CLEAN DEVELOPMENT MECHANISM
PROGRAMME ACTIVITY DESIGN DOCUMENT FORM (CDM-CPA-DD)
Version 01

CONTENTS

NOTE:

(i) This form is for the submission of CPAs that apply a large scale methodology using provisions of the proposed PoA.

(ii) The coordinating/managing entity shall prepare a CDM Programme Activity Design Document (CDM-CPA-DD)[1,2] that is specified to the proposed PoA by using the provisions stated in the PoA DD. At the time of requesting registration the PoA DD must be accompanied by a CDM-CPA-DD form that has been specified for the proposed PoA, as well asand also by one a completed CDM-CPA-DD (using a real case). After the first CPA, every CPA that is added over timethereafter to the PoA must submit a completed CDM-CPA-DD.

[1] The latest version of the template form CDM-CPA-DD is available on the UNFCCC CDM web site in the reference/document section.

[2] At the time of requesting validation/registration, the coordinating managing entity is required to submit a completed CDM-POA-DD, the PoA specific CDM-CPA-DD, as well as one of such CDM-CPA-DD completed (using a real case).

SECTION A. General description of CDM programme activity (CPA)

A.1. Title of the CPA:

Biomass Renewable Energy Programme of Activities – CPA00*X* "*Insert name of the facility*"
Version: *insert number of the version*
Date: *DD/MM//YYYY*

A.2. Description of the CPA:

The CPA for Biomass Renewable Energy Programme of Activities – CPA00*X* "*Insert name of the facility*" is developed by *[insert the name of the project participant]* (hereafter referred to as the "project host") who will act as "CPA Implementer". It is a biomass cogeneration project.

The CPA will be developed under the PoA of ***"Biomass Renewable Energy Programme of Activities"***, in *[insert commune where is located the CPA]*, *[insert region where is located the CPA]*, Chile (host country).

It is an existing *[insert type of the industrial facility]* with a capacity to process up to *[insert capacity of the plant]* of main raw material processed is; *[insert the main raw material processed in the plant]*. The out put products of the process are mainly; *[insert the output products]*. *[Describe the baseline situation]*.

Purpose Project Activity:

This project aims to mitigate Greenhouse Gas (GHG) resulting from *[describe how the proposed project reduce GHG emissions]*.

The project activity involves *[[describe the projec'st purpose including information on technology used, output, fuel utilized including the type of biomass used]*

The amount of estimated emission reductions achieved by this project is *[XX]* tCO_2/year, totalizing *[XX]* tonnes of estimated reduced CO_2 emissions in the *[indicates if it is fixed or renewable]* crediting period (*XX* years), including emission reductions from *[describe the source from where come the emissions reductions]*.

The implementation of this CPA under the PoA will cause promotion of the biomass based heat-and-power generation system in Chile.

The contribution of this CPA under the PoA, to sustainable development in the country, is *[describe how the project contribute to the sustainable development in the country]*;

- *[Social well being]*
- *[Economic well being]*
- *[Environmental well being]*
- *[Technological well being]*

[modify the point above if is requiered]

A.3. Entity/individual responsible for CPA:

Provide information on the entity/individual responsible of the CPA implementation. Indicate if entity/individual is a project participant of the PoA. Provide the name of the registered PoA under which the CPA is submitted.

A.4. Technical description of the CPA:

Describe the technologies and/or measures to be employed and/or implemented by the CPA including a list of the facilities, systems and equipment that will be installed and/or modified by the CPA. Also the following description should be included:

(a) Facilities, systems and equipment in operation under the existing scenario prior to the implementation of the CPA;

(b) Facilities, systems and equipment in the baseline scenario.

If the baseline scenario is a continuation of current practice, thus identical to the scenario existing prior to the implementation of the CPA, there is no need to repeat the description of the scenarios, but only to state that both are the same.

Do not provide information that is not essential to understanding the purpose of the CPA and how it reduces GHG emissions. Information related to equipment, systems and measures that are auxiliary to the main scope of the CPA and do not affect directly or indirectly GHG emissions and/or mass and energy balances of the processes related to the CPA should not be included.

Document transparently using a table similar to the table presented below.

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Table Nº*[XXX].* Main technical parameters of key equipment in the project activity
[edit table as required]

Equipment	Quinatity	Manufacturer	Model	Parameters	Source
Boiler	1			Evaporation: Steam pressure: Steam temperature: Feed water temperature Design efficiency:	Technical specifications of the equipment by the provider.
Steam Turbine	4			Rated output: Inflow steam pressure: Inflow steam temperature:	Technical specifications of the equipment by the provider

Generator	1			Rated output: Rated voltage: Rated rotate speed: Load factor:	Technical specifications of the equipment by the provider

A.4.1. Identification of the CPA:

The CPA will be uniquely identified by the CPA identification number contained within the CPA project title. The unique CPA identification number together with the GPS coordinates recorded in section A.4.1.2 allows the CPA to be uniquely identified.

PoA Title: "Biomass Renewable Energy Programme of Activities"
Unique identification number: CPA# *[XXX]*

A.4.1.1. Host Party:

Chile

A.4.1.2. Geographic reference of other means of identification that allow the unique identification of the CPA (maximum one page):

The project site is located in *[provide information on CPA location like City, Commune, Region]*, Chile.

The CPA should be identified by detailing all the relevant information as tabulated below to enable unique identification of the CPA:

Table N°*[XXX]*: Identification of individual Project under each CPA

Identification No.	CPA operator	Address	City/Town	Commune/ Region	Global Positioning System	
[XXX]	*[XXX]*	*[XXX]*	*[XXX]*	*[XXX]*	*[XXX]*	*[XXX]*

Project location is shown in the figure bellow:

Figure *[XXX]*. Location of the Project activity

[Map(s) indicating the location of the Project activity as applicable]

A.4.2. Duration of the CPA:

A.4.2.1. Starting date of the CPA:

Indicate the start date of the CPA *[DD/MM/20YY] [and describe how the start date was determined [include any justification here if required]*

A.4.2.2. Expected operational lifetime of the CPA:

State the expected operational lifetime of the CPA in years and month [Provide justification if required]

A.4.3. Choice of the crediting period and related information:

State the type of crediting period chosen. Renewable crediting period; Or Fixed Crediting period

A.4.3.1. Starting date of the crediting period:

State the expected start date of the crediting period of the CPA (DD/MM/YYYY) [include any justification if required here]

The starting date of the crediting period of this CPA shall be the date of its inclusion in the registered PoA or any date thereafter and the duration of the crediting period shall not exceed the end date of the PoA.

A.4.3.2. Length of the crediting period, first crediting period if the choice is renewable CP:

Indicate the length of the crediting period. Ensure that the total renewal periods do not exceed the PoA validity period.

The duration of crediting period, fixed or renewable, of any CPA is limited to the end date of the PoA regardless of when the CPA was added.

A.4.4. Estimated amount of emission reductions over the chosen crediting period:

Provide the estimate of annual GHG emission reductions for each year of the crediting period and, the annual average and the total GHG emission reductions over the chosen crediting period (or the first crediting period) in the table below.

Year	Annual estimation of emission reduction in tonnes of CO_2 equivalent
20*XX*	*[XXX]*
20*XX*	*[XXX]*
20*XX*	*[XXX]*
20*XX*	*[XXX]*
20*XX*	*[XXX]*
20*XX*	*[XXX]*
20*XX*	*[XXX]*
20*XX*	*[XXX]*
20*XX*	*[XXX]*
20*XX*	*[XXX]*
Total estimated reductions	*[XXX]*

(tonnes CO_2 equivalent)	
Total number of fixed crediting years	*[XXX]*
Annual average over the crediting period of estimated reductions (tonnes of CO_2 equivalent)	*[XXX]*

[In case the CPA proponent chooses a 7 years fixed crediting period the table above shall be modified accordingly]

A.4.5. Public funding of the CPA:

No public funding from parties included in Annex 1 is involved in the CPA.

A.4.6. Confirmation that CPA is neither registered as an individual CDM project activity nor is part of another Registered PoA:

The CPA included in the PoA is not a debundled component of another CDM Programme Activity or CDM Project activity according to the criteria No 2 of section A.4.2.2 of the PoA-DD.

The CME has checked and confirmed that the project has not been registered as an individual CDM project activity, nor is part of another Registered PoA, by consulting the CDM project, CPA and PoA databases available on the UNFCCC website and the host country DNA website (links provided in point d) in section A.4.4.1. of the PoA-DD)..

Furthermore, the CPA implementer, *[Name of CPA implementer]*, has issued an authorization letter to the CME informing that they are aware of and have agreed that the project activity will be subscribed to the PoA; and that the project is not registered as a CDM project activity or as a CPA of another PoA.

The CME has issued CPA# *[XXX]* as the unique identification number for this CPA with the specific geographical coordinates for this unique number.

SECTION B. Eligibility of CPA and Estimation of emissions reductions

B.1. Title and reference of the Registered PoA to which the CPA is being added:

Title of the PoA to which this CPA is being added - "Biomass Renewable Energy Programme of Activities"

Reference of the Registered PoA provided by UNFCCC: *[XXX]*
Version: *[XXX]*
Date: *DD/MM/20YY*

B.2. Justification of the why the CPA is eligible to be included in the Registered PoA :

As per section A.4.2.2 of the PoA-DD the following eligibility criteria shall be fulfilled to enrol the CPA under this PoA.

Table Nº *[XXX]*: **Eligibility criteria for enrolling the CPA under de PoA**

No	Criteria	*Condition*
1	The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA.	The proposed Biomass Renewable Energy Programme of Activities PoA – CPA [XX] (name of mill) is located in the [location of project activity – state, country] with GPS coordinates of XX° YY' ZZ.ZZ" N/S, XX° YY' ZZ.ZZ" E/W, OR X.XXXX, Y.YYYY A declaration from CME has been issued to conform the compliance. Copy of GPS coordinates of the proposed site / copy of the environmental license / CPA topographic layout/copy of the engineering feasibility study is enclosed
2	Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo);	The CDM database has been checked and it is confirmed that the proposed CPA is not already included in another PoA or developed as a stand-alone CDM project. The proposed CPA is identified through a unique title and reference number #[XX]. Refer Section A.4.6 of r-CPA-DD. A declaration from CME to the effect that the project activity has not been registered as a CDM project activity is enclosed.

3	The specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications;	Technology to be installed is biomass based cogeneration plant for the generation of steam/heat/electricity or biomass based steam/heat generation plant or biomass based electricity generation by the CPA operator. A declaration by the CME to the effect that the project activity complies with testing certification and copy of the proposal/ quotations/ tender documents/ project design diagram/ FSR/ engineering feasibility study is enclosed
4	Conditions to check the start date of the CPA through documentary evidence	Starting date of the CPA is [DD/MM/YYYY], corresponding to the earliest date at which a contract for implementation of the purchase order has been issued (description). In accordance with the CDM glossary, this date corresponds to the earliest date on implementation of the project. The start date of the CPA is not prior to the commencement of validation of the PoA (25/04/2012). Copy of signed contract documents related to [XXXXX] is enclosed as evidence/ A declaration from the CME to the effect that the project implementation has not commenced :
5	Conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs;	The methodology applied in this CPA is ACM 0006 (version 12.0.1or latest versión, if available) The conformity of the project activity to the methodology applied is described and justified in Table [B.X] below. Declarations from the CME to the effect that project complies with the methodology is enclosed .

6	The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality as specified in Section A above;	The CPA meets the requirement pertaining to the demonstration of additionality, as per details given under Section B.3 of CPA-DD. A declaration from CME has been issued to confirm the compliances
7	The PoA-specific requirements stipulated by the CME including any conditions related to undertaking local stakeholder consultations and environmental impact analysis;	Stakeholder consultation was organized on [DD/MM/YYYY] through meeting/ public announcement in news papers and it is prior to the CPA inclusion. Copies of invitation letters/newspaper adversitisement/public notice inviting stakeholders for the meeting, photographs/video recording of stakeholders' constlation, attendence sheet and minutes of meeting are enclosed or Copies of public announcements made in XXXX and XXXX, comments received during the process and responses given and compilation of the comments received and response thereof are enclosed, The proposed CPA is compliant with the Host Country requirement in terms of EIA and a copy of the approval received from the Environmental Authority is enclosed. A declaration from CME is enclosed. .
8	Conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance;	The proposed CPA has not received and will not be seeking public funding from Annex 1 countries, as confirmed by the CPA Implementer and by the Annex I Party Project Participant to the PoA. *Declarations from Annex 1 Project Participant to the effect that the public funding, / does not constitute ODA diversion is enclosed. A declaration from CME operator that the CPA has not received any public funding/the public funding received does not constitute ODA diversion is enclosed,*

9	Where applicable, target group (e.g. domestic/commercial/industrial, rural/urban, grid-connected/off-grid) and distribution mechanisms (e.g. direct installation);	CPA falls under Industrial processing/ manufacturing sectors/Rural or urban grid connected or off grid power generation target group. *Declaration by CME to the effect that the CPA is under the target group andCopies of company license/ business license/ electricity bills are enclosedc.*
10	The consideration of all applicable national and/or sectoral policies and regulations of each host parties, within the boundary of all host country.	E-Policy that gives comparative advantages to less emissions-intensive technologies over more emissions-intensive technologies. has not been taken into account in the development of the baseline scenario as per Para 45(b), Annex 5 EB65.. *Copy of the environmental approval issued by the Environmental Authority to prove that the project complies with the laws and regulations of the respective host country is enclosed*
11	The CPA proponent must enter into a contractual agreement with the CME to participate in the PoA.	*CPA operator has entered into a contractual agreement with the CME to participate in the PoA.* *A copy of the contractual agreement signed with the CME containing, inter alia; CDM management services, CER cessation rights and the obligation to comply with the CME´s Code of Conduct and Health and Safety Regulations, as applicable is enclosed.*

As per section E.2 of the PoA-DD the following applicability criteria shall be justified.

Table Nº *[XXX]:* Applicability Criteria of ACM0006, version 12.0.1, EB 66

The project activity may include the following activities or, where applicable, combinations of these activities:		
Sr. Nº	**Applicability Criteria**	**CPA**
1	The installation of new plants at a site where currently no power and heat generation occurs (Greenfield projects)	*[Insert appropriate description of the CPA]*
2	The installation of new plants at a site where currently power or heat generation occurs. The new plant replaces	*[Insert appropriate description of the CPA]*

	or is operated next to existing plants (capacity expansion projects)	
3	The improvement of energy efficiency of existing plants (energy efficiency improvement projects), which can also lead to a capacity expansion, e.g. by retrofitting the existing plant	*[Insert appropriate description of the CPA]*
4	The total or partial replacement of fossil fuels by biomass residues in existing plants or in new plants that would have been built in the absence of the project (fuel switch projects), e.g. by increasing the share of biomass residues use as compared to the baseline, by retrofitting an existing plant to use biomass residues, etc	*[Insert appropriate description of the CPA]*
The methodology is applicable under the following conditions;		
Sr. Nº	**Applicability Conditions**	**CPA**
5	No biomass types other than biomass residues are used in the project plant.	[*Justify that only biomass types that are in accordance with the definition of biomass residues as provided in the methodology will be utilized in the CPA*]
6	Fossil fuels may be co-fired in the project plant. However, the amount of fossil fuels co-fired does not exceed 80% of the total fuel fired on an energy basis.	*[Insert information of fossil fuels used in CPA, if any]*
7	For projects that use biomass residues from a production process (e.g. production of sugar or wood panel boards), the implementation of the project does not result in an increase of the processing capacity of raw input (e.g. sugar, rice, logs, etc.) or in other substantial changes (e.g. product change) in this process.	*[Insert information of biomass residues used in CPA]*
8	The biomass residues used by the project facility are not stored for more than one year.	*[Insert appropriate information on biomass residue storage]*
9	The biomass residues used by the project facility are not obtained from chemically processed biomass (e.g. through esterification, fermentation, hydrolysis, pyrolysis, bio- or chemical- degradation, etc.) prior to combustion. Moreover, the preparations of biomass-derived fuel do not involve significant energy quantities, except from transportation or mechanical treatment so as not to cause significant GHG emissions.	*[Insert information of biomass residues used in CPA]*
10	In the case of fuel switch project activities, the use of biomass residues or the increase in the use of biomass residues as compared to the baseline scenario is technically not possible at the project site without a capital investment in: • The retrofit or replacement of existing heat generators/boilers; or • The installation of new heat generators/boilers;	*[Insert appropriate description of the CPA]*

	• A new dedicated biomass residues supply chain established for the purpose of the project (e.g. collecting and cleaning contaminated new sources of biomass residues that could otherwise not be used for energy purposes); or • Equipment for preparation and feeding of biomass residues.	
11	In the case that biogas is used in power and/or heat generation, this methodology is applicable under the following conditions: • The biogas is generated by anaerobic digestion of waste water (to be) registered as a CDM project activity and the details of the registered CDM project activity must be included in the PDD. Any CERs from biogas energy generation should be claimed under the proposed project activity registered under this methodology; The biogas is generated by anaerobic digestion of wastewater that is not (and will not) being registered as a CDM project activity. The amount of biogas does not exceed 50% of the total fuel fired on an energy basis.	Project Activities in future CPAs does not include the use of biogas for power and/or heat generation. So this condition is not applicable to the PoA.
The methodology is only applicable if the most plausible baseline scenario, as identified per the "Selection of the baseline scenario and demonstration of additionality" section hereunder, is:		
Sr. Nº	**Baseline scenario Condition**	**CPA**
1	For power generation: Scenarios P2: to P7:, or a combination of any of those scenarios.	As described in section B.3 below the most plausible baseline scenario for power generation is *[Insert outcome of section B.3]*
2	For heat generation: Scenarios H2: to H7:,or a combination of any of those scenarios	As described in section B.3 below the most plausible baseline scenario for heat generation is *[Insert outcome of section B.3]*
3	If some of the heat generated by the project activity is converted to mechanical power through steam turbines, for mechanical power generation: Scenarios M2: to M5: • In the case of M2 and M3, if the steam turbine(s) are used for methancial power in the project, the turbine(s) used in the baseline shall be at least as efficient as the steam turbine(s) used for methancial power in the project; • In the case of M4 and M5, steam turbine(s) for methancial power are not allowed for the same purpose in the project.	No heat generated by the project activity is converted to mechanical power through steam turbines.
4	For biomass residue use: Scenarios B1: to B8:, or any combination of those scenarios. For scenarios B5: to B8:,	As described in section B.3 below the most plausible baseline scenario for biomass residue use is *[Insert*

	leakage emissions should be accounted for as per the procedures of the methodology.	*outcome of section B.3]*

B.3. Assessment and demonstration of additionality of the CPA, as per eligibility criteria listed in the Registered PoA:

According to the methodology, the selection of the baseline scenario and demonstration of additionality should be conducted by applying the following steps:

Step 1: Identification of alternative scenarios

This step serves to identify alternative scenarios to the proposed CDM project activity(s) that can be the baseline scenario through the following sub-steps:

Step 1a: Define alternative scenarios to the proposed CDM project activity

As per the methodology:

Identify realistic alternative scenarios that are available to the project participants and that provide outputs or services with comparable quality, properties and application areas as the proposed CDM project activity.

The alternative scenarios should specify:

- How electric power would be generated in the absence of the CDM project activity; and
- How heat would be generated in the absence of the CDM project activity;
- What would happen to the biomass residues in the absence of the project activity

The alternative scenarios for electric power should include, but not be limited to, *inter alia*:

Scenario	Scenario Description	Baseline scenario
P1	The proposed project activity not undertaken as a CDM project activity	*[Provide any additional justification if required to determine the plausible baseline alternatives]*
P2	If applicable, the continuation of power generation in existing power plants at the project site. The existing plants would operate at the same conditions (e.g. installed capacities, average load factors, or average energy efficiencies, fuel mixes, and equipment configuration) as those observed in the most recent three years prior to the starting date of the project activity	*[Provide any additional justification if required to determine the plausible baseline alternatives]*

P3	If applicable, the continuation of power generation in existing power plants at the project site. The existing plants would operate with different conditions from those observed in the most recent three years prior to the starting date of the project activity	*[Provide any additional justification if required to determine the plausible baseline alternatives]*
P4	If applicable, the retrofitting of existing power plants at the project site. The retrofitting may or may not include a change in fuel mix	*[Provide any additional justification if required to determine the plausible baseline alternatives]*
P5	The installation of new power plants at the project site different from those installed under the project activity	*[Provide any additional justification if required to determine the plausible baseline alternatives]*
P6	The generation of power in specific off-site plants, excluding the power grid	*[Provide any additional justification if required to determine the plausible baseline alternatives]*
P7	The generation of power in the power grid.	*[Provide any additional justification if required to determine the plausible baseline alternatives]*

The alternative scenarios for heat generation should include, but not be limited to, *inter alia*:

Scenario	Scenario Description	Baseline scenario
H1	The proposed project activity not undertaken as a CDM project activity	*[Provide any additional justification if required to determine the plausible baseline alternatives]*
H2	If applicable, the continuation of heat generation in existing plants at the project site. The existing plants would operate at the same conditions (e.g. installed capacities, average load factors, or average energy efficiencies, fuel mixes, and equipment configuration) as those observed in the most recent three years prior to the project activity	*[Provide any additional justification if required to determine the plausible baseline alternatives]*
H3	If applicable, the continuation of heat generation in existing plants at the project site. The existing plants would operate with different conditions from those observed in the most recent three years prior to the project activity.	*[Provide any additional justification if required to determine the plausible baseline alternatives]*
H4	If applicable, the retrofitting of existing plants at the project site. The retrofitting may or may not include a change in fuel mix.	*[Provide any additional justification if required to determine the plausible baseline alternatives]*

H5	The installation of new plants at the project site different from those installed under the project activity.	*[Provide any additional justification if required to determine the plausible baseline alternatives]*
H6	The generation of heat in specific off-site plants	*[Provide any additional justification if required to determine the plausible baseline alternatives]*
H7	The production of heat from district heating.	*[Provide any additional justification if required to determine the plausible baseline alternatives]*

[According to the methodology additional information is required when defining plausible and credible alternative scenarios for power and heat generation:

- *Installed capacities, load factors, energy efficiencies, fuel mixes, and equipment configuration, should be clearly described and justified in the CPA-DD;*
- *Electricity and heat generation under the project scenario must be considered in the selection of the baseline scenario. Therefore, the capacities of heat and electricity generation, including the grid if applicable, considered in the baseline scenario should be able to deliver the same level of process heat and power generation as that of the project scenario;*
- *If the project activity involves an increase in installed capacity, an increase in generation, and/or a change in demand of electricity or heat as compared to the historical situation, the baseline scenario should be determined for the overall generation under the project activity, possibly including a combination of the different scenarios described above. This is particularly relevant for cases in which existing plants have operated at the project site prior to the implementation of the project activity;*
- *In cases where alternative scenarios include the installation of new power or heat generation capacity at the project site other than the proposed project activity, the economically most attractive technology and fuel mix should be identified among those which provide the same service (i.e. the same power and, if applicable, heat quantity), that are technologically available and that are in compliance with relevant regulations. The type of technology, the efficiency of the plants and the fuel type should be selected in a conservative manner, i.e. where several technologies and/or fuel types could be used and are similarly economically attractive, the least carbon intensive fuel type/the most efficient technology should be considered. Ensure that the selected technology represents at least the common practice for new plants in the respective industry sector, in the country or region, excluding CDM registered projects;*
- *If existing plants operated at the project site prior to the implementation of the project activity, they could be retired at the start of the project activity because they are replaced by the project plant, or they may initially be operated in parallel to the project plant and be retired at a future point in time (at the end of their lifetime). In such cases, the remaining lifetime of the existing equipment has to be determined and a baseline based on historical performance only applies until the existing power plant would have been replaced or retrofitted in the absence of the project activity. From that point of time, a different baseline shall apply. For the purpose of determining the remaining lifetime of equipment, use the latest version of the "Tool to determine the remaining lifetime of equipment". The remaining lifetime should be selected in conservative manner, i.e. the earliest point in time should be chosen in cases where only a time frame can be estimated, and should be documented and justified in the CPA-DD]*

For the use of biomass residues, the alternative scenarios should include, but not be limited to, *inter alia*:

Scenario	Scenario Description	Baseline scenario
B1	The biomass residues are dumped or left to decay mainly under aerobic conditions. This applies, for example, to dumping and decay of biomass residues on fields.	*[Provide any additional justification if required to determine the plausible baseline alternatives]*
B2	The biomass residues are dumped or left to decay under clearly anaerobic conditions. This applies, for example, to landfill which are deeper than 5 meters. This does not apply to biomass residues that are stock-piled or left to decay on fields.	*[Provide any additional justification if required to determine the plausible baseline alternatives]*
B3	The biomass residues are burnt in an uncontrolled manner without utilizing it for energy purposes	*[Provide any additional justification if required to determine the plausible baseline alternatives]*
B4	The biomass residues are used for power or heat generation at the project site in new and/or existing plants	*[Provide any additional justification if required to determine the plausible baseline alternatives]*
B5	The biomass residues are used for power or heat generation at other sites in new and/or existing plants	*[Provide any additional justification if required to determine the plausible baseline alternatives]*
B6	The biomass residues are used for other energy purposes, such as the generation of biofuels	*[Provide any additional justification if required to determine the plausible baseline alternatives]*
B7	The biomass residues are used for non-energy purposes, e.g. as fertilizer or as feedstock in processes (e.g. in the pulp and paper industry)	*[Provide any additional justification if required to determine the plausible baseline alternatives]*
B8	Biomass residues are purchased from a market, or biomass residues retailers, or the primary source of the biomass residues and/or their fate in the absence of the project activity cannot be clearly identified.	*[Provide any additional justification if required to determine the plausible baseline alternatives]*

[According to the methodology additional information is required when defining plausible and credible alternative scenarios for the use of biomass residues:

- *The baseline scenario for the use of biomass residues should be separately identified for different categories of biomass residues, covering the whole amount of biomass residues supposed to be used in the project activity during the crediting period, and consistent with the alternative scenarios selected for power and heat generation (scenarios P and H above);*

- *A category of biomass residues is defined by three attributes: (1) its type (i.e. bagasse, rice husks, empty fruit bunches, etc.); (2) its source and (3) its fate in the absence of the project activity (Scenarios B above);*
- *Explain and document transparently in the CDM-PDD, using a table similar to table below, which quantities of which biomass residues categories are used in which installation(s) under the project activity and what is their baseline scenario.*

Table Nº *[XXX]*: Biomass residues baseline scenario (dry-basis) *[edit table as required]*

Biomass residues category (*k*)	Biomass residues type	Biomass residues source	Biomass residues fate in the absence of the project activity	Biomass residues use in project scenario	Biomass residues quantity (tonnes)
1	*[XXX]*	*[XXX]*	*[XXX]*	*[XXX]*	*[XXX]*
2	*[XXX]*	*[XXX]*	*[XXX]*	*[XXX]*	*[XXX]*

Table Nº *[XXX]*: Biomass residues project activity (dry-basis) *[edit table as required]*

Biomass residues category (*k*)	Biomass residues type	Biomass residues source	Biomass residues fate in the absence of the project activity	Biomass residues use in project scenario	Biomass residues quantity (tonnes)
1	*[XXX]*	*[XXX]*	*[XXX]*	*[XXX]*	*[XXX]*
2	*[XXX]*	*[XXX]*	*[XXX]*	*[XXX]*	*[XXX]*

Project Activities in future CPAs does not include the generation of mechanical power through steam turbine(s). Therefore no baseline scenarios for mechanical power will be selected in the proposed PoA.

Project Activities in future CPAs does not include the use of biogas for power and/or heat generation. Therefore no baseline scenarios for use of biogas will be selected in the proposed PoA.

Outcome of Step 1a:

[Provide list of plausible scenarios]

Sub-step 1b: Consistency with mandatory applicable laws and regulations

[Provide list of plausible scenarios meeting the mandatory applicable legislation and regulations]

Outcome of Step 1b:

The list of the plausible baseline scenarios to the CPA is:

[Edit table as required]

Scenario	*For Power Generation*	*For heat Generation*	*For Biomass Use*
Scenario 1	*[XXX]*	*[XXX]*	*[XXX]*
Scenario 2	*[XXX]*	*[XXX]*	*[XXX]*

[If CPA is using 'first-of-its-kind' barrier, then CPA operator should explain how the project conforms to 'First-of-its-kind' in conformity with Annex 7, EB 69.]

Step 2: Barrier analysis

Sub-step 2a: Identify barriers that would prevent the implementation of alternative scenarios

Step 2a requires the identification of a set of barriers that would prevent the implementation of alternative scenarios. CPAs should identify barriers that prevent alternative scenarios to occur.

[Edit barriers as required]

- *Investment barriers*
- *Technological barriers*
- *Barriers due to the prevailing practice*
- *Cultural barriers*
- *Regulatory barriers in the Power industry*

Outcome of Step 2a: *[list barriers that may prevent one or more alternative scenarios to occur]*

Sub-step 2b: Eliminate alternative scenarios, which are prevented by the identified barriers

Step 2b of the Combined Tool requires the Project Proponent to eliminate the alternative scenarios that are prevented by the identified barriers. This has to be done for all the feasible heat generation, power generation and biomass use baseline scenarios.

Outcome of Step 2b*: [list alternative scenarios to the project activity that are not prevented by any barrier]*

Outcome of Step 2*: [define if the project is additional, or Option 1: Go to Step 3 (investment analysis); or Option 2: Identify the alternative scenario with the lowest emissions (i.e. the most conservative) as the baseline scenario, and proceed to Step 4]*

Step 3: Investment analysis

According to ACM0006 Version 12.0.1, EB 66,the objective of Step 3 is to compare the economic or financial attractiveness of the alternative scenarios by conducting an investment analysis.Accordingly, and in conformity with PoA-DD, investment comparison analysis has been selected to demonstrate the additionality of the project activity, i.e., the project activity is less financially attractive than atleast one of the alternatives. Accordingly, [*commercial lending rate / the default rate of return on equity*] has been

chosen as the discount rate in conformity with Guidance on Investment Analysis and PoA-DD. The discount rate at the time of decision making was [xxx]..

The "Guidelines on the assessment of investment analysis" Version 05.0, EB 62, Annex 05, available on the UNFCCC website, has been taken into account when applying this step.

The alternative scenarios remaining after Step 2 are

[Edit table as required]

Scenario	***For Power Generation***	***For heat Generation***	***For Biomass Use***
Scenario 1	*[XXX]*	*[XXX]*	*[XXX]*
Scenario 2	*[XXX]*	*[XXX]*	*[XXX]*

[CPAs should identify the financial indicator];

[Edit as required]

- *IRR*
- *NPV*
- *cost benefit ratio*
- *unit cost of service (e.g., levelized cost of electricity production in $/kWh or levelized cost of delivered heat in $/GJ)*

[CPAs should justify the use of financial indicator chosen];

The table below exhibits the financial analysis for the project activity without CDM related income. Calculation of the *[financial indicator]* is established on the annual cash flow (annual revenue) of *[produced electricity, annual operational expenditure, and capital expenditure (initial investment cost)]*

Table *[XXX]*: Financial analysis for the project activity without CDM income *[edit table as required]*

Parameter	**Unit**	**Value**	**References**
Capacity - Boiler - Turbine	 TPH MW	 *[XXX]* *[XXX]*	*[XXX]*
Total Capital Expenditure	CLP/USD	*[XXX]*	*[XXX]*
Financing pattern: - Loans from banks/fin.instns - Equity capital - Others (like subsidies)	CLP/USD	*[XXX]*	*[XXX]*
Terms of loan - Rate of Interest - Initial grace period - Repayment period - Repayment instalment	 % Qtrs/Mths Qtrs/Mths CLP/USD	*[XXX]*	*[XXX]*
Project lifetime	Years	*[XXX]*	*[XXX]*

Plant load factor/Capacity utiliation	%	*[XXX]*	*[XXX]*
Gross generation - Steam - Electricity	TPY GWh	*[XXX]* *[XXX]*	*[XXX]*
Auxiliary consumption (of electricity)	GWh/ % of generation	*[XXX]*	*[XXX]*
Electricity exported to grid	GWh/year	*[XXX]*	*[XXX]*
Electricity consumed internally	GWh/year	*[XXX]*	*[XXX]*
Tariff for electricity exported to grid	CLP/USD per kWh	*[XXX]*	*[XXX]*
Tariff for electricity used for captive consumption	CLP/USD per kWh	*[XXX]*	*[XXX]*
Fossil fuel replaced	Tonnes per year	*[XXX]*	*[XXX]*
Fossil fuel cost	CLP/USD per tonne	*[XXX]*	*[XXX]*
Biomass Type 1	CLP/USD per tonne	*[XXX]*	*[XXX]*
Biomass Type 2	CLP/USD per tonne	*[XXX]*	*[XXX]*
Annual operational & maintenance cost	CLP/USD per annum/% of CAPEX	*[XXX]*	*[XXX]*
Manpower cost	CLP/USD	*[XXX]*	*[XXX]*
Increment in manpower cost	%	*[XXX]*	*[XXX]*
Inflation rate	%	*[XXX]*	*[XXX]*
Other parameters	CLP/USD	*[XXX]*	*[XXX]*
Depreciation of equipment	Yrs./%	*[XXX]*	*[XXX]*
Residual value / fair value	% of CAPEX	*[XXX]*	*[XXX]*
Corporate tax	%	*[XXX]*	*[XXX]*

[Give the information for project activity and each of the alternatives considered]

All the parameters given above were available at the time of decision making and hence conform to Guidance 6 of Annex 5, EB 62.

[Provide outcome of the analysis]

Sensitivity Analysis

A sensitivity analysis has to be carried out to confirm the robustness of the results obtained above. All input parameters, which account for 20% of project cost/revenue wil be subjected to sensitivity analysis. Depending on the CPAs, input parameters, which account for less than 20% of the project cost/revenue

have been subjected to sensitivity analysis. Input parameters have been subjected to a variation of ± [*fill in*], which is considered necessary in the project context. s. The results of sensitivity analysis are summarized in a table as given below:

[Edit parameters as required]

Table *[XXX]:* Sensitivity Analysis Summary (without CDM)

Parameter/Variation	-10%	0%	+10%
CAPEX			
Biomass cost			
Electricity Tariff			
Electricity Cost			
Fossil fuel Cost			
O&M Cost			
Baseline			

[Summarize outcome of the sensitivity analysis]

Step 4: Common practice analysis

[Identify geographical area for the analysis. Provide list of similar activities in the geographical area excluding projects applied for CDM.

If similar activities are identified, identify the distinctions between the CPA and the other similar projects]

Considering that similar activities *[choose; cannot be observed or similar activities are observed]* but essential distinctions between the project activity and similar activities have been reasonably explained above then the *[CPA name]* is additional

Prior Consideration of the CDM:
[Edit table as required]

Main Event	***Date***	***Reference Document***
Board Resolution /Decision of the CPA operator regarding prior consideration of CDM before Project activity.		
Mandate for CDM services given to CME		
Purchase order for equipment		
Intimation to UNFCCCC and DNA on prior consideration		
Stakeholder consultation		
Commissioning of Equipment		

As evident, the project start date is after 25th April 2012 (when the PoA-DD was webhosted for global stake holders' consultation) and UNFCCC & DNA were informed about the intention to get the project registered as CDM activity within 6 months from the start date and hence the project conforms to Annex 26, EB 60 and Annex 13, EB 62.

B.4. Description of the sources and gases included in the project boundary and proof that the CPA is located within the geographical boundary of the registered PoA.

The description of sources and gases included in the project boundary and the geographical boundary of the CPA will be define for:

ACM0006 Version 12.0.1 applied in this PoA encompasses the following spatial extent of the project boundary:

[edit details if required]

- All plants generating power and/or heat located at the project site, whether fired with biomass residues, fossil fuels or a combination of both;
- All power plants connected physically to the electricity system (grid) that the project plant is connected to;
- Where possible, all off-site heat sources that supply heat to the site where the project activity is located (either directly or via a district heating system);
- The means of transportation of biomass residues to the project site;
- The site where the biomass residues would have been left for decay or dumped;
- The wastewater treatment facilities used to treat the wastewater produced from the treatment of biomass residues;
- In case biogas is included, the site of the anaerobic digester.

[Insert project boundary diagram here]

The following tables illustrate which emission sources are included and which are excluded from the project boundary according to ACM0006 Version 12.0.1 to determine the baseline and project emissions.

Table *[XXX]*. Emission sources included in or excluded from the project baseline and Project activity.

[edit table as required]

	Source	Gas		Justification / Explanation
Baseline	Electricity and heat generation	CO_2	*Included*	Main emission source
		CH_4	*Excluded*	Excluded for simplification. This is conservative
		N_2O	*Excluded*	Excluded for simplification. This is conservative
	Uncontrolled burning or decay of surplus biomass residues	CO_2	*Excluded*	It is assumed that CO_2 emissions from surplus biomass residues do not lead to changes of carbon pools in the LULUCF sector
		CH_4	*To be decided for each CPA*	CPA operator may decide to include this emission source, where case B1, B2 or B3 has been identified as the most likely baseline scenario
		N_2O	*Excluded*	Excluded for simplification. This is conservative. Note also that emissions from natural decay of biomass are not included in GHG inventories as anthropogenic sources
Project Activity	On-site fossil fuel consumption	CO_2	*Included*	May be an important emission source
		CH_4	*Excluded*	Excluded for simplification. This emission source is assumed to be very small
		N_2O	*Excluded*	Excluded for simplification. This emission source is assumed to be very small
	Off-site transportation of biomass residues	CO_2	*Included*	May be an important emission source
		CH_4	*Excluded*	Excluded for simplification. This emission source is assumed to be very small
		N_2O	*Excluded*	Excluded for simplification. This emission source is assumed to be very small
	Combustion of biomass residues for electricity and heat	CO_2	*Excluded*	It is assumed that CO_2 emissions from surplus biomass do not lead to changes of carbon pools in the LULUCF sector
		CH_4	*Included or Excluded*	This emission source will be included if project CPA operator decide to include CH_4 emissions from uncontrolled burning or decay of the biomass residues in the baseline scenario
		N_2O	*Excluded*	Excluded for simplification. This emission source is assumed to be small
	Storage of biomass residues	CO_2	*Excluded*	It is assumed that CO_2 emissions from surplus biomass residues do not lead to changes of carbon pools in the LULUCF sector
		CH_4	*Excluded*	Excluded for simplification. Since biomass residues are stored for not longer than one year, this emission source is assumed to be small
		N_2O	*Excluded*	Excluded for simplification. This emissions source is assumed to be very small
	Wastewater from the treatment of biomass residues	CO_2	*Excluded*	It is assumed that CO_2 emissions from surplus biomass residues do not lead to changes of carbon pools in the LULUCF sector
		CH_4	*Included*	This emission source shall be included in cases where the waste water is treated (partly) under anaerobic conditions
		N_2O	*Excluded*	Excluded for simplification. This emission source is assumed to be small

B.5. Emission reductions:

B.5.1. Data and parameters that are available at validation:

[Only applicable parameters the relevant project scenario shall be kept in the real case CPA-DD and the non-applicable parameters shall be removed]

Data / Parameter:	**Biomass residues categories and quantities used for the selection of the baseline scenario selection and assessment of additionality**
Data unit:	- Type: *[provide information if applies]* - Source: *[provide information if applies]* - Fate in the absence of the project activity (scenarios B): *[provide information if it applies]* - Use in the project scenario (scenarios P): *[provide information if it applies]* - Quantity (tonnes on dry-basis): *[provide information if it applies]*
Description:	Explain and document transparently in the CDM-PDD, what quantities of which biomass residues categories are used in which installation(s) under the project activity and what is their baseline scenario. For the selection of the baseline scenario and demonstration of additionality, at the validation stage, an ex ante estimation of these quantities should be provided.
Source of data:	On-site assessment of biomass residues categories and quantities
Measurement procedures (if any):	*[Insert an appropriate description regarding to the specific situation of the CPA]*
Any comment:	*[Provide information if it applies]*

Data / Parameter:	**$BR_{HIST,n,x}$**
Data unit:	XX tonnes on dry-basis
Description:	Quantity of biomass residues of category n used for power or heat generation at the project site in year x prior the date of submission of the PDD for validation of the project activity (tonnes on dry-basis) prior the time of submission of the PDD for validation of the project activity
Source of data:	On-site measurements
Measurement procedures (if any):	*[Insert an appropriate description regarding to the specific situation of the CPA]*
Any comment:	*[Provide information if it applies]*

Data / Parameter:	**$BR_{n,h,x}$**
Data unit:	XX tonnes on dry-basis
Description:	Quantity of biomass residue s of category n used in heat generator h in year x (tonnes on dry-basis)
Source of data:	On-site measurements
Measurement procedures (if any):	*[Insert an appropriate description regarding to the specific situation of the CPA]*
Any comment:	*[Provide information if it applies]*

Data / Parameter:	**$FF_{f,h,x}$**
Data unit:	XX mass or volume unit/yr
Description:	Quantity of fossil fuel type f fired in heat generator h in year x (mass or volume unit/yr)

Source of data:	On-site measurements
Measurement procedures (if any):	*[Insert an appropriate description regarding to the specific situation of the CPA]*
Any comment:	*[Provide information if it applies]*

Data / Parameter:	**$HG_{h,x}$**
Data unit:	XX GJ
Description:	Net quantity of heat generated in heat generator h in year x (GJ/yr)
Source of data:	On-site measurements
Measurement procedures (if any):	*[Insert an appropriate description regarding to the specific situation of the CPA]*
Any comment:	*[Provide information if it applies]*

Data / Parameter:	**$HG_{BR,CG/PO,x,i,j}$**
Data unit:	XX GJ
Description:	Quantity of heat used in heat engine i/j in year x (GJ)
Source of data:	On-site measurements
Measurement procedures (if any):	*[Insert an appropriate description regarding to the specific situation of the CPA]*
Any comment:	*[Provide information if it applies]*

Data / Parameter:	**$HC_{BR,CG/PO,x,i/j}$**
Data unit:	XX GJ
Description:	Quantity of process heat extracted from the heat engine i/j in year x (GJ)
Source of data:	On-site measurements
Measurement procedures (if any):	*[Insert an appropriate description regarding to the specific situation of the CPA]*
Any comment:	*[Provide information if it applies]*

Data / Parameter:	**$EL_{BR,CG/PO,x,i/j}$**
Data unit:	XX MWh
Description:	Quantity of electricity generated in heat engine *i/j* in year *x* (MWh)
Source of data:	On-site measurements
Measurement procedures (if any):	*[Insert an appropriate description regarding to the specific situation of the CPA]*
Any comment:	*[Provide information if it applies]*

Data / Parameter:	**P_x**
Data unit:	XX
Description:	Quantity of the main product of the production process (e.g. sugar cane, rice) produced in year x from plants operated at the project site
Source of data:	On-site measurements
Measurement procedures (if any):	*[Insert an appropriate description regarding to the specific situation of the CPA]*
Any comment:	*[Provide information if it applies]*

Data / Parameter:	**$CAP_{HG,h}$**
Data unit:	XX GJ/h
Description:	Baseline capacity of heat generator h (GJ/h)
Source of data:	On-site measurements or reference plant design parameters
Measurement procedures (if any):	*[Insert an appropriate description regarding to the specific situation of the CPA]*
Any comment:	*[Provide information if it applies]*

Data / Parameter:	**$CAP_{EG,CG,i}$** **$CAP_{EG,PO,j}$**
Data unit:	XX MW
Description:	$CAP_{EG,CG,i}$ = Baseline electricity generation capacity of heat engine i (MW) $CAP_{EG,PO,j}$ = Baseline electricity generation capacity of heat engine j (MW)
Source of data:	On-site measurements or reference plant design parameters
Measurement procedures (if any):	*[Insert an appropriate description regarding to the specific situation of the CPA]*
Any comment:	*[Provide information if it applies]*

Data / Parameter:	**$LFC_{HG,h}$**
Data unit:	XX %
Description:	$LFC_{HG,h}$ = Baseline load factor of heat generator h (ratio)
Source of data:	On-site measurements or reference plant design parameters
Measurement procedures (if any):	*[Insert an appropriate description regarding to the specific situation of the CPA]*
Any comment:	*[Provide information if it applies]*

Data / Parameter:	**$HPR_{BL,i}$**
Data unit:	XX %
Description:	Baseline heat-to-power ratio of the heat engine *i* (ratio)
Source of data:	On-site measurements or reference plant design parameters
Measurement procedures (if any):	*[Insert an appropriate description regarding to the specific situation of the CPA]*
Any comment:	*[Provide information if it applies]*

Data / Parameter:	**$LFC_{EG,CG,i}$** **$LFC_{EG,CG,j}$**
Data unit:	XX %
Description:	$LFC_{EG,CG,i}$ = Baseline load factor of heat engine i (ratio) $LFC_{EG,PO,j}$ = Baseline load factor of heat engine j (ratio)
Source of data:	On-site measurements or reference plant design parameters
Measurement procedures (if any):	*[Insert an appropriate description regarding to the specific situation of the CPA]*
Any comment:	*[Provide information if it applies]*

Data / Parameter:	**$EF_{BL,CO2,FF}$**
Data unit:	XX tCO_2/GJ
Description:	CO_2 emission factor of the fossil fuel type that would be used for power

	generation at the project site in the baseline (tCO2/GJ)
Source of data:	Either conduct measurements or use accurate and reliable local or national data where available. Where such data is not available, use IPCC default emission factors (country-specific, if available), if they are deemed to reasonably represent local circumstances. Choose the value in a conservative manner and justify the choice
Measurement procedures (if any):	*[Insert an appropriate description regarding to the specific situation of the CPA]*
Any comment:	*[Provide information if it applies]*

Data / Parameter:	$\eta_{BL,FF}$
Data unit:	XX
Description:	Efficiency of the fossil fuel power plant(s) at the project site in the baseline
Source of data:	Either use the higher value among (a) the measured efficiency and (b) manufacturer's information on the efficiency; OR use default values as provided in Annex 1 of the "Tool to calculate the emissions factor for an electricity system"; OR assume an efficiency of 100%
Measurement procedures (if any):	*[Insert an appropriate description regarding to the specific situation of the CPA]*
Any comment:	*[Provide information if it applies]*

Data / Parameter:	$NCV_{BR,n,x}$
Data unit:	XX GJ/tonnes on dry-basis
Description:	Net calorific value of biomass residues of category n in year x
Source of data:	Either conduct measurements or use accurate and reliable local or national data where available. Where such data is not available, use IPCC default net calorific values (country-specific, if available), if they are deemed to reasonably represent local circumstances. Choose the values in a conservative manner and justify the choice
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Any comment:	*[Provide information if it applies]*

Data / Parameter:	$NCV_{FF,f,x}$
Data unit:	XX GJ/mass or volume unit
Description:	Net calorific value of fossil fuel type f in year x (GJ/mass or volume unit)
Source of data:	Either conduct measurements or use accurate and reliable local or national data where available. Where such data is not available, use IPCC default net calorific values (country-specific, if available), if they are deemed to reasonably represent local circumstances. Choose the values in a conservative manner and justify the choice.
Measurement procedures (if any):	*[Insert an appropriate description regarding to the specific situation of the CPA]*
Any comment:	*[Provide information if it applies]*

Data / Parameter:	GWP_{CH4}
Data unit:	21 tCO_2e/tCH_4
Description:	Global Warming Potential of methane valid for the commitment period

	(tCO2/tCH4)
Source of data:	IPCC
Measurement procedures (if any):	21 for the first commitment period. Shall be updated according to any future COP/MOP decisions
Any comment:	*[Provide information if it applies]*

Data / Parameter:	$EF_{grid,CM,y}$
Data unit:	tCO_2/MWh
Description:	Combined Margin CO2 emission factor ex-ante.
Source of data used:	Calculated bases on official data: • Latest IPCC Guidelines • CDEC-SIC • CNE official reports.
Value applied:	0.6451
Measurement:	Parameter fixed ex-ante in the CDM-PoA-DD. However for the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used. This option does not require monitoring the emission factor during the crediting period.
Any comment:	Calculation based on official data. Parameter fixed ex-ante in the "Biomass Renewable Energy Programme of Activities" Calculated following the procedures of the "Tool to calculate the emission factor for an electricity system" - Version 02.2.1.

B.5.2. Ex-ante calculation of emission reductions:

The emission reduction will be calculated depending in the selected baseline and project activity scenario of each particular CPA.

The emission reduction for the project activity is demonstrated by the following equation;

$$ER_y = BE_y - PE_y - LE_y \qquad (1)$$

Where:

ER_y = Emissions reductions in year *y* (tCO_2)

BE_y = Baseline emissions in year *y* (tCO_2)

PE_y = Project emissions in year *y* (tCO_2)

LE_y = Leakage emissions in year *y* (tCO_2)

[ER apply for all CPAs]

Table [XXX]. Emissions Reduction

Parameter	Value	Unit	Reference
ER_y	*[XXX]*	(tCO_2)	*[XXX]*
BE_y	*[XXX]*	(tCO_2)	*[XXX]*
PE_y	*[XXX]*	(tCO_2)	*[XXX]*
LE_y	*[XXX]*	(tCO_2)	*[XXX]*

Baseline Emissions

$$BE_y = EL_{BL,GR,y} \cdot EF_{EG,GR,y} + \sum_f FF_{BL,HG,y,f} \cdot EF_{FF,y,f} + EL_{BL,FF/GR,y} \cdot \min(EF_{EG,GR,y}, EF_{EG,FF,y}) + BE_{BR,y} \quad (2)$$

Where:

BE_y	=	Baseline emissions in year *y* (tCO_2)
$EL_{BL,GR,y}$	=	Baseline minimum electricity generation in the grid in year *y* (MWh)
$EF_{EG,GR,y}$	=	Grid emission factor in year *y* (tCO_2/MWh)
$FF_{BL,HG,y,f}$	=	Baseline fossil fuel demand for process heat in year *y* (GJ)
$EF_{FF,y,f}$	=	CO2 emission factor for fossil fuel type f in year y (tCO2/GJ)
$EL_{BL,FF/GR,y}$	=	Baseline uncertain electricity generation in the grid or on-site in year y (MWh)
$EF_{EG,FF,y}$	=	CO2 emission factor for electricity generation with fossil fuels at the project site in the baseline in year y (tCO2/MWh)
$BE_{BR,y}$	=	Baseline emissions due to disposal of biomass residues in year y (tCO2e)
y	=	Year of the crediting period
f	=	Fossil fuel type

[BE apply for all CPAs]

Table [XXX]. Baseline Emissions

Parameter	Value	Unit	Reference
BE_y	*[XXX]*	tCO_2e/yr	*[XXX]*
$EL_{BL,GR,y}$	*[XXX]*	(MWh)	*[XXX]*
$EF_{EG,GR,y}$	*[XXX]*	(tCO_2/MWh)	*[XXX]*
$FF_{BL,HG,y,f}$	*[XXX]*	(GJ)	*[XXX]*
$EF_{FF,y,f}$	*[XXX]*	(tCO2/GJ)	*[XXX]*
$EL_{BL,FF/GR,y}$	*[XXX]*	(MWh)	*[XXX]*
$EF_{EG,FF,y}$	*[XXX]*	(tCO2/MWh)	*[XXX]*
$BE_{BR,y}$	*[XXX]*	(tCO2e)	*[XXX]*

As described in the PoA-DD section E.6.2 and in the methodology, the following relevant steps have been followed to determine the baseline emissions

Step 1: Determine biomass availability, generation and capacity constraints, efficiencies and power emission factors in the baseline

[Provide calculation if it applies to the CPAs]

Step 1.1: Determine total baseline process heat generation

The amount of process heat that would be generated in the baseline in year *y* ($HC_{BL,y}$) is determined as the difference of the enthalpy of the process heat (steam or hot water) supplied to the process heat loads in the project activity minus the enthalpy of the feed-water, the boiler blow-down and any condensate return to the heat generators.

[Provide calculation if it applies to the CPAs]

Step 1.2: Determine total baseline electricity generation

$$EL_{BL,y} = EL_{PJ,gross,y} + EL_{PJ,imp,y} - EL_{PJ,aux,y} \quad (3)$$

Where:

$EL_{BL,y}$	=	Baseline electricity generation in year *y* (MWh)
$EL_{PJ,gross,y}$	=	Gross quantity of electricity generated in all power plants which are located at the project site and included in the project boundary in year *y* (MWh)
$EL_{PJ,imp,y}$	=	Project electricity imports from the grid in year *y* (MWh)
$EL_{PJ,aux,y}$	=	Total auxiliary electricity consumption required for the operation of the power plants at the project site in year *y* (MWh)
y	=	Year of the crediting period

[Provide calculation if it applies to the CPAs]

Step 1.3: Determine baseline capacity of electricity generation

$$CAP_{EG,total,y} = LOC_y \cdot \left[\sum_i \left(CAP_{EG,CG,i} \cdot LFC_{EG,CG,i} \right) + \sum_j \left(CAP_{EG,PO,j} \cdot LFC_{EG,PO,j} \right) \right] \quad (4)$$

Where:

$CAP_{EG,total,y}$	=	Baseline electricity generation capacity in year *y* (MWh)
$CAP_{EG,CG,i}$	=	Baseline electricity generation capacity of heat engine *i* (MW)
$CAP_{EG,PO,j}$	=	Baseline electricity generation capacity of heat engine *j* (MW)
$LFC_{EG,CG,i}$	=	Baseline load factor of heat engine *i* (ratio)
$LFC_{EG,PO,j}$	=	Baseline load factor of heat engine *j* (ratio)
LOC_y	=	Length of the operational campaign in year *y* (hour)

i = Cogeneration-type heat engine in the baseline scenario

j = Power-only-type heat engine in the baseline scenario

y = Year of the crediting period

[Provide calculation if it applies to the CPAs]

Step 1.4: Determine the baseline availability of biomass residues

$$BR_{B4,n,y} = P_y \cdot MAX\left\{\frac{BR_{HIST,n,x}}{P_x}; \frac{BR_{HIST,n,x-1}}{P_{x-1}}; \frac{BR_{HIST,n,x-2}}{P_{x-2}}\right\} \quad \textbf{(5)}$$

Where:

$BR_{B4,n,y}$ = Quantity of biomass residues of category n used in the project activity in year *y* for which the baseline scenario is B4: (tonne on dry-basis)

$BR_{HIST,n,x}$ = Quantity of biomass residues of category n used for power or heat generation at the project site in year x prior the date of submission of the PDD for validation of the project activity (tonnes on dry-basis) prior the date of submission of the PDD for validation of the project activity

P_y = Quantity of the main product of the production process (e.g. sugar cane, rice) produced in year *y* from plants operated at the project site

P_x = Quantity of the main product of the production process (e.g. sugar cane, rice) produced in year *x* from plants operated at the project site

y = Year of the crediting period

x = Last calendar year prior to the start of the crediting period for which data is already available at the date of submission of the PDD for validation

n = Biomass residue category

[Provide calculation if it applies to the CPAs]

Step 1.5: Determine the efficiencies of heat generators, and efficiencies and heat-to-power ratio of heat engines

[If it applies, CPAs should use one of the following options for the calculation of the efficiencies of heat generators, and efficiencies and heat-to-power ratio of heat engines:]

☐ **Option 1.** Default values.

☐ **Option 2:** Manufacturer's data.

☐ **Option 3:** Calculated with historical records. At least three calendar years prior to the date of submission of the CPA-DD to the PoA.

Step 1.6: Determination of the emission factor of on-site fossil fuel electricity generation with fossil fuels

[If it applies, CPAs should use one of the following options for the calculation of the efficiencies of heat generators, and efficiencies and heat-to-power ratio of heat engines:]

☐ **Option A:** Determine $EF_{EG,FF,y}$ with the latest approved version of the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption", using data from the three calendar years prior to the date of submission of the CPA-DD to the PoA.

☐ **Option B:** Default emissions factor.

Step 1.7: Determination of the emissions factor of grid electricity generation

$EF_{EG,GR,y}$ should be calculated using the latest approved version of the "Tool to calculate the emissions factor for an electricity system".

[Provide calculation if it applies to the CPAs]

Step 2: Determine the minimum baseline electricity generation in the grid

$$EL_{BL,GR,y} = \max\left(0, EL_{BL,y} - CAP_{EG,total,y}\right) \quad \textbf{(13)}$$

Where:

$EL_{BL,GR,y}$	=	Baseline minimum electricity generation in the grid in year *y* (MWh)
$EL_{BL,y}$	=	Baseline electricity generation in year *y* (MWh)
$CAP_{EG,total,y}$	=	Baseline electricity generation capacity in year *y* (MWh)
y	=	Year of the crediting period

[Provide calculation if it applies to the CPAs]

Step 3: Determine the baseline biomass-based heat and power generation

Step 3.1: Determine the baseline biomass-based heat generation

$$HG_{BL,BR,y} = \sum_{h}\sum_{n}\left(BR_{B4,n,h,y} \cdot NCV_{BR,n,y} \cdot \eta_{BL,HG,BR,h}\right) \quad \textbf{(14)}$$

Subject to,

$\sum_{h}\sum_{n} BR_{B4,n,h,y} = \sum_{n} BR_{B4,n,y}$, i.e. the biomass residues used in each heat generator should not exceed the total amount of biomass residues available. **(15)**

$\sum_{n}\left(BR_{B4,n,h,y}\cdot NCV_{BR,n,y}\cdot\eta_{BL,HG,BR,h}\right)\leq LOC_{y}\cdot CAP_{HG,h}\cdot LFC_{HG,h}$, i.e. the heat generation in each heat generator should not exceed the total capacity of the heat generator; **(16)**

Where:

$HG_{BL,BR,y}$	=	Baseline biomass-based heat generation in year *y* (GJ)
$BR_{B4,n,h,y}$	=	Quantity of biomass residues of category n used in heat generator h in year *y* with baseline scenario B4 (tonne on dry-basis)
$NCV_{BR,n,y}$	=	Net calorific value of biomass residue of category n in year *y* (GJ/tonne on dry-basis)
$\eta_{BL,HG,BR,h}$	=	Baseline biomass-based heat generation efficiency of heat generator *h* (ratio)
$BR_{B4,n,y}$	=	Quantity of biomass residues of category n used in the project activity in year *y* for which the baseline scenario is B4: (tonne on dry-basis)
LOC_{y}	=	Length of the operational campaign in year *y* (hour)
$CAP_{HG,h}$	=	Baseline capacity of heat generator *h* (GJ/h)
$LFC_{HG,h}$	=	Baseline load factor of heat generator *h* (ratio)
y	=	Year of the crediting period
h	=	Heat generator in the baseline scenario

[Provide calculation if it applies to the CPAs]

Step 3.2: Determine the baseline biomass-based cogeneration of process heat and electricity and heat extraction

$$EL_{BL,BR,CG,y}=\frac{1}{3.6}\cdot\sum_{i}\left(\frac{1}{(HPR_{BL,i}+1+GGL_{default})}\cdot HG_{BL,BR,CG,y,i}\right) \quad \textbf{(17)}$$

$$HC_{BL,BR,CG,y}=\sum_{i}\left(\frac{HPR_{BL,i}}{(HPR_{BL,i}+1+GGL_{default})}\cdot HG_{BL,BR,CG,y,i}\right) \quad \textbf{(18)}$$

Subject to,

$\sum_{i}HG_{BL,BR,CG,y,i}\leq HG_{BL,BR,y}$, i.e. the biomass-based heat used in cogeneration mode should not exceed the total biomass-based heat generated; **(19)**

$HC_{BL,BR,CG,y}\leq HC_{BL,y}$, i.e. the process heat cogenerated should not exceed the total process heat demand; **(20)**

$\left(\eta_{BL,EG,CG,i} \cdot HG_{BL,BR,CG,y,i}\right) \leq LOC_y \cdot CAP_{EG,CG,i} \cdot LFC_{EG,CG,i}$, i.e. the electricity generation in each heat engine should not exceed the total capacity of the heat engine. **(21)**

Where:

$EL_{BL,BR,CG,y}$	=	Baseline biomass-based cogenerated electricity in year *y* (MWh)
$\eta_{BL,EG,CG,i}$	=	Baseline electricity generation efficiency of heat engine *i* (MWh/GJ)
$HG_{BL,BR,CG,y,i}$	=	Baseline biomass-based heat used in heat engine *i* in year *y* (GJ)
$HC_{BL,BR,CG,y}$	=	Baseline biomass-based process heat cogenerated in year *y* (GJ)
$HPR_{BL,i}$	=	Baseline heat-to-power ratio of the heat engine *i* (ratio)
$GGL_{default}$	=	The default value for the losses linked to the electricity generator group (turbine, couplings and electricity generator. Set at 0.05) (ratio)
$HG_{BL,BR,y}$	=	Baseline biomass-based heat generation in year *y* (GJ)
$HC_{BL,y}$	=	Baseline process heat generation in year *y* (GJ)
LOC_y	=	Length of the operational campaign in year *y* (hour)
$CAP_{EG,CG,i}$	=	Baseline electricity generation capacity of heat engine *i* (MW)
$LFC_{EG,CG,i}$	=	Baseline load factor of heat engine *i* (ratio)
i	=	Cogeneration-type heat engine in the baseline scenario
y	=	Year of the crediting period

[Provide calculation if it applies to the CPAs]

If step 3.2 applies to the CPA, four cases are possible, depending on the outcomes of the calculations:

☐ **Case 3.2.1**

[If this case applies, proceed to Step 5]

☐ **Case 3.2.2**

[If this case applies, proceed to Step 4]

☐ **Case 3.2.3**

[If this case applies, proceed to Step 3.3]

☐ **Case 3.2.4**

☐ **Case 3.2.4.1**:*[If this case applies, proceed to Step 5]*

☐ **Case 3.2.4.2**: *[If this case applies, proceed to Step 4]*

☐ **Case 3.2.4.3**: *[If this case applies, proceed to Step 3.3]*

Step 3.3: Determine the baseline biomass-based electricity generated in power-only mode

$$EL_{BL,BR,PO,y} = \sum_{1} \left(HG_{BL,BR,PO,y,j} \cdot \eta_{BL,EG,PO,j} \right) \quad (22)$$

Subject to,

$\sum_{1} HG_{BL,BR,PO,y,j} \leq HG_{balance,BR,PO,y}$, i.e. the biomass-based heat used in the heat engines should not exceed the biomass-based heat balance; **(23)**

$\left(HG_{BL,BR,PO,y,j} \cdot \eta_{BL,EG,PO,j} \right) \leq LOC_{y} \cdot CAP_{EG,PO,j} \cdot LFC_{EG,PO,j}$, i.e. the electricity generation in each heat engine should not exceed the total capacity of the heat engine. **(24)**

Where:

$EL_{BL,BR,PO,y}$	=	Baseline biomass-based electricity (power-only) in year *y* (MWh)
$HG_{BL,BR,PO,y,j}$	=	Baseline biomass-based heat used in heat engine *j* in year *y* (GJ)
$\eta_{BL,EG,PO,j}$	=	Average electric power generation efficiency of heat engine *j* (MWh/GJ)
$HG_{balance,BR,PO,y}$	=	Baseline biomass-based heat balance after cogeneration in year *y* (GJ)
LOC_{y}	=	Length of the operational campaign in year *y* (hour)
$CAP_{EG,PO,j}$	=	Baseline electricity generation capacity of heat engine *j* (MW)
$LFC_{EG,PO,j}$	=	Baseline load factor of heat engine *j* (ratio)

If step 3.3 applies to the CPA, two cases are possible, depending on the outcomes of the calculations:

☐ **Case 3.3.1**

[If this case applies, proceed to Step 5]

☐ **Case 3.3.2**

[If this case applies, proceed to Step 5]

Step 4: Determine the baseline demand for fossil fuels to meet the balance of process heat and the corresponding electricity generation

Step 4.1: Determine the baseline fossil- fuel- based cogeneration of process heat and electricity and the remaining demand for process heat demand

$HG_{BL,FF,CG,y,i} = \frac{(HPR_{BL,i} + 1 + GGL_{default})}{HPR_{BL,i}} \cdot HC_{BL,FF,CG,y,i}$, i.e the amount of fossil fuel based heat required to supply the cogeneration heat engine i **(25)**

$EL_{BL,FF,y} = \sum_i \frac{HC_{BL,FF,CG,y,i}}{HPR_{BL,i}}$, i.e the amount of fossil fuel based electricity cogenerated by cogeneration heat engine i **(26)**

$$HG_{BL,FF,CG,y} = \sum_i HG_{BL,FF,CG,y,i} \quad \textbf{(27)}$$

Subject to,

$\sum_i HC_{BL,FF,CG,y,i} \leq HC_{balance,FF,y}$, i.e. the fossil fuel based cogenerated process heat should not exceed the balance of process heat demand, **(28)**

$$\frac{1}{3.6} \cdot \left((HG_{BL,FF,CG,y,i} + HG_{BL,BR,CG,y,i}) \cdot \frac{1}{(HPR_{BL,i} + 1 + GGL_{default})} \right) \leq LOC_y \cdot CAP_{EG,CG,i} \cdot LFC_{EG,CG,i} \quad \textbf{(29)}$$

Where:

$HG_{BL,FF,y,i}$	=	Baseline fossil-based heat used in heat engine *i* in year *y* (GJ)
$HC_{BL,BR,CG,y}$	=	Baseline biomass-based process heat cogenerated in year *y* (GJ)
$GGL_{default}$	=	The default value for the losses linked to the electricity generator group (turbine, couplings and electricity generator. Set at 0.05) (ratio)
$HPR_{BL,i}$	=	Baseline Heat Power Ratio of heat engine *i* (ratio)
$EL_{BL,FF,y}$	=	Baseline fossil-based electricity generation in year *y* (MWh)
$HG_{BL,FF,y,h}$	=	Baseline fossil-based heat generation in heat generator h in year *y* (GJ)
$HC_{balance,FF,y}$	=	Balance of process heat demand after cogeneration in year *y* (GJ)
$HG_{BL,FF,CG,y,i}$	=	Baseline fossil-fuel-based heat used in heat engine *i* in year *y* (GJ)
$HG_{BL,BR,CG,y,i}$	=	Baseline biomass-based heat used in heat engine *i* in year *y* (GJ)
LOC_y	=	Length of the operational campaign in year *y* (hour)
$CAP_{EG,CG,i}$	=	Baseline electricity generation capacity of heat engine *i* (MW)
$LFC_{EG,CG,i}$	=	Baseline load factor of heat engine *i* (ratio)
f	=	Fossil fuel type

y	=	Year of the crediting period
i	=	Cogeneration-type heat engine in the baseline scenario

[Provide calculation if it applies toy for the CPAs]

In case after step 4.1, $HC_{balance,FF,y} > HC_{BL,FF,CG,y}$, then there would still be process heat demand to be met. It is assumed then that this balance of process heat would be generated with fossil fuels and extracted from the heat header and used to meet the process heat demand without cogeneration of power until all baseline process heat is met.

$$HG_{BL,FF,DHE,y} = (HC_{balance,FF,y} - HC_{BL,FF,CG,y}) \cdot \frac{h_{HIGH,y}}{h_{LOW,y}} \quad \textbf{(30)}$$

$$HG_{BL,FF,y} = HG_{BL,FF,CG,y} + HG_{BL,FF,DHE,y} \quad \textbf{(31)}$$

Where:

$HC_{balance,FF,y}$	=	Balance of process heat demand after cogeneration in year *y* (GJ)
$HC_{BL,FF,CG,y}$	=	Baseline fossil-fuel-based process heat cogenerated in year *y* (GJ)
$h_{LOW,y}$	=	Specific enthalpy of the heat carrier at the process heat demand side (GJ/tonnes)
$h_{HIGH,y}$	=	Specific enthalpy of the heat carrier at the heat generator side (GJ/tonnes)
$HG_{BL,FF,y}$	=	Baseline fossil-based heat generation in year *y* (GJ)
$HG_{BL,FF,DHE,y}$	=	Baseline fossil-based heat used to meet baseline process heat demand via direct heat extraction in year y (GJ)
$HG_{BL,FF,CG,y}$	=	Baseline fossil-based heat cogeneration in year y (GJ)

[Provide calculation if it applies to the CPAs]

If step 4.1 applies to the CPA, two cases are possible, depending of the outcomes of the calculations:

☐ **Case 4.1.1**

[If this case applies, proceed to Step 4.2]

☐ **Case 4.1.2**

[If this case applies, proceed to Step 4.2]

Step 4.2: Determine the baseline heat generation to meet the fossil-based cogeneration of heat and power and the heat to meet the balance of process heat

$$\sum_{h} HG_{BL,FF,y,h} = HG_{BL,FF,DHE,y} + HG_{BL,FF,CG,y} \quad \textbf{(32)}$$

$$FF_{BL,HG,y,f} = \sum_{h} \left(\frac{HG_{BL,FF,y,h}}{\eta_{BL,HG,FF,h}} \right) \quad \textbf{(33)}$$

Subject to:

$HG_{BL,FF,y,h} \leq LOC_{y} \cdot CAP_{HG,h} \cdot LFC_{HG,h}$, i.e. the heat generation in each heat generator should not exceed the total capacity of the heat generator; **(34)**

Where:

$FF_{BL,HG,y,f}$	=	Baseline fossil fuel demand for process heat in year *y* (GJ)
$HG_{BL,FF,y,h}$	=	Baseline fossil-based heat generation in heat generator *h* in year *y* (GJ)
$\eta_{BL,HG,FF,h}$	=	Baseline fossil-based heat generation efficiency of heat generator *h* (ratio)
LOC_{y}	=	Length of the operational campaign in year *y* (hour)
$CAP_{HG,h}$	=	Baseline capacity of heat generator *h* (GJ/h)
$LFC_{HG,h}$	=	Baseline load factor of heat generator *h* (ratio)
$HG_{BL,FF,DHE,y}$	=	Baseline fossil-based heat used to meet baseline process heat demand via direct heat extraction in year y (GJ)
$HG_{BL,FF,CG,y}$	=	Baseline fossil-based heat cogeneration in year y (GJ)

[Provide calculation if it applies to the CPAs]

Step 5: Determine the baseline emissions due to uncontrolled burning or decay of biomass residues

$$BE_{BR,y} = BE_{BR,B1/B3,y} + BE_{BR,B2,y} \quad \textbf{(35)}$$

Where:

$BE_{BR,y}$	=	Baseline emissions due to disposal of biomass residues in year *y* (tCO_2e)
$BE_{BR,B1/B3,y}$	=	Baseline emissions due to aerobic decay or uncontrolled burning of biomass residues in year *y* (tCO_2)
$BE_{BR,B2,y}$	=	Baseline emissions due to anearobic decay of biomass residues in year *y* (tCO_2)

[Provide calculation if it applies to the CPAs]

Step 5.1: Determine $BE_{BR,B1/B3,y}$

$$BE_{BR,B1/B3,y} = GWP_{CH4} \cdot \sum_{n} BR_{B1/B3,n,y} \cdot NCV_{BR,n,y} \cdot EF_{BR,n,y} \quad \textbf{(36)}$$

Where:

$BE_{BR,B1/B3,y}$	=	Baseline emissions due to aerobic decay or uncontrolled burning of biomass residues in year *y* (tCO2)
GWP_{CH4}	=	Global Warming Potential of methane valid for the commitment period (tCO_2/tCH4)
$BR_{B1/B3,n,y}$	=	Quantity of biomass residues of category *n* used in the project activity in year *y* for which the baseline scenario is B1: or B3: (tonnes on dry-basis)
$NCV_{BR,n,y}$	=	Net calorific value of biomass residue of category *n* in year *y* (GJ/tonne on dry-basis)
$EF_{BR,n,y}$	=	CH_4 emission factor for uncontrolled burning of the biomass residues category *n* during the year *y* (tCH_4/GJ)
n	=	Biomass residue category

[Provide calculation if it applies to the CPAs]

Step 5.2: Determine $BE_{BR,B2,y}$

CPAs should calculate baseline emissions using the latest approved version of the "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site". The variable $BE_{CH4,SWDS,y}$ calculated by the tool corresponds to $BE_{BR,B2,y}$ in this methodology.

[Provide calculation if it applies to the CPAs]

Step 6: Calculate baseline emissions

Calculate baseline emissions using equation 2 above.

[Provide calculation if it applies to the CPAs]

Project emissions

CPAs should include the following emissions sources:

- Emissions from fossil fuel consumption at the project site for the generation of electric power and heat and for auxiliary loads related to the generation of electric power and heat;
- CO_2 emissions from grid-connected fossil fuel power plants in the electricity system for any electricity that is imported from the grid to the project site;
- If either $EL_{balance,PO,y} < EL_{BL,BR,PO,y}$ (Case 3.3.2) or $EL_{balance,FF,y} < EL_{BL,FF,y}$ (Case 4.2.2), CO_2 emissions from grid-connected fossil fuel power plants in the electricity system due to reduction in electricity generation at the project site as compared to the baseline scenario;
- CO_2 emissions from off-site transportation of biomass residues that are combusted in the project plant;

- If applicable, CH_4 emissions from combustion of biomass residues for electric power and heat generation at the project site;
- If applicable, emissions from anaerobic treatment of wastewater originating from the treatment of the biomass residues prior to their combustion.

Project emissions are calculated as follows:

$$PE_y = PE_{FF,y} + PE_{GR1,y} + PE_{GR2,y} + PE_{TR,y} + PE_{BR,y} + PE_{WW,y} + PE_{BG2,y} \quad \textbf{(37)}$$

Where:

PE_y = Project emissions in year *y* (tCO_2)

$PE_{FF,y}$ = Emissions during the year y due to fossil fuel consumption at the project site (tCO_2)

$PE_{GR1,y}$ = Emissions during the year y due to grid electricity imports to the project site (tCO_2)

$PE_{GR2,y}$ = Emissions due to a reduction in electricity generation at the project site as compared to the baseline scenario in year *y* (tCO_2)

$PE_{TR,y}$ = Emissions during the year y due to transport of the biomass residues to the project plant (tCO_2)

$PE_{BR,y}$ = Emissions from the combustion of biomass residues during the year *y* (tCO_2e)

$PE_{WW,y}$ = Emissions from wastewater generated from the treatment of biomass residues in year *y* (tCO_2e)

$PE_{BG2,y}$ = Emissions from the production of biogas in year *y* (tCO_2e)

Table [XXX]. Project Emissions

Parameter	Value	Unit	Reference
PE_y	*[XXX]*	(tCO_2)	*[XXX]*
$PE_{FF,y}$	*[XXX]*	(tCO_2)	*[XXX]*
$PE_{GR1,y}$	*[XXX]*	(tCO_2)	*[XXX]*
$PE_{GR2,y}$	*[XXX]*	(tCO_2)	*[XXX]*
$PE_{TR,y}$	*[XXX]*	(tCO_2)	*[XXX]*
$PE_{BR,y}$	*[XXX]*	(tCO_2)	*[XXX]*
$PE_{WW,y}$	*[XXX]*	(tCO_2)	*[XXX]*
$PE_{BG2,y}$	*[XXX]*	(tCO_2)	*[XXX]*

[Provide calculation if it applies to the CPAs]

Determination of PE_{FFy}

CPAs should include the following emissions sources for determining $PE_{FF,y}$:

- Emissions from on-site fossil fuel consumption for the generation of electric power and heat. This includes all fossil fuels used at the project site in heat generators (e.g. boilers) for the generation of electric power and heat; and
- Emissions from on-site fossil fuel consumption of auxiliary equipment and systems related to the generation of electric power and heat. This includes fossil fuels required for the operation of

auxiliary equipment related to the power and heat plants (e.g. for pumps, fans, cooling towers, instrumentation and control, etc.), which are not accounted in the first bullet, and fossil fuels required for the operation of equipment related to the preparation, storage and transportation of fuels (e.g. for mechanical treatment of the biomass, conveyor belts, driers, etc.).

PAs should use the latest approved version of the "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion" for calculate $PE_{FF,y}$.

[Provide calculation if it applies to the CPAs]

Determination of $PE_{GR1,y}$

If electricity is imported from the grid to the project site during a year *y*, corresponding emissions should be accounted for as project emissions, as follows:

$$PE_{GR1,y} = EF_{EG,GR,y} \cdot EL_{PJ,imp,y} \quad \textbf{(38)}$$

Where:

$PE_{GR1,y}$ = Emissions during the year *y* due to grid electricity imports to the project site (tCO_2)

$EL_{PJ,imp,y}$ = Project electricity imports from the grid in year *y* (MWh)

$EF_{EG,GR,y}$ = Grid emission factor in year *y* (tCO_2/MWh)

[Provide calculation if it applies to the CPAs]

Determination of $PE_{GR2,y}$

If $EL_{balance,PO,y} < EL_{BL,BR,PO,y}$ (Case 3.3.2) or $EL_{balance,FF,y} < EL_{BL,FF,y}$ (Case 4.2.2), the amount of electricity generated on-site in the baseline exceeds the amount of electricity generated in the project scenario. In such cases it is assumed that an equivalent amount of electricity is generated during year *y* in order to offset this reduction in electricity generation at the project site. Corresponding emissions should be accounted as project emissions as follows:

$$PE_{GR2,y} = EF_{EG,GR,y} \cdot EL_{PJ,offset,y} \quad \textbf{(39)}$$

Where:

$PE_{GR2,y}$ = Emissions due to a reduction in electricity generation at the project site as compared to the baseline scenario in year *y* (tCO_2)

$EF_{EG,GR,y}$ = Grid emission factor in year *y* (tCO_2/MWh)

$EL_{PJ,offset,y}$ = Electricity that would be generated in the baseline that exceeds the generation of electricity during year *y* (MWh)

[Provide calculation if it applies to the CPAs]

Determination of $PE_{TR,y}$

CPAs may choose between two different approaches to determine emissions:

☐ **Option 1:** Calculated on the basis of distance and the number of trips (or average truckload)

[Provide calculation if it applies to the CPAs]

☐ **Option 2:** Emissions are calculated based on the actual quantity of fossil fuels consumed for transport

[Provide calculation if it applies to the CPAs]

Determination of $PE_{BR,y}$

$$PE_{BR,y} = GWP_{CH4} \cdot EF_{CH4,BR} \cdot \sum_{n} BR_{PJ,n,y} \cdot NCV_{BR,n,y} \quad \textbf{(43)}$$

Where:

$PE_{BR,y}$ = Emissions from the combustion of biomass residues during the year *y* (tCO_2e)

GWP_{CH4} = Global Warming Potential of methane valid for the commitment period ($tCO_2/tCH4$)

$EF_{CH4,BR}$ = CH_4 emission factor for the combustion of biomass residues in the project plant (tCH_4/GJ)

$BR_{PJ,n,y}$ = Quantity of biomass residues of category n used in the project activity in year *y* (tonnes on dry-basis)

$NCV_{BR,n,y}$ = Net calorific value of biomass residue of category n in year *y* (GJ/tonne on dry-basis)

[Provide calculation if it applies to the CPAs

Determination of $PE_{WW,y}$

$$PE_{WW,y} = GWP_{CH4} \cdot V_{WW,y} \cdot COD_{WW,y} \cdot B_{o,WW} \cdot MCF_{WW} \quad \textbf{(44)}$$

Where:

$PE_{WW,y}$ = Emissions from wastewater generated from the treatment of biomass residues in year *y* (tCO_2e)

GWP_{CH4} = Global Warming Potential of methane valid for the commitment period (tCO_2/tCH_4)

$V_{WW,y}$ = Quantity of waste water generated in year *y* (m^3)

$COD_{WW,y}$ = Average chemical oxygen demand of the waste water in year *y* ($tCOD/m^3$)

$B_{o,WW}$ = Methane generation potential of the waste water ($tCH_4/tCOD$)

MCF_{WW} = Methane correction factor for the waste water (ratio)

[Provide calculation if it applies to the CPAs]

Determination of $PE_{BG2,y}$

No biogas production is considered in this PoA.

Leakage

$$LE_y = EF_{CO2,LE} \cdot \sum_n BR_{B5/B8,n,y} \cdot NCV_{BR,n,y} \quad \textbf{(45)}$$

Where:

LE_y = Leakage emissions in year *y* (tCO_2)

$EF_{CO2,LE}$ = CO_2 emission factor of the most carbon intensive fossil fuel used in the country (tCO_2/GJ)

$BR_{B5/B8,n,y}$ = Quantity of biomass residues of category n used in the project activity in year *y*, for which the baseline scenario is B5:, B6:, B7: or B8: (tonnes on dry-basis)

$NCV_{BR,n,y}$ = Net calorific value of biomass residue of category *n* in year *y* (GJ/tonne on dry-basis)

n = Biomass residue category

y = Year of the crediting period

[Provide calculation if it applies to the CPAs]

B.5.3. Summary of the ex-ante estimation of emission reductions:

Year	Estimation of project activity emissions (tonnes of CO_2 e)	Estimation of baseline emissions (tonnes of CO_2 e)	Estimation of leakage (tonnes of CO_2 e)	Estimation of overall emission reductions (tonnes of CO_2 e)
Year A	XXXX	XXXX	XXXX	XXXX
Year B	XXXX	XXXX	XXXX	XXXX
Year C	XXXX	XXXX	XXXX	XXXX
Year …	XXXX	XXXX	XXXX	XXXX
Total (tonnes of CO_2 e)	XXXX	XXXX	XXXX	XXXX

B.6. Application of the monitoring methodology and description of the monitoring plan:

B.6.1. Description of the monitoring plan:

The parameters to be monitored are listed in Section B.7.1. The Source of Data is ex-ante values currently applied for CERs estimation and shall be monitored ex-post during the crediting period.

A final monitoring plan will be prepared prior the initial verification based on the as-built project activity. It will address the following aspects:

Obligations of the CME

The CME is responsible for the development and implementation of the management and operational system for this CPA and will meet the requirements of the Monitoring Plan (MP). The monitoring plan details the necessary actions to monitor and record all the data parameters required by the applied methodology for the CPA. It will describe the management systems and procedures to be implemented by CME upon implementation of the CPA. Monitoring will be carried out by the site operators (or any third party, as relevant) at the site and CME will ensure consistency in monitoring, processing and reporting of data required for the calculation of emission reductions achieved by the CPA. The CME will act as overall supervisor of the CPA implementer and will carry out data checking of the monitored data by the CPA implementer, analyzing and preparing a monitoring report.

The CME will be in charge of communication with DOE during the verification. The CME may appoint a CDM consultant or any third party, as relevant, to perform the verification. The CPA implementer will be responsible for implementing appropriate operation and maintenance procedures to ensure the monitoring equipment meet the CDM requirements and to submit a periodic report on the monitored parameters to CME.

MONITORING PARAMETERS

[Only applicable parameters regarding the relevant project scenario shall be kept in the real case CPA-DD, and non-applicable parameters shall be removed]

Data / Parameter:	**Biomass residues categories and quantities used in the project activity**
Data unit:	- - Type: *[provide information if applied]* - Source: *[provide information if applied]* - Fate in the absence of the project activity (scenarios B): *[provide information if applied]* - Use in the project scenario (scenarios P): *[provide information if applied]* - Quantity (tonnes on dry-basis): *[provide information if applied]*
Description:	Explain and document transparently in the CDM-PDD, using a table similar to Table 2 of the methodology, which quantities of which biomass residues categories are used in which installation(s) under the project activity and what is their baseline scenario. The last column of Table 2 of the methodology corresponds to the quantity of each category of biomass residues (tonnes on dry-basis). These quantities should be updated every year of the crediting period as part of the monitoring plan so as to reflect the actual use of biomass residues in the project scenario. These updated values should be used for emissions reductions calculations. Along the crediting period, new categories of biomass residues (i.e. new types, new sources, with different fate) can be used in the project activity. In this case, a new line should be added to the table. If those new categories are of the type B1:, B2: or B3:, the baseline scenario for those types of biomass residues should be assessed using the procedures outlined in the guidance provided in the procedure for the selection of the baseline scenario and demonstration of additionality.
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	Data monitored continuously and aggregated as appropriate, to calculate

	emissions reductions
QA/QC procedures:	Crosscheck the measurements with an annual energy balance that is based on purchased quantities and stock changes
Any comment:	*[Provide information if applied]*

Data / Parameter:	**For biomass residues categories for which scenarios B1:, B2: or B3: is deemed a plausible baseline alternative, project participants shall demonstrate that this is a realistic and credible alternative scenario**
Data unit:	*XX*Tonnes
Description:	- Quantity of available biomass residues of type n in the region - Quantity of biomass residues of type n that are utilized (e.g. for energy generation or as feedstock) in the defined geographical region - Availability of a surplus of biomass residues type n (which can not be sold or utilized) at the ultimate supplier to the project and a representative sample of other suppliers in the defined geographical region
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	At the validation stage for biomass residues categories identified *ex-ante*, and always that new biomass residues categories are included during the crediting period
QA/QC procedures:	---
Any comment:	*[Provide information if applied]*

Data / Parameter:	**$BR_{PJ,n,y}$**
Data unit:	*XX*tonnes on dry-basis
Description:	Quantity of biomass residues of category n used in the project activity in year *y* (tonnes on dry-basis)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	Data monitored continuously and aggregated as appropriate, to calculate emissions reductions
QA/QC procedures:	Crosscheck the measurements with an annual energy balance that is based on purchased quantities and stock changes
Any comment:	*[Provide information if applied]*

Data / Parameter:	**$BR_{B4,n,y}$**
Data unit:	*XX*tonnes on dry-basis
Description:	Quantity of biomass residues of category n used in the project activity in year y for which the baseline scenario is B4: (tonne on dry-basis)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement	*[Insert appropriate description regarding to the specific situation of the CPA]*

procedures (if any):	
Monitoring frequency:	Data monitored continuously and aggregated as appropriate, to calculate emissions reductions
QA/QC procedures:	Crosscheck the measurements with an annual energy balance that is based on purchased quantities and stock changes
Any comment:	*[Provide information if applied]*

Data / Parameter:	**$BR_{B1/B3,n,y}$**
Data unit:	*XX*tonnes on dry-basis
Description:	Quantity of biomass residues of category n used in the project activity in year y for which the baseline scenario is B1: or B3: (tonnes on dry-basis)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	Data monitored continuously and aggregated as appropriate, to calculate emissions reductions
QA/QC procedures:	Crosscheck the measurements with an annual energy balance that is based on purchased quantities and stock changes
Any comment:	*[Provide information if applied]*

Data / Parameter:	**$BR_{B5/B8,n,y}$**
Data unit:	*XX*tonnes of dry matter
Description:	Quantity of biomass residues of category n used in the project activity in year y , for which the baseline scenario is B5:, B6:, B7: or B8: (tonnes on dry-basis)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	Data monitored continuously and aggregated as appropriate, to calculate emissions reductions
QA/QC procedures:	Crosscheck the measurements with an annual energy balance that is based on purchased quantities and stock changes
Any comment:	*[Provide information if applied]*

Data / Parameter:	**$BR_{TR,y}$**
Data unit:	*XX*tonnes on dry-basis
Description:	Quantity of biomass residues that has been transported to the project site during the year y (tonnes of dry matter)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	Data monitored continuously and aggregated as appropriate, to calculate emissions reductions
QA/QC procedures:	Crosscheck the measurements with an annual energy balance that is based on purchased quantities and stock changes
Any comment:	*[Provide information if applied]*

Data / parameter:	**$FC_{TR,f,y}$**
Data unit:	*XX*Mass or *XX*volume unit
Description:	Fuel consumption of fuel type f in trucks for transportation of biomass residues during the year y (mass or volume unit)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	Data monitored continuously and aggregated as appropriate, to calculate emissions reductions
QA/QC procedures:	Cross-checked the resulting CO_2 emissions for plausibility with a simple calculation based on the distance approach (option 1).
Any comment:	*[Provide information if applied]*

Data / Parameter:	**$EF_{km,y}$**
Data unit:	*XX*tCO_2/km
Description:	Average CO_2 emission factor for the trucks measured during the year y (tCO2/km)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	At least annually
QA/QC procedures:	Cross-check measurement results with emission factors referred to in the literature
Any comment:	*[Provide information if applied]*

Data / Parameter:	**$EF_{BR,n,y}$**
Data unit:	*XX*tCH_4/GJ
Description:	$EF_{BR,n,y}$ = CH_4 emission factor for uncontrolled burning of the biomass residues category n during the year y (tCH4/GJ)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	---
QA/QC procedures:	---
Any comment:	*[Provide information if applied]*

Data / Parameter:	**$EF_{FF,y,f}$**
Data unit:	*XX*tCO_2/GJ
Description:	CO_2 emission factor for fossil fuel type f in year y (tCO2/GJ)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	In case of measurements: At least every six months, taking at least three samples for each measurement In case of other data sources: Review the appropriateness of the data annually
QA/QC procedures:	Check consistency of measurements and local/national data with default values by the IPCC. If the values differ significantly from IPCC default

	values, possibly collect additional information or conduct measurements
Any comment:	*[Provide information if applied]*
Data / Parameter:	*EFCH4,BR*
Data unit:	*XX tCH4/GJ*
Description:	*CH4 emission factor for the combustion of biomass residues in the project plant (tCH4/GJ)*
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	*At least quarterly, taking at least three samples per measurement*
QA/QC procedures:	*Check the consistency of the measurements by comparing the measurement results with measurements from previous years, relevant data sources (e.g. values in the literature, values used in the national GHG inventory) and default values by the IPCC. If the measurement results differ significantly from previous measurements or other relevant data sources, conduct additional measurements*
Any comment:	*[Provide information if applied]*

Data / Parameter:	**$EF_{CO2,LE}$**
Data unit:	*XX*tCO_2/GJ
Description:	CO_2 emission factor of the most carbon intensive fossil fuel used in the country (tCO2/GJ)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	Annually
QA/QC procedures:	---
Any comment:	*[Provide information if applied]*

Data / Parameter:	**$HC_{BL,y}$**
Data unit:	*XX*GJ
Description:	Baseline process heat generation in year y (GJ)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	Calculated based on continuously monitored data and aggregated as appropriate, to calculate emissions reductions
QA/QC procedures:	---
Any comment:	To be determined individually in each CPA. If it is applicable.

Data / Parameter:	**$EL_{PJ,gross,y}$**
Data unit:	*XX*MWh
Description:	Gross quantity of electricity generated in all power plants which are located at the project site and included in the project boundary in year y (MWh)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*

Monitoring frequency:	Data monitored continuously and aggregated as appropriate, to calculate emissions reductions
QA/QC procedures:	The consistency of metered electricity generation should be cross-checked with receipts from electricity sales (if available) and the quantity of fuels fired (e.g. check whether the electricity generation divided by the quantity of fuels fired results in a reasonable efficiency that is comparable to previous years)
Any comment:	*[Provide information if applied]*

Data / Parameter:	$EL_{PJ,imp,y}$
Data unit:	*XX*MWh
Description:	Project electricity imports from the grid in year y (MWh)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	Data monitored continuously and aggregated as appropriate, to calculate emissions reductions
QA/QC procedures:	The consistency of metered electricity generation should be cross-checked with receipts from electricity purchases
Any comment:	*[Provide information if applied]*

Data / Parameter:	$EL_{PJ,aux,y}$
Data unit:	*XX*MWh
Description:	Total auxiliary electricity consumption required for the operation of the power plants at the project site in year y (MWh)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	Data monitored continuously and aggregated as appropriate, to calculate emissions reductions
QA/QC procedures:	The consistency of metered electricity generation should be cross-checked with receipts from electricity sales (if available) and the quantity of fuels fired (e.g. check whether the electricity generation divided by the quantity of fuels fired results in a reasonable efficiency that is comparable to previous years).
Any comment:	*[Provide information if applied]*

Data / Parameter:	$NCV_{BR,n,y}$
Data unit:	*XX*GJ/tonnes of dry matter
Description:	Net calorific value of biomass residue of category n in year y (GJ/tonne on dry-basis)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	At least every six months, taking at least three samples for each measurement.
QA/QC procedures:	Check the consistency of the measurements by comparing the measurement results with measurements from previous years, relevant data sources (e.g. values in the literature, values used in the national GHG inventory) and default values by the IPCC. If the measurement results differ significantly from previous measurements or other relevant data sources, conduct additional

	measurements. Ensure that the NCV is determined on the basis of dry biomass
Any comment:	*[Provide information if applied]*

Data / Parameter:	**$NCV_{FF,f,y}$**
Data unit:	*XX*GJ/mass or volume unit
Description:	Net calorific value of fossil fuel type f in year y (GJ/mass or volume unit)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	In case of measurements: At least every six months, taking at least three samples for each measurement In case of other data sources: Review the appropriateness of the data annually
QA/QC procedures:	Check consistency of measurements and local/national data with default values by the IPCC. If the values differ significantly from IPCC default values, possibly collect additional information or conduct measurements
Any comment:	*[Provide information if applied]*

Data / Parameter:	**$h_{LOW,y}$** **$h_{HIGH,y}$**
Data unit:	*XX*GJ/tonnes
Description:	$h_{LOW,y}$ = Specific enthalpy of the heat carrier at the process heat demand side (GJ/tonnes) $h_{HIGH,y}$ = Specific enthalpy of the heat carrier at the heat generator side (GJ/tonnes)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	Data monitored continuously and aggregated as appropriate, to calculate emissions reductions
QA/QC procedures:	---
Any comment:	*[Provide information if applied]*

Data / Parameter:	**Moisture content of the biomass residues**
Data unit:	*XX*% Water content in mass basis in wet biomass residues
Description:	Moisture content of each biomass residues type *k*
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	The moisture content should be monitored for each batch of biomass of homogeneous quality. The weighted average should be calculated for each monitoring period and used in the calculations
QA/QC procedures:	---
Any comment:	*[Provide information if applied]*

Data / Parameter:	**P_y**
Data unit:	*XX*Use suitable units, as appropriate

Description:	Quantity of the main product of the production process (e.g. sugar cane, rice) produced in year y from plants operated at the project site
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	Data aggregated as appropriate, to calculate emissions reductions
QA/QC procedures:	---
Any comment:	*[Provide information if applied]*

Data / Parameter:	N_y
Data unit:	*XX*
Description:	Number of truck trips for the transportation of biomass during the year y
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	Data monitored continuously and aggregated as appropriate, to calculate emissions reductions
QA/QC procedures:	Check consistency of the number of truck trips with the quantity of biomass combusted, e.g. by the relation with previous years
Any comment:	*[Provide information if applied]*

Data / Parameter:	AVD_y
Data unit:	*XX*Km
Description:	Average round trip distance (from and to) between the biomass residues fuel supply sites and the site of the project plant during the year y (km)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	Data monitored continuously and aggregated as appropriate, to calculate emissions reductions
QA/QC procedures:	Check consistency of distance records provided by the truckers by comparing recorded distances with other information from other sources (e.g. maps).
Any comment:	*[Provide information if applied]*

Data / Parameter:	TL_y
Data unit:	*XX*tonnes of dry matter
Description:	Average truck load of the trucks used during the year y
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	Data monitored continuously and aggregated as appropriate, to calculate emissions reductions
QA/QC procedures:	---
Any comment:	*[Provide information if applied]*

Data / Parameter:	$V_{ww,y}$
Data unit:	*XX*m^3

Description:	Quantity of waste water generated in year y (m^3)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	Data monitored continuously and aggregated as appropriate, to calculate emissions reductions
QA/QC procedures:	---
Any comment:	*[Provide information if applied]*

Data / Parameter:	**$COD_{WW,y}$**
Data unit:	*XX*tCOD/m^3
Description:	Average chemical oxygen demand of the waste water in year y (tCOD/m^3)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	In case of measurements: At least every six months, taking at least three samples for each measurement
QA/QC procedures:	---
Any comment:	*[Provide information if applied]*

Data / Parameter:	**$B_{o,WW}$**
Data unit:	*XX*tCH_4/tCOD
Description:	$B_{o,WW}$ = Methane generation potential of the waste water (tCH4/tCOD)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	---
QA/QC procedures:	---
Any comment:	*[Provide information if applied]*

Data / Parameter:	**MCF_{WW}**
Data unit:	*XX*ratio
Description:	Methane correction factor for the waste water (ratio)
Source of data:	Reference default values (IPCC)
Measurement procedures (if any):	*[Insert appropriate description regarding to the specific situation of the CPA]*
Monitoring frequency:	---
QA/QC procedures:	---
Any comment:	*[Provide information if applied]*

Data / Parameter:	**LOC_y**
Data unit:	*XX*Hour
Description:	Length of the operational campaign in year y (hour)
Source of data:	*[Insert appropriate description regarding to the specific situation of the CPA]*
Measurement	Record and sum the hours of operation of the project activity facilities during

procedures (if any):	year *y*.
Monitoring frequency:	---
QA/QC procedures:	---
Any comment:	*[Provide information if applied]*

DATA LOGGING AND STORAGE

The data measured by the instruments will be collected and stored in a data logging system. The data will be retrieved remotely by modem or directly on site.

If data cannot be retrieved, no emissions reductions will be claimed for the period of data failure. The data collected will be recorded in a central data base. Access to production data will be restricted. All records and data (hard copy and soft copy) will be archived up to two years after the end of the crediting period or the last issuance of CERs for this project activity whichever occurs later.

CALIBRATION AND MAINTENANCE PROCEDURES, MALFUNCTION OF EQUIPMENT

Maintenance includes all preventive and corrective actions necessary for the good functioning of the equipment, such as:
• Visual control of the equipment state and real-time check of displayed parameters,
• Cleaning up the equipment and the sensors,
• Adding lubricant,
• Replacement and change of defective parts.

Calibration of equipment consists in verifying, by comparison with a standard, the accuracy of a measuring instrument.

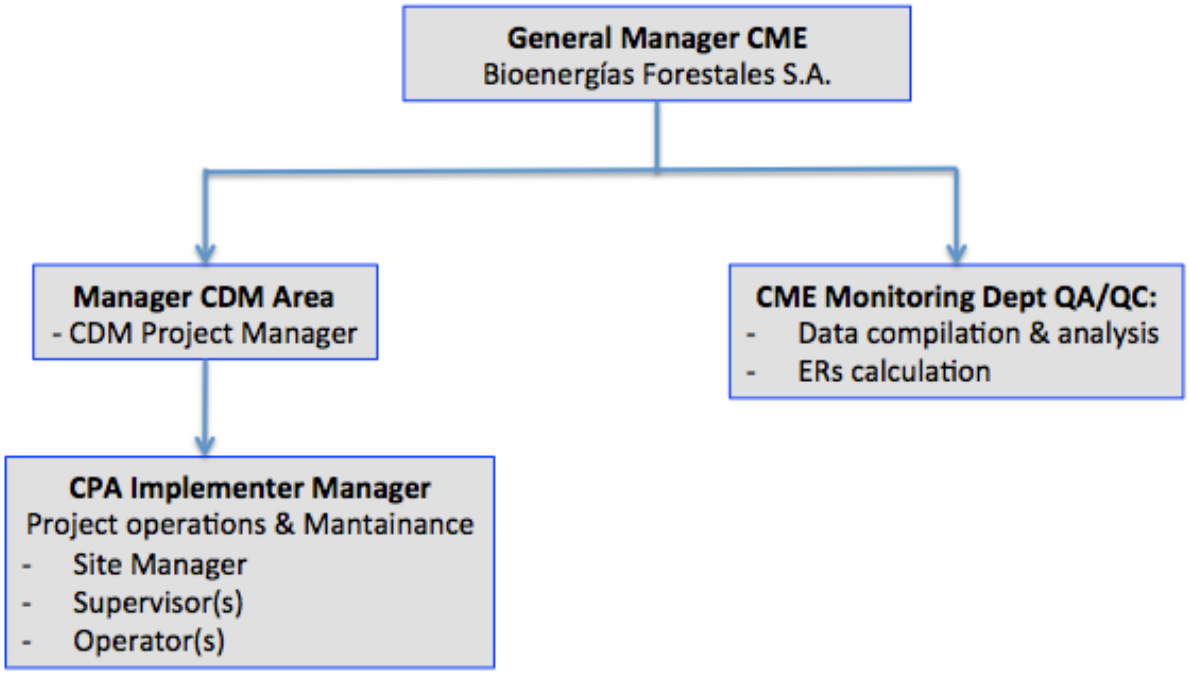
Measuring instruments will be periodically and appropriately calibrated according to the procedures, timing and methods recommended by the manufacturer, or national/international standards, as available.

General malfunction of equipment:
Daily inspections of the equipment will allow controlling equipment failure. If equipment fails, the supplier will be notified and repairs will be carried out. If the damaged equipment cannot be repaired, it will be replaced at the earliest. In some cases, portable tools will be used in order to carry out daily monitoring of the missing parameter(s). In such case, this data will be recorded manually.

Discrepancies:
To avoid discrepancies between projected data in the PDD and actual data (e.g. due to deferred starting date, malfunction of equipment), cross-checks between internal meter readings and external sources (e.g. electricity invoices) will be carried out. Any source of inconsistencies will be clarified.

OPERATIONAL AND MANAGEMENT STRUCTURE

The CDM monitoring team will be composed by the following staff:



[Edit diagram as require]

ROLES AND RESPONSIBILITIES OF PERSONNEL

The allocation of responsibility to ensure compliance with the monitoring requirement of the methodology is proposed here below (optimization will be performed during operation):

Table No. XX: Allocation of responsibility of personnel.

[Edit table as require]

Entity	Personnel	Tasks description
Bioenergías Forestales S.A	**CDM Project Manager**	- External audit - Monitoring report: management review of monitoring report (internal audit)
	Monitoring Department	- Processing of data and calculation of emission reductions
CPA implementer	**Operator**	- Recording of data - Identification of non-conformities
	Supervisor	- Ensuring adequate training of staff - Ensuring adequate maintenance
	Site Manager	- Ensuring adequate training of staff - Ensuring adequate maintance - Ensuring calibration of monitoring instruments - Data archiving: ensuring adequate

		storage of data monitored (integrity and backup) - Monitoring plan improvement - Emergency procedures (e.g. missing data)

TRAINING OF MONITORING PERSONNEL

The maintenance will be conducted in-house by staff employed and trained by the Project Participants. Employees involved in the monitoring will be trained internally and/or externally. Training may include *inter alia*:

a) Review of equipment and captors

b) Calibration requirement

c) Configuration of monitoring equipment

SECTION C. Environmental analysis

>>

C.1. Please indicate the level at which environmental analysis as per requirements of the CDM modalities and procedures is undertaken. Justify the choice of level at which the environmental analysis is undertaken:

☐ Please tick if this information is provided at the PoA level. In this case, sections C.2. and C.3. of this form need not be completed in this form.

The PoA requires environmental analysis carried out at the CPA level, as the nature of the individual CPA is unique and site specific.

C.2. Documentation on the analysis of the environmental impacts, including trans-boundary impacts:

[Insert an appropriate description regarding the specific situation of the CPA in terms of the analysis of environmental impacts, including trans-boundary impacts. Provide conclusions and references to all related decumentation.]

C.3. Please state whether, in accordance with the host Party laws/regulations, an environmental impact assessment is required for a typical CPA, included in the programme of activities (PoA),:

[Insert an appropriate description regarding the specific situation of the CPA in terms of the host Party laws/regulations, and environmental impact assessments]

SECTION D. Stakeholders' comments

>>

D.1. Please indicate the level at which local stakeholder comments are invited. Justify the choice:

☐ Please tick if this information is provided at the PoA level. In this case, sections D.2. to D.4. of this form need not be completed.

Stakeholder consultation has been done at PoA level, and also at CPA level so as to ensure that a wider group of stakeholders is reached.

D.2. Brief description how comments by local stakeholders have been invited and compiled:

[Insert an appropriate description regarding the specific situation of the CPA in terms of how comments by local stakeholders have been invited and compiled]

D.3. Summary of the comments received:

[Insert an appropriate description regarding the specific situation of the CPA in terms of a summary of comments received by local stakeholders]

D.4. Report on how due account was taken of any comments received:

[Insert an appropriate description regarding the specific situation of the CPA in terms of how due account was taken of any comments received from local stakeholders]

Annex 1

CONTACT INFORMATION ON ENTITY/INDIVIDUAL RESPONSIBLE FOR THE CPA

Organization:	*XXXX*
Street/P.O. Box:	*XXXX*
Building:	*XXXX*
City:	*XXXX*
State/Region:	*XXXX*
Postcodefix/ZIP:	*XXXX*
Country:	*XXXX*
Telephone:	*XXXX*
FAX:	*XXXX*
E-Mail:	*XXXX*
URL:	*XXXX*
Represented by:	*XXXX*
Title:	*XXXX*
TitlaSalutation:	*XXXX*
SurnameLast Name:	*XXXX*
Middle Name:	*XXXX*
First Name:	*XXXX*
Department:	*XXXX*
Mobile:	*XXXX*
Direct FAX:	*XXXX*
Direct tel.:	*XXXX*
Personal E-Mail:	*XXXX*

Annex 2

INFORMATION REGARDING PUBLIC FUNDING

No public funding is used to implement this CDM Programme of Activity (CPA).

Annex 3

BASELINE INFORMATION

Annex 4

MONITORING INFORMATION