CDM: Form for submission of requests for revisions of approved methodologies to the Methodologies Panel (version 01)

(To be used by project participants, through the DOE/AE, for requesting revisions of approved methodologies)

Name of the entity (DOE) submitting this form	*Det Norske Veritas*
***Reference number** and **title** of the approved methodologies*	ACM0006 "Consolidated baseline methodology and monitoring methodology for grid-connected electricity generation from biomass residues"
Title/Subject (give a short title or specify the subject of your submission, maximum 200 characters):	Request for amendment to the ACM0006 Approved consolidated baseline and monitoring methodology to include baseline scenarios with fossil fuel and biomass heat generation at the same time
*Attach proposed **revised approved methodology** (with revisions in track change mode):*	No attachments.
*Attach **draft CDM-PDD** example of project activity:*	No attachments.
Date and signature for the DOE	

Submitted request for revisions

Please use the space below to substantiate the reason for the request for revisions of the approval methodology. If the request for revision is related to a project activity under development or implementation, please describe the context in which they arose. If you are proposing amendments to existing methodologies, please specify the text you want to change or introduce. If necessary, attach files or refer to sources of relevant information.

If you propose an amendment to an approved methodology, please provide reasons.

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This amendment request seeks changes in the baseline applicability scenarios of ACM0006 in order to incorporate the situation of the Nobrecel project. The Nobrecel project was originally submitted as a new methodology (NM0098) and subsequently consolidated into ACM0006; however, the consolidated methodology was not applicable to the specific case of the Nobrecel project. The following amendment seeks to resolve this.

The project was first submitted as a new methodology before 14th February 2005, entering in the Ninth round of methodology evaluation as NM0098.

At it's 17th meeting, the Meth Panel decided to incorporate Nobrecel's methodology into the draft consolidated methodology for grid connected electricity generation from biomass residues, which after EB approval become ACM0006. Unfortunately, none of the baseline scenarios in this consolidated methodology are actually applicable to the Nobrecel case, due to a lack of clarity over the true situation of the project, which is relatively complex. The original Nobrecel methodology NM0098 would have been applicable to the project, however, the consolidated methodology ACM0006 is not applicable. We would seek the opportunity to rectify this with the following amendment.

In order to provide a better understanding of Nobrecel´s project both Baseline and Project scenarios and Nobrecel Project Activity are described bellow:

It must be clear that "project activity" and "project scenario" have different meanings in the context of the proposed amendment below. The "project activity" is the action done that will lead to a reduction of GHG emission reduction, and the "project scenario" is the scenario including the CDM project activity and also other non CDM activities that are also happening inside and outside the project boundary.

Nobrecel Project Activity: The project activity consists of construction of a new biomass

cogeneration plant to provide heat and electricity to the Nobrecel paper mill, located in Pindamonhangaba, São Paulo State, Brazil. The new plant has an installed capacity of 60 tons of high temperature and pressured steam/hr and 6 MW generation capacity. It will use only biomass residues as fuel, part of them being produced in the Nobrecel paper mill, and part purchased from third parties. Given that the installed capacity is larger than 45 $MW_{thermal}$, it is not applicable to Small scale projects category 1.D.

Nobrecel Baseline Scenario: Using the method proposed by ACM0006, under which it is necessary to establish a list of plausible scenarios, and based and a financial and/or barrier analysis define which one is the baseline, the Nobrecel baseline scenario is defined as the practices previous to the Project Activity (the business as usual scenario). This is as follows:

As part of the paper manufacturing process, large volumes of steam must be generated. Before the project Activity, Nobrecel owned 5 boilers for steam generation: two using fuel oil (for the generation of low pressure steam), two burning wood chips (for the generation of low pressure steam, totaling an installed capacity of 50 ton of steam/hour), and a fifth one burning recovered black liqueur (a net-emissions free by-product of the cellulose production process) and fuel oil. The black liquor boiler was equipped for the co-generation of electricity, with installed capacity of 3.2 MW. The biomass and black liquor used as fuel for steam and electricity were self generated. The additional biomass used by the project activity and purchased from third parties was dumped in landfill or abandoned areas. Additional electricity consumed by Nobrecel was purchased from grid.

Nobrecel Project Scenario: The project scenario consists of the operation of the new project activity plant *and* the existing black liquor plant. The two fossil fuel boilers and biomass boilers are no longer used, although the two fossil fuel boilers continue to be available as back up boilers. The two biomass boilers are removed. To meet the increase in biomass consumption in the project scenario, biomass from third parties is purchased. Considering the increase in electricity generation, the amount of electricity purchased from the grid decreases. The operation pattern of the Black Liquor plant will not be affected by the project activity, but in some situations when the steam generation is low in both plants, instead of sending a small amount of steam for each generator, the steam from the two plants is combined and sent to a unique generator.

The main reason driving EcoSecurities to submit this request is based on the fact that the project activity under development does not match all specifications required to use the ACM0006 consolidated methodology, and requires only a few small additions to be applicable. The concepts of the methodology, as well as the formulae used therein, will not be significantly modified. Given the fact that we don't have a word version of the methodology, where we could clearly indicate the text changes of our proposal, all the modifications are explained below.

If you have a request for revision, please specify and provide reference to the exact methodology to which it applies.

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In case you propose the amendment to the approved methodologies, please provide your draft below, if not included in an annex:

>> The ACM 0006 is divided in Baseline and Monitoring Methodologies.

The Baseline Methodology is divided in the following Sections:

Title
Sources
Selected approach from paragraph 48 of the CDM modalities and procedures
Applicability
Identification of Baseline Scenario
Project Boundary
Emission reduction (calculation)
Project Emission

a) CO2 emission from combustion of fossil fuel of biomass to the project plant (PET_y)
b) CO2 emissions from on-site consumption of fossil fuels ($PEFF_y$)
c) CH4 emission from combustion of biomass ($PE_{biomass, CH4y}$)

Emission reduction due to Displacement of electricity
Emission reduction or increase due to displacement of heat
Baseline Emission due to natural decay r uncontrolled burning of anthropogenic sources of biomass
Additionality
Leakage

The Monitoring Methodology is divided in the following Sections:
Sources
Applicability
Monitoring Methodology
Project Emission Parameters
Baseline Emission Parameters
Leakage
Quality Control (QC) Quality Assurance (QA) Procedures

In the Baseline Methodology, the following addictions or modifications are required:

Title
No modifications

Sources
The NM0098 was prepared not only by Nobrecel but also by EcoSecurities Ltd. Please, include it.

Selected approach from paragraph 48 of the CDM modalities and procedures
No modifications

Applicability
According to the description of the Project Activity and Project Scenario, the project falls under the "Power Capacity Expansion Category". All other applicability conditions are attended by the project activity. No modifications are requested.

Identification of Baseline Scenario
This is the section with the highest number of clarifications and modifications. For baseline identification, three components are analyzed: Power generation, heat generation and biomass.

<u>For Power Generation</u>
The baseline scenario is represented by the alternatives P4 and a new alternative called P6. The electricity purchased from grid is represented by alternative P4.

The alternative P6 will be similar to P5, with the exception that the project activity will not be implemented after the lifetime of existing plant, but in parallel to it.
.
P5's text is:
"The continuation of power generation in an existing power plant, fired with the same type of biomass as the project activity, and implementation of the project activity, not undertaken as a CDM project activity, at the end of the lifetime of the existing plant"

P6 text would be:

"The continuation of power generation in an existing power plant, fired with biomass residues. These residues may be a different type of biomass as that used in project activity."

This new alternative would be needed to cover the black liquor plant activity, which is involved in the 'project scenario', but is not part of the 'project activity'. When considering Paper Mill plants, this will be a very common scenario, given that most of plants have a black liquor plant, but the expansions are usually based on wood residues.

For Steam Generation

The baseline scenario is represented by alternatives H4 and H6. In case of H4, there are two options of interpretation. The H4 text is:
"Generation of heat in boilers using the same type of biomass residues"

The first interpretation is:

1) Using the same biomass as in project scenario. – In this case, the baseline scenario would include the two biomass residues types presented in the project: wood residues and black liquor.
2) Using the same biomass as in project activity – In this case, the baseline scenario, which includes the wood residues and black liquor would not be the same as project activity, where only wood residues are used. In this case, a new heat alternative would be necessary. The new alternative would be named H9, and the text would be:

"Generation of heat using biomass residues. The heat can be generated using different types of biomass since the fuel is biomass residue produced on site, and the production and consumption will not increase or decrease due to project activity."

This new alternative would be responsible for covering the wood residues boilers and the black liquor plant at the same time.

Biomass

The biomass scenario is represented by B1 and B2. There are no requirements of modifications on this alternative.

The methodology requires the combination of alternatives for Power generation, Heat and Biomass. Given the fact that there are two options of interpretation, two new combinations will be presented for each option.

The most similar combination of project type and baseline scenarios applicable to Nobrecel Project Activity is the scenario 10. However, this scenario doesn't fit exactly to the Nobrecel case. The Scenario 10 structure is:

Scenario	Project Type	Baseline scenario			Description of the situation
		Power	Biomass	Heat	
10	Power Capacity expansion projects	P4	B1	H6 or H7 or H8	The project activity involves the installation of a new power unit, which is operated next to (an) existing biomass power generation unit (s). The existing unit (s) are only fired with biomass and continue to operate after installation of the new power plant. The power generated by the new power unit is fed into the grid or would in absence of the project activity be purchased from grid. The biomass would in absence of the project be dumped or left for decay or burned in an uncontrolled manner without utilizing it for energy purposes. In cases of cogeneration plants, the heat would in the absence of project activity be generated in onsite boilers fired with fossil fuels, or by other means not involving the biomass. This may apply, for example, where prior to the project implementation heat has been generated in boilers using fossil fuels.

The new proposed scenarios are presented below:

The first scenario combination is based on the first interpretation of heat scenarios.

Scenario	Project Type	Baseline scenario			Description of the situation
		Power	Biomass	Heat	
16	Power Capacity expansion projects	P4 and/ or P6	B1 and/o r B2	H4 and/ or H6	The project activity involves the installation of a new power unit, which is operated next to (an) existing biomass power generation unit (s). The existing unit (s) are only fired with biomass and continue to operate in the same pattern after installation of the new power plant. The power generated by the new power unit is fed into the grid or would in the absence of the project activity be purchased from the grid. The biomass would in the absence of the project be dumped or left to decay or burned in an uncontrolled manner without utilizing it for energy purposes, used in existing power plant (s) at the project site, or a combination of both. In the case of cogeneration plants, the heat would in the absence of the project activity be generated in onsite boilers fired with fossil fuels, and/or the same biomass residues used in the *project scenario*. This may apply, for example, where prior to the project implementation heat has been generated in boilers using fossil fuels and/or wood residues.

The second scenario combination is based on the second interpretation, thus, in the new alternative proposed by the project activity.

Scenario	Project Type	Baseline scenario			Description of the situation
		Power	Biomass	Heat	
17	Power Capacity expansion projects	P4 and/or P6	B1 and/or B2	H4 and/or H6 and/or H9	The project activity involves the installation of a new power unit, which is operated next to (an) existing biomass power generation unit (s). The existing unit (s) are only fired with biomass and continue to operate in the same pattern after installation of the new power plant. The power generated by the new power unit is fed into the grid or would in absence of the project activity be purchased from the grid. The biomass would in the absence of the project be dumped or left to decay or burned in an uncontrolled manner without utilizing it for energy purposes, used in existing power plant (s) at the project site, or both at the same time. In the case of cogeneration plants, the heat would in the absence of the project activity be generated in onsite boilers fired with fossil fuels, and/or biomass residues that may be the same or different from that used in the project activity. The project activity will not influence the production or the consumption of different biomass residues. This may apply, for example, where prior to the project implementation heat has been generated in boilers using fossil fuels and/or wood residues and/or black liquor, and this is not undertaken as a CDM activity.

Project Boundary
No modifications

Emission reduction (calculation)
No modifications. The formula (1) remains the same.

Project Emission
No modifications. The formula (2) remains the same.

a) CO2 emission from combustion of fossil fuel of biomass to the project plant (PET_y)
No modifications. The formulas (3), (4), (5) remain the same.

b) CO2 emissions from on-site consumption of fossil fuels ($PEFF_y$)
No modifications. The formula (6) remains the same.

c) CH4 emission from combustion of biomass ($PE_{biomass, CH4y}$)
No modifications. The formula (7) remains the same.

Emission reduction due to Displacement of electricity

The formula (8) remains the same.

During the step 1 (determination of $EF_{electricity,y}$), the new scenarios will be included in the group "scenarios 1,2,3,4,9,10,11,12,13 and 14", thus formulas (9), (10), (11) are not modified.

During step 2 (Determination of EG_y) the new scenarios will be included in the group "scenarios 10 and 12". The formula (12) will be changed, given the possibility of different patter of generators operation. Nobrcel has two generators, one of 3.2 MW that was installed with the black liquor

cogeneration plant, and a new one of 6 MW installed with the project activity. Usually these generators operate independently, but in some cases when both plants are producing a small amount of steam, the steam production of project activity and black liquor plant are sent to the same generator. To cover this situation, the formula (12) was adapted to the version presented below.

Formula (12):

$$EGy = \begin{cases} \text{Generator operating independently} & EG_{plant} \\ \text{Generator operating using steam from more plants than the project activity} & EG_{total,y} - \frac{EG_{historic,3y}}{3} \end{cases}$$

The formula legend is also modified. In the legend is written:

"$EG_{total,y}$: is the net quantity of electricity generated in all power units fired with the same type of biomass at the project site, including the new power unit installed as part of project activity and any previously existing units, during the year *y* in MWh."

"$\underline{EG_{historic,3yr}}$: is the net quantity of electricity generated during the most recent three years in all power plants fired with the same type of biomass at the project in MWh."

The new texts are:
"$EG_{total,y}$: is the net quantity of electricity generated in all power units fired with biomass residues at the project site, including the new power unit installed as part of project activity and any previously existing units, during the year *y* in MWh."

"$\underline{EG_{historic,3yr}}$: is the net quantity of electricity generated during the most recent three years in all power plants fired with biomass residues at the project site, in MWh."

The formulas (13), (14), (15), (16) are not used, thus, not modified.

There are no modifications to sub-section "The general guidelines for all scenarios".

Emission reduction or increase due to displacement of heat
The formulas (17), (18), (19), (20), (21), (22) are not used, thus, not modified. A new formula will be elaborated. The modifications are presented below:

$$\Sigma_j \; ER_{heat,j,y} = MIN\left\{ \begin{array}{l} \frac{Q_{j,historic,3yr}}{3} \\ \lambda_{y,project} * N_y * ICj_{,baseline} \end{array} \right\} \frac{COEF_i}{\xi boiler_j * NCV_i}$$

Where:
$\lambda_{y,project}$: Load factor of project activity during the year *y* in %*;*
N_y: Number of hours in the year *y*
$IC_{j,baseline}$: Installed capacity of boiler *j* that would be used in the absence of the project activity, in tons of steam / hour;
$Q_{j,historic,3yr}$: The quantity of heat generated by the boiler *j* that would be used in the absence of the project activity, during the 3 years before it stop operating, in tons of steam per year;

$COEF_i$: is the CO_2 emission of the fossil fuel type *I* fired in the boiler *j* in the absence of the project activity in CO_2 / mass or volume of the fuel
$\xi boiler_j$:is the energy efficiency of the boiler *j* that would be used in the absence pf the project activity;
NCV_i: is the net calorific value of fuel type *I* displaced due to project activity in GJ per volume or mass unit.

This new formula will prevent the over estimation of credit generation when a project scenario increases it installed capacity, when compared to baseline scenario.

Baseline Emission due to natural decay r uncontrolled burning of anthropogenic sources of biomass
No modifications. Formulas (23) and (24) and guidelines remains the same.

Additionality
No modifications.

Leakage
No modifications.

In the Monitoring Methodology, the following addictions or modifications are required:

Sources
The same modification as Baseline methodology.

Applicability
No modifications.

Monitoring Methodology
No modifications.

Project Emission Parameters
No modifications

Baseline Emission Parameters
Given the fact that there is a new formula, and this new formula presents one new parameter, it must be included into the monitored parameters. One additional line should be added according to the table below:

ID number	Data type	Data Variable	Data unit	(m), (c) or (e)	Recording frequency	Comment
23 $\lambda_{y,project}$	Load factor	Load factor of project activity plant during year *y*	%	c	Continuously	It is calculated based on the formula: $\lambda_{y,project}$ = Actual Heat production$_y$ (Q_y) / Maximum heat production

Leakage
No modifications.

Quality Control (QC) Quality Assurance (QA) Procedures
There is one new paramenter to be monitored, thus one new QA/QC procedure will be added to cover this new parameter. The modifications would be related only to an addiction of a new line according to

table presented below:

Data	***Uncertainty Level of data (high/medium/low)***	***Are QA/QC procedures planed for these data?***	***Outline explanation how QA/QC procedure are planned***
23 $\lambda_{y,project}$	*low*	*no*	*These data are calculated. QA/QC procedures are already provided for the measurement of actual heat production.*

Information to be completed by the secretariat	
Date when the form was received at UNFCCC secretariat	
Date of transmission to the Meth Panel and Executive Board	