CDM: Proposed new methodology expert form (version 04)

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

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Related F-CDM-NM document ID number	NM0114

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 proposed new baseline methodology:

Title of new baseline methodology: >> Title of PDD:

Improved Efficiency of Electrical Power System Generation through Advanced SCADA Control Systems and Related Energy Management Protocol

My suggestion to the title:

Energy optimization of electricity generation and transmission

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

1. This methodology is applicable to project activities that seek to reduce CO2 emissions by:
   - 1.1. explicitly reducing the amount of energy required to generate and to supply a unit of electricity to the end-users;
   - 1.2. energy optimization system in the dispatch center of electricity supply, ensuring priority to the following energy efficiency (EE) measures:
     - * most energy efficient power plants;
     - * full load of the most efficient power plants and shutting down the less efficient power plants;
     - * minimum stand-by losses of power plants and transformation units;
     - * minimum electricity transformation and transmission energy losses.
2. The methodology is applicable to the following potential project:
   - 2.1 same project in other dispatch centers of electricity supply, where energy optimization system does not exist;
   - 2.2 energy efficiency measures in power plants including auxiliary systems;
   - 2.3 energy efficiency measures of electricity transformation units;
   - 2.4 energy efficiency measures in electricity distribution system.
3. I suggest to delete the following conditions from NMB A.3.:
   - 3.1 "• Only to those power plants that have not undergone upgrades that would significantly change kcal/kWh efficiency levels during the duration of the project."

   To my opinion new, efficient power plants should not be excluded, from the following reasons:
     - * the historic data that will be used for baseline scenario included cases of significant changes and improvements;
     - * new power plants will become "old" during the 10 years crediting period and part of old power plants will be shut down;
     - * the corrected baseline scenario will include improvement coefficient, and new and upgraded power plants should contribute to this expected improvement.
     - * during the 10 years crediting period, the installed capacity may be doubled in developing country.

It is not reasonable that half (or more) of the electricity generation will be not included in the Energy Efficiency system.

3.2 "• Only where accurate data are available to measure the efficiency improvements."
Data accuracy is a standard request of every CDM procedure.

ii. Strengths and weaknesses of the methodology: >>

Strengths:
1. The project technology is already applied in many electric companies.
2. The methodology for establishing baseline emission rate is simple and straightforward.
3. see "Externalities" in paragraph B13b)2, below.

Weaknesses:
1. Requires high-qualified staff and professional training.
2. Energy efficiency improvements are not permanent. The system targets may be easily and quickly re-programmed for other targets.
   Usually, energy efficiency is not the main reason for installation of SCADA.
   The main targets usually are:
   * improvement of reliability of the electric system, especially transmission;
   * on-line indication of problems in the grid and its components;
   * on-line control of the power plants, sub-stations and the electricity supply;
   * safety improvement.
   This may cause, in the future, a change of the main target of the system, that now is "energy efficiency", but in the future may be one of the above, and energy efficiency may be forgotten.
   The project participants should demonstrate how energy efficiency will remain the main target of the system during the whole crediting period.
3. The system requires special protection against intrusion which may bring disaster to the national electric system, see the paragraph B.13.a)2. below.
4. New natural gas power plants are more energy efficient than existing coal or heavy oil power plants. Corrections are required to include these power plants in the methodology.

iii. Any changes needed to improve the methodology:

a. Minor changes: >>

1. The project description should notice, that the expressions "transmission", "lines" and "grid" include transformers and sub-stations.
2. The project description should include changes according to this document.

b. Major changes: >>

1. Methodology Title:
   Energy optimization of electricity generation and transmission
2. Additional SCADA system targets.
3. Baseline formula corrections.
4. The baseline Emission Energy Efficiency Factor (EEEF) should include "natural" energy efficiency improvement, according to the trend line of the data recorded in the past, as described in paragraph B.I.2.b) below.
5. The baseline EEEF should include correction factor for new natural gas power plants.

II. Evaluation of the proposed new monitoring methodology:

Title of new monitoring methodology: >> Title of PDD:
Improved Efficiency of Electrical Power System Generation Efficiency through Advanced SCADA Control Systems and Related Energy

My suggestion to the title:
Energy optimization of electricity generation and transmission

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

The methodology is applicable to the following potential projects:

1. Same project in other dispatch centers of electricity supply, where energy optimization system does not exist;
2. Energy efficiency measures in power plants, including auxiliary systems;
3. Energy efficiency measures of electricity transformation units;
4. Energy efficiency measures in electricity distribution system.

ii. Strengths and weaknesses of the methodology: >>

Strength: The energy optimization system project is a monitoring system itself.

Weakness: Requires high qualified staff and professional training

iii. Any changes needed to improve the methodology:

a. Minor changes: >>

Fuel consumption of power plants should be measured as weight and not as volume.

Power factor (cos phi) should be monitored.

b. Major changes: >>

1. Methodology Title:

Energy optimization of electricity generation and transmission

2. Monitoring methodology corrections, adjustment to corrected baseline and other changes according to this document.
3. The total improvement of the electric system efficiency may be result of other processes, not related to energy optimization system, like efficiency improvement of the steam boilers, pipe insulation and length, power plant auxiliary equipment EE improvements, different fuel mix. The monitoring system should be capable to monitor, process and report such improvements, in addition to the contribution of energy optimization system.

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

I. Proposed new baseline methodology *(specify title here):* >> Title of PDD:

Improved Efficiency of Electrical Power System Generation through Advanced SCADA Control Systems and Related Energy Management Protocol

My suggestion to the title:

Energy optimization of electricity generation and transmission

(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 centers of electricity transmission systems are responsible for determining how the demand on a given electricity grid will be met by the various fossil fuel power plants connected to the grid.
Grids operate with a wide variety of plants with different generation methods, capacities and efficiencies.
Computerized system and optimization software that will be installed in dispatch center (energy optimization system), will allow to control the power plants and the transmission system, to minimize energy losses.
The energy efficiency improvement will result from some combination of reduced line losses and increased generation efficiency due to the optimization process.
Optimization program tatgets:

- maximize energy efficiency of fossil fuel power plants, by setting full load of the most efficient generating unit and shutting down the less efficient;
- minimize stand-by losses of fossil fuel power plants and transformers;
- minimize transmission and transformation energy losses to supply electricity to specific locations at

specific demand, by searching the most energy efficient option of electricity transmission.

Energy efficiency improvements will reduce fuel consumption of the power plants, which can be directly translated into reduction of CO2 emissions from fuel combustion in power plants.
This methodology will calculate the CO2 emission savings achieved by energy efficiency measures at each power plant and energy losses reduction of the transmission system.
The emissions reduction calculations comparing with "business as usual" should utilize Baseline Emission Energy Efficiency Factor (EEEF) [kgCO2/kWh], that will be calculated by the system every year and compared with the baseline scenario. The baseline scenario should take into account the trend line of "natural" improvement of EEEF, at least 10 years before the project starts, based on the national statistics.
EEEF should include correction factor for new natural gas power plants.
EEEF expresses the quantity of CO2 emission [kgCO2/year] from all fossil fuel power plants connected to the grid controlled by the dispatch center, per average electricity unit supplied from these plants [kWh/year].
The overall energy efficiency of the entire system will be determined by the grid's dispatch system.
The system will collect data for EEEF calculations.

b) State the approach selected: >> (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: >>

The data to make this approach work will be readily available from the project.
The system monitors and collects actual CO2 emission data of all fossil fuel power plants, that can be easily compared with historical emissions of the electricity generation sector.
The CO2 emissions reduction will be calculated in the same way as the existing and historical emissions, which is the simplest and most effective way of monitoring, as these data collection is the main part of the project.

(2) Basis for determining the baseline scenario:

a) State whether the documentation explains how the baseline scenario is to be chosen and identified: >> Yes, but should be corrected.

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

I suggest to correct the baseline formula (NMB p.10-12) as follows:

1. Baseline Emission Energy Efficiency Factor (EEEF) in baseline year [kgCO2/kWh]:

EEEF0 =

(SUM i=1 to 8760 hours (Fuel consumption of each power plant [kgFuel/hr] in baseline year *

* specific emission of power plant [kgCO2/kgFuel])) /

/ electricity supplied from fossil fuels [kWh/y] in baseline year

Specific emission of power plant may be calculated directly [kgCO2/kgFuel], or using heat value of the fuel [kcal/kgFuel], boiler efficiency, and kgCO2/kcal factor.

Electricity supplied from fossil fuels [kWh/y] may be calculated in 2 ways:

1.1

(total electricity generated - electricity from RES and import) *

* (total electricity supplied / total electricity generated)

1.2 or

electricity generated by fossil fuels, as monitored at each generating unit *

* (total electricity supplied / total electricity generated)

RES - Renewable Energy Sources, like hydro power.

transmission energy efficiency factor = (total electricity supplied / total electricity generated)

2. EEEF corrections:

2.1 EEEF should be corrected for every year of the crediting period, according to the trend line of energy efficiency improvement in at least 10 years before the baseline year. The Improvement Coefficient (IC) will be expressed in percent of improvement per year.

If IC=constant in all years of the crediting period, EEEF for year x:

EEEFx = EEEF0 * (2 - (1+ IC)^x)

2.2 EEEF should be corrected, to include new natural gas power plant. Designed CO2 emission and electricity generation of this plant should be added to total CO2 emission and to electricity generation of the baseline.

3. Baseline emission in specific year x [kgCO2/y]:

(baseline Emission Energy Efficiency Factor (EEEFx) for the specific year x) *

* (actual electricity from fossil fuel power plants supplied to the end users in year x)

4. Actual Emission Energy Efficiency Factor (EEEF) [kgCO2/kWh]:

(SUM i=1 to 8760 hours (Fuel consumption of each power plant [kgFuel/hr] in year x *

* specific emissions of power plant [kgCO2/kgFuel])) /

/ actual electricity from fossil fuel power plants supplied to the end users in year x

5. The emissions reductions will be:

(baseline EEEFx for year x - actual EEEF) *

* (actual electricity from fossil fuel power plants supplied to the end users)

6. There is no need for hourly EEEF, as described in NMB D.6. p.9.

According to the project description, the reason for hourly Efficiency Factor is the dependence of this coefficient on electricity demand. To my opinion, the demand depends on weather, day of the week and many other parameters, even on the popularity of TV programs, and can not be copied hour by hour, date by date, from the baseline year hourly data.

Yearly average of the Efficiency Factor will bring better results for less effort.

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 project contribution is in addition to "as usual" scenario. Project participants describe the barriers of the Energy Efficiency (EE) projects, that are well known.

To apply the EE projects, the government or UN (like CDM) involvement is essential, especially when the electricity tariffs are heavily subsidized.

The additionality of the project activity is described in four steps, as follows:

(1) demonstrating that it is not common practice in the electricity generation sector;

(2) there are no legal or regulatory requirements for energy optimization system or other EE;

(3) there exist barriers to the implementation of the project;

(4) the registration of the project as CDM will allow to overcome the barriers.

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

Yes, is appropriate and adequate, after corrections as described above.

(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, has been described very clear, in 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-NMB): >>

Yes, 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. >>

Without the project, the emission will continue to grow according to the historic data. It is easy and reasonable to demonstrate that the project will decline the emissions growth.

Please explain: >>

It is reasonable that this EE project will reduce the fossil fuels consumption for generation and transmission of the same amount of electricity. The fossil fuels consumption reduction will be easily translated to the reduction in CO2 emission, comparing to the baseline scenario. The project will reduce the fossil fuel consumption by the following measures:

* Priority to higher efficiency power plant;
* Priority to full load of most efficient power plant, instead of uniform partial load of all power plants
* Reduction of the stand-by losses of power plants;
* Reduction of the lines and sub-stations energy losses, due to computerized, optimized management.

(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 corrected methodology and the corrected generic formula can apply to every EE project in electricity generation in more then 1 power plants and/or transmission by more then 1 electric lines.

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

The spatial scope is electricity grid controlled from the dispatch center, including fossil fuels power plants connected to this grid. The scope described in PDD is appropriate, but should be corrected according to the corrected baseline.

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 project seeks to collect data on fuel consumption of fossil power plants, CO2 emissions, the energy losses of the transmission and the quantities of the electricity supplied from these power plants.

The project expected operational lifetime is minimum 20 years. As every computerized and software project, these kinds of systems are updated very frequently, and after 10 years (crediting period), probably the project will look different than in the first year. The vintage of data is appropriate. The project itself is data collection system, and the data will cover all the lifetime of the system, much longer after the crediting period of 10 years. The project will collect the data for calculations of energy efficiency and CO2 emissions of every fossil fuel power plant, if possible, 2 years prior to the baseline year. To find the trend line of improvement of the Emission Energy Efficiency Factor, national electricity statistics will be needed for at least 10 years before the baseline year.

(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 >>

1. Fossil fuel power plants emitting CO2 as the result of fuel combustion needed to produce steam for electricity generation.
2. Electricity transmission system - the system itself does not produce any greenhouse gases, but the energy losses in this system increase fuel consumption of the power plants, increasing emission of CO2.

ii) Physical delineation >>

Physical delineation should be added as follows:

* Geographic boundary - area covered by electricity grid controlled from the dispatch center, where energy efficiency measures will be introduced, including fossil fuels power plants connected to this grid.
* System boundary - power plants, sub-stations and transmission system.
* The center - electricity dispatch center of the grid, where energy optimization system will be installed, connected In/Out to all power plants and sub-stations.

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

Yes. The transmission system is also connected to RES power generation and imported electricity sources.

(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 assumptions are not mentioned in PDD+NMB.

The relation between the EE, fuel consumption of the power plants and the CO2 emissions is clear.

Key parameters:

* quantity of fossil fuel for electricity generation for each power plant [kgFuel/hr];
* specific emission of power plant [kgCO2/kgFuel] for each boiler - this parameter depends on the combustion efficiency and kind of fuel.
* electricity supplied [kWh/y];

The PDD annex 3 shows additional key parameter:

* efficiency factor expressed in kcal/kWh, that should be altered to Emission Energy Efficiency Factor - EEEF

to my opinion this is not a parameter but the result of the calculation, based on the above parameters.

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

Key assumptions are not mentioned in PDD+NMB.

The key parameters are shown in transparent manner.

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

The parameters are adequate, but should be modified.

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

1. Actual data measured on site, transferred to energy optimization system, stored and processed by the system.
2. Documents (heat value of fuels, specific emission of power plant [kgCO2/kgFuel]).
3. Official statistics (historic data).

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

reliable: >>

1. Yes, the data used are adequate and consistent. There is no possibility to decide today if the measured data in the future will be accurate and reliable. To ensure the data accuracy and reliability, site inspection will needed.
2. PDD+NMM describe few parameters as volume of fuel (liters, m3). As volume depends on temperature (and other parameters), I suggest that fuels will be measured by weight (kg) and not by volume.

f) State possible data gaps: >>

There is no possibility to state the data gap. For the historic data the official statistics may describe the gap (usually not). Regarding the future measurements, the gap depends on the proper installation of the meters, the quality of the measuring devices and the accuracy of energy optimization system.

(7) Assessment of uncertainties:

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

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

In CDM-NMB Section F the assessment of uncertainties is mentioned in the following way:

New power plant, that is more efficient then all old once, will cause partial load on all elder power plants, what will result in lower efficiency of the whole system. New and renewed power plants will be excluded from the CDM project.

This statement is not right, because:

1. New power plants were installed also in the past and contributed to the improvement of the energy efficiency of the whole electricity system. This improvement should be reflected in the Improve Coefficient based on the trend line of the Energy Efficiency in at least 10 years before the beginning of the project - see formula 2. in paragraph B.I.(2)b) above.
2. As in many developing countries, there is a possibility that in 10 years of crediting period the electricity sector will double its capacity. New and renewed power plants will be a half of all power plants (or more), so they cannot be regarded as "marginal".
3. New power plants will be installed to meet the growing demand and replacing the old once that will be shut down, leaving the reserve on the similar level (as few years average).
4. New power plant installed in the first year of the crediting period, will be "old" in the last year of the crediting period.
5. The CDM project will give incentive for more efficient new power plants.

The above reason is not a source of the uncertainty.

To my opinion, the only source of uncertainty may be programming mistakes of the energy optimization system.

No other sources of uncertainty were found.

ii) Algorithms/formulae:

>> No

iii) Key assumptions:

>> No

iv) Data:

>> No

b) State whether the uncertainties presented are reasonable:

>> not applicable

(8) Leakage:

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

There is no leakage anticipated in the project.

The project components are software, computers, sensors, communication and labor. There is no leakage from these components.

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

>> not applicable

(9) Transparency and "conservativeness":

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

>> Yes

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

Yes. The methodology is developed in simple and conservative way.

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

Strengths:

1. The proposed baseline methodology is simple and logical, but should be modified as described above.
2. It may be utilized with other EE projects in power plants and electricity transmission systems.

Weaknesses:

1. Requires high-qualified staff and professional training.
2. Energy efficiency improvements are not permanent. The system targets may be easily and quickly re-programmed for other targets.
   Usually, energy efficiency is not the main reason for installation of SCADA;
   the main targets usually are:
   * improvement of reliability of the electric system, especially transmission;
   * on-line indication of problems in the grid and its components;
   * on-line control of the power plants, sub-stations and the electricity supply;
   * safety improvement.

   This may cause, in the future, the change of the main target of the system, that now is "energy efficiency", but in the future may be one of the above, and energy efficiency may be forgotten.
   The project developers should demonstrate how energy efficiency will remain the main target of the system during the whole crediting period.
3. The system requires special protection against intrusion which may bring disaster to the national electric grid, see the paragraph B13.a)2. below.

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

1. The government subsidy of electricity tariffs makes most EE measures not profitable.
2. Lack of national policy to encourage EE.

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

Types:

Any Energy Efficiency measure (EE) in electricity generation including auxiliary systems, transmission, transformation and distribution.

Regions:

Every dispatch center of electricity supply, in any country, where energy optimization system does not exist.

(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: >>

1. SCADA/Dispatch Center - http://www.navopache.org/engineering.html
2. Security of SCADA - http://www.ewics.org/uploads/attachments/security-subgroup-london-2005/NISCC_activities_in_SCADA_Security.pdf

b) Indicate any further comments:>>

1. The project is described in logical, professional way, easy to understand and to follow.
2. Externalities:
   - 2.1 This project, like every EE project, will reduce not only greenhouse gases emission (CO2), but also other air pollutant caused by fuels combustion in power plants (like NOx, SOx, particles).
   - 2.2. More reliable electricity supply will contribute to the development of the country, to the national economy and to the quality of life of the citizens.

II. Proposed new monitoring methodology *(specify title here): >>*

Title of PDD+NMM:

Improved Efficiency of Electrical Power System Generation through Advanced SCADA Control Systems and Related Energy Management Protocol

My suggestion to the title:

Energy optimization of electricity generation and transmission

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: >>

Computerized system including optimization software to be installed in the dispatch center of electricity grid, that should control:

- partial load of the fossil fuel power plants, to prefer full load of the most efficient generating unit;
- stand-by losses of fossil fuel power plants;
- transmission and transformation energy losses, to prefer minimum total energy losses in whole grid.

Improved energy efficiency of the electricity system will reduce the actual CO2 emissions from combustion of fossil fuels in power plants, comparing with baseline scenario.

Most data will be collected "on-line" as the main part of the energy optimization system:

- fuel consumption of each power plant;
- boilers efficiency and CO2 emission of each power plant;
- electricity generation of each power plant;
- power factor (cos phi).

The electricity supplied from fossil fuel power plants will be calculated as yearly totals by:

- taking the total electricity delivered measured at the end points of the transmission system and subtract any non-thermal generation and imported electricity,
- or by direct monitoring of the electricity generation at each fossil fuel power plant,

multiplied by the transmission energy efficiency factor.

(2) Key assumptions/parameters:

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

1. No imlicit or exlicit key assumptions mentioned.
   The relation between the EE and the emissions is clear.
2. Key parameters:
   * quantity of fossil fuel for electricity generation for each power plant [kgFuel/hr];
   * specific emission of power plant [kgCO2/kgFuel] for each boiler - this parameter depends on the combustion efficiency and kind of fuel;
   * electricity supplied [kWh/y];

   The PDD annex 3 shows additional key parameter:
   * efficiency factor expressed in kcal/kWh, that should be altered to Emission Energy Efficiency Factor - EEEF

   To my opinion this is not a parameter but the result of the calculation, based on the above parameters.
3. Most parameters are measured "constantly" but the energy optimization system response is every hour, according to the last hour results.
   3.1 The frequency of the measurements should be mentioned, including "constantly" measured data.
   3.2 The way to obtain average hourly data from "constant" measurements should be explained.
   3.3. To achieve maximum energy efficiency of the electric system, the energy optimization system response should be faster than 1 hour and hourly collected or calculated data should be collected and calculated more frequently.
4. The baseline emissions formula should be corrected according to the paragraph B.I.2.b) above.
5. Fossil fuels supplied electricity [kWh/hr] is described as total delivered electricity to the end user less electricity supplied from RES.
   There is much easier way to measure this parameter, as every generating unit is equipped with power accurate meter [kVA].
   To find supplied energy [kWh/hr] of each generating unit (fossil or RES), transmission energy efficiency factor and power factor (cos phi) of reactive electricity data should be collected.

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

Key assumptions are not mentioned in PDD+NMM.

The key parameters are shown in transparent manner.

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

>> The parameters are adequate.

(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 monitoring system will utilize highly reliable and accurate measuring devices, not only for the monitoring, but for the optimization system itself.

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

>> Yes.

Table D2.1.3, ID A-4 of PDD details that the "Heat Content of Fuel Used" will be measured constantly. There is not need of constant measurements of the heat content of the fuel, as is it the same for whole batch delivery, and usually tested before. PDD mentions in comments: "Each fuel will have a known energy content per unit".

c) *State possible data gaps: >>*

The measuring devices used in this kind of projects are usually accurate.

There is a theoretical possibility of optimization programming mistakes that will cause errors in results.

(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:

>> Yes, after corrections

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):

>> Yes, after corrections

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

>> Yes, after corrections

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

>> as no leakage is anticipated in this project, it will not be monitored.

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

1. QC/QA is mentioned as follows:
   - 1.1 PDD D.3. p.22 + NMM B.7. p.11:
     "The SCADA system will provide highly accurate data".
     I suggest to give some short details regarding the "highly accurate" expression.
   - 1.2 PDD E.4. p.24:
     - 1.2.1 Better quality baseline data from newly installed advanced meters will precede full installation of the SCADA system by one year;
     - 1.2.2 The data will be validated and verified according to UNFCCC procedures.
2. Calibration of the measuring devices should be mentioned.
3. There is a theoretical possibility of the energy optimization system programming mistakes that will cause errors in results. The energy optimization system programming tests procedure and its frequency should be mentioned.

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

Strengths:

1. The energy optimization system is a monitoring system itself.
2. The monitoring metodology is simple.

Weaknesses: N/A

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

Types:

Any Energy Efficiency measure (EE) in electricity generation (including EE in auxiliary systems of power

plants), transmission, transformation and distribution.

Regions:

Every dispatch center of electricity supply, in any country, where energy optimization system does not exist.

(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:

>> N/A

b) Indicate any further comments:

>> N/A

Signature of desk reviewer 

Date: 26 / May / 2005

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	