Project design document form for CDM project activities

(Version 08.0)

Complete this form in accordance with the Attachment "Instructions for filling out the project design document form for CDM project activities" at the end of this form.

PROJECT DESIGN DOCUMENT (PDD)	
Title of the project activity	Biomass generation project, in Sheyang county, Jiangsu province, P.R. China
Version number of the PDD	5.2
Completion date of the PDD	01/08/2016
Project participant(s)	National Bio Energy Co., Ltd. (as the project owner) United Kingdom of Great Britain and Northern Ireland: Climate Change Capital Carbon Managed Account Limited (withdrawn as of 05/07/2016); Climate Change Capital Carbon Fund II s.à r.I. (withdrawn) Switzerland: Climate Change Capital Carbon Managed Account Limited (withdrawn as of 05/07/2016) (as the CER buyer)
Host Party	People's Republic of China
Applied methodology(ies) and, where applicable, applied standardized baseline(s)	ACM0018: "Electricity generation from biomass residues in power-only plants" (Version 03.0)
Sectoral scope(s) linked to the applied methodology(ies)	Sectoral Scope: 1 Energy industries (renewable- / non-renewable sources)
Estimated amount of annual average GHG emission reductions	121,281

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

>>

Biomass generation project, in Sheyang county, Jiangsu province, P.R. China (hereafter referred to as the proposed project) is located in West Economic Development Zone of Sheyang County, Yancheng city, Jiangsu Province, P.R.China. The proposed project is a newly-built generation project with local surplus biomass residues wood residues/cotton straw/cole straw/maize straw/rice straw/reed/wheat straw as fuel. The install capacity of this project is 30MW[1] with 130 t/h boiler. The annual biomass residues consumption are about 170,194.67 tons /25,175.05 tons /1.01 tons /19,386.04 tons /27,212.57 tons /16,392.39 tons /10,497.07 tonne for wood residues/cotton straw/cole straw/maize straw/rice straw/reed/wheat straw separately (in wet base), which are re-calculated from actual operation statistics in 2009/2010, and it is expected to deliver annually 188,488.80 MWh electricity to East China Power Grid (ECPG) of China.

The proposed project has been put into operation on Sep 3rd 2007, the GHG emission reductions are from two components. Firstly, it will substitute some electricity generation of ECPG dominated by fossil fuel power plants. Secondly, it will use local surplus biomass residues in high efficiency, which will reduce CH_4 emissions because the biomass is dumped or left to decay or burned in an uncontrolled manner in the absence of the proposed project. The estimated annual GHG emission reductions are 136,170 tCO_2e, and the total GHG emission reductions for the 2nd crediting period are 848,967 tCO_2e.

The existing scenario prior to the implementation of the proposed project is that the ECPG supplies the equivalent power generation, and the equivalent of biomass is dumped or left to decay under mainly aerobic conditions, as identified in the section B.4. The scenario existing prior to the implementation of the project activity is the same as the baseline scenario.

The proposed project makes good use of the renewable biomass residues as fuels for generation; it will produce positive economic and environmental benefits and contributes to the local sustainable development through following aspects:

- Utilizing the biomass residues for electricity generation, which will reduce a great deal of biomass residues dumped or left to decay or burned in an uncontrolled manner and released pollutants into atmosphere , and thus will prevent the negative influences improve local environment;
- To reduce the coal consumption and increase the supply of local power generation, which will alleviate power shortage and coal supply pressure in local area;
- To increase the income of local farmers because the biomass residues as fuel can be sold and bunt ash can be returned to cropland or produce fertilizer with positive environment effects;
- to create new 123 job opportunities for the generation plant operation and maintenance , and other job opportunities for the activities of straws collection, storage and transportation;
- To be helpful for advanced technology transfer to China since the key equipment of straw boiler will be made in China authorized by Denmark BWE Company; and the air cooled technology and high efficiency hop-pocket dust catcher are also introduced, which will promote such technology diffusion in China.

[1] Due to debugging failure in May of 2007, PO replaced the 25MW power generation unit (PGU) to be a new unit of capacity 30MW and re-installed in July.2007.

The project was put into trial operation in May of 2007, but the debugging is failing due to purchased 25 MW power generation unit, so, PO and Wuhan Steam Turbine Group Corporation agreed to replace the 25MW PGU to be a new unit of capacity 30MW and re-installed in July.2007. The new power generation unit was commissioned successfully on Sep 3rd.2007 and in normal operation status since the 2nd half of 2008.The project was registered at UNFCCC on 01/04/2008 and a revised PDD has been approved by EB on 17/05/2012.

The project is not a CPA that has been excluded from a registered CDM project PoA as a result of erroneous inclusion of CPAs.

A.2. Location of project activity

A.2.1. Host Party

>>

People’s Republic of China.

A.2.2. Region/State/Province etc.

>>

Jiangsu Province.

A.2.3. City/Town/Community etc.

>>

West Economic Development Zone of Sheyang County, Yancheng city

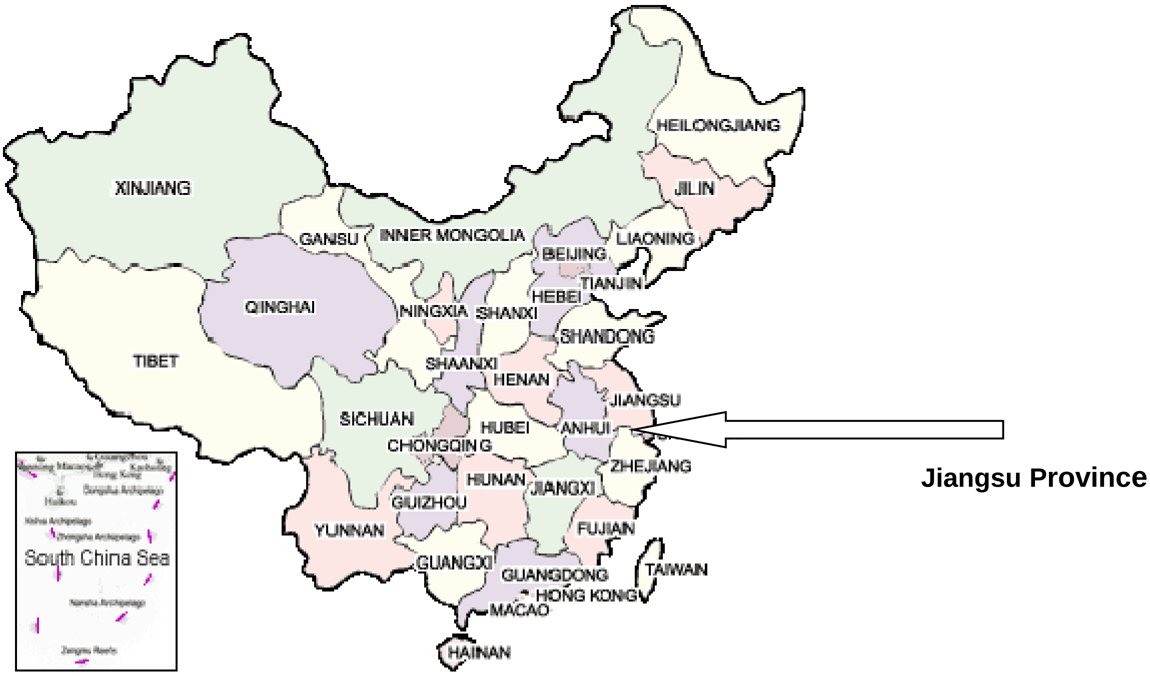
A.2.4. Physical/Geographical location

>>

The proposed project is located in West Economic Development Zone of Sheyang County, 3 kilometres to Sheyang county centre, 50 meters of its north is Xiaoyang River, and 6 kilometres to its west is the “Tongsan” free way under building.

The Sheyang County is located in Yancheng city, Jiangsu province. South of Sheyang County is bordered to Dafeng city, Yandu County and Yancheng city, west is adjoined to Jianhu county and Fuling County, north is Binhai County, east is Huang sea with 103 kilometres of coastline. The detailed location of the project is shown in figure 1.

The proposed project is located 33°46′03″ of north latitude and 120°10′57″ of east longitude.



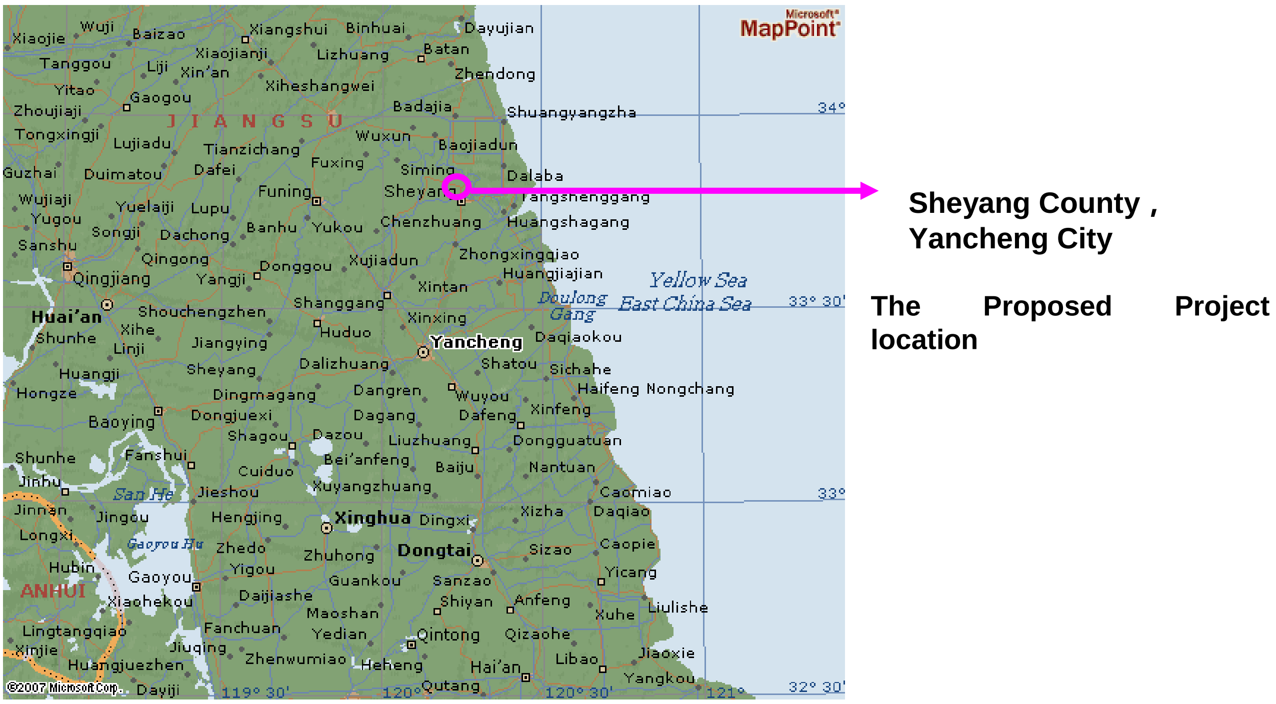


Figure 1: project location (Sheyang County, Yancheng city, Jiangsu province, P R. China)

A.3. Technologies and/or measures

>>

Prior to the start of the implementation of this greenfield project activity, the electricity would have been continuously generated by other power plants connected to ECPG, and the equivalent of biomass is dumped or left to decay under mainly aerobic conditions without utilizing it for energy purposes.

The proposed project makes good use of the biomass residues as fuels and has installed a 130 t/h water-cooling librated boiler with high temperature and high press made in China authorized by Denmark BWE Company, which has been operated successfully in Denmark for more than ten years. It can solve the boiler’s knot residue problem, and won’t block the smoke channel and will facilitate the boiler to carry heat.

At the same time in July.2007, the proposed project is assembled with replaced a N30-8.83-2 steam turbine and QF-30-2 generator domestically made in China, with the install capacity of 30MW. The lifetime of the key equipments is 30 years and the load factor is calculated as 188,488.80 MWh/30MW/8760h=71.72%.

The process of the proposed project is as follows: the biomass residues from the region's farmers or fodder brokers or collection stations will be collected. The biomass residues are transported to the power plant by trucks, then through the conveyer belt to the boiler, then biomass residues will be combustion and steam will be produced to generated electricity.

The boiler smoke will be treated by a high efficiency hop-pocket dust catcher, its removal rate will not less 99.5 percent. The ash residues will be returned to cropland as fertilizer.

The implement of the proposed project will facilitate to the related advanced technology transfer from developed countries to China.

A.4. Parties and project participants

Party involved (host) indicates host Party	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
People’s Republic of China (host)	National Bio Energy Co., Ltd.	No
United Kingdom of Great Brit ain and Northern Ireland	Climate Change Capital Carbo n Managed Account Limited (w ithdrawn as of 05/07/2016)	No
United Kingdom of Great Brit ain and Northern Ireland	Climate Change Capital Carbo n Fund II s.à r.l. (withdrawn)	No
Switzerland	Climate Change Capital Carbon Managed Account Limited (withdrawn as of 05/07/2016)	No

A.5. Public funding of project activity

>>

There is no public funding for the Project.

SECTION B. Application of selected approved baseline and monitoring methodology and standardized baseline

B.1. Reference of methodology and standardized baseline

>>

Approved consolidated Methodology ACM0018: Electricity generation from biomass residues in power-only plants, Version 03.0.

http://cdm.unfccc.int/methodologies/DB/DAZTTA5JRVU3J4W4PEFMT4ZOQW0DFM

Methodological Tool: "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" (Version 03.0.1).

https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-11-v3.0.1.pdf/history_view

Methodological Tool: "Tool to calculate the emission factor for an electricity system" (Version 5.0).

https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v5.0.pdf/history_view

Methodological Tool: "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion" (Version 02).

http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-03-v2.pdf/history_view

Methodological Tool: "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" (Version 02).

http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-05-v2.pdf/history_view

Methodological Tool: "Project and leakage emissions from transportation of freight" (Version 01.1.0).

http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-12-v1.1.0.pdf/history_view

B.2. Applicability of methodology and standardized baseline

>>

The approved revised PDD employed the baseline and monitoring methodology ACM0006 "Consolidated methodology for electricity and heat generation from biomass", which was restricted to power and heat projects due to the approval of a new consolidated methodology ACM0018 for power-only projects. As the Project is power generation only, instead of a cogeneration project, the lately developed methodology ACM0018 "Electricity generation from biomass residues in power-only plants" can be applied by the Project.

The approved consolidated baseline methodology: ACM0018 is applied here to determine the baseline of the proposed project. The project activity is a newly installed electricity capacity from biomass residues in the East China Power Grid. The proposed project activity includes the installation of a new power generation plant at a site where currently no power generation occurs. Therefore, it is a "greenfield" project.

Applicable conditions of the methodology ACM0018	The Project
The biomass residues used in the project activity may be produced on-site (e.g. if the project activity is based on the operation of a power plant located in an (agro-) industrial plant generating the biomass residues), or they can be obtained off-site from the nearby area, specific suppliers or purchased from a market.	The biomass residues in this project are the surplus biomass residues wood residues/cotton straw/cole straw/maize straw/rice straw/reed/wheat straw from local Sheyang county, Yancheng areas.
No other biomass types than biomass residues, as defined in the methodology, are used in the project plant.	Biomass from local surplus biomass residues wood residues/cotton straw/cole straw/maize straw/rice straw/reed/wheat straw in local Yancheng area, Jiangsu province will be the fuel in the project.
Fossil fuels may be co-fired in the project plant. However, the amount of fossil fuels co-fired shall not exceed 80 per cent of the total fuel fired (i.e. fossil fuels and biomass) on an energy basis.	Only a very little amount of fossil fuel will be used to help the startups of the boiler.
For the projects that use biomass residues from a production process (e.g. production of sugar or wood panel boards), the implementation of the project shall not result in an increase of the processing capacity of raw input (e.g. sugar, rice, longs, etc.) or in other substantial changes (e.g. product change) in this process.	The six types of biomass residues, i.e., cotton straw/cole straw/maize straw/rice straw/reed/wheat straw used by the proposed project are by-products of agriculture crops, not from a production process (e.g. production of sugar or wood panel boards); only some of the wood residues is collected from local woodwork factories through agents. According to the biomass residues purchase records, wood residues which is forestry waste is sold by 334 agents and the rest of wood residues comes from local woodwork factories is sold by 139 agents. All of the 139 agents who sold wood residues that comes from local woodwork factories have provided statement to prove that all the wood residues supplied by them is the biomass resides and do not result in any increase of processing capacity of raw input or in other substantial changes in the wood plate production process.
The biomass residues used by the project facility should not be stored for more than one year.	There is a biomass storage place at site of the proposed project, however, the storage time of the biomass is not meant to surpass half year. If the biomass is stored for more than a year, the NCV decreases to a level in which it becomes improper to be used as the fuel in the boiler of the project.

Projects that chemically process the biomass residues prior to combustion (e.g. by means of esterification, fermentation and gasification) are not eligible under this methodology. The biomass residues can however be processed physically such as by means of drying, pelletization, shredding and briquetting.	No chemical process is involved in the project prior to biomass residues combustion. The biomass residues however will be processed physically prior to combustion.
No power and heat plant operates at the project site during the crediting period.	No power and heat plant is operating at the project site now or during the crediting period.
If any heat which is generated for purposes other than power generation (e.g. heat which is produced in boilers or extracted from the header to feed thermal loads in the process) during the crediting period or was generated prior to the implementation of the project activity, by any on-site or off-site heat generation equipment connected to the project site, the following conditions should apply: a) The implementation of the project activity does not influence directly or indirectly the operation of the heat generation equipment, i.e. the heat generation equipment would operate in the same manner in the absence of the project activity. b) The heat generation equipment does not influence directly or indirectly the operation of the project plant(e.g. no fuels are diverted from the heat generation equipment to the project plant);	There is no heat generated by on site or off-site heat generation equipment connected to the project and used for purposes other than power generation. Also, there will be no heat generated during the crediting period and used for purpose other than power generation

and c) c) The amount of fuel used in the heat generation equipment can be monitored and clearly differentiated from any fuel used in the project activity.	
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 : a) The retrofit or replacement of existing heat generators/boilers; or b) The installation of new heat generators/boilers; or c) 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 would otherwise not be used for energy purposes); d) Equipment for preparation and feeing of biomass residues	The Project is not a fuel switch project activity.

As analysis in Section B.4 below, the baseline scenario for power generation is scenario P5 and B1 for use of biomass residues, either of which is one of the applicability condition for applying the ACM0018 (Version 03.0) for the Project.

Therefore, the ACM0018 (Version 03.0) is applicable to the Project.

B.3. Project boundary

The proposed project is a greenfield biomass residue fired cogeneration plant. The project installed 30MW steam turbine and generator. Local wood residues/cotton straw/cole straw/maize straw/rice straw/reed/wheat straw are used as fuel for power generation. Prior to the implementation of the Project, there was no power generation equipment operated at the project site. In the absence of the project, the same electricity generated by the project was supplied by the ECPG which the Project is connected to. According to ACM0018 (Version 03.0), the spatial extent of the Project boundary encompasses:

- The project activity power-only plant.
- All power plants connected physically to the ECPG.
- The trucks which transport biomass residues to the project site.
- The site where the biomass residues would have been left for decay or dumped.
- The biomass residues used in the proposed project only involve simple physical processing prior to combustion, and these processing equipments are also included in the project boundary. No waste water treatment facilities are used by the proposed project.

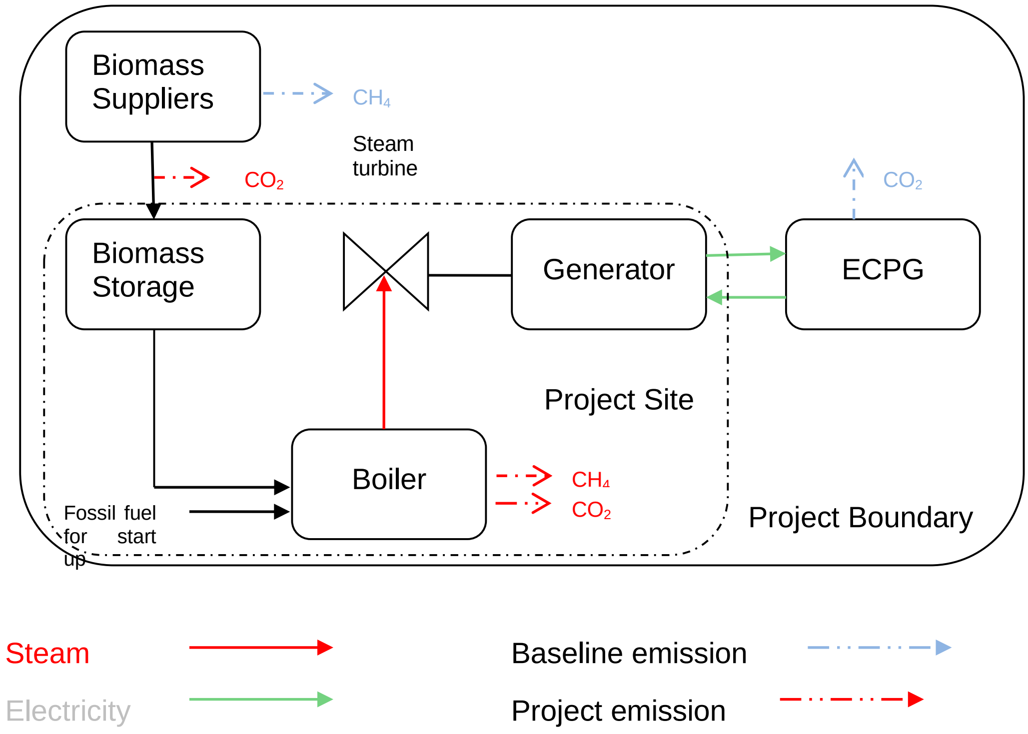


Table B-1 illustrates which emissions sources are included and which are excluded from the project boundary for determination of both baseline and project emissions.

Table B-1: Emission sources included in or excluded from the project boundary

Source		GHGs	Included ?	Justification/Explanation
Baseline scenario	Electricity generation	CO_2	Yes	Main emission source
		CH_4	No	Excluded for simplification. This is conservative
		N_2O	No	Excluded for simplification. This is conservative
	Uncontrolled burning or decay of surplus biomass residues	CO_2	No	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	Yes	B1 is the most likely baseline scenario
		N_2O	No	Excluded for simplification. This is conservative
Project scenario	On-site fossil fuel consumption	CO_2	Yes	May be an important emission source
		CH_4	No	Excluded for simplification. This emission source is assumed to be very small
		N_2O	No	Excluded for simplification. This emission source is assumed to be very small
	On-site and off-site transportation and processing of biomass residues	CO_2	Yes	May be an important emission source
		CH_4	No	Excluded for simplification. This emission source is assumed to be very small
		N_2O	No	Excluded for simplification. This emission source is assumed to be very small
	Combustion of biomass residues for electricity	CO_2	No	It is assumed that CO_2 emissions from surplus biomass do not lead to changes of carbon pools in the LULUCF sector
		CH_4	Yes	This emission source must be included if CH_4 emissions from uncontrolled burning or decay of biomass residues in the baseline scenario are included
		N_2O	No	Excluded for simplification. This emission source is assumed to be small
	Storage of biomass residues	CO_2	No	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	No	Excluded for simplification. Since biomass residues are stored for not longer than one year, this emission source is assumed to be small.
		N_2O	No	Excluded for simplification. This emissions source is assumed to be very small.
	Waste water from the treatment of biomass residues	CO_2	No	Based on the EIA report, there is no wastewater from the treatment of biomass residues, therefore, this emission sources is excluded.
		CH_4	No	Based on the EIA report, there is no wastewater from the treatment of biomass residues, therefore, this emission sources is excluded.
		N_2O	No	Based on the EIA report, there is no wastewater from the treatment of biomass residues, therefore, this emission sources is excluded.

B.4. Establishment and description of baseline scenario

>>

Version 08.0

The establishment and description of baseline scenario is illustrated in the approved revised PDD (Version 4.0) according to ACM0006 (version 04). The details of rational are demonstrated in section B.5.

The baseline scenario identified for power generation is:

P4: The generation of power in existing and/or new grid-connected power plants.

The baseline scenario identified for use of biomass is:

B1: The biomass residues are dumped or left to decay under mainly aerobic conditions. This applies for example, to dumpling and decay of biomass residues on fields.

B3: The biomass residues are burnt in an uncontrolled manner without utilizing it for energy purposes.

The above combination baseline scenario in the accepted revised PDD (Version 4.0) is corresponding to P5+B1/B3 in the applied methodology ACM0018, version 03.0.

For the second crediting period, the continued validity of the original baseline should be assessed. According to the "Methodological Tool: Assessment of the validity of the original/current baseline and update the baseline at the renewal of the crediting period" (version 03.0.1), the stepwise procedure as follows should be adopted to assess the continued validity of the baseline and to update the baseline at the renewal of a crediting period:

Step 1: Assess the validity of the current baseline for the next crediting period

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies

In China, the Renewable Energy Law has been put into effect since 2006, which encourages the development of renewable energy projects[2.] However, although renewable energy projects have been developed rapidly in recently years, grid connected power generation in China is still dominated by fossil-fuel power plants[3].

A Notice about Prohibiting to Burn Agricultural Straw in an Uncontrolled Manner was issued by Ministry of Agriculture of the People's Republic of China on 14/06/2007[4], and it is not eligible to burn biomass residues in an uncontrolled manner without any energy purpose. Therefore, the baseline scenario B3 (The biomass residues are burnt in an uncontrolled manner without utilizing it for energy purposes) is excluded.

Step 1.2: Assess the impact of circumstances

There are no new relevant national and/or sectoral policies and/or circumstances in the biomass power generating sector applicable to the Project Activity, in comparison to the time of the submission of the project activity for validation, which could impact the validity of the current baseline for the next crediting period.

Step 1.3: Assess whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.

The project activity consists of the implementation of biomass residues power plant where no

[2] http://www.gov.cn/ziliao/flfg/2005-06/21/content_8275.htm
[3] China Electric Power Yearbook 2013
[4] http://www.gov.cn/zwgk/2007-06/14/content_648934.htm

electricity and heat was generated prior to its implementation. In the absence of the CDM project activity, the project owner would not have constructed the plant and electricity would have been generated by other power plants connected to the grid, and biomass residues used in the project would have been dumped or left to decay mainly under aerobic conditions.

Therefore, this *sub-step* is not applicable since the identified baseline scenario at the validation of the project activity did not correspond to the *continuation of use of the current equipment(s) without any investment and, the projects proponents or third party (or parties) would undertake an investment later due, for example, to the end of the technical lifetime of the equipment(s) before the end of the crediting period or the availability of a new technology.*

Step 1.4: Assessment of the validity of the data and parameters

According to the "Methodological tool: *Assessment of the validity of the original/current baseline and update of the baseline at the renewal of a crediting period*" (Version 03.0.1), updates should be undertaken in the following cases:

• *Where IPCC default values are used, the values should be updated if any new default values have been adopted and published by the IPCC, for example, in guidelines for national GHG inventories, IPCC assessment report or special reports by the IPCC;*

• *Where emission factors, values or emission benchmarks are used and determined only once for the crediting period, they should be updated, except if the emission factors, values or emission benchmarks are based on the historical situation at the site of the project activity prior to the implementation of the project and cannot be updated because the historical situation does not exist anymore as a result of the CDM project activity.*

The values used for the calculation of $EF_{grid,OM,y}$,$EF_{grid,BM,y}$ *and* GWP_{CH4} are updated in the second crediting period.

Step 2: Update the current baseline and the data and parameters

Step 2.1: Update the current baseline

The baseline for the second crediting period has been updated based on the latest approved version of the ACM0018 (Version 03.0). This update was applied in the context of the sectoral policies and circumstances that is applicable at the time of requesting for renewal of the crediting period. More details for the updated baseline emissions for the second crediting period can be seen in section B.6.

Step 2.2: Update the data and parameters

Considering the changes on circumstances related to calculation of CO_2 emission factor and other relevant parameters, such as GWP_{CH4}, and the baseline emissions were reviewed in this second crediting period following the latest version of the *"Methodological Tool: Tool to calculate the emission factor for an electricity system"(Version 5.0)*. See sections B.6.1, B.6.2 and B.6.3 of this PDD.

B.5. Demonstration of additionality

>>

The additionality of the proposed project is demonstrated and assessed by the approved Tool for the Demonstration and Assessment of Additionality in the approved revised PDD (version 4.0).

B.6. Emission reductions

B.6.1. Explanation of methodological choices

>>

Emission reductions are calculated as follows:

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

Where:

ER_y	=	Emissions reductions during year *y* (t CO_2)
BE_y	=	Baseline emissions during year *y* (t CO_2)
PE_y	=	Project emissions during year *y* (t CO_2)
LE_y	=	Leakage emissions during year *y* (t CO_2)

Baseline emissions

As per ACM0018 (version 03.0), the baseline emissions are calculated as follows:

$$BE_y = BE_{EL,y} + BE_{BR,y} \quad (2)$$

Where:

BE_y	=	Baseline emissions during year *y* (t CO_2)
$BE_{EL,y}$	=	Baseline emissions due to generation of electricity in year *y* (t CO_2)
$BE_{BR,y}$	=	Baseline emissions due to uncontrolled burning or decay of biomass residues in year *y* (t CO_2e)

Baseline emissions are determined through the following steps:

Step 1: Determination of $BE_{EL,y}$

Baseline emissions from electricity generation are calculated based on the net quantity of electricity generated at the project site under the project scenario ($EG_{PJ,y}$) and a baseline emission factor ($EF_{BL,EL,y}$) which expresses the weighted average CO_2 intensity of electricity generation in the baseline, as follows:

$$BE_{EL,y} = EG_{PJ,y} \times EF_{BL,EL,y} \quad (3)$$

Where:

$BE_{EL,y}$	=	Baseline emissions due to generation of electricity in year *y* (t CO_2)
$EG_{PJ,y}$	=	Net 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)
$EF_{BL,EL,y}$	=	Emission factor for electricity generation in the baseline in year *y* (t CO_2/MWh)

Step 1.1: Determination of $EG_{PJ,y}$

The net quantity of electricity generated in all power plants which are located at the project site and included in the project boundary ($EG_{PJ,y}$) is determined as the difference between the gross electricity generation at the project site ($EG_{PJ,gross,y}$) and the auxiliary electricity consumption required for the operation of the power plants at the project site ($EG_{PJ,aux,y}$).

$$EG_{PJ,y} = EG_{PJ,gross,y} - EG_{PJ,aux,y} \qquad (4)$$

Where:

$EG_{PJ,y}$	=	Net 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)
$EG_{PJ,gross,y}$	=	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)
$EG_{PJ,aux,y}$	=	Total auxiliary electricity consumption required for the operation of the power plants at the project site (MWh)

According to ACM0018 (Version 03.0), it is assumed that transmission and distribution losses in the electricity grid are not influenced significantly by the project activity and are therefore not accounted for. However, PPs decide to voluntarily consider the transmission and distribution losses in the electricity grid, which is more conservative.

Therefore,

$$EG_{PJ,y} = EG_{facility,y} \qquad (5)$$

Where:

$EG_{facility,y}$	=	Quantity of net electricity generation supplied by the project plant/unit to the grid in year *y* (MWh), which is conservative

Step 1.2: Determination of $EF_{BL,EL,y}$

The electricity generated under the project activity could be generated in the baseline in three different ways, depending on the baseline scenario and the particular situation of the project activity:

a) Use of biomass residues at the project site. Electricity could be generated with biomass residues in power plants at the project site.

b) Use of fossil fuels at the project site. Electricity could be generated with fossil fuels in power plants at the project site.

c) Power generation in the electricity grid. Electricity could be generated by power plants in the electricity grid.

For some project types, electricity would be generated in the baseline by a combination of these three ways. Therefore, $EF_{BL,EL,y}$ is a weighted average baseline emission factor: It is determined based on each of the three ways electricity could be generated (grid, biomass residues, fossil

fuels), multiplied with its respective emission factor over the total amount of electricity produced in the baseline.

For the project activity, the project activity exports all electricity to the grid and no electricity would be produced at the project site in the baseline scenario.

ACM0018 gives an approach to calculated $EF_{BL,EL,y}$ as follows::

$$EF_{BL,EL,y} = \frac{EG_{BL,FF,y} \times EF_{BL,FF,y} + EG_{BL,grid,y} \times EF_{grid,CM,y} + EG_{BL,FF/grid,y} \times \mathrm{MIN}\left(EF_{BL,FF,y}, EF_{grid,CM,y}\right)}{EG_{BL,BR,y} + EG_{BL,FF,y} + EG_{BL,grid,y} + EG_{BL,FF/grid,y}} \quad (6)$$

Where:

$EF_{BL,EL,y}$	=	Emission factor for electricity generation in the baseline in year *y* (t CO_2/MWh)
$EG_{BL,BR,y}$	=	Amount of electricity that would be generated with biomass residues in power-only plants operated at the project site in the baseline in year *y* (MWh)
$EG_{BL,FF,y}$	=	Minimum amount of electricity that would be generated with fossil fuels at the project site in the baseline in year *y* (MWh)
$EG_{BL,grid,y}$	=	Minimum amount of electricity that would be generated by power plants in the electricity grid in the baseline in year *y* (MWh)
$EG_{BL,FF/grid,y}$	=	Amount of electricity that could be generated in the baseline either by power plants in the electricity grid or by power plants at the project site using fossil fuels in year *y* (MWh)
$EF_{grid,CM,y}$	=	Combined margin CO_2 emission factor for grid-connected electricity generation in year *y* (t CO_2/MWh)
$EF_{BL,FF,y}$	=	CO_2 emission factor for electricity generation with fossil fuels in power plant(s) at the project site in the baseline in year *y* (t CO_2/MWh)

In the following, first the amounts of electricity generated from the various sources in the baseline ($EG_{BL,BR,y}$, $EG_{BL,grid,y}$, $EG_{BL,FF,y}$ and $EG_{BL,FF/grid,y}$) are determined, taking into account the project configuration and the baseline scenario. Therefore, different cases have to be considered. Then the emission factors ($EF_{grid,CM,y}$ and $EF_{BL,FF,y}$) are determined.

Step 1.2.1 Determination of $EG_{BL,BR,y}$

In the baseline scenario for the project activity, there is no biomass residues would be used for electricity generation in power-only plants in the baseline. Therefore, according to ACM0018: $EG_{BL,BR,y} = 0$.

Step 1.2.2 Determination of $EG_{BL,FF,y}$

In the baseline scenario for the project activity, there is no fossil fuels would be used for electricity generation in the baseline scenario at the project site. Therefore, according to ACM0018: $EG_{BL,FF,y} = 0$.

Step 1.2.3 Determination of $EG_{BL,grid,y}$

In the baseline scenario for the project activity, the electricity supplied by the project will replace equivalent amount of electricity in the power grid. Therefore, according to ACM0018 (Version 03.0), $EG_{BL,grid,y} = EG_{PJ,y}$.

Step 1.2.4 Determination of $EG_{BL,FF/grid,y}$

$EG_{BL,FF/grid,y}$ represents the amount of electricity that could be generated in the baseline in the grid or at the project site using fossil fuels. $EG_{BL,FF/grid,y}$ corresponds to the remainder of electricity generation, i.e. the amount that exceeds the minimum amount of electricity that would be generated by power plants in the electricity grid ($EG_{BL,grid,y}$), the minimum amount of electricity that could be generated with fossil fuels at the project site ($EG_{BL,FF,y}$), and the amount of electricity that would be generated with biomass residues at the project site ($EG_{BL,BR,y}$). Accordingly, $EG_{BL,FF/grid,y}$ is calculated as follows:

$$EG_{BL,FF/grid,y} = EG_{PJ,y} - EG_{BL,BR,y} - EG_{BL,FF,y} - EG_{BL,grid,y} \quad (7)$$

Where:

$EG_{BL,FF/grid,y}$	=	Amount of electricity that could be generated in the baseline either by power plants in the electricity grid or by power plants at the project site using fossil fuels in year *y* (MWh)
$EG_{PJ,y}$	=	Electricity generated in power plants included in the project boundary in year *y* (MWh)
$EG_{BL,BR,y}$	=	Amount of electricity that would be generated with biomass residues in power-only plants operated at the project site in the baseline in year *y* (MWh)
$EG_{BL,FF,y}$	=	Minimum amount of electricity that would be generated with fossil fuels at the project site in the baseline in year *y* (MWh)
$EG_{BL,grid,y}$	=	Minimum amount of electricity that would be generated by power plants in the electricity grid in the baseline in year *y* (MWh)

According to the analysis from Step 1.2.1 to Step 1.2.3, the above function about be calculated as below:

$$EG_{BL,FF/grid,y} = EG_{PJ,y} - EG_{BL,BR,y} - EG_{BL,FF,y} - EG_{BL,grid,y} = EG_{PJ,y} - 0 - 0 - EG_{PJ,y} = 0$$

Step 1.2.5 Determination of $EF_{BL,FF,y}$

$EF_{BL,FF,y}$ should be determined using Option A or Option B below. If fossil fuel power plants were operated at the project site prior to the implementation of the project activity, either Option A or Option B can be used to determine $EF_{BL,FF,y}$. For new power plants that would be constructed at the project site in the baseline scenario, Option B should be used.

According to the analysis of baseline scenario in section B.4, the project is a newly built power-only project and no power plants were or would be operated at the project site prior to the implementation of the project in the baseline scenario, then it is not applicable.

Step 1.2.6 Determination of $EF_{grid,CM,y}$

$EF_{grid,CM,y}$ should be determined as the combined margin CO_2 emission factor for grid connected power generation in year *y*, calculated using the "Tool to calculate the emission factor for an electricity system, Version 5.0". The Tool is applied in the following six steps:

a) Step 1: Identify the relevant electricity systems;
b) Step 2: Choose whether to include off-grid power plants in the project electricity system (optional);
c) Step 3: Select a method to determine the operating margin (OM);
d) Step 4: Calculate the operating margin emission factor according to the selected method;
e) Step 5: Calculate the build margin (BM) emission factor;
f) Step 6: Calculate the combined margin (CM) emission factor.

This PDD uses the calculations published by the

The calculation of operating margin (OM), build margin (BM) and combined margin (CM) of the CCPG is done in the following steps:

Step 1: Identify the relevant electricity systems

In accordance with the "Methodology Tool: Tool to Calculate the Emission Factor for an Electricity System" (Version 5.0), the project electricity system of the project is identified according to the delineation of the project electricity system and connected electricity systems published by China's DNA[5] of P. R. China.

According to "2015 Baseline Emission Factors for Regional Power Grids in China" announced by Office of National Coordination Committee on Climate Change, National Development and Reform Commission (NDRC) of China (Chinese DNA) on 06/06/2016, ECPG is a regional power grid in China, which includes Jiangsu province, Zhejiang province, Anhui province, Fujian province, Shanghai. As the DNA of China (host country) has published a delineation of the project electricity system and connected electricity systems, these delineations should be used. Hence the electric power system defined by DNA of China is applied and the relevant electric power system of the project electricity system is ECPG[6].

The ECPG has imported electricity from the North China Power Grid (NCPG) and Central China Power Grid (CCPG). As per the methodological tool, referred to 2015 baseline emission factors for regional power grids in China, option (b), the simple Operating Margin emission factor of the electricity exporting grid, determined as described in Step 4 (a) was selected to calculate the CO_2 emission factor for net electricity imports from the NCPG and the CCPG by the ECPG.

Step 2. Choose whether to include off-grid power plants in the project electricity system

The following two options to calculate the operating margin and build margin emission factor can be chosen:
Option I: Only grid power plants are included in the calculation.
Option II: Both grid power plants and off-grid power plants are included in the calculation.

For the Project activity, option I is used to calculate the OM and BM emission factor.

Step 3. Select a method to determine the operating margin (OM)

---

[5] http://cdm.ccchina.gov.cn/Detail.aspx?newsId=61599&TId=19

[6] http://cdm.ccchina.gov.cn/archiver/cdmcn/UpFile/Files/Default/20160606120244478242.pdf

The calculation of the Operating Margin emission factor(s) ($EF_{grid,OM,y}$) is based on one of the following methods:

(a) Simple OM, or
(b) Simple adjusted OM, or
(c) Dispatch Data Analysis OM, or
(d) Average OM.

Of these, dispatch analysis, cannot be used, because dispatch data, let alone detailed dispatch data, are not available to the public or to the project participants. For the same reason, the simple adjusted OM methodology cannot be used.

The Simple OM method (a) is applicable if low-cost/must run resources constitute less than 50% of the total amount of power generation in the grid in five most recent years, and average OM method (d) is applicable only if low-cost/must run resources[7] constitute more than 50% of total amount of power generation in the grid.

From 2009 to 2013, in the composition of gross annual generation power for the ECPG, the ratio of power generated by hydropower and other low cost/compulsory resources is as following: 37.63% in 2009, 37.63% in 2010, 33.84% in 2011, 40.76% in 2012 and 42.16% in 2013, lower than 50%.[8] Based on these considerations, the OM has been calculated according to the Simple OM. Simple OM is appropriate because low cost/ must run resources that account for far less than 50% of the power generation in the CCPG in the most recent years.

For simple OM, the emission factor can be calculated using either of the two following data vintages:

- Ex ante option: If the *ex ante* option is chosen, the emission factor is determined once at the validation stage, thus no monitoring and recalculation of the emissions factor during the crediting period is required. For grid power plants, use a 3-year generation weighted average, based on the most recent data available at the time of submission of the CDM-PDD for validation, or
- Ex post option: If the *ex post* option is chosen, the emission factor is determined for the year in which the project activity displaces grid electricity, requiring the emission factor to be updated annually during monitoring. If the data required to calculate the emission factor for year y is usually only available later than six months after the end of year y, alternatively the emission factor of the previous year y-1 may be used. If the data is usually only available 18 months after the end of the year y, the emission factor of the year proceeding the previous year y-2 may be used. The same data vintage (y, y-1 or y-2) should be used throughout all crediting periods.

The Project employs “ex-ante” for its OM calculation.

<u>Step 4. Calculate OM emission factor according to the selected method</u>

The simple OM emission factor is calculated as the generation-weighted average CO_2 emissions per unit net electricity generation (tCO_2e/MWh) of all generating power plants serving the system, not including low-cost / must-run power plants / units. The “Tool to calculate the emission factor for an electricity system” (Version 5.0) offers two options for the calculating the Simple OM:

---

[7] Low operating cost and must run resources typically include hydro, geothermal, wind, low-cost biomass, nuclear and solar generation. If coal-fired power is obviously a must-run, it should also be included in this list, i.e. excluded from the set of plants.

[8] China Electric Power Yearbook, 2010-2014. China Energy Statistical Yearbook 2009-2014.

- Option A: Based on the net electricity generation and a CO_2 emission factor of each power unit, or
- Option B: Based on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system.

Option B can only be used if:

(a) The necessary data for Option A is not available; and
(b) Only nuclear and renewable power generation are considered as low-cost/must-run power sources and the quantity of electricity supplied to the grid by these sources is known; and
(c) Off-grid power plants are not included in the calculation (i.e., if Option I has been chosen in *Sub-Step 2*).

As the net electricity generation and a CO_2 emission factor of each power unit are not available in China, and the nuclear and renewable power generations are considered as low-cost/must-run power sources and the quantity of electricity supplied to the grid by these sources is known in china, at the same time, off-grid power plants are not included in the calculation. So the Project uses Option B for calculating the simple OM emission factor, as follows:

$$EF_{grid,OMsimple,y} = \frac{\sum_i FC_{i,y} \times NCV_{i,y} \times EF_{CO2,i,y}}{EG_y} \qquad (8)$$

Where:

$EF_{grid,OMsimple,y}$	= Simple operating margin CO_2 emission factor in year y (tCO_2/MWh)
$FC_{i,y}$	=Amount of fossil fuel type i consumed in the project electricity system in year y (mass or volume unit)
$NCV_{i,y}$	=Net Calorific Value (energy content) of fossil fuel type i in year y (GJ/mass or volume unit)
$EF_{CO2,i,y}$	=CO_2 emission factor of fossil fuel type i in year y (tCO_2/GJ)
EG_y	=Net electricity generated and delivered to the grid by all power sources serving the system, not including low-cost / must-run power plants / units, in year y (MWh)
i	=All fossil fuel types combusted in power sources in the project electricity system in year y, and
y	=Three most recent years for which data is available

The Operating Margin emission factors for 2011, 2012 and 2013 are calculated. The three-year average is calculated as a 3-year generation-weighted average of the emission factors. The Operating Margin emission factor of the baseline is calculated ex-ante and will not be renewed in the second crediting period of the project activity. The three-year average is calculated as a weighted average of the emission factors. The Operational Margin Emission Factor is 0.8112 tCO_2e/MWh.

<u>Step 5. Calculate the build margin (BM)emission factor</u>

According to the '*Tool to calculate the emission factor for an electricity system*', the sample group of power units *m* consists of:

(a) The set of five power units that have been built most recently, or
(b) The set of power capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently

Project participants should use the set of power units that comprises the larger annual generation.

However, in China it is very difficult to obtain the data of the five existing power plants built most

recently or the power plants capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that were built most recently. Taking notice of this situation, EB accepts the following deviation[9] in methodology application.

1) Capacity addition from one year to another is used as basis for determining the Build Margin, i.e. the capacity addition over 1-3 years, whichever results in a capacity addition that is closest to 20% of total installed capacity.
2) Use proportional weights that correlate to the distribution of installed capacity in place during the selected period above, using plant efficiencies and emission factors of commercially available best practice technology in terms of efficiency. It is suggested to use the efficiency level of the best technology commercially available in the provincial/regional or national grid of China, as a conservative proxy.

In terms of vintage of data, project participants can choose between one of the following two options:

Option 1. For the first crediting period, calculate the build margin emission factor ex-ante based on the most recent information available on units already built for sample group m at the time of CDM-PDD submission to the DOE for validation.

Option 2. For the first crediting period, the build margin emission factor shall be updated annually, ex-post, including those units built up to the year of registration of the project activity or, if information up to the year of registration is not yet available, including those units built up to the latest year for which information is available.

Option 1 is chosen for the Project and the BM keeps unchanged during the first crediting period.

The build margin emission factor is the generation-weighted average emission factor (tCO_2e/MWh) of all power units *m* during the most recent year y for which power generation data is available, calculated as follows:

$$EF_{grid,BM,y} = \frac{\sum_m EG_{m,y} \times EF_{EL,m,y}}{\sum_m EG_{m,y}} \quad (9)$$

Where:

$EF_{grid,BM,y}$ = Build margin CO_2 emission factor in year *y* (tCO_2/MWh)

$EG_{m,y}$ =Net quantity of electricity generated and delivered to the grid by power unit *m* in year *y* (MWh)

$EF_{EL,m,y}$ =CO_2 emission factor of power unit *m* in year *y* (tCO_2/MWh)

m =power units included in the build margin, and

y =most recent historical year for which power generation data is available

Since there is no way to separate the different generation technology capacities as fuel coal, fuel oil, fuel gas etc from thermal power based on the present statistical data, the following calculating measures will be taken:

- First, according to the statistical data of the most recent one year (Option B1), determine the ratio of CO_2 emissions produced by coal, oil and gas fuels consumption for power generation;
- Second, multiply this ratio by the respective emission factors based on (Option B2)

[9] This is in accordance with the “Request for guidance: Application of AM0005 and AMS-I.D. in China”, a letter from DNV to the Executive Board, dated 07/10/2005, available online at:
http://cdm.unfccc.int/UserManagement/FileStorage/6POIAMGYOEDOTKW25TA20EHEKPR4DM.This approach has been applied by several registered CDM projects using methodology ACM0002 so far.

commercially available best practice technology in terms of efficiency;

- Finally, this emission factor for thermal power is multiplied with the ratio of thermal power identified within the approximation for the latest 20% installed capacity addition to the grid. The result is the BM emission factor of the grid.

Detailed steps and formulas are as below:

First: Calculate the share of CO_2 emissions of the solid, liquid and gaseous fuels in total emissions respectively.

$$\lambda_{Coal} = \frac{\sum_{i \in COAL} FC_{i,m,y} \times NCV_{i,y} \times EF_{CO_2,i,y}}{\sum_{i} FC_{i,m,y} \times NCV_{i,y} \times EF_{CO_2,i,y}} \quad (10)$$

$$\lambda_{Gas} = \frac{\sum_{i \in gas} FC_{i,m,y} \times NCV_{i,y} \times EF_{CO_2,i,y}}{\sum_{i} FC_{i,m,y} \times NCV_{i,y} \times EF_{CO_2,i,y}} \quad (11)$$

$$\lambda_{oil} = \frac{\sum_{i \in oil} FC_{i,m,y} \times NCV_{i,y} \times EF_{CO_2,i,y}}{\sum_{i} FC_{i,m,y} \times NCV_{i,y} \times EF_{CO_2,i,y}} \quad (12)$$

Where:

$FC_{i,m,y}$ is the amount of fuel *i* consumed by relevant power unit m in year *y* (Mass or Volume unit)

$NCV_{i,y}$ is net calorific value (energy content) of fossil fuel type *i* (coal, oil and gas) in year *y* (GJ/Mass or Volume unit)

$EF_{CO_2,i,y}$ is CO_2 emission factor of fossil fuel type *i* (coal, oil and gas) in year *y*(tCO_2/GJ)

Coal, Oil and *Gas* is solid fuel, liquid fuel and gas fuel respectively

Second: Calculate the emission factor of the thermal power:

$$EF_{Thermal} = \lambda_{Coal} \times EF_{Coal,Adv} + \lambda_{Oil} \times EF_{Oil,Adv} + \lambda_{Gas} \times EF_{Gas,Adv} \quad (9)$$

While $EF_{Coal,Adv}$, $EF_{Oil,Adv}$ and $EF_{Gas,Adv}$ represent the emission factors of advanced coal-fired, oil-fired and gas-fired power generation technology, see detailed parameter and calculation in Annex 3.

Third: Calculate BM of the power grid:

$$EF_{grid,BM,y} = \frac{CAP_{Thermal}}{CAP_{Total}} \times EF_{Thermal} \quad (10)$$

Where CAP_{Total} represents the total newly-added capacity and $CAP_{Thermal}$ represents newly-added thermal power capacity.

λ are calculated on the basis of the weight of CO_2 emissions of each type of fuel in the total CO_2 emissions from thermal power. For details we refer to Annex 3.

With reference to the 2015 Baseline Emission Factors for Regional Power Grids in China issued by China's DNA, the Build Margin emission factor of the ECPG is 0.5945 tCO_2e/MWh.

Step 6. Calculate the combined margin emissions factor

The Baseline Emission Factor is calculated as a Combined Margin, using a weighted average of the Operating Margin and Build Margin.

$$EF_{grid,CM,y} = EF_{grid,OM,y} \times W_{om} + EF_{grid,BM,y} \times W_{BM} \quad (11)$$

The "Tool to calculate the emission factor for an electricity system" provides the following default weights during the second crediting period[10]: Operating Margin, W_{OM} = 0.25; Build Margin, W_{BM} = 0.75.

Thus, the combined margin grid Baseline Emission Factor is
0.8112*0.25 + 0.5945*0.75 = 0.648675 tCO_2e/MWh.

Step 2: Determination of baseline emissions due to uncontrolled burning or decay of biomass residues (*$BE_{BR,y}$*)

According to ACM0018 (Version 03.0) and analysis in Section B.4,

$$BE_{BR,y} = BE_{BR,B1/B3,y} \quad (12)$$

Where:

$BE_{BR,y}$	=	Baseline emissions due to uncontrolled burning or decay of biomass residues in year *y* (t CO_2)
$BE_{BR,B1/B3,y}$	=	Baseline emissions due to aerobic decay or uncontrolled burning of biomass residues in year *y* (t CO_2)

For the biomass residues categories, as described in the biomass residues categories table, for which the most likely baseline scenario is either that the biomass residues would be dumped or left to decay under mainly aerobic conditions (B1), or burnt in an uncontrolled manner without utilizing them for energy purposes (B3), baseline emissions are calculated assuming, for both scenarios (aerobic decay and uncontrolled burning), that the biomass residues would be burnt in an uncontrolled manner.

Baseline emissions are calculated by multiplying the quantity of biomass residues with the net calorific value and an appropriate emission factor, as follows:

$$BE_{BR,B1/B3,y} = GWP_{CH4} \times \sum_{n} BR_{n,B1/B3,y} \times NCV_{n,y} \times EF_{BR,n,y} \quad (13)$$

Where:

$BE_{BR,B1/B3,y}$	=	Baseline emissions due to aerobic decay or uncontrolled burning of biomass residues in year *y* (t CO_2)

[10] For the second and third crediting period: Operating Margin, W_{OM} = 0.25; Build Margin, W_{BM} = 0.75

GWP_{CH4}	=	Global warming potential of methane valid for the commitment period (t CO_2/t CH_4)
$BR_{n,B1/B3,y}$	=	Amount of biomass residues category *n* used in the project plant(s) included in the project boundary in year *y* for which B1 or B3 has been identified as the most plausible baseline scenario (tonnes on dry-basis)
$NCV_{n,y}$	=	Net calorific value of the biomass residues category *n* in year *y* (GJ/tonnes on dry-basis)
$EF_{BR,n,y}$	=	CH_4 emission factor for uncontrolled burning of the biomass residues category n during the year *y* (t CH_4/GJ)
n	=	Categories of biomass residues

To determine the CH_4 emission factor, project participants may undertake measurements or use referenced default values. In the absence of more accurate information, it is recommended to use 0.0027 t CH_4 per ton of biomass as default value for the product of $NCV_{n,y}$ and $EF_{BR,n,y}$.[11] Considering the uncertainty of the CH_4 emission factor ($EF_{BR,n,y}$) is greater than 100 per cent, a conservativeness factor of 0.73 is applied. Thus, emission factor of 0.001971 t CH_4/t biomass should be used.

Project emissions

Project emissions are calculated as follows:

$$PE_y = PE_{FF,y} + PE_{EL,y} + PE_{TR,y} + PE_{BR,y} + PE_{WW,y} \quad (14)$$

Where:

PE_y	=	Project emissions during year *y* (t CO_2e)
$PE_{FF,y}$	=	Emissions during the year *y* due to fossil fuel consumption (t CO_2)
$PE_{EL,y}$	=	Emissions during the year *y* due to electricity use off-site for the processing of biomass residues (t CO_2)
$PE_{TR,y}$	=	Emissions during the year *y* due to transport of the biomass residues to the project plant (t CO_2)
$PE_{BR,y}$	=	Emissions from the combustion of biomass residues during the year *y* (t CO_2e)
$PE_{WW,y}$	=	Emissions from waste water generated from the treatment of biomass residues in year *y* (t CO_2e)

[11] 2006 IPCC Guidelines, Volume 4, Table 2.5, default value for agricultural residues.

Determination of PE_{FFy}

The following emission sources should be included in determining $PE_{FF,y}$:

(a) Emissions from on-site fossil fuel consumption for the generation of electric power. This includes all fossil fuels used at the project site in heat generators (e.g. boilers) for the generation of electric power;

(b) Emissions from on-site fossil fuel consumption of auxiliary equipment and systems related to the generation of electric power. This includes fossil fuels required for the operation of auxiliary equipment related to the power plants (e.g. for pumps, fans, cooling towers, instrumentation and control, etc.) which are not accounted in the first bullet;

(c) Fossil fuels required for the operation of equipment related to the on-site or off-site preparation, storage, processing and transportation of fuels and biomass residues (e.g. for mechanical treatment of the biomass, conveyor belts, driers, pelletization, shredding, briquetting processes, etc.);

(d) If any fossilized or non-biodegradable materials are used in the processing of biomass residues and incorporated in the processed biomass residues (e.g. binders) then emissions arising from those materials should be accounted for when the processed biomass residues are combusted. For that purpose those materials should be deemed as fossil fuels. If net calorific values, carbon content and/or emission factors of those materials are available they should be used, otherwise the net calorific values, carbon content and/or emission factors of the most carbon intensive fossil fuel available in the country should be used.

As the Project will not co-fire fossil fuel and will not use any fossilized or non-biodegradable materials in the processing of biomass residues, only emission source c and emission source d listed above need to be considered.

As there is diesel consumption for the operation of equipment during biomass residues preparation and on-site transportation, only emission source c) should be considered for the Project.

“Methodological Tool: Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion” (Version 02) should be used to calculate $PE_{FF,y}$.

$$PE_{FF,y} = \sum_i FC_{i,j,y} \times COEF_{i,y} \quad (15)$$

Where:

$FC_{i,j,y}$	=	Is the quantity of fuel type i combusted in process j during the year y (mass or volume unit/yr)
$COEF_{i,y}$	=	Is the CO_2 emission coefficient of fuel type i in year y (tCO_2/mass or volume unit)
i	=	Are the fuel types combusted in process j during the year y

The CO_2 emission coefficient $COEF_{i,y}$ can be calculated using two options, depending on the availability of data on the fossil fuel type *i*. For the Project, necessary data of Option A are not available. Therefore, Option B is chosen to calculate $COEF_{i,y}$.

$$COEF_{i,y} = NCV_{i,y} \times EF_{CO2,i,y} \quad (16)$$

Where:

$NCV_{i,y}$ = Is the weighted average net calorific value of the fuel type i in year y (GJ/mass or volume unit)

$EF_{CO2,i,y}$ = Is the weighted average CO_2 emission factor of fuel type i in year y (tCO_2/GJ)

Determination of $PE_{EL,y}$

According to ACM0018 (Version 03.0), $PE_{EL,y}$ should account only for the off-site use of electricity, using "Methodological Tool: Tool to calculate baseline, project and/or leakage emissions from electricity consumption" (Version 01) as below:

The off-site electricity is imported from the grid, according to "Methodological Tool: Tool to calculate baseline, project and/or leakage emissions from electricity consumption" (Version 01), Option A1 (Calculate the combined margin emission factor of the applicable electricity system, using the procedures in the latest approved version of the "Tool to calculate the emission factor for an electricity system" (Version 05.0) is chosen for the $PE_{EL,y}$ calculation.

$$EF_{EL,j,y} = EF_{grid,CM,y} \quad (17)$$

$$PE_{EL,y} = \sum_{j} EC_{PJ,j,y} \times EF_{EL,j,y} \times (1 + TDL_{j,y}) \quad (18)$$

Where:

$EC_{PJ,j,y}$ = Quantity of electricity consumed by the project electricity consumption source *j* in year *y* (MWh/yr)

$EF_{EL,j,y}$ = Emission factor for electricity generation for source *j* in year *y* (tCO2/MWh)

$TDL_{j,y}$ = Average technical transmission and distribution losses for providing electricity to source *j* in year *y*

According to "Methodological Tool: Tool to calculate baseline, project and/or leakage emissions from electricity consumption"(Version 01),

$EF_{EL,j,y} = EF_{grid,CM,y} =$ 0.648675 (tCO_2e/MWh)

$TDL_{j,y} = 20\%$

Determination of $PE_{TR,y}$

"Methodological Tool: Project and leakage emissions from transportation of freight" (Version 01.1.0) gives two options for $PE_{TR,y}$ calculation: monitoring fuel consumption (Option A) or using conservative default values (Option B).

In this PDD, project participants choose Option B for $PE_{TR,y}$ calculation, therefore, $PE_{TR,y}$ are determined as follows:

$$PE_{TR,m} = \sum_{f} D_{f,m} \times FR_{f,m} \times EF_{CO2,f} \times 10^{-6} \quad (19)$$

Where:

$PE_{TR,m}$	=	Project emissions from road transportation of freight monitoring period *m* (t CO_2e)
$D_{f,m}$		Return trip distance between the origin and destination of freight transportation activity *f* in monitoring period *m* (km)
$FR_{f,m}$	=	Total mass of freight transported in freight transportation activity *f* in monitoring period *m* (t)
$EF_{CO2,f}$	=	Default CO_2 emission factor for freight transportation activity *f* (g CO_2/t km)
f	=	Freight transportation activities conducted in the project activity in monitoring period *m*

$PE_{TR,m}$ in the tool corresponds to the parameter $PE_{TR,y}$ in this methodology and the monitoring period *m* is one year.

Determination of $PE_{BR,y}$

$$PE_{BR,y} = GWP_{CH4} \times EF_{CH4,BR} \times \sum_{n} BR_{PJ,n,y} \times NCV_{n,y} \quad (20)$$

Where:

GWP_{CH4}	=	Global Warming Potential for methane valid for the relevant commitment period (t CO_2/t CH_4)
$EF_{CH4,BR}$	=	CH_4 emission factor for the combustion of biomass residues in the project plant (t CH_4/GJ)
$BR_{PJ,n,y}$	=	Quantity of biomass residues of category *n* used in power plants which are located at the project site and included in the project boundary in year *y* (tonnes on dry-basis/yr)
$NCV_{n,y}$	=	Net calorific value of the biomass residues category *n* in year *y* (GJ/tonnes on dry-basis)

IPCC default value is used to determine the CH_4 emission factor, according to the IPCC default value provided in ACM0018, the CH_4 emission factor of combustion of biomass of wood waste and other solid biomass residues is 0.03 tCH 4/TJ. Considering a conservativeness factor of 1.37, the CH4 emission factor in this PDD is taken as 0.0000411 tCH $_4$/GJ.

Determination of $PE_{WW,CH4,y}$

As there are no waste water treatment facilities, $PE_{WW,CH4,y}$ is not considered for the project activity.

Leakage

The main potential source of leakage for this project activity is an increase in emissions from fossil fuel combustion or other sources due to diversion of biomass residues from other uses to the project plant as a result of the project activity. Changes in carbon stocks in the LULUCF sector are expected to be insignificant since this methodology is limited to biomass residues, as defined in the

applicability conditions above. The baseline scenarios for biomass residues for which this potential leakage is relevant are B5, B6, B7 and B8. According to the analysis of baseline scenario in section B.4, the baseline for use of biomass residues is B1, which is the biomass residues are dumped or left to decay under mainly aerobic conditions. Therefore leakage effects do not need to be addressed according to consolidated methodology ACM0018, i.e. $L_y=0$ tCO_2e.

B.6.2. Data and parameters fixed ex ante

Data / Parameter	$EF_{grid,OM,y}$
Unit	tCO_2e/MWh
Description	The operating margin emission factor
Source of data	*2015 Baseline Emission Factors for Regional Power Grids in China*
Value(s) applied	0.8112
Choice of data or Measurement methods and procedures	The data obtained from the *2015 Baseline Emission Factors for Regional Power Grid in China* issued by China's DNA are reliable.
Purpose of data	Applied for calculating baseline emissions
Additional comment	-

Data / Parameter	$EF_{grid,BM,y}$
Unit	tCO_2e/MWh
Description	The building margin emission factor
Source of data	*2015 Baseline Emission Factors for Regional Power Grids in China*
Value(s) applied	0.5945
Choice of data or Measurement methods and procedures	The data obtained from the *2015 Baseline Emission Factors for Regional Power Grid in China* issued by China's DNA are reliable.
Purpose of data	Applied for calculating baseline emissions
Additional comment	-

Data / Parameter	$EF_{grid,CM,y}$
Unit	tCO_2e/MWh
Description	The combined margin emission factor
Source of data	*2015 Baseline Emission Factors for Regional Power Grids in China*
Value(s) applied	0.648675
Choice of data or Measurement methods and procedures	The data obtained from the *2015 Baseline Emission Factors for Regional Power Grid in China* issued by China's DNA are reliable.
Purpose of data	Applied for calculating baseline emissions
Additional comment	-

Data / Parameter	$GEN_{j,y}$

Unit	MWh
Description	Total power generation of province j of CCPG in year y
Source of data	*China Electric Power Yearbook* 2012~2014 edition
Value(s) applied	See Appendix 4 for details.
Choice of data or Measurement methods and procedures	The data obtained from the *China Electric Power Yearbook* issued by authorized entity in China are reliable.
Purpose of data	Applied for calculating OM
Additional comment	-

Data / Parameter	$r_{j,y}$
Unit	%
Description	Auxiliary electricity consumption rate of province j of CCPG in year y
Source of data	*China Electric Power Yearbook* 2012~2014 edition
Value(s) applied	See Appendix 4 for details.
Choice of data or Measurement methods and procedures	The data obtained from the *China Electric Power Yearbook* issued by authorized entity in China are reliable.
Purpose of data	Applied for calculating OM
Additional comment	-

Data / Parameter	$NCV_{i,y}$
Unit	TJ per mass or volume unit of fuel i
Description	Net caloric value of fuel i
Source of data	*China Energy Statistical Yearbook* 2014 edition
Value(s) applied	See Appendix 4 for details.
Choice of data or Measurement methods and procedures	The data obtained from the *China Energy Statistical Yearbook* issued by authorized entity in China are reliable.
Purpose of data	Applied for calculating OM and BM
Additional comment	-

Data / Parameter	$EF_{CO2,i,y}$
Unit	tC/TJ
Description	CO_2 emission factor per unit of energy of the fuel i
Source of data	*2006 IPCC Guideline for National Greenhouse Gas Inventories*
Value(s) applied	See Appendix 4 for details.
Choice of data or Measurement methods and procedures	The data obtained from *2006 IPCC Guideline for National Greenhouse Gas Inventories* are reliable.
Purpose of data	Applied for calculating OM and BM

Additional comment	-

Data / Parameter	$CAP_{j,y}$
Unit	MW
Description	Total installed capacity of province j of CCPG in year y
Source of data	*China Electric Power Yearbook* 2011~2014 edition
Value(s) applied	See Appendix 4 for details.
Choice of data or Measurement methods and procedures	The data obtained from the *China Electric Power Yearbook* issued by authorized entity in China are reliable.
Purpose of data	Applied for calculating BM
Additional comment	-

Data / Parameter	$CAP_{Thermal}$
Unit	MW
Description	The amount of the installed capacity of newly added fuel-fired power plants of the CCPG in the year 2010-2013
Source of data	*China Electric Power Yearbook* 2011~2014 edition
Value(s) applied	See Appendix 4 for details.
Choice of data or Measurement methods and procedures	The data obtained from the *China Electric Power Yearbook* issued by authorized entity in China are reliable.
Purpose of data	Applied for calculating BM
Additional comment	-

Data / Parameter	CAP_{Total}
Unit	MW
Description	The amount of incremental installed capacity of the CCPG in the year 2010-2013
Source of data	*China Electric Power Yearbook* 2011~2014 edition
Value(s) applied	See Appendix 4 for details.
Choice of data or Measurement methods and procedures	The data obtained from the *China Electric Power Yearbook* issued by authorized entity in China are reliable.
Purpose of data	Applied for calculating BM
Additional comment	-

Data / Parameter	$FC_{i,j,y}$
Unit	t or m^3
Description	Consumption of fuel i of province j of province j of CCPG in year y
Source of data	*China Energy Statistical Yearbook* 2012~2014 edition
Value(s) applied	See Appendix 4 for details.

Choice of data or Measurement methods and procedures	The data obtained from the *China Energy Statistical Yearbook* issued by authorized entity in China are reliable.
Purpose of data	Applied for calculating OM and BM
Additional comment	-

Data / Parameter	$FC_{adv,coal}$
Unit	gce/kWh
Description	Weighted average fuel consumption for power generation of top 16 sets of 600 MW~1,000 MW coal fired power generation units set up in 2013 (taken as efficiency level of the best technology commercially available in China)
Source of data	*2015 Baseline Emission Factors for Regional Power Grid in China* issued by China's DNA
Value(s) applied	292.3
Choice of data or Measurement methods and procedures	The data obtained from the *2015 Baseline Emission Factors for Regional Power Grid in China* issued by China's DNA are reliable.
Purpose of data	Applied for calculating BM
Additional comment	-

Data / Parameter	$FC_{adv,oil/gas}$
Unit	gce/kWh
Description	Weighted average fuel consumption for power generation of 390 MW oil/gas fired combined cycle power generation units (taken as efficiency level of the best technology commercially available in China)
Source of data	*2015 Baseline Emission Factors for Regional Power Grid in China* issued by China's DNA
Value(s) applied	232.3
Choice of data or Measurement methods and procedures	The data obtained from the *2015 Baseline Emission Factors for Regional Power Grid in China* issued by China's DNA are reliable.
Purpose of data	Applied for calculating BM
Additional comment	-

Data / Parameter	GWP_{CH4}
Unit	t CO_2e/t CH_4
Description	Global warming potential for methane valid for the relevant commitment period
Source of data	IPCC
Value(s) applied	25 for the second commitment period according to the decision 4/CMP.7. Shall be updated according to any future COP/MOP decisions.

Choice of data or Measurement methods and procedures	-
Purpose of data	Applied for calculating baseline emissions and project emissions
Additional comment	-

Data / Parameter	Biomass residues categories and quantities used for the selection of the baseline scenario selection and assessment of additionality
Unit	• Type ; • Source; • Fate in the absence of the project activity (Scenarios B); • Use in the project scenario (Scenarios P); • Quantity (tonnes on dry-basis)
Description	The quantities of biomass residues in each categories which are used with the installation of the project activity and their baseline scenarios
Source of data	Operation data according to the accepted revised PDD (Version 4.0)
Value(s) applied	

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 on dry-basis)**
1	Wood residues	Off-site from local farmers and retailers	Dumped (B1)	Electricity generation on-site (biomass-only boiler)	112,607.84
2	Cotton straw	Off-site from wholesalers and retailers	Dumped (B1)	Electricity generation on-site (biomass-only boiler)	18,363.38
3	Cole straw	Off-site from wholesalers and retailers	Dumped (B1)	Electricity generation on-site (biomass-only boiler)	0.78
4	Maize straw	Off-site from local farmers and retailers	Dumped (B1)	Electricity generation on-site (biomass-only boiler)	13,459.60
5	Rice straw	Off-site from local farmers and retailers	Dumped (B1)	Electricity generation on-site (biomass-only boiler)	21,004.52
6	reed	Off-site from local farmers and retailers	Dumped (B1)	Electricity generation on-site (biomass-only boiler)	12,560.49
7	Wheat straw	Off-site from local farmers and retailers	Dumped (B1)	Electricity generation on-site (biomass-only boiler)	8,484.10

Choice of data or Measurement methods and procedures	Operation data according to the accepted revised PDD (Version 4.0)
Purpose of data	Applied for calculating baseline emissions
Additional comment	-

B.6.3. Ex ante calculation of emission reductions
>>

B.6.3.1 Baseline emissions

B.6.3.1.1 Baseline emissions due to generation of electricity $BE_{EL,y}$

According to Section B.6.1, $EF_{BL,EL,y} = EF_{grid,CM,y}$= 0.648675 tCO_2e/MWh

$EG_{PJ,y}$ = 188,488.80 MWh

$BE_{EL,y} = EG_{PJ,y} \times EF_{BL,EL,y}$ = 188,488.80 MWh ×0.648675 tCO_2e/MWh = 122,267 tCO_2e

B.6.3.1.2 Baseline emissions due to uncontrolled burning or decay of biomass residues $BE_{BR,y}$

According to ACM0018 (Version 03.0), GWP_{CH4} = 25 t CO_2/t CH_4

$NCV_{n,y} \times EF_{BR,n,y}$ = 0.001971 t CH_4/ton

$\sum_n BR_{n,B1/B3,y}$ = 186,480.7 ton

$BE_{BR,B1/B3,y} = GWP_{CH4} \times \sum_n BR_{n,B1/B3,y} \times NCV_{n,y} \times EF_{BR,n,y}$

= 25 t CO_2/t CH_4 ×0.001971 t CH_4/ton×186,480.7 ton = 9,188 tCO_2e

$BE_y = BE_{EL,y} + BE_{BR,y}$ = 122,267 tCO_2e +9,188 tCO_2e = 131,455 tCO_2e

B.6.3.2 Project emissions

B.6.3.2.1 Determination of PE_{FFy}

The proposed project is estimated to consume 24t diesel a year, $FC_{i,j,y}$= 24 t

The $NCV_{diesel,y}$ is 43.3 GJ/t and $EF_{CO2,diesel,y}$is 0.0748tCO_2e/GJ as IPCC default value.

$PE_{FF,y} = \sum_i FC_{i,j,y} \times COEF_{i,y} = \sum_i FC_{i,j,y} \times (NCV_{i,y} \times EF_{CO2,i,y})$

= 24 t ×43.3 GJ/t ×0.0748tCO_2e/GJ = 78 tCO_2e

B.6.3.2.2 Determination of $PE_{EL,y}$

According to accepted revised PDD, $EC_{PJ,j,y}$ = 0 MWh

$EF_{EL,j,y} = EF_{grid,CM,y}$ = 0.648675 tCO_2e/MWh

$TDL_{j,y} = 20\%$

$PE_{EL,y} = \sum_j EC_{PJ,j,y} \times EF_{EL,j,y} \times (1 + TDL_{j,y})$ = 0 tCO_2e

B.6.3.2.3 Determination of $PE_{TR,y}$

$D_{f,m}$ =100 km

$FR_{f,m}$ = 268,858.8 t

$EF_{CO2,f}$ = 245 g CO_2 / t km for light vehicles, and this is conservative.

$$PE_{TR,m} = \sum_f D_{f,m} \times FR_{f,m} \times EF_{CO2,f} \times 10^{-6}$$

=100 km ×268,858.8t ×245 g CO_2 / t km ×10^{-6} = 6,588 tCO_2e

B.6.3.2.4 Determination of $PE_{BR,y}$

According to ACM0018 (Version03.0), GWP_{CH4} = 25 t CO_2/t CH_4

$EF_{CH4,BR}$ = 0.0000411 tCH_4/GJ

$BR_{PJ,1,y}$ =112,607.84 t, $BR_{PJ,2,y}$ = 18,363.38 t, $BR_{PJ,3,y}$ = 0.78 t, $BR_{PJ,4,y}$ =13,459.60 t, $BR_{PJ,5,y}$=21,004.52 t, $BR_{PJ,6,y}$=12,560.49 t, $BR_{PJ,7,y}$=8,484.10 t,

$NCV_{1,y}$ = 0.01908 TJ/t, $NCV_{2,y}$ = 0.01772 TJ/t, $NCV_{3,y}$ = 0.01856 TJ/t, $NCV_{4,y}$ = 0.01739 TJ/t, $NCV_{5,y}$ = 0.01661 TJ/t, $NC_{6,y}$ = 0.01734 TJ/t, $NCV_{7,y}$ = 0.01639 TJ/t

$PE_{BR,y} = GWP_{CH4} \times EF_{CH4,BR} \times \sum_n BR_{PJ,n,y} \times NCV_{n,y}$

= 25 t CO_2/t CH_4 ×0.0000411 tCH_4/GJ × (112,607.84 t × 0.01908 TJ/t +18,363.38 t × 0.01772 TJ/t +0.78 t × 0.01856 TJ/t +13,459.60 t ×0.01739 TJ/t +21,004.52 t ×0.01661 TJ/t +12,560.49 t ×0.01734+8,484.10 t ×0.01639 TJ/t) × 1000 = 3,508tCO_2e

$PE_y = PE_{FF,y} + PE_{EL,y} + PE_{TR,y} + PE_{BR,y} + PE_{WW,y}$

= 78 tCO_2e + 0 tCO_2e + 6,588 tCO_2e + 3,508 tCO_2e = 10,174 tCO_2e

B.6.3.3 Leakage

L_y=*0* tCO_2e

Emission reductions are calculated as follows:

$ER_y = BE_y - PE_y - LE_y$ = 131,455 tCO_2e - 10,174 tCO_2e - 0 tCO_2e = 121,281 tCO_2e

B.6.4. Summary of ex ante estimates of emission reductions

Year	Baseline emissions (t CO_2e)	Project emissions (t CO_2e)	Leakage (t CO_2e)	Emission reductions (t CO_2e)
01/04/2015-31/03/2016	131,455	10,174	0	121,281
01/04/2016-31/03/2017	131,455	10,174	0	121,281
01/04/2017-31/03/2018	131,455	10,174	0	121,281
01/04/2018-31/03/2019	131,455	10,174	0	121,281
01/04/2019-31/03/2020	131,455	10,174	0	121,281
01/04/2020-31/03/2021	131,455	10,174	0	121,281

01/04/2021-31/03/2022	131,455	10,174	0	121,281
Total	**920,185**	**71,218**	**0**	**848,967**
Total number of crediting years	7			
Annual average over the crediting period	131,455	10,174	**0**	121,281

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

Data / Parameter	Biomass residues categories and quantities used in the project activity
Unit	• Type; • Source; • Fate in the absence of the project activity (Scenario B); • Use in the project scenario (Scenario P); • Quantity (tonnes on dry-basis)
Description	Biomass residues categories and quantities used in the project activity
Source of data	On-site measurements

<table>
<tr><td>Value(s) applied</td><td>
<table>
<tr><th>Biomass residues category (k)</th><th>Biomass residues type</th><th>Biomass residues source</th><th>Biomass residues fate in the absence of the project activity</th><th>Biomass residues use in project scenario</th><th>Biomass residues quantity (tonnes on dry-basis)</th></tr>
<tr><td>1</td><td>Wood residues</td><td>Off-site from local farmers and retailers</td><td>Dumped (B1)</td><td>Electricity generation on-site (biomass-only boiler)</td><td>112,607.84</td></tr>
<tr><td>2</td><td>Cotton straw</td><td>Off-site from wholesalers and retailers</td><td>Dumped (B1)</td><td>Electricity generation on-site (biomass-only boiler)</td><td>18,363.38</td></tr>
<tr><td>3</td><td>Cole straw</td><td>Off-site from wholesalers and retailers</td><td>Dumped (B1)</td><td>Electricity generation on-site (biomass-only boiler)</td><td>0.78</td></tr>
<tr><td>4</td><td>Maize straw</td><td>Off-site from local farmers and retailers</td><td>Dumped (B1)</td><td>Electricity generation on-site (biomass-only boiler)</td><td>13,459.60</td></tr>
<tr><td>5</td><td>Rice straw</td><td>Off-site from local farmers and retailers</td><td>Dumped (B1)</td><td>Electricity generation on-site (biomass-only boiler)</td><td>21,004.52</td></tr>
<tr><td>6</td><td>reed</td><td>Off-site from local farmers and retailers</td><td>Dumped (B1)</td><td>Electricity generation on-site (biomass-only boiler)</td><td>12,560.49</td></tr>
<tr><td>7</td><td>Wheat straw</td><td>Off-site from local farmers and retailers</td><td>Dumped (B1)</td><td>Electricity generation on-site (biomass-only boiler)</td><td>8,484.10</td></tr>
</table>
</td></tr>
<tr><td>Measurement methods and procedures</td><td>Use weight meters. Adjust for the moisture content in order to determine the quantity of dry biomass</td></tr>
<tr><td>Monitoring frequency</td><td>Data monitored continuously.
The record will be reported and documented monthly. The electrical weight will be calibrated annually according to related national standards (JJG555-96, or JJG539-1997, or JJG14-1997, or JJG13-1997 etc). The accuracy of weight will be class of Ⅲ, or be subject to the above national standards.</td></tr>
<tr><td>QA/QC procedures</td><td>Cross-check the measurements with an annual energy balance that is based on purchased quantities and stock changes</td></tr>
<tr><td>Purpose of data</td><td>Applied for calculating baseline and project emissions.</td></tr>
<tr><td>Additional comment</td><td>-</td></tr>
</table>

Data / Parameter	For biomass residues categories for scenario B1 is deemed a plausible baseline alternative, project participants shall demonstrate that this is a realistic and credible alternative scenario
Unit	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	Surveys or statistics
Value(s) applied	See section B.2 for details
Measurement methods and procedures	-
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	-
Purpose of data	-
Additional comment	-

Data / Parameter	$BR_{n,B1/B3,y}$
Unit	tonnes on dry-basis
Description	Amount of biomass residues category *n* used in the project plant(s) included in the project boundary in year *y* for which B1 or B3 has been identified as the most plausible baseline scenario
Source of data	On-site measurements
Value(s) applied	See table below
Measurement methods and procedures	The weigh bridges (SCS/ZCS) will be operated by staffs appointed by the project company to be responsible for the record and monitor of biomass residues purchased and consumed in the project plant, and build biomass residues account rechecked by comparing with the purchase receipt and stock change record. The record will be reported and documented monthly. The weigh bridges will be calibrated annually according to national standard (for example: JJG 539-97). The accuracy of weight is III.
Monitoring frequency	Data monitored continuously and aggregated as appropriate
QA/QC procedures	Cross-check the measurements with an annual energy balance that is based on purchased quantities and stock changes

Biomass residues category (*k*)	**Biomass residues type**	**Biomass residues quantity (tonnes)**
1	Wood residues	112,607.84
2	Cotton straw	18,363.38
3	Cole straw	0.78
4	Maize straw	13,459.60
5	Rice straw	21,004.52
6	reed	12,560.49
7	Wheat straw	8,484.10

Purpose of data	Applied for calculating baseline emissions
Additional comment	The biomass residue quantities used should be monitored separately for (a) each type of biomass residue (e.g.) and each source (e.g. produced on-site, obtained from biomass residues suppliers, obtained from a biomass residues market, obtained from an identified biomass residues producer, etc.)

Data / Parameter	$EF_{CH4,BR}$
Unit	t CH_4/GJ
Description	CH_4 emission factor for the combustion of biomass residues in the project plant
Source of data	Default value in ACM0018 version 03.0
Value(s) applied	IPCC default value is used to determine the CH_4 emission factor, according to the IPCC default value provided in ACM0018, the CH_4 emission factor of combustion of biomass of wood waste is 30 kgCH_4/TJ. Considering a conservativeness factor of 1.37, the CH_4 emission factor in this PDD is taken as 0.0000411 tCH_4/GJ.
Measurement methods and procedures	-
Monitoring frequency	-
QA/QC procedures	-
Purpose of data	Applied for calculating project emissions
Additional comment	-

Data / Parameter	$EG_{facility,y}$
Unit	MWh
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year *y*
Source of data	On-site measurements
Value(s) applied	188,488.8
Measurement methods and procedures	This parameter will be continuously measured and monthly recorded. The relevant data will be kept during the crediting period and two years after. The net electricity delivered to the grid by the project will be calculated as follows: $EG_{facility,y} = EG_{PJ\ to\ GRID,y} - EG_{GRID\ to\ PJ,y} - EG_{backup}$, where $EG_{PJ\ to\ GRID,y}$ is the electricity delivered to the grid by the unit of the project, measured by main meters. $EG_{GRID\ to\ PJ,y}$ is the electricity consumed by the units from the grid, also measured through meter. EG_{backup} is measured by an meter connected with an emergence line to measure the electricity consumed by the project in case of emergence. The electricity meter will be operated by the power distribution company and adjusted according to relevant national standard including “Technical administrative code of electric energy metering” DL/T 448-2000, “Verification regulation of electric energy metering appliance” SD 109-83, “Electricity Law”, “Metrology law of the PR China”. The accuracy of the metering equipment is 0.5s. The metering equipment will be calibrated annually.

Monitoring frequency	Data monitored continuously and aggregated as appropriate
QA/QC procedures	The consistency of metered electricity generation should be cross-checked with receipts from electricity sales and the quantity of fuels fired
Purpose of data	Applied for calculating baseline emissions
Additional comment	-

Data / Parameter	$EC_{PJ,j,y}$
Unit	MWh
Description	Quantity of electricity consumed by the project electricity consumption source *j* in year *y*
Source of data	On-site measurements
Value(s) applied	0
Measurement methods and procedures	The electricity consumed for the preparation of the biomass residue in all collection stations is continuously measured by meters installed at the out-site collection stations. The electricity meter will be operated by the power distribution company and adjusted according to relevant national standard including “Technical administrative code of electric energy metering” DL/T 448-2000, “Verification regulation of electric energy metering appliance” SD 109-83, “Electricity Law”, “Metrology law of the PR China”. The accuracy of the metering equipment is 0.5s. The metering equipment will be calibrated annually.
Monitoring frequency	Continuously
QA/QC procedures	The consistency of metered electricity generation should be cross-checked with receipts from electricity sales and the quantity of fuels fired.
Purpose of data	Applied for calculating project emissions
Additional comment	-

Data / Parameter	$TDL_{j,y}$
Unit	-
Description	Average technical transmission and distribution losses for providing electricity to source *j* in year *y*
Source of data	“Methodological Tool: Tool to calculate baseline, project and/or leakage emissions from electricity consumption” (Version 01)
Value(s) applied	20%
Measurement methods and procedures	Any future revision of the “Methodological Tool: Tool to calculate baseline, project and/or leakage emissions from electricity consumption” should be taken into account
Monitoring frequency	Annually.
QA/QC procedures	-
Purpose of data	Applied for calculating project emissions
Additional comment	-

Data / Parameter	$FC_{i,j,y}$
Unit	Mass or volume unit per year (e.g. ton/yr or m^3/yr)
Description	Quantity of fuel type i combusted in process j during the year y
Source of data	On-site measurements

Value(s) applied	Diesel:24 ton/yr
Measurement methods and procedures	Use flow meter
Monitoring frequency	Continuously
QA/QC procedures	Cross-check the measurements with an annual energy balance that is based on purchased quantities and stock changes. The quantity shall be cross-checked with the quantity of fuel purchase receipts and stock changes. The volume quantity of diesel will be multiplied by density of diesel ρ_{diesel} to get the mass quantity of diesel. Where the purchased fuel invoices can be identified specifically for the CDM project, the metered fuel consumption quantities should also be cross-checked with available purchase invoices from the financial records. The accuracy of the flow meter(s) should be in line with national standard. The flow meter(s) will be calibrated periodically by qualified third party(ies) in line with national standard.
Purpose of data	Applied for calculating project emissions
Additional comment	-

Data / Parameter	ρ_{diesel}
Unit	kg/liter
Description	Density of diesel
Source of data	The national standard "automobile diesel fuel GB 19147-2013" or other equivalent /substitutional standards
Value(s) applied	0.85
Measurement methods and procedures	-
Monitoring frequency	-
QA/QC procedures	Default value from national standards will be used and reviewed as appropriate
Purpose of data	Applied for calculating project emissions
Additional comment	-

Data / Parameter	$NCV_{i,y}$
Unit	GJ/mass or volume unit
Description	Net calorific value of the fossil fuel type i in year y
Source of data	IPCC default values at the upper limit of the uncertainty at a 95% confidence interval as provided in Table 1.2 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories
Value(s) applied	Diesel: 43.3
Measurement methods and procedures	-
Monitoring frequency	Any future revision of the IPCC Guidelines should be taken into account
QA/QC procedures	-

Purpose of data	Applied for calculating project emissions
Additional comment	-

Data / Parameter	$EF_{FF,y,f}$
Unit	tCO_2e/GJ
Description	CO2 emission factor for fossil fuel type *i* in year *y*
Source of data	IPCC default values at the upper limit of the uncertainty at a 95% confidence interval as provided in Table 1.2 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories
Value(s) applied	Diesel: 0.0748
Measurement methods and procedures	-
Monitoring frequency	Any future revision of the IPCC Guidelines should be taken into account
QA/QC procedures	-
Purpose of data	Applied for calculating project emissions
Additional comment	-

Data / Parameter	$D_{f,m}$
Unit	km
Description	Return trip distance between the origin and destination of freight transportation activity *f* in monitoring period *m*
Source of data	Records of vehicle operator or records by project participants
Value(s) applied	100
Measurement methods and procedures	-
Monitoring frequency	Determined once for each freight transportation activity *f* for a reference trip using the vehicle odometer or any other appropriate sources. To be updated whenever the road distance changes.
QA/QC procedures	-
Purpose of data	Applied for calculating project emissions
Additional comment	-

Data / Parameter	$FR_{f,m}$
Unit	tonnes
Description	Total mass of freight transported in freight transportation activity *f* in monitoring period *m*
Source of data	Records by project participants or records by truck operators
Value(s) applied	268,858.8
Measurement methods and procedures	Use weight meters. Data monitored continuously and aggregated as appropriate. The accuracy level of the weight meters is III.
Monitoring frequency	Continuously
QA/QC procedures	The meters are calibrated annually.
Purpose of data	Applied for calculating project emissions
Additional comment	-

Data / Parameter	Moisture content of the biomass residues
Unit	% water content
Description	Moisture content of each biomass residues type *k*
Source of data	On-site measurements
Value(s) applied	<table><tr><td>Biomass residues category (*k*)</td><td>Biomass residues type</td><td>Moisture (%)</td></tr><tr><td>1</td><td>Wood residues</td><td>33.84</td></tr><tr><td>2</td><td>Cotton straw</td><td>27.06</td></tr><tr><td>3</td><td>Cole straw</td><td>22.89</td></tr><tr><td>4</td><td>Maize straw</td><td>30.57</td></tr><tr><td>5</td><td>Rice straw</td><td>22.81</td></tr><tr><td>6</td><td>reed</td><td>23.38</td></tr><tr><td>7</td><td>Wheat straw</td><td>19.18</td></tr></table>
Measurement methods and procedures	Moisture content of the biomass residues is on site measured by moisture analyzer. The moisture analyzer will be calibrated once a year by qualified third party(ies) in line with national standard..
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	-
Purpose of data	Applied for calculating baseline emissions and project emissions
Additional comment	In case of dry biomass, monitoring of this parameter is not necessary

Data / Parameter	$EF_{CO2,f}$
Unit	g CO_2/t km
Description	Default CO_2 emission factor for freight transportation activity *f*
Source of data	Tool: Project and leakage emissions from transportation of freight, Version 01.1.0.
Value(s) applied	<table><tr><td>Vehicle class</td><td>Emission factor (g CO_2/t km)</td></tr><tr><td>Light vehicles</td><td>245</td></tr><tr><td>Heavy vehicles</td><td>129</td></tr></table>
Measurement methods and procedures	-
Monitoring frequency	-
QA/QC procedures	-
Purpose of data	Applied for calculating project emissions
Additional comment	-

Data / Parameter	$BR_{PJ,n,y}$
Unit	tonnes on dry-basis
Description	Quantity of biomass residues of category *n* used in power plants which are located at the project site and included in the project boundary in year *y*
Source of data	On-site measurements

<table>
<tr><td>Value(s) applied</td><td>

Biomass residues category (*k*)	**Biomass residues type**	**Biomass residues source**	**Biomass residues quantity (tonnes)**
1	Wood residues	Off-site from local farmers and retailers	112,607.84
2	Cotton straw	Off-site from wholesalers and retailers	18,363.38
3	Cole straw	Off-site from wholesalers and retailers	0.78
4	Maize straw	Off-site from local farmers and retailers	13,459.60
5	Rice straw	Off-site from local farmers and retailers	21,004.52
6	reed	Off-site from local farmers and retailers	12,560.49
7	Wheat straw	Off-site from local farmers and retailers	8,484.10

</td></tr>
<tr><td>Measurement methods and procedures</td><td>Use weight meters. Adjust for the moisture content in order to determine the quantity of dry biomass.
The accuracy level of the weight meters is III and the meters are calibrated annually.</td></tr>
<tr><td>Monitoring frequency</td><td>Data monitored continuously and aggregated as appropriate</td></tr>
<tr><td>QA/QC procedures</td><td>Cross-check the measurements with an annual energy balance that is based on purchased quantities and stock changes</td></tr>
<tr><td>Purpose of data</td><td>Applied for calculating project emissions</td></tr>
<tr><td>Additional comment</td><td>The biomass residue quantities used should be monitored separately for (a) each type of biomass residue (e.g.) and each source (e.g. produced on-site, obtained from biomass residues suppliers, obtained from a biomass residues market, obtained from an identified biomass residues producer, etc.)</td></tr>
</table>

<table>
<tr><td>Data / Parameter</td><td>$NCV_{n,y}$</td></tr>
<tr><td>Unit</td><td>GJ/tonnes on dry-basis</td></tr>
<tr><td>Description</td><td>Net calorific value of biomass residues of category n in year y</td></tr>
<tr><td>Source of data</td><td>On-site measurements</td></tr>
<tr><td>Value(s) applied</td><td>

Biomass residues category (*k*)	Biomass residues type	NCV (GJ/t)
1	Wood residues	19.08
2	Cotton straw	17.72
3	Cole straw	18.56
4	Maize straw	17.39
5	Rice straw	16.61
6	reed	17.34
7	Wheat straw	16.39

</td></tr>
<tr><td>Measurement methods and procedures</td><td>Measurements shall be carried out at reputed laboratories and according to relevant international standards. Measure the NCV on dry-basis</td></tr>
</table>

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
Purpose of data	Applied for calculating project emissions
Additional comment	-

B.7.2. Sampling plan

>>

Not applicable to the proposed project.

B.7.3. Other elements of monitoring plan

>>

The proposed project adopted the approved baseline methodology of ACM0018. According to the description in B.7, the relative monitoring methodology ACM0018 is adopted, which is consolidated monitoring methodology for grid-connected electricity generation from biomass residues.

1. The requirements of monitoring plan

The project owner should build up a monitoring system. The system should be able to estimate, measure, collect and track data. When the emission abatement is verified by DOE, the system can show the monitoring process and supply the credible, transparent and true results. It ensures that the carbon dioxide emission abatement is verified to the CERS buyers.

The proposed project substitutes some electricity generated by general fossil fuels, and avoids the relative carbon dioxide emission. So the electricity amount supplying to grid is the key data what should be monitored. Besides the electricity amount, all the data relative to baseline emission, emission by the proposed project and leakage should be monitored.

2. Principal of the monitoring plan

The proposed project owner is responsible the monitoring plan. Moreover some relative people are needed. The project owner should appoint a Chinese CDM project director and a monitoring manager. Their respective responsibilities are as follows：

Chinese CDM project director：Receive the report from monitoring manager; manage the CDM project jointly with CERs buyer; Coordinate with the Chinese Government and stakeholders; submit the monitoring report to DOE and deliver to CERs.

Monitoring manager: Based on monitoring manual guideline, records the net electricity supplied monthly and aggregately annually, prepares the monitoring report, etc. Monitoring manager is responsible to the Chinese CDM project director.

The two managers should audit interior reports regularly in order to offer high quality data. The audit interiorly is helpful to find some operational false and adjust in time.

If one person changes his work in project life-time, the new must be qualified and be trained before going to post.

In case deviations in the monitoring data are found, the Monitoring manager should study the operating parameters to identify the reason for the deviation and take remedial measures.

Monitoring report will be prepared by the monitoring manager and submit to Chinese CDM project director for final review, who will submit the report to the DOE.

3. Meters installation

The meters installed at transformer substation are used to monitor net electricity delivered to the grid. There are two systems for meters operation and maintenance. One is hold by ECPG, the other is hold by project owner. The two instruments system can record data from long distance and record accumulated electricity amount. The two sides have the right to record the two meters data. ECPG should provide the main meters system data to the project owner every month.

The meters are installed as following figure. They can record the electricity amount from two directions. They are 0.2S level. Once the project activities are halted, the grid will supply electricity to the plant.

The amount of biomass used by the project are measured by the weigh bridges and weight meters, recorded documented monthly by the project owner.

The volume of fossil fuel combusted by the project will be measured by on-site equipment. For diesel used for start-up of the boilers, flow meter(s) are installed to continuously monitoring.

4. Calibration and measure

The project owner will sign an agreement with ECPG, which stipulate the process of quality control in measure and calibration in order to make the data more precise.

The meters should be enough precise so that any error using these meters is not larger than +0.2% of the whole scale.The two meters installed system should be inspected and enclosed by project owner and ECPG.

The calibration is implemented by ECPG, and the relative record should provide to project owner. These records are holds by Project Owner or the appointed third side.

The accuracy level of the weigh bridges and weight meters is III and the instruments are calibrated by authorized entities according to the industrial standards annually.

The flow meter(s) should be configured according to the requirements for the accuracy and calibrated periodically by qualified third party(ies) in line with national standard.

5. Monitoring

All relevant parameters listed in Section B 7.1 will be monitored according to the methodology requirements and description of measurement methods and procedures to be applied. The results and data will be recorded and well documented. The data and meter reading will be readily accessible for DOE. Calibration tests records will be maintained for verification.

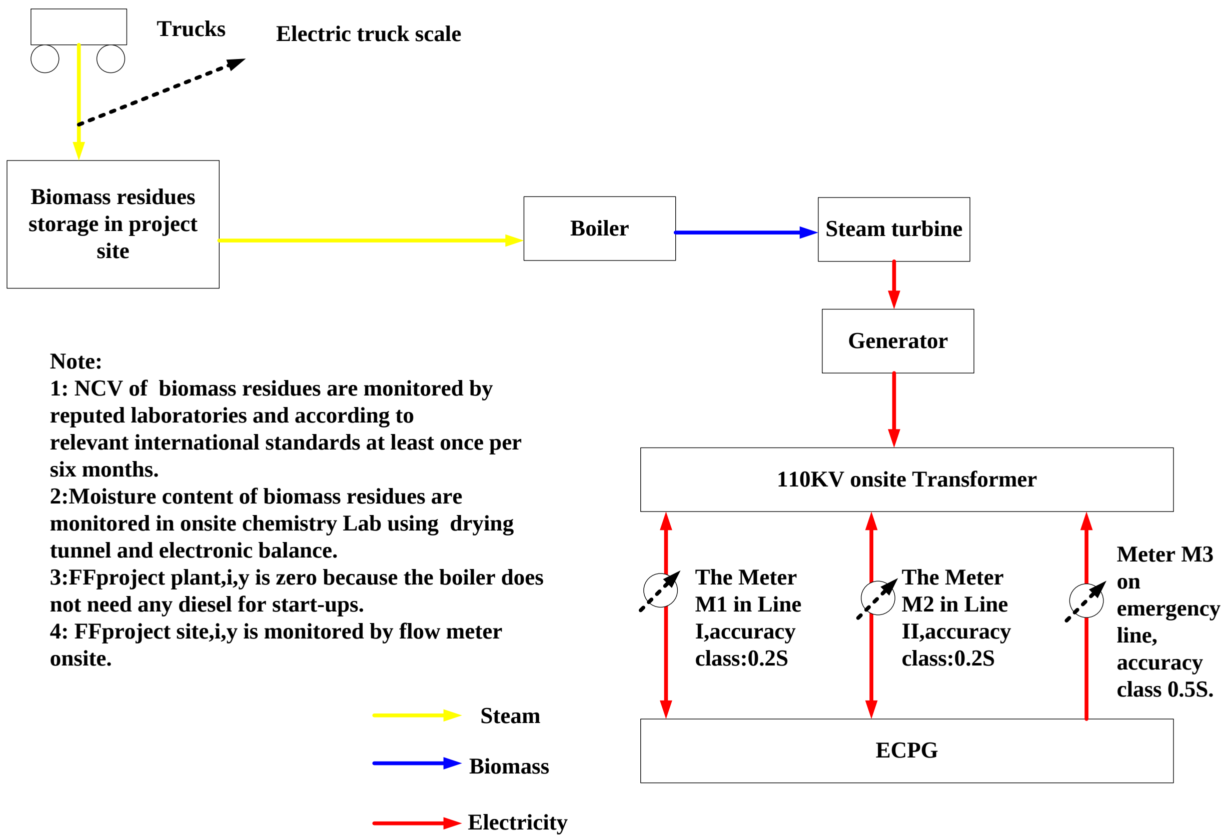


Figure: Line diagrams

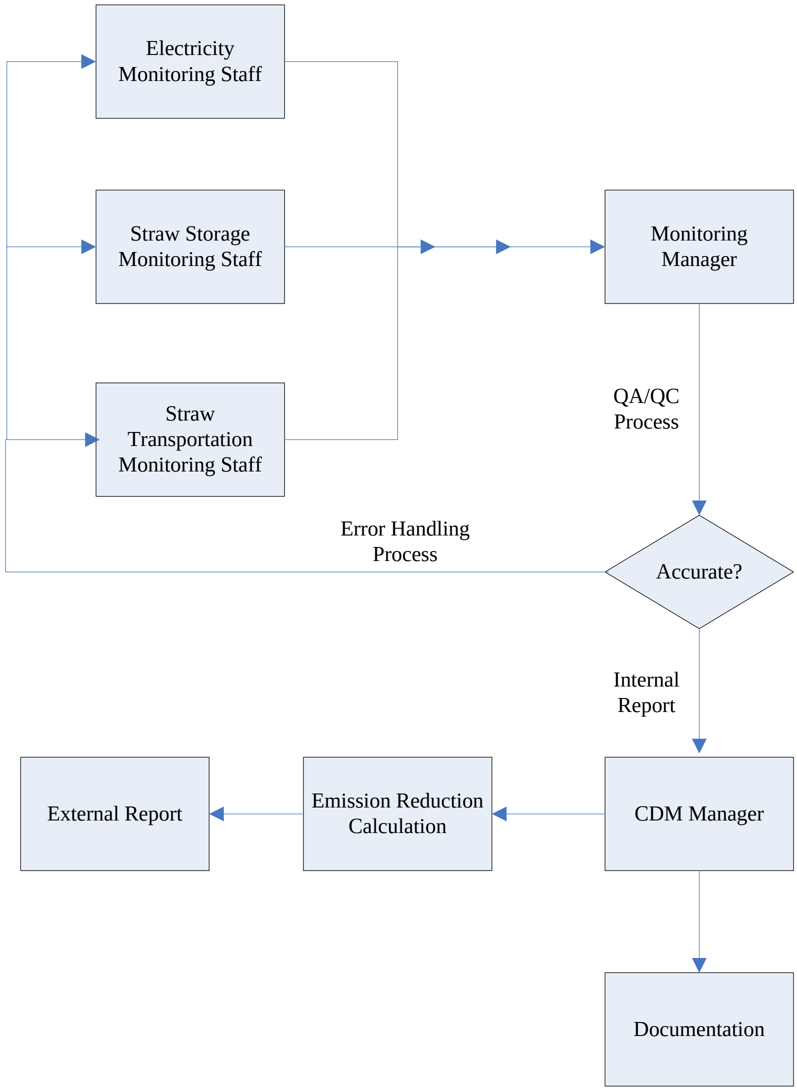
5.3 quality ensure and quality control

The quality assurance and quality control for data records, maintenance and document should revised and improved according to the requirements of CDM project and the actually operation.

As B.7.1, the net electricity output will be continually measured and monthly recorded which will be rechecked by electricity sale invoice. Record frequency for other data could be found in B.7.1

The amount of the biomass purchased and consumed in the project plant are recorded by the project owner and rechecked by comparing with the purchase receipt and stock change record.

This monitoring plan will be implemented by professional staff authorized by the project sponsor. The management structure is illustrated as follows:



6. Disposal of urgency

If the fossil fuel is needed, the species and amount of the fossil fuel should be recorded in detail. The leakage led by this scenario should be calculated precisely and clearly.

7. Data management system

This provides information on record keeping of the data collected during monitoring. Record keeping is the most important exercise in relation to the monitoring process. Without accurate and efficient record keeping, project emission reductions cannot be verified. Below follows an outline of how project related records would be managed.

Overall responsibility for monitoring of GHG emissions reduction will rest with the CDM responsible persons of the working group. The CDM manual sets out the procedures for tracking information from the primary sources to the end-data calculations in paper document format. It is the responsibility of the working group to provide additional necessary data and information for validation and verification requirements of respective DOE. Physical documentation such as paper-based maps, diagrams and environmental assessment will be collated for monitoring, if they are necessary. All paper-based information will be stored by the working group and kept at least one copy.

8 verification

The verification is a necessary part of all CDM projects. The main object of verification is to check independently the PDD report finished and greenhouse gas emission abatement estimated. The frequency of verification is one time per year.

A person especially assigned by the project owner for contact with DOE will be charge of monitoring and verification.

B.8. Date of completion of application of methodology and standardized baseline and contact information of responsible persons/ entities

>>

Date of completion of application of methodology and standardized baseline: 14/06/2016

Contact information of responsible entities:

LI Zheng, National Bio Energy Co., Ltd.

Email: lizheng@sgecs.sgcc.com.cn

The entity is also a project participant listed in Annex 1.

SECTION C. Duration and crediting period

C.1. Duration of project activity

C.1.1. Start date of project activity

>>

10/08/2006 (start construction date)

C.1.2. Expected operational lifetime of project activity

>>

25 years 0 month

C.2. Crediting period of project activity

C.2.1. Type of crediting period

>>

The Project applies the renewable crediting period (7years×3). The first crediting period is from 01/04/2008 to 31/03/2015, and the second crediting period is from 01/04/2015 to 31/03/2022.

C.2.2. Start date of crediting period

>>

01/04/2015

C.2.3. Length of crediting period

7 years 0 month

SECTION D. Environmental impacts

D.1. Analysis of environmental impacts

>>

Conclusions of the EIA report are summarized as follows:

Environmental impact during the construction period:

The environment impact during the construction is temporary with little negative effect on surroundings, which will be summarized as follows:

1. Exhaust gas：Exhaust gas and fly dust will be generated due to the project construction and transportation activities, which will be minimized through rational management and spraying water and setting up enclosure.

2. Waste water: The waste water, including living sewage and production wastewater, will be collected and disposed by the wastewater treatment facility to meet the standard.

3. Solid waste: include the solid waste due to construction activity and the worker staff living waste, which will be collected and disposed by the project owner regularly.

4. Noise: the noise sources are mechanic running, vehicle movement, equipment install, etc. which will be minimized through rational work time arrangement and installing noise elimination and sound insulation and other measures.

Environmental impact during the operation period:

1. Exhaust gas

The soot, SO_2 and NOx at the flue of the proposed project will be treated by a high efficiency hop-pocket dust catcher, its removal rate will not less 99.5 percent, then emitted into atmosphere to meet the requirement of GB-13233-2003(fossil plant air pollutants emission standard). At the same time, Dust emission of the straw collection sub-stations will also meet the requirement of GB16297-1996 (air pollutants emission standard). the smoke and flue gas by-produced by the project activity shall be monitored and shall not exceed the upper limit of the relevant national standards: the dust, SO_2 and NOx emission will be less than 12.44 tons, 157.63 tons and 255.4 tons per year respectively.

2. Waste water: The waste water, including residential drainage and production wastewater, will be collected and disposed by the wastewater treatment facility to meet the standard, then emitted into Xiaoyang River. The waste water, COD,SS discharge will be less than 216901 tons, 1.3 tons and 0.87 tons per year respectively.

3. Solid waste

The solid waste of the proposed project includes ash residues and living waste. The ash residues is rich in kalium and can be returned to cropland as fertilizer or proceed further into composite fertilizer. The living waste will be collected and disposed by the Sanitation sector. Therefore, the solid waste has little negative on the local environment.

4. Noise

The noise sources of the proposed project are from fan, steam generator and pumps, etc. Installing noise elimination and sound insulation and other measures will be carried out to effectively, which will decrease the noise effect on the surroundings, such as the equipment with intensive noise will be installed in the plant centre, trees will be planted.

5. Storage and transportation of biomass

Storage and transportation of biomass may be an important factor to the environment. Dispersed biomass storage can be adopted, and through setting up awning in the storage site and bundles in time, the showering, damping, decomposition and flying of the biomass will be prevented. The biomass transportation should keep away from county centre, and transportation in the evening should be avoided

In a word, the proposed project will use the renewable cotton resources with little SO_2 emission, and the pollution treatment measures are carried out effectively with little negative effect on the surroundings. Therefore, the proposed project is feasible from the environment aspect.

D.2. Environmental impact assessment

>>

The environmental impacts of the Biomass generation project, in Sheyang county, Jiangsu province, P.R. China are not considered significant.

SECTION E. Local stakeholder consultation

E.1. Solicitation of comments from local stakeholders

>>

The project owner has carried out investigation on the public's comments and suggestions of local stakeholders on this project by the following two approaches:

- Round table discussion
- Questionnaires

1. Round table discussion

On the afternoon of November 22, 2006, the project owner carried out a round table discussion among the local stakeholders on the NBE Sheyang biomass generation project in the third floor conference room at the Sheyang County Economic Development Zone. The discussion is fruitful basing on the local government the authorities, such as the officials and experts from the local SDRC, the development zone, the water bureau, agricultural Bureau , the Construction Bank, the environment protect bureau, etc., the conclusions are summarized as follows :

1). the proposed project is consistent with the national industrial policy and environmental policy, which can facilitate the eco-agriculture, increase farmer income, and reduce the farmer labour intensity.

2). the project will use the waste cotton straw, which will prevent the pollution from the burning of straw or pushing the straw into the river, and improve the ecological environment.

3). compared with the conventional coal-fired power project, .The project can greatly reduce the SO_{2}, NO_{X} and CO_2 emissions, and play a positive role in protecting and improving the local environment.

4). the proposed project will have little negative impact on local residents.

5). the proposed project is help to local energy structure adjustment, environmental protection, economic development and, farmers increase income. The local stakeholder showed strong support to proposed project building and put into operation as soon as possible.

2. Questionnaire

According to China's environmental protection laws and regulatory requirements, public participation investigations of environmental impact assessment should be carried out, collect the suggestions of local residents, to improve the environmental and social benefits.

Survey Formats

Public participation investigations have been carried out on the local stakeholder of the surrounding areas by questionnaires, which reflect the public views on the present environment in the region and their suggestions and demands on environmental protection of the proposed projects.

Investigation scope by questionnaires

Questionnaires have been distributed to varied local residents in the project location in a fair and all-sided manner. The Investigated stakeholders are mainly residents from several villages nearby, such as those of development zone near the project site, ChenYang town, ChengYang town, Tongyang town and Linhai town..

110 questionnaires were distributed and all of them had been returned. The investigation had taken fully account into the public advice of different ages, civilizations and occupations to make the investigated stakeholders more representative. Of all the investigated stakeholders, 83 are men, accounting for 75%; 27 are women, 25%; there are also some local government

officers ,workmen, peasants and other occupations, including 8 leaders, accounting for 7%;42 are government officers, 38%;32 are workmen, 29%; 28 are peasants, 26%.

Major investigated issues

For detailed information, please refers to E.2: Comments from the questionnaires.

E.2. Summary of comments received

>>

Comments from the questionnaires are summarized below：

Issues		Stat. Result		
view on environment	options	Care very much	care	don’t care
	persons	67	40	3
	%	61	36	3
The degree of knowing about the project	options	know	Generally know	Don't know
	persons	53	45	12
	%	48	41	11
The economic benefits of the project	options	promote	decrease	Generally promote
	persons	104	0	6
	%	95	0	5
Impact on residents’ living	options	Good than bad	Bad than good	General impact
	persons	86	0	24
	%	78	0	22
Location reasonable?	options	reasonable	unreasonable	Not care
	persons	101	0	9
	%	92	0	8
Attitude to the project	options	support	Not support	Not care
	persons	110	0	0
	%	100	0	0

(1) The public understanding of the environment

From the returned questionnaires, it can be concluded that the local stakeholders are very concerned about environmental issues, accounting for 97% concerned about environmental issues, which indicates that with the state environmental protection laws and regulations strengthening and improving, also with the environmental protection propagandise , the local residents pay more an more attention to their own living environment.

(2) The public opinion to the proposed project

As shown above, the local public know much about the project, the majority of respondents support the project and they think the project can promote local economic development and improve living conditions of local residents. For the project site, the public in general agree and think it is reasonable. And the public will also support the proposed project construction.

In short, from the round table discussion and the questionnaires feedback, both the local authorities and the public strongly support the proposed project.

E.3. Report on consideration of comments received

>>

As power plant construction will make some certain effect on the local environment, the public participant also made some rational recommendations. For example, "choose efficient pollution control facilities, and to ensure its stable operation," "strengthen the management of transport vehicles." and so on. Therefore, project owner should give sufficient attention to the public suggestions and strengthen environmental protection facilities maintenance and management in their day-to-day operation, and strengthen the management of transport vehicles, avoiding impact on residents.

SECTION F. Approval and authorization

>>

The letter of approval from People’s Republic of China (the host Party) for the project activity was obtained on 05/03/2007.

The letter of approval from the United Kingdom for the project activity was obtained on 04/03/2008.

The letter of approval from Switzerland for the project activity was obtained on 28/08/2008.

- - - - -

Appendix 1. Contact information of project participants and responsible persons/ entities

Project participant and/or responsible person/ entity	☒ Project participant ☐ Responsible person/ entity for application of the selected methodology (ies) and, where applicable, the selected standardized baselines to the project activity
Organization name	National Bio Energy Co., Ltd.
Street/P.O. Box	No.1 Beishatan Deshengmen wai, Chaoyang District,
Building	150 P.O.B.,Old Administration Building
City	Beijing
State/Region	-
Postcode	100005
Country	P. R. China
Telephone	+86 10 63505330
Fax	+86 10 63505330
E-mail	lizheng@sgecs.sgcc.com.cn
Website	http://www.sgecs.sgcc.com.cn/
Contact person	
Title	CDM Manager
Salutation	Mr.
Last name	LI
Middle name	-
First name	Zheng
Department	
Mobile	
Direct fax	+86 10 63505330
Direct tel.	+86 10 63505330
Personal e-mail	lizheng@sgecs.sgcc.com.cn

Appendix 2. Affirmation regarding public funding

There is no public funding from Annex I Parties for the Project.

Appendix 3. Applicability of methodology and standardized baseline

Not applicable.

Appendix 4. Further background information on ex ante calculation of emission reductions

To determine the simple OM emission factor ($EF_{OM,y}$) and the Build Margin emission factor ($EF_{BM,y}$) for the Project, data recommended in the *2015 Baseline Emission Factors for Regional Power Grid in China* issued by China's DNA are adopted.

The following tables summarise the numerical results from the equations listed in the *Tool to calculate the emission factor for an electricity system*. Information provided by the tables includes data, data sources and the underlying calculations.

Table 1 Electricity generation and supply by the ECPG in year 2011

Province	Generation (Billion kWh)	Generation (MWh)	On-site use （%）	Supply （MWh)
Shanghai	1022	102,200,000	4.6	97,498,800
Jiangsu	3731	373,100,000	5.1	354,071,900
Zhejiang	2343	234,300,000	4.9	222,819,300
Anhui	1624	162,400,000	5	154,280,000
Fujian	1272	127,200,000	4.7	121,221,600
Total				949,891,600

《China Electric Power Yearbook 2012》

Table 2 Electricity generation and supply by the ECPG in year 2012

Province	Generation (Billion kWh)	Generation (MWh)	On-site use （%）	Supply （MWh)
Shanghai	967	96,700,000	4.5	92,348,500
Jiangsu	3943	394,300,000	5	374,585,000
Zhejiang	2273	227,300,000	4.9	216,162,300

Anhui	1767	176,700,000	4.9	168,041,700
Fujian	1118	111,800,000	4.7	106,545,400
Total		1,006,800,000		957,682,900

《China Electric Power Yearbook 2013》

Table 3 Electricity generation and supply by the ECPG in year 2013

Province	**Generation (Billion kWh)**	**Generation (MWh)**	**On-site use （%）**	**Supply （MWh)**
Shanghai	963	96,300,000	4.6	91,870,200
Jiangsu	4174	417,400,000	4.78	397,448,280
Zhejiang	2393	239,300,000	4.89	227,598,230
Anhui	1933	193,300,000	4.69	184,234,230
Fujian	1280	128,000,000	4.82	121,830,400
Total				1,022,981,340

《China Electric Power Yearbook 2014》

Table 4 Energy Consumption Statistics of Power Generation of the ECPG in 2011

Fuel type	Unit	Shanghai A	Jiangsu B	Zhejiang C	Anhui D	Fujian E	Sub-total F=A+B+C+D+E	Carbon Content (tc/TJ) G	Oxid. Factor (%) H	Emission Factor (kgCO2/TJ) I	LCV (MJ/t,km3) J	CO2 emission (tCO2e) K=F×I×J/100000 (for mass) K=F×I×J/10000(for volume)
Raw coal	10^4t	3667.6	15074.21	9033.56	5690.22	5160	**38625.59**	25.8	100	87,300	20,908	705,020,689
Cleaned coal	10^4t						**0**	25.8	100	87,300	26,344	0
Other washed coal	10^4t		192.29		1555.03		**1747.32**	25.8	100	87,300	8,363	12,757,007
Coke	10^4t						**0**	29.2	100	95,700	28,435	0
Coal briquettes	10^4t		186.46	1	185.19		**372.65**	25.8	100	87,300	8,363	2,720,680
Coke oven gas	10^8m3	0.77	10.49	0.34	5.73	0.19	**17.52**	12.1	100	37,300	16,726	1,093,037
Blast furnace gas	10^8m3			25.32		7.29	**32.61**	70.8	100	219,000	3,763	2,687,380
Converter gas	10^8m3			1.16		0.44	**1.6**	46.9	100	145,000	7,945	184,324
Other gas	10^8m3	32.18					**32.18**	12.1	100	37,300	5,227	627,404
Crude oil	10^4t			2.03			**2.03**	20	100	71,100	41,816	60,354
Gasoline	10^4t						**0**	18.9	100	67,500	43,070	0
Diesel oil	10^4t	0.87	2.2	1.01	0.31	1.28	**5.67**	20.2	100	72,600	42,652	175,574
Fuel oil	10^4t	14.15	0.2	7.05		0.44	**21.84**	21.1	100	75,500	41,816	689,512
Petroleum coke	10^4t	21.22	1.29	40.77			**63.28**	26.6	100	82,900	31,947	1,675,912
LNG	10^4t			1.65			**1.65**	15.3	100	54,300	51,434	46,082
LPG	10^4t						**0**	17.2	100	61,600	50,179	0
Refinery gas	10^4t	0.46	0.21		1.2	41.55	**43.42**	15.7	100	48,200	46,055	963,859
Natural gas	10^8m3	10.24	35.96	25.49		22.39	**94.08**	15.3	100	54,300	38,931	19,888,073
Other petro produ	10^4t	0.05	1.14				**1.19**	20	100	72,200	41,816	35,927
Other energy	10^4tce	16.34	122.66	74.06	213.74	1.28	**428.08**	0	0	0	0	0
											Sub-total	**748,625,815**

《China Energy Statistical Yearbook 2012》

Table 5 Energy Consumption Statistics of Power Generation of the ECPG in 2012

Fuel type	**Unit**	**Shanghai** **A**	**Jiangsu** **B**	**Zhejiang** **C**	**Anhui** **D**	**Fujian** **E**	**Sub-total** **F=A+B+C+D+E**	**Carbon Content (tc/TJ)** **G**	**Oxid. Factor (%)** **H**	**Emission Factor (kgCO2/TJ)** **I**	**LCV (MJ/t,km3)** **J**	**CO2 emission (tCO2e) K=F×I×J/100000 (for mass) K=F×I×J/10000(for volume)**
Raw coal	10^4t	3397.31	15723.65	8633.73	7539.89	4501.98	**39796.56**	25.8	100	87,300	20,908	726,394,034
Cleaned coal	10^4t						**0**	25.8	100	87,300	26,344	0
Other washed coal	10^4t		242.09		298.74		**540.83**	25.8	100	87,300	8,363	3,948,545
Coke	10^4t						**0**	29.2	100	95,700	28,435	0
Coal briquettes	10^4t		22.08	0.8	297.08		**319.96**	25.8	100	87,300	8,363	2,335,996
Coke oven gas	10^8m3	1.18	10.38	0.69	5.56	0.28	**18.09**	12.1	100	37,300	16,726	1,128,599
Blast furnace gas	10^8m3			33.19	18.24	9.67	**61.1**	70.8	100	219,000	3,763	5,035,233
Converter gas	10^8m3			1.52	3.47	1.11	**6.1**	46.9	100	145,000	7,945	702,735
Other gas	10^8m3	25.7					**25.7**	12.1	100	37,300	5,227	501,065
Crude oil	10^4t			2.25			**2.25**	20	100	71,100	41,816	66,895
Gasoline	10^4t						**0**	18.9	100	67,500	43,070	0
Diesel oil	10^4t	0.75	1.7	0.86	0.41	1.02	**4.74**	20.2	100	72,600	42,652	146,776
Fuel oil	10^4t	7.58	0.19	1.29		0.62	**9.68**	21.1	100	75,500	41,816	305,608
Petroleum coke	10^4t	17.84	0.27	36.15			**54.26**	26.6	100	82,900	31,947	1,437,025
LPG	10^4t						**0**	17.2	100	61,600	50,179	0
Refinery gas	10^4t	0.44	0.44		0.99	42.02	**43.89**	15.7	100	48,200	46,055	974,293
Other petro produ	10^4t	0.02	1.11				**1.13**	20	100	72,200	41,816	34,116
Natural gas	10^8m3	14.54	43.95	25.31		21.41	**105.21**	15.3	100	54,300	38,931	22,240,903
LNG	10^4t			0.03			**0.03**	15.3	100	54,300	51,434	838
Other energy	10^4tce	18.97	185.57	60.95	210.58	0.67	**476.74**	0	0	0	0	0
											Sub-total	**765,252,660**

《China Energy Statistical Yearbook 2013》

Table 6 Energy Consumption Statistics of Power Generation of the ECPG in 2013

Fuel type	Unit	Shanghai A	Jiangsu B	Zhejiang C	Anhui D	Fujian E	Sub-total F=A+B+C+D+E	Carbon Content (tc/TJ) G	Oxid. Factor (%) H	Emission Factor (kgCO2/TJ) I	LCV (MJ/t,km3) J	CO2 emission (tCO2e) K=F×I×J/100000 (for mass) K=F×I×J/10000(for volume)
Raw coal	10^4t	3558.94	16120.99	8642.2	8099.62	4836.56	**41258.31**	25.8	100	87,300	20,908	753,074,895
Cleaned coal	10^4t						**0**	25.8	100	87,300	26,344	0
Other washed coal	10^4t		219.91		268.86		**488.77**	25.8	100	87,300	8,363	3,568,460
Coke	10^4t						**0**	29.2	100	95,700	28,435	0
Coal briquettes	10^4t		7.72	0.8	322.9		**331.45**	25.8	100	87,300	8,363	2,419,883
Coke oven gas	10^8m3	0.72	10.13	0.7	4.04	0.38	**15.97**	12.1	100	37,300	16,726	996,336
Blast furnace gas	10^8m3	90.09	188.66	32.97	80.99	98.63	**491.**	70.8	100	219,000	3,763	40,491,182
Converter gas	10^8m3	0.98	6.31	1.22	8.55	1.16	**18.**	46.9	100	145,000	7,945	2,098,990
Other gas	10^8m3						**0**	12.1	100	37,300	5,227	0
Crude oil	10^4t			2.04			**2.04**	20	100	71,100	41,816	60,652
Gasoline	10^4t						**0**	18.9	100	67,500	43,070	0
Diesel oil	10^4t	1.08	1.2	0.75	0.4	0.72	**4.18**	20.2	100	72,600	42,652	129,435
Fuel oil	10^4t	13.45	0.14	1.29		0.35	**15.2**	21.1	100	75,500	41,816	480,828
Petroleum coke	10^4t	17.61	0.04	33.04			**50.69**	26.6	100	82,900	31,947	1,342,477
LPG	10^4t						**0**	17.2	100	61,600	50,179	0
Refinery gas	10^4t	0.86	0.44		1.21	35.79	**38.3**	15.7	100	48,200	46,055	850,203
Other petro produ	10^4t			0.01			**0.01**	15.	100	54,300	51,434	279
Natural gas	10^8m3	15.94	42.24	29.18	0.1	25.02	**112.48**	15.3	100	54,300	38,931	23,777,747
LNG	10^4t	0.04	0.97				**1.01**	20	100	72,200	41,816	30,4
Other energy	10^4tce	21.3	235.9	93.58	78.04	85	**513.82**	0	0	0	0	0
											Sub-total	**829,321,859**

《China Energy Statistical Yearbook 2014》

According to electricity supplied to the grid of thermal power, the OM of latest three years should be weighted average, so the weighted average OM is:

Table 7 Full-weighted Ave. OM three years of the ECPG

Year	2011	2012	2013
Total CO_2 Emission(tCO_2e)	798,860,384	832,563,280	923,704,483
Thermal Power supplied to the CCPG (MWh)	999,453,690	1,026,950,470	1,123,451,530
Full-weighted average OM(tCO2e/MWh)	0.8112		

Table 8 Calculation of CO_2 Emission of Solid, Liquid and Gas Fuel for Power Generation in 2013

Fuel	Unit	Shang Hai A	Jiangsu B	Zhejiang C	Anhui D	Fujian E	Total G=A+B+C +D+E+F	NCV kJ/kg kJ/m^3 H	Emission Factor $kgCO_2$ /TJ I	CO_2 emission (tCO_2e)
Raw coal	10^4 Tons	3558.94	16120.99	8642.2	8099.62	4836.56	41,258.31	20,908	87,300	753,074,895
Clean coal	10^4 Tons						0	26,344	87,300	0
Other washed coal	10^4 Tons		219.91		268.86		488.77	8,363	87,300	3,568,460
Briquettes	10^4Tons						0	20,908	87,300	0
Coal briquettes	10^4 Tons		7.72	0.83	322.9		331.45	8,363	95,700	2,419,883
Coke	10^4Tons						0	28,435	87,300	0
Other Coke Products	10^4 Tons						0	28,435	95,700	0
Coal Fuel Subtotal		759,063,238								
Crude oil	10^4 Tons	0	0	2.04	0	0	2.04	41,816	71,100	60,652
Gasoline	10^4 Tons	0	0	0	0	0	0	43,070	67,500	0
Diesel oil	10^4 Tons	1.08	1.23	0.75	0.4	0.72	4.18	42,652	72,600	129,435
Fuel oil	10^4 Tons	13.45	0.14	1.29	0	0.35	15.23	41,816	75,500	480,828
Petroleum coke	10^4 Tons	17.61	0.04	33.04			50.69	41,816	75,500	1,342,477
Other petroleum products	10^4 Tons	0.04	0.97	0	0	0	1.01	41,816	72,200	30,493
Oil Fuel Subtotal		2,043,885								
Natural gas	10^8 m^3	159.4	422.4	291.8	1	250.2	1124.8	38,931	54,300	23,777,747
LNG	10^4 Tons	0	0	0.01	0	0	0.01	54,300	51,434	279
Coke oven gas	10^8 m^3	7.2	101.3	7	40.4	3.8	159.7	16,726	37,300	996,336
Blast furnace gas	10^8 m^3	900.9	1886.6	329.7	809.9	986.3	4913.4	3,763	219,000	40,491,182
Convert gas	10^8 m^3	9.8	63.1	12.2	85.5	11.6	182.2	7,945	145,000	2,098,990
Other gas	10^8 m^3	0.00	0.00	0	0	0	0	5,227	37,300	0
LPG	10^4 Tons	0	0	0	0	0	0	50,179	61,600	0
Refinery gas	10^4 Tons	0.86	0.44	0	1.21	35.79	38.3	46,055	48,200	850,203
Gas Fuel Subtotal		68,214,737								

Total	**829,321,859**

Calculated: $\lambda_{Coal,y}$ =91.53%，$\lambda_{Oil,y}$ =0.25%，$\lambda_{Gas,y}$ =8.23%

Table 9 Calculating of Emission Factor for Various Power Plant

	Variable	Power Supply Efficiency L	Emission Factor ($kgCO_2/TJ$) I	Emission Factor (tCO_2e/MWh) O=3.6/L/10000*I
Coal-fired Power Plant	$EF_{Coal,Adv}$	42.00	87,300	0.7483
Oil-fired Power Plant	$EF_{Oil,Adv}$	52.90	75,500	0.5138
Gas-fired Power Plant	$EF_{Gas,Adv}$	52.90	54,300	0.3695

Therefore, the emission factor of thermal power is:

$$EF_{Thermal,y} = \lambda_{Coal,y} \times EF_{Coal,Adv,y} + \lambda_{Oil,y} \times EF_{Oil,Adv,y} + \lambda_{Gas,y} \times EF_{Gas,Adv,y} = 0.7166 tCO_2/MWh$$

Table 10 Installed Capacity of the ECPG in 2013

Installed Capacity	Unit	Shanghai	Jiangsu	Zhejiang	Anhui	Fujian	Total
Thermal Power	MW	21,270	75,550	49,950	35,970	26,580	209,320
Hydro Power	MW	0	1,140	9,860	2,820	12,850	26,670
Nuclear Power	MW	0	2120	4,330	0	1090	7,540
Wind Power and others	MW	351	3606	634	540	1490	6,621
Total	MW	**21,621**	**82,416**	**64,774**	**39,330**	**42,010**	**250,151**

Data Source: China Electric Power Yearbook 2014.

Table 11 Installed Capacity of the ECPG in 2012

Installed Capacity	Unit	Shanghai	Jiangsu	Zhejiang	Anhui	Fujian	Total
Thermal Power	MW	21,180	69,820	47,050	32,230	26,320	196,600
Hydro Power	MW	0	1,140	9,840	2,780	11,400	25,160
Nuclear Power	MW	0	2120	4,330	0	0	6,450
Wind Power and others	MW	285	2360	412	319	1131	4,507
Total	MW	**21,465**	**75,440**	**61,632**	**35,329**	**38,851**	**232,717**

Data Source: China Electric Power Yearbook 2013.

Table 12 Installed Capacity of the ECPG in 2011

Installed Capacity	Unit	Shanghai	Jiangsu	Zhejiang	Anhui	Fujian	Total
Thermal Power	MW	19,430	64,800	46,260	29,590	25,100	185,180
Hydro Power	MW	0	1140	9,710	2,000	11,250	24,100
Nuclear Power	MW	0	2,120	4,330	0	0	6,450
Wind Power and others	MW	224	1976	328	204	820	3,552
Total	MW	**19,654**	**70,036**	**60,628**	**31,794**	**37,170**	**219,282**

Data Source: China Electric Power Yearbook 2012.

Table 13 Installed Capacity of the ECPG in 2010

Installed Capacity	Unit	Shanghai	Jiangsu	Zhejiang	Anhui	Fujian	Total
Thermal Power	MW	18,430	59,980	43,600	27,630	23,070	172,710
Hydro Power	MW	0	1,140	9,690	1,690	11,110	23,630
Nuclear Power	MW	0	2,120	3,670	0	0	5,790
Wind Power and others	MW	154	1460	257	0	550	2,421
Total	MW	**18,584**	**64,700**	**57,217**	**29,320**	**34,730**	**204,551**

Data Source: China Electric Power Yearbook 2011.

Table 14 The BM Calculation of the ECPG

	Installed Capacity in 2010	Installed Capacity in 2011	Installed Capacity in 2012	Installed Capacity in 2013	Capacity Addition Of 2010-2012	Capacity Addition Of 2010-2012	Ratio of Capacity Addition
Thermal Power(MW)	172,710	185,180	196,600	209,320	42,589	172,710	82.97%
Hydro Power(MW)	23,630	24,100	25,160	26,670	2,790	23,630	5.44%
Nuclear Power(MW)	5,790	6,450	6,450	7,540	1,750	5,790	3.41%
Wind Power(MW)	2,421	3,552	4,507	6,621	4,200	2,421	8.18%
Total(MW)	**204,551**	**219,282**	**232,717**	**250,151**	**51,329**	**204,551**	**100.00%**
Percent of Installed Capacity in 2013					20.52%	14.01%	82.97%

Therefore, the BM was calculated as EF_{BM},y=0.7166×82.97%=0.5945tCO_2/MWh.

The defaults weights value for the second crediting period and for subsequent crediting periods are used as specified in the "Tool to calculate the emission factor for an electricity system ($w_{OM} = 0.25; w_{BM} = 0.75$).

$$EF_{grid,CM,y} = 0.25 \times EF_{grid,OM,y} + 0.75 \times EF_{grid,BM,y}$$

=0.25×0.8112+0.75×0.5945=0.648675(tCO_2e/MWh).

The value of parameters above that are not monitored throughout the second crediting period are based on the most recent data source available at the time of submission of the PDD.

Appendix 5. Further background information on monitoring plan

Please refer to B.7.3.

Appendix 6. Summary of post registration changes

Permanent changes from project description in registered PDD occurred during the project actual activities has been proposed by the Project participant, include:

Change 1: The information of types of turbine and generator and the installed capacity of the project;

Change 2: The types of biomass residues utilized by the project;

Change 3: Annual operation hours and biomass residue consumption data of the project.

Revised monitoring plan has been approved by the CDM-EB on 22/04/2009, and the changes described in the revised PDD version 4.0 have been approved by EB on 17/05/2012.

A revision of registered monitoring plan has been proposed by the Project participant, include:

Revision 1: Description of parameter $BF_{k,y}$;

Revision 2: QA/QC procedures to be applied for parameter Moisture content of the biomass residues;

Revision 3: Comment to parameter DPK_y;

Revision 4: Add parameter $EF_{km,CO2,y}$;

Revision 5: Description of parameter NCV_d;

Revision 6: Description of NCV_i;

Revision 7: Description of NCV_k;

Revision 8: the requirement of monitoring plan.

The revision of the registered monitoring plan has been approved by EB on 22/04/2009.

- - - - -

Document information

Version	*Date*	*Description*
08.0	22 July 2016	EB 90, Annex 1 Revision to include provisions related to automatically additional project activities.
08.0	4 July 2016	Published within annex 13 to the annotated agenda of EB90. Revision to include provisions related to automatically additional project activities.
07.0	15 April 2016	Revision to ensure consistency with the “Standard: Applicability of sectoral scopes” (CDM-EB88-A04-STAN) (version 01.0).

Version	*Date*	*Description*
06.0	9 March 2015	Revisions to: • Include provisions related to statement on erroneous inclusion of a CPA; • Include provisions related to delayed submission of a monitoring plan; • Provisions related to local stakeholder consultation; • Provisions related to the Host Party; Editorial improvement.
05.0	25 June 2014	Revisions to: • Include the Attachment: Instructions for filling out the project design document form for CDM project activities (these instructions supersede the "Guidelines for completing the project design document form" (Version 01.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for the application of the methodology (ies) to the project activity in B.7.4 and Appendix 1; • Change the reference number from *F-CDM-PDD* to *CDM-PDD-FORM;* • Editorial improvement.
04.1	11 April 2012	Editorial revision to change version 02 line in history box from Annex 06 to Annex 06b
04.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the project design document form for CDM project activities" (EB 66, Annex 8).
03.0	26 July 2006	EB 25, Annex 15
02.0	14 June 2004	EB 14, Annex 06b
01.0	03 August 2002	EB 05, Paragraph 12 Initial adoption.

Decision Class: Regulatory
Document Type: Form
Business Function: Registration
Keywords: project activities, project design document