

 <p style="text-align: center;"><b>CDM: Proposed New Methodology</b>  <b>Meth Panel recommendation to the Executive Board</b>  <b>(version 04)</b>  <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:	14 - 17 June 2005
Related F-CDM-NM document ID number (electronically available to EB members)	F-CDM-NM0114: “Improved Efficiency of Electrical Power System Generation through Advanced SCADA (Supervisory Control and Data Acquisition System) Control Systems and Related Energy Management Protocol”
Related F-CDM-NMex document ID number(s) (electronically available to EB members)	F-CDM-NMex0114: Schiller / Nowarski
Related F-CDM-NMpu document ID number(s) (electronically available to EB members)	F-CDM-Nmpu0114: None received
<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>	
<b>A. Final recommendations by the Meth Panel</b>	
<b>I. Recommendation on the proposed new baseline methodology: (checkmark the choice made)</b>	
Title of proposed new baseline methodology:>> Improved Efficiency of Electrical Power System Generation through Advanced SCADA Control Systems and Related Energy Management Protocol	
<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>&gt;&gt;</p> <p>ii. Minor changes:</p> <p>&gt;&gt;</p>	
<p>b. To reconsider this proposed methodology, subject to required changes</p> <p><input type="checkbox"/></p> <p>i. Conditions under which the proposed methodology is applicable to other potential projects (e.g. project type, region, data availability):</p> <p>ii. Required changes:</p> <p>&gt;&gt;</p> <p><i>(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.)</i></p>	

## c. Not to approve the proposed methodology



## i. Reasons for non-approval:

>> The methodology is nicely written and clearly presented. However, the Meth Panel thinks that the methodology should be changed to the extent that a new round of expert reviews would be needed prior to a further Meth Panel review.

- Assumptions not adequate/explained:
  - (a) Several issues affect the efficiency of thermal power plants in a system. However, the proposed methodology assumes that any improvements in the efficiency factor for existing thermal plants noted post-project are due to the introduction of the SCADA, and not affected by variables such as the weather, availability of hydro plants, transmission and distribution constraints, fuel availability, electricity trade, electricity production from IPPs, plant operating changes (and others). The methodology should explain why this is so, or why ignoring these changes is conservative.
  - (b) Justify/explain the assumption that new thermal capacity additions will not impact the load factor and/or emissions intensity of currently-operating thermal power plants, or provide a procedure to assess this impact.
- The methodology does not justify why determination of the baseline scenario will be based on the barriers section of the additionality tool only. This should be done, or the suggested procedure modified. Use of the barrier section only seems to contradict the possible use of Step 2 of the “Tool for the demonstration and assessment of additionality” (financial analysis) to prove additionality proposed in the methodology:
  - (a) The methodology should justify why all line losses are linked to thermal generation units existing prior to the implementation of the project, or should change this aspect of the methodology. The methodology calculates total fossil fuel generated electricity delivered as “total measured electricity delivered through the transmission system minus the total non-fossil generation measured at the site of generation” (emphasis added).

## Other issues:

- Clarify that information used to assess project additionality will be in the public domain.
- Indicate how it should be assessed whether or not the data used to develop the baseline is representative, and if not, how atypical base years should be dealt with.
- Electricity-generating units that have been “significantly rehabilitated after the start of the project” are excluded from the assessment of energy efficiency changes due to the SCADA. Please could the PP clarify what is constituted by “significantly rehabilitated”.
- Clarify in the equations (as well as the text) that the calculation of actual emissions in the crediting period excludes new thermal generation brought on after initiation of the project (currently, the equation only indicates that non-fossil electricity is excluded).
- Clarify why the transmission and distribution losses are attributed only to the fossil fuel portion of electricity generation, and not *pro rata* to fossil and non-fossil portions.

*(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: >> Improved Efficiency of Electrical Power System Generation through Advanced SCADA Control Systems and Related Energy Management Protocol.

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):

>>

ii. Minor changes:

>>

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

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

>>

ii. Required changes:

*(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

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i. Reasons for non-approval:

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- Further clarity on what the monitoring methodology actually involves would be helpful. Currently, the CDM-NMM seems to just repeat information outlined in the CDM-NMB.
- The required changes in the baseline methodology, detailed above, would necessitate significant changes to the proposed monitoring methodology.
- There are some data gaps, related to those noted in the assessment of the CDM-NMB below.
- There are also some areas of the CDM-NMM that are inconsistent with the proposed CDM-NMB.
- These should be corrected - e.g. whether baseline data is monitored by the SCADA system itself (NMmp5) or by official data (CDM-NMB p13).
- Further issues are detailed in the section on CDM-NMM below.

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

**B. Details of the evaluation of the proposed new methodology by the Meth Panel:****I. Proposed new baseline methodology (*specify title here*): >> Improved Efficiency of Electrical Power System Generation through Advanced SCADA Control Systems and Related Energy Management Protocol.****(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:*

>> Dispatch centres of electricity transmission systems are responsible for determining how the demand on a given electricity grid will be met by the various plants connected to the grid. Grids operate with a wide variety of plants with different generation methods, capacities and efficiencies. This methodology is designed for projects that install a “Supervisory Control and Data Acquisition” (SCADA) system and optimisation software in a dispatch centre. This will allow a control of the power plants and the transmission system so as to minimise energy losses. The energy losses will result from some combination of reduced line losses and increased generation efficiency due to the optimisation process. For thermal power plants, increased generation efficiency can be directly translated into fossil fuels saved per kWh produced.

The methodology includes the following steps:

- Identify all the “reasonable potential alternative scenarios”.
- Assess the additionality of the proposed project. This is based on the EB-approved additionality tool with some further inclusions on the investment analysis, barrier analysis, common practice analysis. The barrier analysis component is used to assess which of the possible baseline scenarios is the most likely.
- Calculate the pre-project rate of efficiency (kcal/kWh) of fossil fuel-generated electricity delivered (to terminal points in the transmission system) at a given level. This will be recalculated during the project’s crediting period “to account for changes in the CO<sub>2</sub> content of the fuel used to produce the electricity”.
- Multiply this efficiency rate by the total power supplied from fossil fuel plants existing at the start of the project (zero-emitting and new generation is excluded from the analysis of savings from the SCADA system) and the carbon coefficient. This gives you the baseline emissions in year x.
- Calculate actual emissions in year x by multiplying the kcal/kWh of fossil fuel-generated electricity delivered by plants that existed prior to project operation by the power supplied by such plants and a carbon coefficient.
- The difference between the two corresponds to the emissions reductions from the project activity.

*b) State the approach selected:*

>> The approach selected is as per paragraph 48 (a) of the CDM modalities and procedures: “Existing 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:*

>> The approach is appropriate (although paragraph 48 (b) of the CDM modalities and procedures could be used instead. “Emissions from technology that represents an economically attractive course of action, taking into account barriers to investment”), because although energy efficiency systems can be an economically-attractive option, there are other barriers to their implementation.

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

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

>> Yes, the proposed methodology outlines 4 possible baseline scenarios, and uses an expanded version of the “Tool for demonstration and assessment of additionality” to assess the barriers to each possible scenario.

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

>> The rationale is to compare the efficiency of the whole electricity generating system pre-and post-project. The equations to calculate emission reductions exclude “zero-emission” electricity, and also exclude new thermal additions to the grid.

*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?*

>> Yes, the methodology uses an expanded version of the “Tool for demonstration and assessment of additionality”.

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

>>

- Baseline scenario: This should be expanded, or justification provided why it is appropriate to use only the barriers section of the additionality tool to determine which is the most appropriate baseline scenario.
- Additionality: Yes, this appears adequate and appropriate, although the Marrakech Accords requires information needed to calculate a project’s additionality to be in the public domain. However, the currently proposed methodology indicates that information needed to assess investment barriers “should be submitted to the DOE” and that information to assess common practice will be “provided to the DOE”. This should be modified.
- Calculating emission reductions: There are some areas that need further clarification/justification, or modification of the proposed methodology.
  - (a) It is not clear why all line losses are linked to thermal generation (the methodology calculates total fossil fuel generated electricity delivered as “total measured electricity delivered through the transmission system minus the total non-fossil generation measured at the site of generation” (emphasis added)).
  - (b) It is not clear why any power delivered to/from other power plants outside the grid within which the proposed project operates, or power delivered to/from industrial facilities (e.g. via CHP) is excluded from the methodology.

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

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

>> Yes, it has been described very clearly.

*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):*

>> Yes, after clarifications/modifications the proposed methodology is appropriate for the referred proposed project activity and the referred project context, and should be modified according to this document.

*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, if the suggestions presented here are properly taken into consideration.

*Please explain:*

>> The procedure for assessing the baseline scenario is appropriate. However, the calculation of emission reductions needs to be revised, as outlined 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):*

>> Yes, the formulae included in the proposed methodology (once modified as suggested) could be applied to other energy efficiency project activities.

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

>> The data will be gathered at a national or regional grid power level. This information may need to be supplemented with information on electricity imports/exports from/to the grid, as well as with information on electricity production by IPPs.

*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:*

>> The baseline efficiency data will include “the baseline year and if possible two years prior to the baseline year”. The rest of the data will be gathered on an annual basis.

**(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> from fossil fuel power plants that were in place before the commencement of the project.
- The electricity transmission system (which does not in itself produce any GHGs, but energy losses in this system increase fuel consumption of the power plants, increasing emissions of CO<sub>2</sub>).

*ii) Physical delineation*

>> The grid into which the SCADA system feeds (i.e. the area covered by the electricity grid controlled from the dispatch centre, where energy efficiency measures will be introduced. This includes fossil fuel power plants connected to this grid). The system boundary includes power plants, sub-stations and the transmission system.

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

>> Yes, with modifications as outlined in section 4 (b) above.

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

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

>>

Implicit assumptions:

- Assumes other variables (weather, power imports, plant operating changes) will not impact the emissions intensity of currently-operating thermal power plants. It should be explained why this is so, or why ignoring these changes is conservative.
- All electricity comes from identified power plants that are part of a utility. This is problematic (see section 4b above).
- Assumes that the base year emissions intensity is representative. This should be justified.
- Non-fossil generating plants (both new, and those existing prior to the project) will always be dispatched first and that any changes in their operation during the crediting period will not affect the emissions intensity of fossil-fired power plants (problematic if the base year is atypical and there are not data from previous years).

Explicit assumptions:

- IPCC emission factors can be used if more detailed data is not available.
- Data are available for use in the equations given. This is problematic for the baseline year (see comments in CDM-NMM section below).

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

>> Implicit assumptions are not arrived at transparently.

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

>> See above.

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

>> Data sources are predominantly the SCADA system itself, supplemented with “official electricity company statistics” used to determine the kcal/kWh “used by each unit is both baseline and subsequent years” (sic). This contradicts the CDM-NMM which indicates that the SCADA system will monitor data in years subsequent to the baseline.

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

>> There are some inconsistencies between the proposed CDM-NMB and CDM-NMM (see d above). Further, it is not clear exactly what data the SCADA system is measuring. For example, the CDM-NMM indicates that the generation efficiency data will be measured, but does not indicate how.

*f) State possible data gaps:*

>> Actual data measured on site and transferred to the energy optimisation system, operating status of each power plant, imports/exports of power from within and outside the national grid – as well as data on variables which can impact system efficiency (maintenance etc.), which are not included in the formulae in their current form.

**(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:*

>> Yes (qualitative). The methodology indicates that excluding new generation facilities will be conservative, as new generation facilities are likely to operate more often, and may therefore reduce the generation (and efficiencies) of plants included in the project boundary.

iv) *Data:*

>>No.

b) *State whether the uncertainties presented are reasonable:*

>> Increases in energy efficiency due to the SCADA system are expected to be relatively small (the CDM-NMB suggests 3% as an indication). Please could the project developers explain how it is possible to quantify and attribute this relatively small change to a SCADA system when other changes are also occurring that could affect the efficiency of electricity generation (e.g. power plant maintenance, load profile changes, changes in weather, uncertainty in data collection).

**(8) Leakage:**

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

> >Leakage is not addressed.

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

>> There may be some leakage effects on generation systems from a grid importing/exporting from the project-site grid. The importance of this will depend on the importance of such electricity trade (which has not been addressed in the proposed methodology).

**(9) Transparency and “conservativeness”:**

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

>> The methodology is clear and well-written. However, some further clarifications are needed, as outlined above.

b) *State whether the baseline methodology is conservative:*

>> The methodology focuses more on accuracy rather than conservativeness. However, associating all line losses with already-existing fossil fuel plants (rather than distributing them pro rata to new and old non-fossil plants, and to new fossil fuel plants) may or may not be conservative. It is not clear whether ignoring the effect of the weather, maintenance etc. is conservative or not.



<p><b>(10) Potential strengths and weaknesses of the proposed baseline methodology (please explain):</b></p> <p>&gt;&gt;</p> <p><u>Strengths:</u></p> <ul style="list-style-type: none"> <li>• Simple and;</li> <li>• Logical.</li> </ul> <p><u>Weaknesses:</u></p> <ul style="list-style-type: none"> <li>• Ignores independent variables that could impact generation efficiency during the crediting period, some data gaps noted</li> <li>• Clarifications needed in some areas (see above).</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; The methodology indicates that “where applicable actively-enforced laws mandating the use of advanced dispatch and control systems technology for utilities are in place, the project will not be considered additional.”</p>
<p><b>(12) Applicability of the proposed methodology across project types and regions (please indicate):</b></p> <p>&gt;&gt; This will need to be reassessed once a revised version of the methodology has been submitted.</p>
<p><b>(13) Any other comments:</b></p> <p>a) State whether any other source of information (i.e. other than documentation on this proposed methodology available on the UNFCCC CDM web site) has been used by you in evaluating this methodology. If so, please provide specific references:</p> <p>&gt;&gt; See comments by individual expert reviewers.</p> <p>b) Indicate any further comments:</p> <p>&gt;&gt; Any project-specific references should be removed in the CDM-NMB, e.g. p7 “no project activity of this type is currently operational in the host country or region”.</p>
<p><b>II. Proposed new monitoring methodology (specify title here):</b> &gt;&gt; Improved Efficiency of Electrical Power System Generation through Advanced SCADA Control Systems and Related Energy Management Protocol.</p>
<p><i>In respect of the proposed new monitoring methodology, evaluate each section of CDM-NMM to the draft CDM-PDD. Please provide your comments section by section:</i></p>
<p><b>(1) Brief description of new methodology:</b></p> <p>Describe new methodology:</p> <p>&gt;&gt; Data from the SCADA system, official records and the IPCC are collected for use in equations for baseline and project emissions. However, the monitoring methodology itself is not explained: rather, text from the baseline methodology is repeated.</p>
<p><b>(2) Key assumptions/parameters:</b></p> <p>a) List the implicit and explicit key assumptions. Identify those, if any, which are problematic and explain:</p> <p>&gt;&gt; Key assumptions are that:</p> <ul style="list-style-type: none"> <li>• Data for baseline and project power plant output, fuel input, and electricity distributed can be measured accurately on an hourly basis (more information on the SCADA system is needed to justify this assumption)</li> <li>• Systemwide fuel efficiency can be determined on an hourly basis with an uncertainty much less than the improvement in system efficiency solely due to the use of the SCADA system (problematic and</li> </ul>

should be justified);

- There are no other variables, such as weather, number of plants operating etc. that will impact systemwide power plant efficiency (problematic and should be justified or changed);
- The power output (generation) of new power plants, “significantly modified” power plants, and zero-emitting power plants can be identified and subtracted from delivered power (problematic and should be justified or changed).

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

>> No.

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

>> No.

### **(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):*

>> Data are indicated to come from the SCADA system and IPCC (fuel emission factors). Energy content of fuel is assumed to be known.

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

>> No – see above (CDM-NMB, CDM-CDM-NMM) and below.

*c) State possible data gaps:*

>> Measurement of generation efficiency at thermal stations for the baseline (i.e. prior to installing the SCADA system). This is needed to calculate baseline emissions. Some of the data to be monitored are not explained. For example, the CDM-NMM does not show how parameter A1 (generation efficiency data) will be determined and calculated (e.g. fuel in divided by gross or net power output?). Other data gaps are outlined in the section above assessing the proposed CDM-NMB.

### **(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 - additions and clarifications needed.

*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):*

>> This will need to be reassessed after revisions have been made.

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

>> Yes, but both need modification.

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

>> The methodology does not address leakage. Leakage may occur with power sales to or from the grid that are based on generation outside the country/region, or from independent power producers.

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

>> These do not seem to be planned (as the SCADA system is expected to generate very accurate data).

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

>> The methodology is simple, but not transparent, and includes some data gaps.

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

>> The applicability will need to be reassessed once a revised version of the methodology has been submitted.

**(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:

>> No.

b) Indicate any further comments:

>> No further comments.



Signature of Meth Panel Chair .....

Date: 22/06/2005 *Jean-Jacques Becker*

Signature of Meth Panel Vice-Chair .....

Date: 22/06/2005 *(name)*

**Information to be completed by the secretariat**

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