methane recovery and has improved considerably since the last version of the methodology. Nevertheless, there are a number of important issues that have been raised by the Board in its last recommendation and that have not been addressed in the current revision of the methodology. These issues include:</p> <ul style="list-style-type: none"> • In Step 1 and 3 of the procedure to determine the most likely baseline scenario, the options considered may refer to different quantities of beer production. As a consequence, the different options are not comparable with respect to their level of energy efficiency. The continuation of the current situation, the shut-down of the facility and the expansion of beer production or not comparable scenarios with respect the level of energy efficiency in the plant. The methodology should rather focus on different

configurations to produce the same quantity of beer.

- A number of expressions are introduced that are not further explained and are not totally clear. This refers to “integrated technology system”, “steam pressure recovery” (recovery of the condensing stream?), “energy saving by biomass CO₂ recovery” (What is meant here? What biomass? Recovery at which point in the process? Where do the energy savings result from?), “packaging process improvements” (what type of improvements?), “, etc.
- The methodology suggest in Table CDM-NMB-2 that it is applicable in cases where the energy supply system is either identical to the pre-project situation or is being modified, including the possibility that it is modified after the project start. However, this is not at all reflected in the calculations of baseline emissions. In contrast, the approach to calculate baseline emissions implicitly assumes that the current energy supply system is not modified in the absence of the project activity.

The assessment of additionality with the consolidated “Tool for the demonstration and assessment of additionality” is appropriate.

b) Explain 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.

>> No, for the reasons stated above in 1 (a).

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 determines additionality through the “Tool for the demonstration and assessment of additionality”.

d) Explain whether the basis for assessing additionality is appropriate and adequate:

>> Yes, it is appropriate and adequate.

(2) Methodological basis for calculating baseline emissions and emission reductions

a) Explain how the methodology calculates baseline emissions and whether the basis for calculating baseline emissions is appropriate and adequate:

>> Baseline emissions comprise CO₂ emissions from fossil fuel combustion for heat and electricity generation (on-site and/or grid) for the production of beer in the absence of the project activity. Baseline emissions due to electricity and heat consumption are the sum of annual production measured ex-post of all specific categories of beer produced, multiplied by an adjustment factor, multiplied by the sum of the product of the specific energy intensity and the CO₂ emission factor for each specific type of energy consumed (electricity, diesel, coal, etc). T&D losses are accounted for. The adjustment factor for each specific category of beer is based on a “Pilsner-equivalence concept”. The specific electricity and heat intensity of beer production (MWh/l) is established through an energy audit model.

The intensities are then converted to CO₂ emission intensities, reflecting the grid or captive power emissions intensity and the emissions intensity of heat generation. The CO₂ emission factor of electricity supplied from the grid is calculated using ACM0002.

The methodology for estimating baseline emissions suffers mainly from the following deficits:

- The basis for calculating baseline emissions is not appropriate since a sufficient description of the energy audit model to estimate the specific energy intensities is not provided. This makes it impossible to reproduce the calculation of emission reductions in a transparent manner.
- The methodology does address the situation where heat and electricity are generated in combined heat and power (CHP) plants. The methodology should either exclude such situations in the applicability conditions or provide respective methodological approaches.

b) Explain how the methodology calculates project emissions and whether the basis for calculating project emissions is appropriate and adequate.

>> Project emissions are estimated as the amount of annual beer production, multiplied by the specific energy intensity of beer production, multiplied by the CO₂ emission factor of the fuel/electricity taking, into account T&D losses for the emission factor of external electricity. The specific energy intensity is estimated based on a theoretical energy model, which is not clearly described in the methodology.

The methodology for estimating project emissions suffers mainly from the following deficits:

- The same problem exists for the project emissions since it is not clear how the energy audit model will be used to estimate the specific energy consumption in the project case. Moreover, . It is not clear in the methodology how will energy savings related to Kaizen practices factored out from other changes affecting improvement in energy efficiency.
- The methodology assumes that no methane emissions are present in the project in case of utilizing an anaerobic wastewater system with methane recovery for energy use. This assumption may not be valid. Physical leakage as well as efficiency of methane destruction in electricity generation should be accounted for.

(3) 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 combustion for heat or electricity generation.

ii) Physical delineation

>> Facility site (brewery) and the national electricity grid including all power generation sources connected.

b) Indicate whether this project boundary is appropriate:

>> Yes, the project boundary is in principle appropriate.

(4) 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 proposed methodology could potentially be appropriate for the proposed project if it is clarified how the energy audit model exactly calculates the specific energy consumptions in the baseline and the project scenario. It is not clear how the values for the specific energy consumption (which are the core of the methodology) are determined using the energy audit model.

(5) Key assumptions/parameters (including emission factors and activity levels), rationale, data sources and uncertainties:

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

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Explicit assumptions:

- The methodology explicitly assumes that the baseline fuel mix ratio for heat generation is the same as in the project scenario. This is not necessarily the case. The most likely fuel mix in the absence of the project activity should be clearly identified and justified, for example by using historic data for the fuel mix ratio. This reasoning also applies for the in-house power generation.
- It is explicitly assumed that the deviation between the actual specific energy consumption (SEC) and the theoretical specific energy consumption (calculated with the model) is the same for the baseline scenario and the project activity. This is a key assumption which is not further justified and may not necessarily be the case, since the dependency of SEC on operation parameters may be different before and after implementation of the project activity.

Implicit assumptions:

<ul style="list-style-type: none"> It is implicitly assumed that key parameters for the determination of emission reductions can be determined in an adequate manner with a “theoretical energy audit calculation”. The method does not further specify any descriptions or requirements regarding this calculation, which is not appropriate. It should be clarified, which tools are reasonable to determine these key parameters and how exactly they should be determined; It is implicitly assumed that the historical level of energy efficiency is also appropriate for capacity expansions of beer production. This assumption is not appropriate, since modifications of the energy supply system may be required in order to be able to increase beer production in the absence of the project activity. <p><i>b) Give your expert judgement on whether the assumptions/parameters are adequate:</i></p> <p>>> Some of the key assumptions are not arrived at in a transparent manner.</p> <p><i>c) Indicate which data sources are used and how the data are obtained (e.g. official statistics, expert judgement):</i></p> <p>>> Carbon emission factor of fuels: fuel supplier or measurement by sampling. Carbon emission factor of electricity: plants at the operating margin as judged by the grid operator.</p> <p><i>d) Explain the vintage of data recommended (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:</i></p> <p>>> Not applicable.</p> <p><i>e) Give your expert judgement on whether the data used are adequate, consistent, accurate and reliable:</i></p> <p>>> Carbon emission factor of fuels: adequate, accurate and reliable.</p> <p><i>f) State possible data gaps:</i></p> <p>>> None.</p>
<p>(6) Assessment of uncertainties:</p> <p><i>a) Provide an assessment of uncertainties given (e.g. in determining baseline scenario, data sources, key assumptions)</i></p> <p>>> No uncertainty is addressed.</p>
<p>(7) Leakage:</p> <p><i>a) State how the baseline methodology addresses any potential leakage due to the project activity:</i></p> <p>>> Leakage is not taken into account.</p> <p><i>b) Indicate whether the treatment for leakage is appropriate and adequate:</i></p> <p>>> Yes, treatment of leakage is appropriate.</p>
<p>(8) Transparency, “conservativeness” and consistency</p> <p><i>a) Indicate whether the baseline methodology is presented in a transparent way, and if not, what changes are suggested:</i></p> <p>>> The methodology lacks transparency on how to estimate the specific energy consumption from the energy audit model.</p> <p><i>b) Explain whether the baseline methodology is conservative, and if so, how:</i></p> <p>>> It is not possible to judge this since the methodology of estimating the specific energy consumption is not transparent.</p> <p><i>c) Explain whether the baseline methodology is internally consistent, and if not, highlight which sections are inconsistent:</i></p> <p>>> Some inconsistencies were identified in the previous submission. However, these inconsistencies have been eliminated in the current submission.</p>
<p>(9) If relevant, state whether the proposed changes required for the methodology</p>

implementation on 2nd and 3rd crediting periods are appropriate.

>> The methodology now states that “The renewals of the crediting period is not allowed for the target projects of this methodology”.

(10) State the baseline approach selected, indicate whether this is appropriate, and why.

>> The selected approach is as per paragraph 48 (b) of the CDM modalities and procedures: “Emissions from a technology that represents an economically attractive course of action, taking into account barriers to investment”. The approach is appropriate since the baseline scenario is determined as the most economically attractive course of action.

(11) Any other comments:

a) State which other source(s) of information (i.e. other than documentation on this proposed methodology available on the UNFCCC CDM website Board site) have been used by you in evaluating this methodology. Please provide specific references:

>> None.

b) Indicate any further comments:

>> No further comment.

II. Detailed recommendations on the proposed new monitoring methodology

Evaluate each section of CDM-NMM. Please provide your comments section by section:

(1) Indicate if this proposed monitoring methodology is compatible with the proposed baseline methodology described in CDM-NMB of the draft CDM-PDD, and if not, why.

>> The proposed monitoring methodology is compatible with the baseline methodology.

(2) Assessment of key assumptions/parameters:

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

>> See item 5 (a) in the baseline methodology above.

b) State whether the key assumptions are adequate, and whether they have been arrived at in a transparent manner:

>> See item 5 (b) in the baseline methodology above.

(3) Data sources and data quality:

a) Give your expert judgement on whether the data sources and data quality used are adequate, consistent, accurate and reliable. If not, please explain.

>> See item 5 (c) in the baseline methodology above.

b) State possible data gaps:

>> See item 5 (f) in the baseline methodology above.

(4) Leakage (please elaborate, if appropriate):

>> Monitoring of leakage is not necessary.

(5) Quality assurance and control procedures (please explain):

>> Some QA/QC procedures are needed to be described for the monitoring equipment for energy consumptions.

(6) Assessment of the description of the proposed methodology:

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

>> The proposed monitoring methodology had been described in an adequate manner.

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):

>> The proposed monitoring methodology is appropriate for the project activity described in the draft CDM-PDD.

(7) 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 wthe Board site) has been used by you in evaluating this methodology. If so, please provide specific references:

>> No.

b) Indicate any further comments:

>> No further comments.



Signature of Meth Panel Chair

Date: 21/06/2006

(Rajesh Kumar Sethi)



Signature of Meth Panel Vice-Chair

Date: 21/06/2006

(Jean-Jacques Becker)

Information to be completed by the secretariat

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