Anhui Guzhen Biomass Generation Project

Document Prepared by Shenzhen CTI International Certification Co., Ltd

(CTI)

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Client	Beijing Ruifang Information Technology Co., Ltd.
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Prepared By	Shenzhen CTI International Certification Co., Ltd (CTI)
Contact	Address: F8-A CTI Building, No.4 LiuXianSan Road, Xin'an Street, Bao'an District, 518101, Shen Zhen, China

	Tel: +86 10 65580012 Email: linshunrong@cti-cert.com Website: http://www.cti-cert.org
Approved by	Zhou Lu 
Work carried out by	Team Leader: Lin Wu Technical Reviewer: Zhang Lei

Summary:

Shenzhen CTI International Certification Co., Ltd (hereafter referred to as CTI) has been commissioned by Beijing Ruifang Information Technology Co., Ltd. (the consultancy) to perform a validation of the renewal of crediting period of "Anhui Guzhen Biomass Generation Project" (Ref. No. 1121) (hereinafter referred to as the project activity) in P. R. China.

The scope of the validation of the renewal of crediting period is defined as an independent and objective review of the updated sections of the PD relating to the baseline, estimated emission reductions and the monitoring plan using the most recent version of baseline and monitoring methodology applicable for the project activity. The validation opinion is finalized based on the assessment of the project description through applying standard auditing techniques including but not limited to document reviews, follow up actions (e.g. site visit, telephone or e-mail interviews) and also the review of the applicable approved methodology and underlying formulae and calculations.

The assessment was performed in accordance with VCS Standards version 4.3 and UNFCCC requirement including an assessment of:

(a) The impact of new relevant national and/or sectoral policies and circumstances on the baseline taking into account relevant guidance from the Board with regard to renewal of the crediting period of the registered VCS project activity at the time of requesting renewal of crediting period of the project activity;

(b) The correctness of the application of the approved methodology and, where applicable, the approved standardized baseline for the determination of the continued validity of the baseline or its update, and the estimation of emission reductions for the applicable crediting period of the registered VCS project activity.

The project activity was registered as a CDM project activity on 07/11/2012 which is available at https://cdm.unfccc.int/Projects/DB/PJR%20CDM1351854815.15/view. After the registration of CDM, the project has been registered as a VCS project which is available at https://registry.verra.org/app/projectDetail/VCS/1121.

The purpose of "Anhui Guzhen Biomass Generation Project" (hereafter referred to as the Project) developed by National Guzhen Bio Energy Co., Ltd. is to generate clean electricity by utilizing renewable biomass resources including rice straw, maize straw, peanut straw and wood residues. The Project involves the installation of one 130t/h boiler and one steam turbine with capacity of 30 MW. Total 186,900 MWh clean electricity generated by the Project are expected to be delivered to East China Power Grid (ECPG) annually. The project activity is located at Economic Development Zone, 8 km to the downtown of Guzhen County, Anhui Province, People's Republic of China. The geographical coordinates of the project is 33°13'08" N and 117°20'13" E. The project activity will

achieve greenhouse gases (GHGs) emission reductions by avoiding CO_2 emissions from the business-as-usual scenario electricity generation of those fossil fuel-fired power plants connected to the ECPG. The project activity contributes to sustainable development of the local community, the host country and the world.

The validation is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

During this validation, 2 CAR, no CL or FAR was identified in relation to relevant VCS standards, guidance and UNFCCC requirements and relevant host party criteria and the applied baseline and monitoring methodology etc.

In summary, it is CTI's opinion that the project activity "Anhui Guzhen Biomass Generation Project" (Ref. No. 1121) in P. R. China, as described in the PD, version 03.1 dated 09/10/2023, meets all relevant VCS and UNFCCC requirements for the renewal of the crediting period.

Contents

1 INTRODUCTION

1.1 Objective

Shenzhen CTI International Certification Co., Ltd (hereafter referred to as CTI) has been commissioned by Beijing Ruifang Information Technology Co., Ltd. to perform a validation of the renewal of crediting period of "Anhui Guzhen Biomass Generation Project" (Ref. No. 1121) (hereinafter referred to as the project activity) in P. R. China.

Shenzhen CTI International Certification Co., Ltd as the validation body of the project activity has been accredited as a DOE by UNFCCC and also meets the competence requirements as set out in ISO 14065:2007.

The objective of this validation is to ensure that reported information in the Project Description of "Anhui Guzhen Biomass Generation Project" is complete and accurate in accordance with applicable VCS standards and relevant UNFCCC requirements.

1.2 Scope and Criteria

The validation scope is defined as an independent and objective review of the project description (PD). The PD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology ACM0018 version 06.0. The validation was based on the requirements in the CDM Validation and Verification standard for project activities version 03.0, VCS standard version 4.3 and VCS Program Guide version 4.2.

The validation is not meant to provide any consulting towards the client. However, stated requests for forward actions and/or corrective actions may provide input for improvement of the Project monitoring towards reductions in the GHG emissions.

1.3 Level of Assurance

The validation report is based on the VCS-PD and supporting evidences made available to the auditor and information collected through performing interviews and during the on-site assessment.

The validation conclusion is assured a reasonable level of assurance.

1.4 Summary Description of the Project

Project title	Anhui Guzhen Biomass Generation Project
UNFCCC reference number	8008

VCS reference number	1121
Project Participants	National Guzhen Bio Energy Co., Ltd. (Project Owner, host country, P. R. China)
Location of the project	the Economic Development Zone, 8 km to the downtown of Guzhen County, Anhui Province, People's Republic of China The geographical coordinates of the project is 33°13'08" N and 117°20'13" E.
Project start date	Construction date: 28/03/2010 Operation start date: 03/01/2011,
First Project Description (PD)	version 01 dated 10/01/2022
Final Project Description (PD)	version 03.1 dated 09/10/2023
Applied Methodology/Version	ACM0018, version 06.0, dated 11/03/2022
Scope/Technical Area	1/1.1

The project activity was registered as a CDM project activity on 07/11/2012 which is available at https://cdm.unfccc.int/Projects/DB/PJR%20CDM1351854815.15/view. After the registration of CDM, the project has been registered as a VCS project which is available at https://registry.verra.org/app/projectDetail/VCS/1121.

The purpose of "Anhui Guzhen Biomass Generation Project" (hereafter referred to as the Project) developed by National Guzhen Bio Energy Co., Ltd. is to to generate clean electricity by utilizing renewable biomass resouces including rice straw, maize straw, peanut straw and wood residues. The Project involves the installation of one 130t/h boiler and one steam turbine with capacity of 30 MW. Total 186,900 MWh clean electricity generated by the Project are expected to be delivered to East China Power Grid (ECPG) annually. The project activity is located at Economic Development Zone, 8 km to the downtown of Guzhen County, Anhui Province, People's Republic of China. The geographical coordinates of the project is 33°13'08" N and 117°20'13" E. The project activity will achieve greenhouse gases (GHGs) emission reductions by avoiding CO_2 emissions from the business-as-usual scenario electricity generation of those fossil fuel-fired power plants connected to the ECPG. The project activity contributes to sustainable development of the local community, the host country and the world.

2 VALIDATION PROCESS

2.1 Method and Criteria

Validation was conducted using CTI's procedures in line with the requirements specified in the VCS Standard version 4.3, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant UNFCCC requirements and applying standard auditing techniques. No sampling was utilized during the site visit as well as validation for project activity.

CTI completed a strategic review and risk assessment of the projects activities and processes in order to gain a full understanding of (if applicable):

- Project Details;
- Application of Methodology;
- Estimated GHG Emission Reduction and Removals;
- Monitoring;
- Safeguards etc.

CTI validate that the reported information in the Project Description are complete and accurate in question. This involved a site visit and a desk review of the Project Design. This Validation Report describes the findings of this assessment.

2.2 Document Review

Based on the requirements of competency, experience and qualified sectoral scopes, CTI appointed a validation team in accordance with CTI's internal procedures (see Appendix 2 Competence of team members and technical reviewers).

Function	Name	Technical competence	Task Performance*
Team Leader	Lin Wu	1.1, 1.2, 2.1, 3.1, 4.1, 5.1, 5.2, 10.1, 11.1, 11.2, 12.1, 13.1, 13.2	☒ DR ☒ SV ☒ RP ☐ TR
Technical Reviewer	Zhang Lei	TA 1.1, TA 1.2, TA 4.1, TA 13.1	☒ DR ☐ SV ☐ RP ☒ TR

*DR=Document review; SV=Site visit; RP=Reporting; TR=Technical review

The VCS project design version 01 dated 10/01/2022, version 02 dated 03/04/2022, version 03 dated 17/08/2023, version 03.1 dated 09/10/2023 were assessed as part of the validation. In addition, the registered VCS PD version 2.1 dated 17/07/2013, registered CDM PDD version 2.0 dated 21/09/2012 and the CDM validation report version 01 dated 21/10/2012 as well as relevant documents, were reviewed. A detailed documents reviewed are listed in Appendix 1 of the report.

2.3 Interviews

The key personnel interviewed are summarized in the table below:

Interviewed personnel	Role	Organization	Subject
Mr. Wu Qiang	Operation Staff	National Guzhen Bio Energy Co., Ltd.	Basic information, technology of the project, etc.; Monitor Data: meter readings, control and maintenance, QA&QC systems Status of the project activity and any modifications with respect to the registered PD. Applicability to the latest methodology. National and local policies and changes Baseline of the project and its updates The lifetime of the project activity Emission Factors and their updates Monitoring plan and changes.
Mr. Sun Wenbin	Operation Staff	National Guzhen Bio Energy Co., Ltd.	
Mr. Jia Ming	Staff	National Guzhen Bio Energy Co., Ltd.	
Ms. Liu Chang	Staff	Local Development and Reform Committee	The process and participation of the stakeholder consultation; The impact of the project activity; The complaint by local stakeholders and the implementation of the mitigation measures.
Ms. Li Cuiping	Staff	Local Environmental Protection Bureau	
Ms. Song Xiaohua	Villager	Guzhen County	
Ms. Zhang Yanan	Villager	Guzhen County	
Mr. Li Gang	Villager	Guzhen County	
Mr. Wang Fei	Villager	Guzhen County	
Ms. Sun Dandan	Villager	Guzhen County	
Mr. Xia Liang	Villager	Guzhen County	
Mr. Zhang Bin	Villager	Guzhen County	
Mr. Li Wenzhang	Villager	Guzhen County	
Ms. Lu Susan	Project Manager	Beijing Ruifang Information Technology Co., Ltd.	Data collection and ER calculation.

2.4 Site Inspections

The validation team performed the on-site validation (the Economic Development Zone, 8 km to the downtown of Guzhen County, Anhui Province, People's Republic of China) on 13/01/2022 and 14/01/2022. The interviewed personnel and objective are listed in above table.

2.5 Resolution of Findings

As an outcome of the validation process, the team can raise different types of findings.

Where a non-conformance arises The validation team shall raise a Corrective Action Request (CAR). A CAR is issued, where reported information is not in line with the applicable CDM/VCS requirements.

The validation team shall raise a Clarification Request (CL) if information is insufficient or not clear enough to determine whether the applicable CDM/VCS requirements have been met.

All CARs and CLs raised during validation shall be resolved prior to submitting a request for registration.

2 CAR and no CLs were raised during validation of the project.

2.5.1 Forward Action Requests

As this is the validation for the project for renewal of crediting period, no FARs were raised in the previous validation and verification process.

3 VALIDATION FINDINGS

3.1 Project Details

The following description of the project as per PD was verified during the on-site visit:

The project activity is a biomass power generation project located in the Economic Development Zone, 8 km to the downtown of Guzhen County, Anhui Province, People's Republic of China. The purpose of the project activity is to generate clean electricity by utilizing renewable biomass resources including rice straw, maize straw, peanut straw and wood residues. The Project involves the installation of one 130t/h boiler and one steam turbine with capacity of 30 MW. Total 186,900 MWh clean electricity generated by the Project are expected to be delivered to East China Power Grid (ECPG) annually. The project activity is located at Economic Development Zone, 8 km to the downtown of Guzhen County, Anhui Province, People's Republic of China. The Project can reduce GHG emissions by replacing the electricity generated by fossil fuel fired power plants East China Power Grid (ECPG). It's estimated that the project could achieve GHG emission reductions of 83,258 tCO_2e annually in the second crediting period.

The project activity was invested and operated by National Guzhen Bio Energy Co., Ltd. which is the project proponent of project by checking the business license of the project. By site visit checking the nameplate of the project, following technical parameter of project activity are confirmed:

Item	Quantity	Key technical specifications
Boiler	1	Type: high temperature and high pressure natural circulation; Rated steam output: 130t/h; Rated steam pressure: 9.2 MPa (a); Rated steam temperature：540℃; Life time: 20 years
Steam turbine	1	Rated output: 30MW; Rated pressure of main steam: 8.83 MPa (a); Rated temperature of main steam: 535℃; Rated flux of main steam: 130t/h; Life time: 20 years
Generator	1	Rated output: 30MW; Rated voltage: 10.5kV; Rated rotating speed: 3,000r/min;

		Life time: 20 years

By checking the registered VCS PD and interview with project owner during site visit, it is confirmed that the project started operation on 03/01/2011 and start date of crediting period is chosen as 03/01/2011. A deviation was identified for the crediting period of the Project. The project is registered under VCS Version 3 and completed validation before 19/03/2020. As per VCS requirement, it remains eligible to apply the crediting period requirements under VCS version 3 which shall be a maximum of ten years and may be renewed at most twice. Therefore, the first renewable crediting period of the Project is updated from 03/01/2011 - 06/11/2012 to 03/01/2011 - 02/01/2021, which lasts for 10 years. The same has been justified in the Verification Report (version 01.0 dated 31/03/2020) of previous monitoring period.

By checking UNFCCC website, it is confirmed the project was registered under CDM scheme on 07/11/2012 with reference number of 8008. The first crediting period under CDM scheme is 01/01/2013 - 31/12/2019, which could be renewed twice (the total crediting period is from 01/01/2013 - 31/12/2033).

Considering the 7*3 CDM renewable crediting period, it is not eligible for VCU issuance beyond 31/12/2033. Therefore, the validation team confirmed that the second VCS crediting period of the project is from 03/01/2021 to 02/01/2031 last for 10 years in line with the requirement of VCS.

As the annually estimated emission reductions are 83,258 tCO_2, lower than 300,000 tCO_2, it is confirmed the project falls under project under VCS standard.

The project is located in the Economic Development Zone, 8 km to the downtown of Guzhen County, Anhui Province, People's Republic of China. Through site visit it is confirmed that the geographical coordinates of the project is 33°13’08" N and 117°20’13" E.

Before the implementation of the project activity, the electricity generated by the project would be supplied by ECPG in the baseline scenario.

By checking laws and regulation, ie. Renewable Energy Law of the People’s Republic of China, which came into effect on 01/01/2006, Agenda for China’s 14th Five-Year Plan (2021-2025), it is confirmed that the project activity is in complicate with all laws and regulations in China.

As per UNFCCC website, the project activity was registered as a CDM project activity on 07/11/2012. It is confirmed that the project activity has been validated by Perry Johnson Registrars Carbon Emissions Services, INC based on the CDM PDD version 2.0 dated 21/09/2012 and reported in the validation report No. NO. C-1-C-01-L-0236-VA rev. 01, completed on 21/10/2012. All above information is available at https://cdm.unfccc.int/Projects/DB/PJR%20CDM1351854815.15/view. By checking statement issued by the project proponent, it is confirmed that in 2nd VCS crediting period, the project would only been issued under VCS. Until now, there are CERs issuance of request under CDM scheme covering from 01/01/2013 to 30/09/2015.

The project does not participate in the other emissions trading program by checking public information on Internet and interviewing with project owner, and hence no rejection from other GHG programs.

As the project is not a grouped project, the eligibility criteria for grouped project is not applicable; No leakage management as not an AFOLU project; No commercially sensitive information confirmed through site visit.

By checking China's National Plan on Implementation of the 2030 Agenda for Sustainable Development and 17 SDGs defined by UNDP, and interviewing with stakeholders during site visit, it is confirmed that the project activity would contribute sustainable development in the region in following aspects confirmed by site visit:

- **SDG 7** "Ensure access to affordable, reliable, sustainable and modern energy for all": the project activity will provide clean and renewable energy source through making use of local surplus biomass residues (mainly as rice straw, maize straw, peanut straw and wood residues), displacing the power generation of fossil fuel power plants and providing a district heat supply by using renewable energy sources, reducing fossil fuel consumption in ECPG, improving utilization efficiency in thermal energy, and helping to eliminate small, inefficient coal-fired boilers. This contributes to one of the China's actions for promoting sustainable developing, "By 2030, increase the share of non-fossil fuels in primary energy consumption to about 20 percent". During this crediting period, by utilizing biomass residues, 186,900 MWh of net electricity is expected to be generated and delivered to ECPG annually,

- **SDG 13** "Take urgent action to combat climate change and its impacts": the project will reduce local surplus biomass residues (mainly as rice straw, maize straw, peanut straw and wood residues) decayed in an uncontrolled manner, effectively reducing GHG emissions and air pollution, such as SO_2, slag and fly ash, in the surrounding area and minimizing health risks of local residents. This contributes to achieve one of China's stated sustainable development priorities "Actively adapt to climate change and strengthen resistance capacity to climate risks in agriculture, forestry, water resources and other key fields, as well as cities, coastal regions and ecologically vulnerable areas". During this crediting period, total GHG emission reduction is expected to be 83,258 tCO_2e annually.

- **SDG 8** "Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all": the project activity increases 74 employment opportunities for the management, operation and maintenance of the power plant. This contributes to one of the China's actions for promoting sustainable developing, "Increase labor force participation rate through implementation of the classification policy. Vigorously enforce the Law on Promotion of Employment".

Overall, it is confirmed that the PD is accurate, complete, and provides an understanding of the nature of the project.

3.2 Safeguards

3.2.1 No Net Harm

By checking the EIA summary and conclusion provided in the registered CDM PDD, it is confirmed that the impact caused by the project activity on the surrounding ecosystem and residents, water, and atmosphere etc. is very little, there would be no net harm caused due to the project activity. Also, the EIA of the project are approved by the government.

Furthermore, no potential environment or social economic matter was found during the site visit. The project is renewable energy project and thus no net harm observed in air or water quality on-site.

3.2.2 Local Stakeholder Consultation

A stakeholders' survey was carried out on 14/12/2009 through distributing questionnaires, which was designed to be easily filled in. 50 participants filled in the questionnaires included local residents. The opinions expressed by the stakeholders were recorded and are available on request.

The stakeholder survey showed that the project receives strong support from the local community. They believe the project will promote benefit local environment and agree with the project development and construction.

Onging communications with Local stakeholders was being carried out by the project owner. A grievance notebook was put at the gate office of project plant, so that stakeholder could raise comments. The telephone of the project owner was widely known in local area, so that stakeholders could make phone calls in case they have any comments. By checking the grievance notebook and confirmed with stakeholders through onsite interview, it is confirmed that no negative comments were received for the project.

All such conclusion has been verified through site visit and check registered PD.

3.2.3 Environmental Impact

The environmental impacts of the Project were sufficiently assessed by means of an Environmental Impact Assessment (EIA) Study. The Project have implemented the EIA and obtained the approval from local government before CDM and VCS registration.

Hence, the validation team is able to confirm that the EIA has been conducted in accordance with the relevant Chinese Environmental Regulations and the environmental impact of the Project is insignificant.

Also, no potential environment or social economic matter was found during the site visit. The project is renewable energy project and thus no net harm observed in ecosystem on-site.

3.2.4 Public Comments

No public comments were received.

3.2.5 AFOLU-Specific Safeguards

Not applicable as non-AFOLU project.

3.3 Application of Methodology

3.3.1 Title and Reference

The approved methodology applied in the project activity is ACM0018 – "Electricity generation from biomass in power-only plants" (version 06.0).

Related tools are:

Project and leakage emissions from transportation of freight (version 1.1.0);

Tool to calculate emission factor for an electricity system (version 7.0);

Tool to calculate project or leakage CO_2 emission from fossil fuel combustion (version 03.0);

Project and leakage emissions from biomass (version 05.0);

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).

3.3.2 Applicability

The criteria and assessment of ACM0018 (version 06.0) are in the following table:

Criteria	Assessment team's opinion
This methodology applies to project activities that generate power using biomass as fuel, optionally combining with solar thermal power generation. The project may be a Greenfield, capacity expansion or fuel switch project.	Through site visit and checking FSR /25/, it is confirmed that the project uses biomass as fuel for power generation, which is a greenfield project activity. No solar thermal power generation was combined. Therefore, this criteria is applicable.
This methodology is applicable to project activities that generate electricity in biomass (co-)fired power-only plants, optionally combining with electricity generation using solar thermal technology. The project activity may include the following activities or, where applicable, combinations of these activities: (a) The installation of new biomass (co-)fired power-only plants at a site where currently no power generation occurs (Greenfield power project activities);	Through site visit and checking FSR /25/, Project Approval /25/, registered CDM PDD /3/ and its validation report /5/, it is confirmed that the project is a newly-built biomass fired power-only plants and no other power generation occurred prior to the implementation of the project activity. Therefore, criteria (a) is applicable. As justified above, the project activity is a newly-built biomass fired power-only plants, which is a greenfield project activity.

(b) The installation of new biomass (co-)fired power-only plants, which replace or are operated next to existing power-only plants fired with fossil fuels and/or biomass (power capacity expansion project activities); (c) The improvement of energy efficiency of existing biomass (co-)fired power-only plants (energy efficiency improvement project activities), which can also lead to a capacity expansion, for example by retrofitting the existing plant; (d) The total or partial replacement of fossil fuels by biomass in an existing power-only plant or in a new power-only plant that would have been built in the absence of the project (fuel switch project activities), for example by increasing the share of biomass use as compared to the baseline, by retrofitting an existing plant to use biomass, etc.; (e) The installation of biomass (co-)fired power-only plants which include solar thermal power generation by sharing the power generation equipment between the biomass and solar components at a site where currently no power generation using solar thermal technology occurs (either as Greenfield or power capacity expansion project).	Therefore, criteria (b) is not applicable. As justified above, the project activity is a newly-built biomass fired power-only plants, not involving the improvement of energy efficiency of existing biomass (co-)fired power-only plants (energy efficiency improvement project activities). Therefore, criteria (c) is not applicable. As justified above, the project activity is a newly-built biomass fired power-only plants, not involving total or partial replacement of fossil fuels by biomass in an existing power-only plant or in a new power-only plant that would have been built in the absence of the project (fuel switch project activities). Therefore, criteria (d) is not applicable. As justified above, the project activity is a newly-built biomass fired power-only plants. No solar thermal power generation. Therefore, criteria (e) is not applicable.
The methodology is applicable under the following conditions: (a) Biomass used by the project plant is limited to biomass residues, biogas, RDF[1] and/or biomass from dedicated plantations; (b) 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; (c) For project activities 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 cane, rice, logs, etc.) or in other substantial changes (e.g. product change) in this process; (d) The biomass used by the project plant should not be stored for more than one year; (e) The biomass used by the project plant is not processed chemically or biologically (e.g. through esterification, fermentation, hydrolysis, pyrolysis, bio-	Through site visit and checking FSR /25/, Project Approval /25/, registered CDM PDD /3/ and its validation report /5/, it is confirmed that the project utilizes biomass residues as fuel for power generation. Therefore, criteria (a) is applicable. Through site visit and checking FSR /25/, registered CDM PDD /3/ and its validation report /5/, it is confirmed that the project does not involve fossil fuels. Therefore, criteria (b) is not applicable. Through site visit and checking FSR /25/, registered CDM PDD /3/ and its validation report /5/, it is confirmed that the project does not involve biomass residues from a production process. Therefore, criteria (c) is not applicable. Through interviewing PP during site visit, as well as site inspection and checking operation log /33/, it is confirmed that the biomass used by the project activity were stored less than one

[1] Refuse Derived Fuel (RDF) may be used in the project plant, but all carbon in the fuel, including carbon from biogenic sources, shall be considered as fossil fuel.

or chemical-degradation, etc.) prior to combustion. Drying and mechanical processing, such as shredding and pelletisation, are allowed; (f) No power and heat plant operates at the project site during the crediting period; (g) If any heat 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: (i) 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; (ii) 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); and (iii) The amount of fuel used in the heat generation equipment can be monitored and clearly differentiated from any fuel used in the project activity; (h) In the case of fuel switch project activities, the use of biomass or the increase in the use of biomass as compared to the baseline scenario is technically not possible at the project site without a significant capital investment in: (i) The retrofit or replacement of existing heat generators/boilers; or (ii) The installation of new heat generators/boilers; or (iii) A new dedicated biomass supply chain established for the purpose of the project (e.g. collecting and cleaning contaminated new sources of biomass that could otherwise not be used for energy purposes); (iv) Equipment for preparation and feeding of biomass.	year. Therefore, criteria (d) is applicable. Through interviewing PP during site visit, as well as site inspection, it is confirmed the biomass used by the project plant is not processed chemically or biologically. Therefore, criteria (e) is applicable. Through interviewing PP during site visit, as well as site inspection, it is confirmed no power and heat plant operates at the project site during the crediting period. Therefore, criteria (f) is applicable. Through interviewing PP during site visit, as well as site inspection, it is confirmed that no heat is generated by the project activity 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. Therefore, criteria (g) is not applicable. Through site visit and checking FSR /25/, Project Approval /25/, registered CDM PDD /3/ and its validation report /5/, it is confirmed that the project activity is not fuel switch project activity. Therefore, criteria (h) is not applicable.
If biogas is used for power generation, the biogas must be generated by anaerobic digestion of wastewater, and (a) If the wastewater generation source is registered as a CDM project activity, the details of the wastewater project shall be included in the PDD, and	Through site visit and checking FSR /25/, Project Approval /25/, registered CDM PDD /3/ and its validation report /5/, it is confirmed that the project activity does not involve biogas. Therefore, this criteria is not applicable.

emission reductions from biogas energy generation are claimed using this methodology; (b) If the wastewater source is not a CDM project, the amount of biogas is lower than 50% of the total fuel fired on energy basis.	
In the case the project activities utilize biomass, the "TOOL16: Project and leakage emissions from biomass" shall be applied to determine the relevant project emissions from the cultivation of biomass and the utilization of biomass or biomass residues.	Latest version of TOOL16: Project and leakage emissions from biomass has been used to applied to determine the relevant project emissions from the cultivation of biomass and the utilization of biomass or biomass residues. Therefore, this criteria is not applicable.
Finally, the methodology is only applicable if the baseline scenario, as identified per the "Procedure for the selection of the baseline scenario and demonstration of additionality" section hereunder, is: (a) For power generation: Scenarios P2 to P8, or a combination of any of those scenarios.	The generation of power in the grid (P5) from ACM0018 was selected as realistic alternative scenario of the project activity. Therefore, this criteria is applicable.
For validation and verification of CDM project activities and programme of activities by a designated operational entity (DOE) using this methodology application of sectoral scope 01 is mandatory.	For this project activity, sectoral scope 01 is mandatory. Therefore, this criteria is applicable.
If emission reductions are claimed for preventing disposal and/or preventing uncontrolled burning of biomass residues in the baseline, then sectoral scope 13 shall apply.	By checking renewed PD (version 03.1 dated 09/10/2023), it is confirmed that emission reductions are not claimed for preventing disposal and/or preventing uncontrolled burning of biomass residues in the baseline. Sectoral scope 13 is not applicable.

Applicability conditions of "Tool to calculate the emission factor for an electricity system" (version 07.0)

Criteria	Assessment team's opinion
This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects).	By checking the PPA /31/ of the project activity, the assessment team confirmed that the electricity supplied by the project was exported to ECPG. OM, BM and CM are estimated using the tool for calculating baseline emissions for the project activity. Therefore, this criteria is applicable.
Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case, two sub-options under the step 2 of the tool are available to the project participants, i.e. option IIa and option IIb. If option IIa	By checking the PPA /31/ of the project activity, it is confirmed that the electricity generated by the project activity was exported to ECPG. The emission factor for the project electricity

is chosen, the conditions specified in "Appendix 1: Procedures related to off-grid power generation" should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.	system is calculated for grid power plants. Therefore, this criteria is applicable.
In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	By checking the Project Approval /30/ of the project activity, it is confirmed that the project activity is located in P. R. China, not in any Annex I country. Therefore, this criteria is applicable.
Under this tool, the value applied to the CO_2 emission factor of biofuels is zero.	By checking the FSR /25/ and through on-site interview, it is confirmed that the project activity does not involve biofuels. Therefore, this criteria is applicable.

Applicability conditions of "Project and leakage emissions from biomass" (version 05.0)

Criteria	Assessment team's opinion
The tool provides methods for estimating emissions along the value chain of biomass and biomass residues and includes the following project emissions and leakage sources. The methodology that refers to this tool shall indicate which of the emission sources listed in Table 1 of this tool are to be included or omitted in the calculation of project emissions.	As per para. 6 of ACM0018 (version 05.0), in the case the project activities utilize biomass, the "TOOL16: Project and leakage emissions from biomass" shall be applied to determine the relevant project emissions from the cultivation of biomass and the utilization of biomass or biomass residues. Therefore, this criteria is applicable and tool 16 will be applied to determine the relevant project emissions from the cultivation of biomass and the utilization of biomass or biomass residues.

Applicability conditions of "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion" (version 03.0)

Criteria	Assessment team's opinion
This tool provides procedures to calculate project and/or leakage CO2 emissions from the combustion of fossil fuels. It can be used in cases where CO2 emissions from fossil fuel combustion are calculated based on the quantity of fuel combusted and its properties. Methodologies using this tool should	As per para. 96 of ACM0018 (version 05.0), the latest approved version TOOL03 shall be used to calculate $PE_{FF,y}$. Via onsite investigation, it is confirmed that the diesel is consumed by the on-site vehicle

specify to which combustion process j this tool is being applied.	that are used to transport or treat the biomass within the plant. Therefore, this criteria is applicable and tool03 will be applied to calculate $PE_{FF,y}$.

Applicability conditions of "Project and leakage emissions from transportation of freight" (version 01.1.0)

Criteria	Assessment team's opinion
This tool is applicable to project activities which involve freight transportation by road and where transportation is not the main project activity. This tool is not applicable to project activities where transportation is the main source of greenhouse gases emissions. This tool does not provide procedures to estimate baseline emissions from road transportation of freight. The tool only provides to determine CO2 emissions. CH4 and N2O emissions are excluded for simplification as they are small compared to CO2 emissions.	Through site visit and checking FSR /25/, registered CDM PDD /3/ and its validation report /5/, it is confirmed that the project activity involves freight transportation by road and where transportation is not the main project activity. Therefore, this criteria is applicable.
In addition, the tool is applicable for the determination of project or leakage emissions from freight transportation by rail in project activities where transportation is not the main project activity.	Through site visit and checking FSR /25/, registered CDM PDD /3/ and its validation report /5/, it is confirmed that the project activity involves freight transportation by road, not rail and where transportation is not the main project activity. Therefore, this criteria is not applicable.

Applicability conditions of "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" (version 03.1.0)

Criteria	Assessment team's opinion
This tool provides a stepwise procedure to assess the continued validity of the baseline and to update the baseline at the renewal of a crediting period, as required by paragraph 49 (a) of the modalities and procedures of the clean development mechanism.	The project activity is apply for renewal of crediting period. Therefore, this criteria is applicable.

According to the table above, The validation team confirm the project meets all the applicable criteria of ACM0018 version 06.0. Also, for related tools, The validation team confirm all applicable criteria have been met, which has been confirmed by site visit and checking FSR.

3.3.3 Project Boundary

Project boundary has been ascertained and confirmed during the site visit using ACM0018 version 06.0 – "The spatial extent of the project boundary encompasses: All power plants connected physically to ECPG that the project plant is connected to; The means of transportation of biomass to the project

site; the site where the biomass residues would have been left for decay or dumped".

The validation team reviewed the emissions source determination included in the registered CDM PDD and confirmed the project activity does not involve heat generation and the emission reductions by biomass residues treatment will not be claimed by the project owner, hence heat supply and biomass residues treatment and relevant emission sources are not included in the project boundary, which is conservative and in accordance with the applied methodology.

Overall, the project proponents provided an accurate description of the project boundary.

As per ACM0018 (version 06.0), the sources and GHG gases involved for proposed Project activity are as below:

Source		Gas	Included	Justification/Explanation
Baseline	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. However, PP decided to exclude this emission source for simplification, which is conservative.
		CH_4	No	B1, B2 or B3 has been identified as the most likely baseline scenario of the project activity. However, PP decided to exclude this emission source for simplification, which is conservative.
		N_2O	No	Note also that emissions from natural decay of biomass are not included in GHG inventories as anthropogenic sources. However, PP decided to exclude this emission source for simplification, which is conservative.
Project activity	On-site fossil fuel consumption	CO_2	Yes	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	CO_2	Yes	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 for electricity	CO_2	No	PP decided to exclude the baseline emissions of uncontrolled burning or decay of surplus biomass residues for simplification. Therefore, it is reasonable the combustion of biomass under project scenario is excluded.
		CH_4	No	
		N_2O	No	
	Cultivation of land	CO_2	No	Through site visit and checking FSR /25/, Project

Source		Gas	Included	Justification/Explanation
	to produce biomass feedstock	CH_4	No	Approval /25/, registered CDM PDD /3/ and its validation report /5/, it is confirmed that the project activity utilizes renewable biomass resouces including rice straw, maize straw, peanut straw and wood residues, which was not sourced from dedicated plantation. Therefore, CO_2, CH_4 and N_2O emission sources were excluded.
		N_2O	No	
	Waste water from the treatment of biomass	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	Through site visit and checking FSR /25/, Project Approval /25/, registered CDM PDD /3/ and its validation report /5/, it is confirmed that the project activity does not invlove wastewater treatment. Therefore, this emission sources were excluded.
		N_2O	No	Excluded for simplification. This emission source is assumed to be small

3.3.4 Baseline Scenario

As per registered CDM PDD /3/, the baseline scenario of the project activity is the generation of power in the grid (P5), and the biomass residues are dumped or left to decay mainly under aerobic conditions (B1). That is to say, prior implementation of the project activity, the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid, and the biomass residues would be dumped or left to decay under mainly aerobic conditions.

For the second crediting period, the continued validity of the original baseline has been assessed in the updated PD. CTI confirms that there have been no changes in the relevant national and/or sectoral regulations on building a biomass power project for exporting electricity to power grid and the manner for treating the biomass residues since the previous crediting period. On the other hand, the baseline scenario for building a biomass power project for exporting electricity to power grid and the manner for treating the biomass residues was still valid according to methodology ACM0018 version 06.0.

The information presented in the updated PD has been validated by an initial document review of all data. Further confirmation has been made based on the review of information from similar projects and/or technologies. The sources referenced in the PD have been quoted correctly. The information was verified against credible sources, such as: China Energy Statistical Yearbook 2015-2020.

The steps from the 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 as per VCS Standard version 4.3 were applied to assess the continued validity of the baseline and/or 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

VCS Standard version 4.3 assessing the impact of new relevant national and/or sectoral policies and circumstance on the baseline. The validity of the current baseline is assessed using the following sub-steps.

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

The current baseline remains the same as it was in the VCS PD (version 03.1 dated 09/10/2023). There has been not significant change in the relevant national and/or sectoral policies since the date of VCS PD registered till now, although national policies favour the development of renewable energy, electricity generated by fossil fuel based plants dominates the electricity supply. By checking policies and regulations public available, it is confirmed that no new policies or regulations compulsorily regulate the reuse of biomass residues. Hence, it can be concluded that the current baseline still complies with all relevant policies.

Step 1.2: Assess the impact of circumstances

There are not new national/sectoral policies or circumstances that could affect the baseline scenario during the renewal of the crediting period. Furthermore, through site investigation, as well as interview with PP and stakeholders during site visit, it is confirmed the local biomass residues are dumped by simple piling up and left to decay under mainly aerobic conditions, therefore B1 is still realistic alternative scenario for the use of biomass residues.

By checking relevant laws and regulations, it is confirmed that the biomass residues are not allowed to be burnt in an uncontrolled manner without utilizing it for energy purposes, this alternative is not in compliance with legal and regulatory requirements at present. Therefore, B3 is not the realistic and credible alternative.

Therefore, the validation team confirmed that the current baseline identified in the registered VCS PD is still valid for the second crediting period.

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

In absence of the project activity, similar amount of electricity would have been generated by the grid and the continuation of the use of current baseline equipment is considered technically possible, therefore P5 is still realistic alternative scenario.

Furthermore, the local biomass residues are dumped or left to decay under mainly aerobic conditions, therefore B1 is still realistic alternative scenario for the use of biomass residues.

Not any investment needs to be undertaken by the project participants or the third party. Hence, this is not applicable to the project activity.

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

According to the requirement of the "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period", if any of the data and parameters that were only determined at the start of the crediting period and not monitored during the crediting period and not valid anymore, the current baseline needs to be updated for the subsequent crediting period.

The Designated National Authority (DNA) of China issued the notice "2019 Baseline Emission Factors for Regional Power Grid in China" on 29/12/2020, which was the latest grid data available for the project. The Simple operating margin CO_2 emission factor ($EF_{grid,OMsimple,y}$) and build margin emission factor ($EF_{grid,BM,y}$) of the ECPG the project connected have been updated according to the latest data available on 29/12/2020. For all other projects (Except the wind and solar project), w_{OM} = 0.5 and w_{BM} = 0.5 for the first crediting period, and w_{OM} = 0.25 and w_{BM} = 0.75 for the second and third crediting period as per the "Tool to calculate the emission factor for an electricity system" (version 07.0). Thus, the baseline emissions need to be updated for the second crediting period with the application of the new data available.

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

Step 2.1: Update the current baseline

The baseline emissions have been updated for the second crediting period, without re-assessing the baseline scenario, based on the latest approved version (version 06.0) of the methodology ACM0018 applicable to the project activity taking into account the sectoral policies and circumstances that are applicable at the time of request for renewal of the crediting period.

Step 2.2: Update the data and parameters

The "2019 Baseline Emission Factors for Regional Power Grid in China" was issued by DNA of China, which was calculated according to the "Tool to calculate the emission factor for an electricity system". The values of W_{OM} and W_{BM} are as per the "Tool to calculate the emission factor for an electricity system" (version 07.0), the validation team confirmed that the applied data and parameters are latest available at the time of the project participant requesting renewal of the crediting period and valid for calculation of baseline grid emission factor of the second crediting period. Refer to section 3.3.6 of this report for details.

3.3.5 Additionality

Not applicable for the renewal of crediting period.

By checking relevant applicable laws and regulations at the time of renewal of crediting period, i.e. Renewable Energy Law of the People's Republic of China which came into effect on 01/01/2006, Agenda for China's 14th Five-Year Plan (2021-2025), the validation team confirms the project activity is in complicate with all laws and regulations in China and there are no surplus regulations required

comparing with the first validation at time of renewal of crediting period.

3.3.6 Quantification of GHG Emission Reductions and Removals

The calculation of the emissions reductions exactly follows the procedures described in the methodology ACM0018 version 06.0 and relevant tool, e.g. the "Tool to calculate the emission factor for an electricity system" version 07.0.

CTI has assessed the calculation of project emissions, baseline emissions, leakage emissions and emission reductions. Corresponding calculations have been carried out based on calculation spreadsheet. The consistency of the parameters and equations presented in PD, as well as calculation spreadsheet etc., has been compared with the information and requirements presented in the methodology and respective tools.

The assumptions and data used to determine the emission reductions are listed in the PD and all the sources have been checked. Based on the information reviewed it is confirmed that the sources used are correctly quoted and interpreted in the PD. The values presented in the PD are considered reasonably based on the documentation and references reviewed and the results of the interviews.

The estimation of the emission reductions are considered correct as the calculations have been reproduced by the validation team with the attainment of the same results.

CTI confirms methodology ACM0018 version 06.0 and relevant tool, e.g. the "Tool to calculate the emission factor for an electricity system" version 07.0 have been correctly applied to calculate baseline emissions, project emissions, leakage and net GHG emission reductions and removals.

Detailed information on the verification of the parameters used in the equations is found below. The algorithms for the determination of the baseline and project are discussed in the following sections.

The emission reductions are calculated by the difference between baseline emissions (BE_y), project emissions (PE_y) and leakage.

(1) Baseline emissions

As per the methodology ACM0018 version 06.0, baseline emissions are calculated as follows:

$$BE_y = BE_{EL,y} + BE_{BR,y} \quad \text{Equation (1)}$$

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)

The Baseline emissions due to uncontrolled burning or decay of biomass residues in year y ($BE_{BR,y}$) are not claimed by PP. Thereby, $BE_y = BE_{EL,y}$.

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:

$$BE_{EL,y} = EG_{PJ,y} \times EF_{BL,EL,y} \quad \text{Equation (2)}$$

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 ($EG_{PJ,aux,y}$), as follows:

$$EG_{PJ,y} = EG_{PJ,gross,y} - EG_{PJ,aux,y} \quad \text{Equation (3)}$$

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)

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.

(b) Use of fossil fuels at the project site.

(c) Power generation in the electricity grid.

$EF_{BL,EL,y}$ is calculated as follows:

$$EF_{BL,EL,y} = \frac{\begin{matrix} EG_{BL,FF,y} \times EF_{BL,FF,y} + EG_{BL,grid,y} \times EF_{grid,CM,y} \\ + EG_{BL,FF/grid,y} \times \mathrm{MIN}\left(EF_{BL,FF,y}, EF_{grid,CM,y}\right) \end{matrix}}{\begin{matrix} EG_{BL,BR,y} + EG_{BL,FF,y} + EG_{BL,grid,y} \\ + EG_{BL,FF/grid,y} \end{matrix}} \quad \text{Equation (4)}$$

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 1.3: Determination of $EG_{BL,BR,y}$

As per ACM 0018 (version 06.0), the amount of electricity that would be generated with biomass residues in power-only plants operated at the project site in the baseline ($EG_{BL,BR,y}$) should, in accordance with the baseline scenario and the historical situation before project implementation.

Through site visit and checking FSR /25/, Project Approval /25/, registered CDM PDD /3/ and its validation report /5/, it is confirmed that the project is a newly-built biomass fired power-only plants and no power generation with biomass residues occurred at the project site prior to the implementation

of the project activity. As per ACM 0018 (version 06.0), if Scenario B5 does not apply to any biomass residue category (i.e. if no biomass residues would be used for electricity generation in power-only plants in the baseline), then: $EG_{BL,BR,y} = 0$.

Step 1.4: Determination of $EG_{BL,FF,y}$

The minimum amount of electricity that would be generated with fossil fuels at the project site in the baseline in year y ($EG_{BL,FF,y}$) should, in accordance with the baseline scenario and the historical situation before project implementation.

Through site visit and checking FSR /25/, Project Approval /25/, registered CDM PDD /3/ and its validation report /5/, it is confirmed that the project is a newly-built biomass fired power-only plants and no electricity was generated by fossil fuels at the project site prior to the implementation of the project activity. As per ACM 0018 (version 06.0), if no fossil fuels would be used for electricity generation in the baseline scenario at the project site. $EG_{BL,FF,y} = 0$.

Step 1.5: Determination of $EG_{BL,grid,y}$

The minimum amount of electricity that would be generated by power plants in the electricity grid in the baseline ($EG_{BL,grid,y}$) shall, in accordance with the baseline scenario.

Through site visit and checking FSR /25/, Project Approval /25/, registered CDM PDD /3/ and its validation report /5/, it is confirmed that the project is a newly-built biomass fired power-only plants and no power plant was operated at the project site prior to the implementation of the project activity. As per ACM 0018 (version 06.0), if no power plants would be operated at the project site in the baseline, then all electricity generated by the project displaces grid electricity and $EG_{BL,grid,y} = EG_{PJ,y}$.

Step 1.6: 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:

$$EG_{BL,FF/grid,y} = EG_{Pj,y} - EG_{BL,BR,y} - EG_{BL,FF,y} - EG_{BL,grid,y} \quad \text{Equation (5)}$$

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)

As justified above, $EG_{BL,FF/grid,y} = EG_{Pj,y} - EG_{BL,BR,y} - EG_{BL,FF,y} - EG_{BL,grid,y}$

$= EG_{Pj,y} - 0 - 0 - EG_{BL,grid,y}$

$= EG_{Pj,y} - EG_{Pj,y} = 0$

Step 1.7: Determination of $EF_{BL,FF,y}$

$EF_{BL,FF,y}$ shall be determined using Option A (para. 81 of ACM 0018) or Option B (para. 82 of ACM 0018). 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 shall be used.

Through site visit and checking FSR /25/, Project Approval /25/, registered CDM PDD /3/ and its validation report /5/, it is confirmed that the project is a newly-built biomass fired power-only plants and no power plant was operated at the project site prior to the implementation of the project activity. Therefore, $EF_{BL,FF,y} = 0$.

Step 1.8: Determination of $EF_{grid,CM,y}$

$EF_{grid,CM,y}$ shall be determined as the combined margin CO_2 emission factor for grid connected power generation in year y, calculated using the latest approved version of TOOL07.

The Combined margin CO_2 emission factor for grid connected power generation in year y ($EF_{grid,CM,y}$) is calculated in a transparent and conservative manner as a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the steps prescribed in the "Tool to calculate the emission factor for an electricity system", version 07.0.

The PD version 03.1 dated 09/10/2023 using the data for calculation of the grid emission factor at the time the PD was received for validation. The latest data available was from China Electric Power Yearbook 2016-2018, China Energy Statistical Yearbook 2016 - 2018. The calculation is in accordance with the calculation process of the combined margin emission factor published by the Chinese DNA: 2019 Baseline Emission Factors for Regional Power Grids in China published by the DNA of China on 29/12/2020. $EF_{grid,OMsimple,y}$ is calculated to be 0.7921 tCO_2e/MWh and $EF_{grid,BM,y}$ is calculated to be 0.3870 tCO_2e/MWh.

As per the "Tool to calculate the emission factor for an electricity system" (version 07.0) and based on

the weight w_{OM} and w_{BM} of 0.25 : 0.75 by default for the second crediting period, the combined margin emission factor is calculated to be 0.48828 tCO_2e/MWh.

Therefore, $EF_{BL,EL,y} = EF_{grid,CM,y}$ = 0.48828 tCO_2e/MWh.

$EG_{PJ,gross,y}$ is estimated to be 210,000 MWh, and $EG_{PJ,aux,y}$ is estimated to be 23,100 MWh which is in line with the original design of the project. It's confirmed that the estimation of the figure is reasonable. Thereby, the baseline emissions could be calculated to be (210,000 MWh - 23,100 MWh) * 0.48828 tCO_2e/MWh = 83,258 tCO_2e. The validation team confirmed that the remission reductions calculation is corrected in the PD.

The values of the main parameters for calculating combined emission factor ($EF_{grid,CM,y}$) are crosschecked by The validation team and the data sources are listed in below table:

Data and Parameters	Description	Data source
$EF_{grid,OM\ simple,y}$	Simple operating margin CO2 emission factor of ECPG in 2019	2019 Baseline Emission Factors for Regional Power Grids in China
$EF_{grid,BM,y}$	Build margin CO2 emission factor of ECPG in 2019.	2019 Baseline Emission Factors for Regional Power Grids in China

CTI confirms that all data sources and assumptions are appropriate, and calculations are correct, applicable to the proposed VCS project activity and will result in a conservative estimate of the baseline emissions.

(2) Project emissions

As per the methodology ACM0018 version 06.0, Project emissions are calculated as follows:

$$PE_y = PE_{Biomass,y} + PE_{FF,y} + PE_{CBR,y} + PE_{BG2,y} \quad \text{Equation (6)}$$

Where:

PE_y = Project emissions during year *y* (t CO_2e)

$PE_{Biomass,y}$ = Project emissions associated with the biomass and biomass residues in year *y* (t CO_2)

$PE_{FF,y}$ = Emissions during the year *y* due to fossil fuel consumption for the generation of electricity, including auxiliary equipments (t CO_2)

$PE_{CBR,y}$ = Emissions from the combustion of biomass residues during the year *y* (t CO_2e)

$PE_{BG2,y}$ = Emissions from the production of biogas in year *y* (t CO_2e)

The baseline emissions due to uncontrolled burning or decay of biomass residues in year y ($BE_{BR,y}$) are not claimed by PP. It is reasonable that project emissions from the combustion of biomass residues during the year y are excluded. Therefore, $PE_{CBR,y}$= 0. Also, as justified above, the project activity does not involve the production of biogas. Therefore, $PE_{BG2,y}$=0.

Therefore, $PE_y = PE_{Biomass,y} + PE_{FF,y}$

Determination of $PE_{Biomass,y}$

$PE_{Biomass,y}$ shall be determined by applying the provisions form the TOOL16 and involve the following emission sources:

(a) Project emissions resulting from the cultivation of biomass in a dedicated plantation of a CDM project activity that uses biomass (PE_{BC});

(b) Project emissions resulting from the transportation of biomass (PE_{BT});

(c) Project emissions resulting from the processing of biomass (PE_{BP});

(d) Project emissions resulting from the transportation of biomass residues (PE_{BRT}) if the project consumes biomass residues;

(e) Project emissions resulting from the processing of biomass residues (PE_{BRP}) if the project consumes biomass residues.

Through site visit and checking FSR /25/, Project Approval /25/, registered CDM PDD /3/ and its validation report /5/, it is confirmed that the project is a newly-built biomass fired power-only plants, which utilizes biomass resources including rice straw, maize straw, peanut straw and wood residues. As justified above, the project activity does not involve the cultivation of biomass in a dedicated plantation or transportation of biomass or processing of biomass. Therefore, PE_{BC}=0, PE_{BT}=0, PE_{BP}=0. Also, the project activity does not involve processing of biomass residues. Therefore, PE_{BRP}=0.

In conclusion, for the project activity $PE_{Biomass,y}$=$PE_{BRT,y}$.

As per "TOOL12 Project and leakage emissions from transportation of Freight (version 01.1.0)", Project participants may use two options to determine project or leakage emissions from road transportation of freight: monitoring fuel consumption (Option A) or using conservative default values (Option B). PP selected Option B and $PE_{BRT,y}$ is determined using equation:

$$PE_{TR,m} = \sum D_{f,m} \times FR_{f,m} \times EF_{CO2,f} \times 10^{-6} \qquad \text{Equation (7)}$$

Where

$PE_{TR,m}$ = Project emissions from transportation of freight monitoring period m (tCO_2)

$D_{f,m}$	=	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 (gCO_2/t km).

The origin of the freight is the place within a radius of 50km around the proposed project site. Therefore, the return trip distance between the origin and destination of freight transportation activity f ($D_{f,m}$) is 100km, which is conservative.

As per FSR /25/, registered CDM PDD /3/ and its validation report /5/, $FR_{f,m}$ is determined as 310,000tonnes ex ante and will be monitored ex post. According to the tool of "Project and leakage emissions from road transportation of freight", the EF of light vehicle is 245 gCO_2/km, while EF of heavy vehicle is 129 gCO_2/km. To be conservative, EF of light vehicle (245 gCO_2/km) is applied for the project activity.

Therefore, $PE_{BRT,y} = PE_{TR,m} = 310,000 \times 100 \times 245 \times 10^{-6} = 7,595tCO_2e$.

Determination of $\mathbf{PE_{FF,y}}$

As per "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion" (version 03.0),

$$PE_{FF,y} = PE_{FC,j,y} = FC_{i,j,y} \times COEF_{i,y} \quad \text{Equation (8)}$$

Where

$PE_{FC,j,y}$	=	the CO_2 emissions from fossil fuel combustion in process j during the year y (tCO_2/yr)
$FC_{i,j,y}$	=	the quantity of fuel type i combusted in process j during the year y (mass or volume unit/yr)
$COEF_{i,y}$	=	the CO2 emission coefficient of fuel type i in year y (tCO2/mass or volume unit)
i	=	the fuel types combusted in process j during the year y

$$COEF_{i,y} = NCV_{i,y} \times EF_{CO2,i,y} \quad \text{Equation (9)}$$

Where

$NCV_{i,y}$	=	the weighted average net calorific value of the fuel type i in year y (GJ/mass or volume unit)
$EF_{CO2,i,y}$	=	the weighted average CO2 emission factor of fuel type i in year y (tCO2/GJ)
i	=	the fuel types combusted in process j during the year y

The project activity utilizes diesel for transportation of biomass residues. As per FSR, the quantity of

diesel combusted annually ($FC_{i,j,y}$) is 125tonnes. $NCV_{i,y}$ is 43.3GJ/tonne and $EF_{CO2,i,y}$ is 0.0748 tCO2e/GJ. Therefore, $PE_{FF,y} = FC_{i,j,y}*NCV_{diesel,y}*EF_{CO2e,diesel,y}$=125t*43.3GJ/t*0.0748 tCO_2e/GJ = 405tCO_2e.

In conclusion, $PE_y = PE_{Biomass,y} + PE_{FF,y}$ = 7,595 +7,595=8000 tCO_2e.

(3) Leakage

As per As per ACM0018 (version 06.0), Leakage emissions due to diversion of biomass residues from other applications shall be calculated according to the methodological tool "Project and leakage emissions from biomass" (version 05.0). For the project activity, leakage due to shift of pre-project activities needs to be considered.

Leakage due to shift of pre-project activities resulting from cultivation of biomass in a dedicated plantation in year y ($LE_{BC,y}$)

By checking registered CDM PDD, its validation report, FSR of the project activity, and through interview during site visit, it is confirmed that the project activity does not utilize biomass cultivated in any dedicated plantation. therefore, leakage emissions due to shift of pre-project activities resulting from cultivation of biomass in a dedicated plantation ($LE_{BC,y}$) as described in tool "Project and leakage emissions from biomass" (version 05.0) is not applicable for the project activity.

Leakage due to diversion of biomass residues from other applications in year y ($LE_{BR,Div,y}$)

The project utilizes biomass residues. As per ACM0018 (version 06.0) and the tool “Project and leakage emissions from biomass” (version 05.0), leakage due to diversion of biomass residues from other applications in year y ($LE_{BR,Div,y}$) is applicable for the project activity.

According to 2020 Local Biomass Resource Survey Report /32/ issued by Agricultural Bureau of Guzhen County, Bengbu City, Anhui Province, there is an abundant surplus of the biomass residue in the project region which is not utilized. The quantity of available biomass residues and biomass consumption during the current monitoring period is illustrated in the table below.

Biomass Type	Rice straw	Peanut straw	Maize straw	Wood residues
Total available amount in local area (10,000 tons)	57.010	36.040	56.070	93.170
Amount for other applications outside of the project (10,000 tons)	16.800	13.100	16.900	21.00
Biomass utilized by the project (10,000 tons)	6.4	3.2	5.3	16.1
Available Biomass/Total biomass utilized including this project	628%	717%	739%	448%

It is confirmed that the total quantity of the types of biomass residues available in the project region is at least 25 per cent larger than the quantity of biomass residues which is utilized in the project region, including the project activity. Therefore, $LE_{BR,Div,y}$ is 0.

Leakage due to the transportation of biomass residues outside of the project boundary in year y ($LE_{BRT,y}$)

As justified above, the biomass residues are transported within a radius of 50km around the proposed project site, also, the emissions due to the transportation has been included in project emissions. Therefore, $LE_{BRT,y}$=0

Leakage due to processing of biomass residues outside the project boundary in year y ($LE_{BRP,y}$)

As justified above, the project activity does not involve processing of biomass residues outside the project boundary. Therefore, $LE_{BRP,y}$=0

In conclusion, LE_y of the project activity is 0.

(4) Emission reductions

As per methodology ACM0018 version 06.0, Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y \quad \text{Equation (10)}$$

Where:

ER_y = Emissions reductions in year y (t CO_2)

BE_y = Baseline emissions in year y (t CO_2)

PE_y = Project emissions in year y (t CO_2)

LE_y = Leakage emissions in year y (t CO_2)

Based on the calculations and results presented in the sections above, for the second crediting period, the implementation of the project activity will result in an average ex-ante estimation of annual emission reduction conservatively as:

$ER_y = BE_y - PE_y - LE_y$ = 83,258tCO_2 - 8,000 tCO_2 - 0 = 83,258tCO_2

And total emission reductions during the second crediting period are estimated to be 832,580 tCO_2e.

3.3.7 Methodology Deviations

There are no methodology deviations for the project.

3.3.8 Monitoring Plan

The project applies methodology ACM0018 version 06.0. The monitoring plan in the VCS PD (version 03.1 dated 09/10/2023) was consistent with the monitoring plan in the registered CDM PDD and satisfied with ACM0018 version 06.0 requirements.

Data and Parameters Available at Validation

Data / Parameter:	Biomass categories and quantities used for the selection of the baseline

<table>
<tr><td></td><td>scenario selection and assessment of additionality</td></tr>
<tr><td>Data unit:</td><td>- Type (i.e. rice straw, peanut straw, maize straw, wood residues);
- Source (obtained from an identified biomass residues producer, etc.);
- Fate in the absence of the project activity (scenarios B1);
- Use in the project scenario (scenarios P5);
- Quantity (tonnes on dry-basis)</td></tr>
<tr><td>Description:</td><td>Quantity of biomass residues that are utilized (e.g. for energy generation or as feedstock) in the defined geographical region. These biomass residues were dumped or burnt in absence of this project.</td></tr>
<tr><td>Source of data used:</td><td>FSR</td></tr>
<tr><td>Value applied:</td><td>
<table>
<tr><th>No.</th><th>Biomass residue 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 (10000 tonnes on dry- basis)</th></tr>
<tr><td>1</td><td>Rice straw</td><td>Offsite from local farmer</td><td>Dumped (B1)</td><td>Electricity generation on-site (biomass-only boiler)</td><td>4.80</td></tr>
<tr><td>2</td><td>Peanut straw</td><td>Offsite from local farmer</td><td>Dumped (B1)</td><td>Electricity generation on-site (biomass-only boiler)</td><td>2.56</td></tr>
<tr><td>3</td><td>Maize straw</td><td>Offsite from local farmer</td><td>Dumped (B1)</td><td>Electricity generation on-site (biomass-only boiler)</td><td>3.45</td></tr>
<tr><td>4</td><td>Wood residues</td><td>Offsite from local farmer</td><td>Dumped (B1)</td><td>Electricity generation on-site (biomass-only boiler)</td><td>8.86</td></tr>
</table>
</td></tr>
</table>

Data / Parameter:	$EF_{grid,OM,y}$
Data unit:	tCO_2/MWh
Description:	Operating margin CO_2 emission factor in year y
Source of data used:	2019 Baseline Emission Factors for Regional Power Grids in China dated 29/12/2020 published by China DNA
Value applied:	0.7921

Data / Parameter:	$EF_{grid,BM,y}$
Data unit:	tCO_2/MWh

Description:	Build margin CO_2 emission factor in year y
Source of data used:	2019 Baseline Emission Factors for Regional Power Grids in China dated 29/12/2020 published by China DNA
Value applied:	0.3870

Data / Parameter:	w_{OM}
Data unit:	%
Description:	Weighting of operating margin emissions factor
Source of data used:	"Tool to calculate the emission factor for an electricity system" Version 07.0
Value applied:	25

Data / Parameter:	w_{BM}
Data unit:	%
Description:	Weighting of build margin emissions factor
Source of data used:	"Tool to calculate the emission factor for an electricity system" Version 07.0
Value applied:	75

Data / Parameter:	$EF_{CO2,f}$
Data unit:	gCO_2/tkm
Description:	Default CO_2 emission factor for freight transportation activity f
Source of data used:	"Project and leakage emissions from transportation of freight" (version 01.1.0)
Value applied:	245 In "Project and leakage emissions from transportation of freight" (v01.0.0), the default value of emission factors for Light vehicles and Heavy vehicles are 245 (gCO_2/tkm) and 129 (gCO_2/tkm) respectively. PP will use 245 (gCO_2/tkm) for $PE_{TR,m}$ calculations, no matter the freights are transported by Light vehicles or Heavy vehicles, which is conservative.

Data and Parameters Monitored

Parameters	Description	Measurement method and QA/QC procedures	Assessment conclusion
Biomass categories and quantities used in the project activity	These quantities should be updated every year of the crediting period as part of the monitoring plan so as to reflect the actual use of biomass in the project scenario. Along the crediting period, new categories of biomass (i.e. new types, new sources, with different fate) can be used in the project activity. In this case, a new line should be added to the table. If those new categories are of the type B1, B2 or B3, the baseline scenario for those types of biomass residues should be assessed using the procedures outlined in the guidance provided in the procedure for the selection of the baseline scenario and demonstration of additionality.	During site visit, it was verified this parameter will be continuously on-site measured by belt scale located in the plant with accuracy of 1.0, and aggregated, adjusting for the moisture content in order to determine the quantity of dry biomass, and crosscheck the measurements with annual energy balance that is based on purchased quantities and stock changes.	Consistent with methodology
For biomass residues categories for which scenarios B1, B2 or B3 is deemed a plausible baseline alternative, project participants shall demonstrate that this is a realistic and credible alternative scenario	- 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 cannot be sold or utilized) at the ultimate supplier to the project and a representative sample of other suppliers in the defined geographical region	During site visit, it was verified, at the validation stage for biomass residues categories identified ex-ante (Rice straw, Peanut straw, Maize straw and Wood residues), and always that new biomass residues categories are included during the crediting period. The two categories used as fuel in the Project as per the design of the FSR and confirmed by the PP.	Consistent with methodology
Moisture content of the biomass residues	Moisture content of each biomass residue type k	During site visit, it was verified a moisture analyzer located in the laboratory of the plant with accuracy of ±0.1mg will be used to determine the biomass weight on	Consistent with methodology

		dry basis. The moisture content will be continuously monitored for each batch of biomass of homogeneous quality. The monitoring result will be recorded at least annually. The weighted average will be calculated and used for calculation.	
$NCV_{n,y}$	Net calorific value of biomass residues of category n in year y	Default value from public literature or on-site measurements. The measured frequency is at least every six months, taking at least three samples for each measurement. The parameter is used to crosscheck energy balance.	Consistent with methodology
$FC_{diesel\ oil,y}$	Quantity of the diesel oil combusted during the year y	During site visit, it was verified this parameter will be continuously on-site measured with flow meter installed in the plant with accuracy of ± 0.3% and aggregated at least annually. The measured data will be converted into weight using a conservative 0.85 t/m^3 specific gravity value. Crosscheck the measurements with annual energy balance that is based on purchased quantities and stock changes,	Consistent with methodology
$EF_{CO2,diesel\ oil,y}$	CO_2 emission factor of the diesel oil in year y	IPCC default values at the upper limit of the uncertainty at a 95% confidence interval as provided in table 1.4 of Chapter1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories.	Consistent with methodology
$NCV_{diesel\ oil,y}$	Net calorific value of the diesel oil in year y	The net calorific value of the diesel will be quoted from the latest version of IPCC Guidelines.	Consistent with methodology
$D_{f,m}$	Return trip distance between the origin and destination of freight transportation activity f in monitoring period m.	Determined once for each freight transportation activity f for a reference trip using the vehicle odometer. the default and conservative value 100km is applied.	Consistent with methodology
$FR_{f,m}$	Total mass of freight transported in freight transportation activity f in monitoring period m	During site visit, it was verified the parameter is continuously monitored on site by the Weighbridge installed in the plant with accuracy of class III and recorded monthly. Crosscheck the measurements with annual energy balance that is based on purchased quantities and stock changes.	Consistent with methodology

$EG_{PJ,gross,y}$	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	During site visit, it was verified the parameter will be continuously measured by calibrated electricity meter installed at the outlet of generator with accuracy of 0.5S and recorded monthly. The electricity meter will be calibrated according to national standard.	Consistent with methodology
$EG_{PJ,aux,y}$	Total auxiliary electricity consumption required for the operation of the proposed project site in year y	During site visit, it was verified the parameter will be continuously measured by calibrated electricity meter installed at the inlet of substation with accuracy of 0.5S and recorded monthly. The electricity meter will be calibrated according to national standard.	Consistent with methodology
$EG_{PJ,imp,y}$	Project electricity imports from the grid in year y	During site visit, it was verified the parameter will be continuously measured by calibrated electricity meter installed at the inlet of substation with accuracy of 0.5S and recorded monthly. The electricity meter will be calibrated according to national standard.	Consistent with methodology

CTI confirms that the monitoring plan contains all necessary parameters which have been clearly described in VCS PD (version 03.1 dated 09/10/2023) and that the means of monitoring described in the plan complies with the requirements of the methodology.

An organizational structure is provided in VCS PD (version 03.1 dated 09/10/2023). The functions such as data collection, aggregation, verification, calculation, archiving, as well as the maintenance of equipment etc. have been defined. Quality assurance and quality control procedures for recording, maintaining and data archiving etc. will be ensured according to VCS and CDM EB rules. The calibration of the meter will be implemented as per national standard. An emergency treatment process has been defined in VCS PD (version 03.1 dated 09/10/2023) when the meter is in malfunction. Data management and quality control system are quoted in VCS PD (version 03.1 dated 09/10/2023). The monitoring staffs will be trained based on the training program described in VCS PD (version 03.1 dated 09/10/2023).

3.4 Non-Permanence Risk Analysis

Not applicable for the present project activity.

4 VALIDATION CONCLUSION

CTI has performed a validation of renewal of crediting period of the "Anhui Guzhen Biomass Generation Project" (Ref. No. 1121). The validation was performed on the basis of the updated sections of the PD relating to the baseline, estimated emission reductions and the monitoring plan using the most recent version of baseline and monitoring methodology applicable for the project activity. The final validation opinion was finalized in accordance with the VCS Standard version 4.3, CDM VVS for project activities version 03.0 and the CDM PS for project activities version 03.0 including the assessment of:

(a) The impact of new relevant national and/or sectoral policies and circumstances on the baseline taking into account relevant guidance from the Board with regard to renewal of the crediting period of the registered VCS project activity at the time of requesting renewal of crediting period of the project activity;

(b) The correctness of the application of the approved methodology and, where applicable, the approved standardized baseline for the determination of the continued validity of the baseline or its update, and the estimation of emission reductions for the applicable crediting period of the registered VCS project activity.

The review of the project design documentation and the subsequent follow-up interviews have provided CTI with sufficient evidence to determine the validity of the original baseline. The project correctly applies the latest baseline and monitoring methodology ACM0018, "Electricity generation from biomass in power-only plants" version 06.0. CTI is able to confirm:

(a) The updated PD complies with the valid version of the applicable PD form and instructions therein for filling out the PD;

(b) Information transferred to the later valid version of the PD form is materially the same as that in the registered PD;

(c) The baseline and monitoring methodology was applied in accordance with the applicable requirements in the VCS standard and Project Standard;

(d) The baseline, the estimated GHG emission reductions, and the monitoring plan in the updated PD comply with the applicable requirements in the VCS standard and CDM Project Standard, and the valid version of the methodology that is applicable to the registered VCS project activity;

(e) The next crediting period of the registered VCS project activity commences on the day immediately after the expiration of the current crediting period;

(f) The names of project participants in the updated PD are consistent with the names of the project participants in the registered PD.

CTI also confirms that there have been no proposed methodology deviations for the second crediting

period when submitting this report.

Given that the project is implemented as designed and the underlying assumptions do not change, the project is likely to achieve the estimated amount of annual emission reductions of 83,258 tCO_2e and a total estimated emission reduction of 832,580 tCO_2e over the 2nd crediting period as specified within the final PD.

In summary, it is CTI's opinion that the project activity "Anhui Guzhen Biomass Generation Project" (Ref. No. 1121) in P. R. China, as described in the PD, version 03.1 dated 09/10/2023, meets all relevant VCS and UNFCCC requirements for the renewal of the crediting period.

Wu Lin

Mr. Lin Wu
Team Leader
09/10/2023

Zhang Lei

Mr. Zhang Lei
Technical Reviewer
09/10/2023

APPENDIX 1: ABBREVIATIONS

Abbreviations	Full texts
AFOLU	Agriculture, Forestry, and Other Land Use
BM	Build Margin
CDM	Clean Development Mechanism
CME	Coordinating/managing entity
CER	Certified Emission Reduction
CM	Combined Margin
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNA	Designated National Authority
EB	Executive Board
GHG	Greenhouse gas(es)
GS	Gold Standard
EIA	Environmental Impact Assessement
ER	Emission Reduction
ETS	Emission Trading Scheme
FAR	Forward Action Request
GHG	Greenhouse gas(es)
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
PA	Project Activity
PD	Project Description
PP	Project Participant
QA/QC	Quality Assurance / Quality Control

UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
VCS	Verified Carbon Standard
VCSA	Verified Carbon Standard Association
VCU	Verified Carbon Unit
VVB	Validation/Verification Body
PP	Project Participant
UNFCCC	United Nations Framework Convention on Climate Change

APPENDIX 2: REFERENCE LIST

1. VCS PD, version 01 dated 10/01/2022, version 02 dated 03/04/2022, version 03 dated 17/08/2023, version 03.1 dated 09/10/2023
2. ER calculation spreadsheet
3. CDM PDD, version 2.0 dated 21/09/2012
4. Registered VCS PD, version 2.1 dated 17/07/2013
5. CDM Validation Report, version 01 dated 21/10/2012
6. VCS Monitoring Report, version 2.2 dated 23/07/2013
7. VCS Verification Report, version 2.2 dated 23/07/2013
8. VCS Monitoring Report, version 2.0 dated 28/03/2020
9. VCS Verification Report, version 01.0 dated 31/03/2020
10. VCS Standard version 4.3, dated on 20/01/2022
11. VCS Program Guide version 4.2, dated on 20/01/2022
12. Approved methodology ACM0018, version 06.0, dated 11/03/2022
13. Tool to calculate the emission factor for an electricity system, version 07.0
14. Project and leakage emissions from transportation of freight (version 1.1.0)
15. Tool to calculate emission factor for an electricity system(version 7.0)
16. Tool to calculate project or leakage CO2 emission from fossil fuel combustion (version 03.0)
17. Project and leakage emissions from biomass (version 05.0)
18. Assessment of the validity of the original/current baseline and to update the baseline at the renewal of a crediting period, version 03.0.1
19. CDM Validation and Verification Standard for project activities version 03.0
20. CDM Project Standard for project activities version 03.0
21. CDM project cycle procedure for project activities version 03.0
22. Business license
23. Statement issued by the project proponent about the Participated GHG Programs and Forms of Credit

24. Nameplate of the equipments

25. Feasibility Study Report (FSR) compiled by State Power Economic Research Institute in August 2009, and approved by Anhui Energy Bureau on 17/03/2010

26. Environmental Impact Assessment Report compiled by Anhui Institute of Environmental Science in October 2009, and approved by Anhui Environment Protection Bureau on 11/12/2009

27. China Energy Statistical Yearbook 2016-2018

28. 2019 Baseline Emission Factors for Regional Power Grids in China issued by China DNA on 29/12/2020

29. China Electric Power Yearbook 2016-2018

30. Anhui Energy Bureau: Approval of the FSR dated 17/03/2010

31. Power Purchase Agreement signed by Anhui Electric Power Corporation and the project owner

32. 2020 Local Biomass Resource Survey Report issued by Agricultural Bureau of Guzhen County, Bengbu City, Anhui Province

33. operation log

APPENDIX 3: COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS

Mr. Wu LIN

Satisfies the requirements of competence management system of CTI Certification, and is hereby appointed as:

Qualification						
Status	GHG Auditor	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date	√	√	√	√	√	√

Scope	Technical Area
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation
	TA 1.2: Energy generation from renewable energy sources
SS 2: Energy distribution	TA 2.1: Electricity distribution
SS 3: Energy demand	TA 3.1: Energy demand
SS 4: Manufacturing industries	TA 4.1: Cement and lime production
SS 5: Chemical industry	TA 5.1: Chemical industry
	TA 5.2: Caprolactam, nitric and adipic acid
SS 10: Fugitive emissions from fuels (solid, oil and gas)	TA 10.1: Fugitive emissions from oil and gas
SS 11: Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride	TA 11.1: Emissions of fluorinated gases
	TA 11.2: Refrigerant gas production
SS 12: Solvents use	TA 12.1: Chemical industry
SS 13: Waste handling and disposal	TA 13.1: Solid waste and wastewater
	TA 13.2: Manure

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by:

Lu ZHOU

General Manager

Shenzhen, 01/01/2021

Mr. Lei ZHANG

Satisfies the requirements of competence management system of CTI Certification, and is hereby appointed as:

Qualification						
Status	GHG Auditor	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date	√	√	√	√	√	√

Scope	Technical Area
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation
	TA 1.2: Energy generation from renewable energy sources
SS 4: Manufacturing industries	TA 4.1: Cement and lime production
SS 13: Waste handling and disposal	TA 13.1: Solid waste and wastewater

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by: Wu Lin

Wu LIN

Technical Competent Manager

Shenzhen, 01/01/2021

APPENDIX 4: <CLARIFICATION REQUESTS, CORRECTIVE ACTION REQUESTS, FORWARD ACTION REQUESTS (CAR/CL/FAR)>

CAR ID	01	**Section no.**	3.1	**Date:** 14/01/2022
Description of CAR				
Please update PD as per "Project Description, v4.1" that issued by VERRA on 20/01/2022 and describe how the project contributes to achieving any nationally stated sustainable development priorities.				
Project proponent response				**Date:** 03/04/2022
The PD is updated according to "Project Description, v4.1" and how the project contributes to achieving any nationally stated sustainable development priorities are added in the updated PD.				
Documentation provided by project proponent				
PD (version 03.1 dated 09/10/2023)				
VVB assessment				**Date:** 09/10/2023
By checking VCS PD (version 03.1 dated 09/10/2023), it is confirmed that"Project Description, v4.1" that issued by VERRA on 20/01/2022 has been applied. Furthermore, the detailed SD contributions of the project activity have been supplemented and confirmed by the validation team to be correct. Therefore, CAR 01 was closed.				

CAR ID	02	**Section no.**	3.3.2	**Date:** 14/01/2022
Description of CAR				
Please supplement the description about applicability of methodological tool “Project and leakage emissions from biomass”, “Project and leakage emissions from transportation of freight”, “Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion” and “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period”.				
Project proponent response				**Date:** 03/04/2022
The applicability of above tools are added in the revised PD.				
Documentation provided by project proponent				
PD (version 03.1 dated 09/10/2023)				
VVB assessment				**Date:** 09/10/2023

By checking VCS PD (version 03.1 dated 09/10/2023), it is confirmed that the applicability of methodological tool “Project and leakage emissions from biomass”, “Project and leakage emissions from transportation of freight”, “Tool to calculate project or leakage CO2 emissions from fossil fuel combustion” and “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” has been supplemented and validated to be correct. Therefore, CAR 02 was closed.