VERIFICATION REPORT FOR HENAN XINXIANG 24MW BIOMASS BASED COGENERATION PROJECT

Document Prepared by China Classification Society Certification Company (CCSC)

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Summary:

China Classification Society Certification Company (hereafter referred to as "CCSC") has been commissioned by Climate Bridge (Shanghai) Ltd. to perform the verification of greenhouse gas emission reductions of the project activity "Henan Xinxiang 24MW Biomass based Cogeneration Project " (UNFCCC Ref No. 3054, VCS Ref. No. 1140, hereafter referred to as "the project activity") reported in the monitoring report during monitoring period 01-January-2018 to 31-July-2021.

The verification scope is defined as a periodic independent and objective review and ex-post determination by the Designated Operational Entity of the monitored reductions in GHG emissions during defined verification period, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up on-site visit and interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted using CCSC internal procedures.

In summary, CCSC confirms that the Project is implemented as planned and described in the validated VCS-PD. Deviations from the monitoring plan are sufficiently justified. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the Project is ready to reduce GHG emission. The GHG emission reduction is calculated without material misstatements, and the emission reductions verified totalize 309,352 tons of CO_2e for the monitoring period.

Our opinion relates to the Project's GHG emissions and the resulting GHG emission reductions viz. Voluntary Carbon Units (VCUs) reported are based on the valid project baseline, deviation on the monitoring plan and associated documents. Based on the evidence and information that are considered necessary to guarantee that GHG emission reductions are appropriately calculated, CCSC confirms following statement:

Vintage	*BE (tCO_2)*	*PE (tCO_2)*	*LE (tCO_2)*	*ER (tCO_2)*
01-January-2018 – 31-December-2018	123,311	4,111	0	119,200
01-January-2019 – 31-December-2019	95,154	5,165	0	89,989
01-January-2020 – 31-December-2020	75,329	10,015	0	65,314
01-January-2021 – 31-July-2021	40,391	5,542	0	34,849
Total	**334,185**	**24,883**	**0**	**309,352**

1 INTRODUCTION

1.1 Objective

Climate Bridge (Shanghai) Ltd. has commissioned Classification Society Certification Company (hereafter referred to as "CCSC") to verify the emission reductions of the Verified emission reduction (VER) of Henan Xinxiang 24MW Biomass based Cogeneration Project (hereafter referred to as "the Project"), which is located in Huixian County, Xinxiang City, Henan Province, the People's Republic of China for the period from 01-January-2018 to 31-July-2021.

CCSC as the validation/verification body (VVB) of the Project has been accredited as a DOE by UNFCCC and also meets the competence requirements as set out in ISO 14065.

The objective of verification is to verify the reported voluntary emission reductions generated by the Project for the period from 01-January-2018 to 31-July-2021 and to confirm that actual monitoring systems and procedures are in compliance with that described in the monitoring plan and the additional requirements stated by Verra.

1.2 Scope and Criteria

The verification scope is defined as an independent and objective review of the registered PD, the Project's baseline study and Monitoring Report (MR) and other relevant documents. The information in these documents is reviewed against VCS Version 4.1 requirements, the latest version of the CDM Validation and Verification Standard and associated interpretations.

The verification 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

CCSC has undertaken a reasonable assurance engagement in accordance with VCS version 4.1. It requires a reasonable level of assurance in verification that GHG assertions are free of material errors, omissions and misrepresentations. The verification conclusion is based on the VCS-PD, VCS-MR, supporting evidences made available to the verifier and information collected through performing interviews and during the on-site inspection.

1.4 Summary Description of the Project

Project title	*Henan Xinxiang 24MW Biomass based Cogeneration Project*

UNFCCC reference number	*3054*
VCS reference number	*1140*
Crediting period (VCS)	*This monitoring period involves both the first and second crediting period.* *1st: 28-October-2009 –27-October-2019, totally 10 years.* *2nd: 28-October-2019 to 27-October-2029, totally 10 years.*
Project Participants	*Xinxiang Tianjie Bio-Power Generation Co., Ltd. (Project Owner, host country, P. R. China)*
Location of the project	*Located in Huixian County, Xinxiang City, Henan Province, the People's Republic of China* *Central Geographic coordinates:* *113°30'40"E and 35°19'50'N*
Monitoring period	*01-January-2018 to 31-July-2021*
Applied Methodology/Version	*ACM0006, Ver.10 and 15.0* *ACM0006 version 10 and 15.0 are respectively applied in the first and second crediting period*
Scope/Technical Area	*Scope 1/ TA 1.1*
UNFCCC link:	*https://cdm.unfccc.int/Projects/DB/RWTUV1256116990.83/view*
VCS	*https://registry.verra.org/app/projectDetail/VCS/1140*

The Henan Xinxiang 24MW Biomass based Cogeneration Project (hereafter referred to as the project) developed by Xinxiang Tianjie Bio-Power Generation Co., Ltd. (hereafter referred to as the project proponent) is a biomass based cogeneration project located in Huixian County, Xinxiang City, Henan Province, the People's Republic of China. The Project involves 2 sets of steam turbine and generator with unit capacity of 12 MW and total installed capacity of the project activity is 24 MW. The utilization of biomass residues is for cogeneration of power and heat, the average annual power delivered to the grid by the project is expected to be 126,709 MWh and the generation of heat with 909,200GJ/yr. Due to the project doesn't claim the emission reductions due to displacement of heat, hence, the Project can reduce GHG emissions by replacing the electricity generated by fossil fuel fired power plants Central China Power Grid (CCPG) and CH_4 emissions will be reduced by avoiding dumping of biomass residues. It's estimated that the project activity could achieve GHG emission reductions of 123,858 tCO_2e annually in the 1st crediting period according to the CDM PDD for the 1st crediting period Version 10 and estimated annual emission reductions in the 2nd crediting period is 55,874 tCO_2e

according to the VCS PD for the 2nd crediting period Version 1.1.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The overall validation, from Contract Review to Validation Report & Opinion, was conducted using CCSC internal procedures. CCSC verified the information contained in the documents reviewed against the requirements set in VCS Standard Version 4.1, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant UNFCCC requirements and applying standard auditing techniques.

2.2 Document Review

Verification was conducted using CCSC's procedures in line with the requirements specified in the VCS Standard version 4.1, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant UNFCCC requirements and applying standard auditing techniques.

The CDM Project Design Document (CDM-PDD), VCS Project Description (VCS-PD) for 2nd crediting period and the Monitoring Report (VCS-MR) for 3rd monitoring period submitted by Climate Bridge (Shanghai) Ltd. and additional background documents related to the project design and baseline, i.e. country Law, registered CDM-PDD, validation report, Approved methodology, Clarifications on Validation Requirements to be Checked by a certified validation body were reviewed.

Furthermore, crosschecks were made between information provided in the VCS-MR, VCS-PD, CDM-PDD and information from sources other than those used.

2.3 Interviews

The follow-up interview was conducted during the site visit from 12-August-2021 to 14-August-2021 by Mr. LI Xingtong (Team Leader), Mr.XU Fangzhou (Team Member) from CCSC, which is focused on the issues identified during the desk review. The main topics of the interviews are summarized in ***Table 1****.*

Table 1. Interview topics

Interviewed Organization and Persons	Interview Topics
Xinxiang Tianjie Bio-Power Generation Co., Ltd. Tianjie Bio-Power Plant – *Mr. WANG Qingjie, General Manager of the plant* – *Mr. ZHANG Jingwen, Operation Duty Chief* – *Mr. WANG Yongdong, Operation Duty Chief* – *Mr. SUN Jinxun, Local Villager* – *Ms. CUI Yancheng, Local Villager* – *Mr. ZHANG Mahui, Local officer*	↬ *Project background information* ↬ *Project technology, operation, maintenance and monitoring capability.* ↬ *Project monitoring and management plan.* ↬ *The evidences of construction status and operation of key equipment, parameters monitoring and data processing activities, monitor equipment and calibration.* ↬ *Monitoring data.* ↬ *Quality Management; organizational structure, responsibilities and competencies; Internal QA/QC Management procedures and document control.* ↬ *Compliance with National Laws and Regulations.*
Climate Bridge (Shanghai) Ltd. – *Ms. PENG Yumei, Project Manager*	↬ *Applicability of selected methodology.* ↬ *Baseline determination.* ↬ *Emission reductions calculation.* ↬ *Emission reduction monitoring plan.*

2.4 Site Inspections

The assessment team performed the on-site verification from 12-August-2021 to 14-August-2021. The interviewed personnel and objective are listed in above table.

2.5 Resolution of Findings

The objective of this phase of the validation is to resolve issues that require further elaboration, research or expansion prior to CCSC's positive conclusion on the project design.

A Corrective Action Request (CAR) is raised, if one of the following situations occurs:

(a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable, verifiable and additional emission reductions;

(b) The applicable VCS requirements have not been met;

(c) There is a risk that emission reductions cannot be monitored or calculated.

A Clarification Request (CL) is raised, if information is insufficient or not clear enough to determine whether the applicable VCS requirements have been met.

A Forward Action Request (FAR) may also be raised during validation, to identify issues related

to project implementation that require review during the first verification of the project activity.

To guarantee the transparency of the validation process, the issues raised, the responses provided by the project participants, the means of validation of such responses and references to any resulting changes in the VCS-PD and CDM-PDD or supporting annexes are documented in the Appendix A.

2.5.1 Forward Action Requests

No FAR was raised during the verification process. Also there are no remaining from former verification and validation.

2.6 Eligibility for Validation Activities

Not applicable as China Classification Society Certification Company holds the accreditation for the validation and verification for projects under scope 1.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

Through reviewing the registered PDD and validation report at UNFCCC website, it was validated that the project has also been registered as a CDM project with reference No. 3054. By checking https://registry.verra.org/app/projectDetail/VCS/1140, it is confirmed that the project also registered as a VCS project with the Ref. No. 1140. The project does not participate in the other emissions trading program by checking public information on Internet and interviewing with project owner. The project would claim for either CERs or VCUs, however CERs and VCUs would not been claimed together in the same period confirmed by checking statement issued by project owner.

The verification team reviewed issuance information in VCS/CDM registry system, and confirmed that GHG Emission Reductions Credits have been issued as follows:

Table 2. List of GHG emission reduction credits issued

Monitoring period	*GHG emission reductions (tCO_2e)*	*Credit Type*	*Program*
28-October-2009 to 10-July-2011	*153,838*	*VCU*	*VCS*
11-July-2011 to 31-December-2012	*186,473*	*CER*	*CDM*

01-January-2013 to 31-December-2017	*454,707*	*VCU*	*VCS*

Therefore, CCSC consider the project is eligible to participate under the VCS Program as there is no double counting for the emission reduction during any period.

Since China has initiated ETS in July 2021, and as per the Notice (Huan ban qi hou [2021] No.9) issued by Ministry of Ecology and Environment of P.R.China (MEE), the fossil fuel power and/or heat generation plants in Henan Province are covered by China ETS, and also other seven industries will be included in the future.

However, as per the notice, the project activity is not covered by the mandatory emission control scheme and there is no emission cap enforced for the project owner.

Also, the CCSC verification team reviews the regulations, and realises that the allowance (CEA) for power generation industries will be allocated on the basis of carbon emission intensity, i.e. the CEA allocation is not related with the components of local grid.

Furthermore, the CCSC verification team checked the No Double Counting Statement issued by the project owner, and confirms the PP has not issued and will not issue the GHG emission reductions generated during this monitoring period.

In summary, CCSC verification team can conclude that net GHG emission reductions generated during this monitoring period have not been used and will not be used for compliance under other programs or mechanisms.

3.2 Methodology Deviations

Not applicable as not deviation for methodology.

3.3 Project Description Deviations

As per the MR and via on-site inspection and checking the related documents, below project description deviations have been identified and assessed by VVB,

1. *For the crediting period, via checking the VCS website of the project, CCSC verification team confirmed that the project is registered under VCS standard Version 3.3 and completed validation before 19-Mar-2020, hence, via the VCS standard 4.1, "registered projects and projects that complete validation on or before 19-Mar-2020 remain eligible to apply the crediting period requirements under VCS standard Version 3.3 which shall be a maximum of ten years and may be renewed at most twice". Therefore, the first renewable crediting period of this project is updated from 28-October-2009~10-July-2011 to 28-October-2009~27-October-2019 which is verified as in line with the requirement of VCS standard 4.1.*

   Furthermore, due to the project is registered as a CDM project (UNFCCC Ref. 3054) and the

*crediting period under CDM is 21 years (7*3 renewable), therefore the total length of VCS crediting period should be no more than 21 years which is from 28-October-2009 to 27-October-2030 and the project is not eligible for VCU issuance beyond 27-October-2030.*

2. *For the monitoring system, as per the PDD, to monitor the parameter $EG_{projectplant,y}$, two bi-directional electricity meters M1 (Measure meter) and M1' (back-up meter) with an accuracy of 0.5s installed at the import of the new Wucun electric transformer were used as gate-meters to monitor the exported ($EG_{export,y}$) and imported ($EG_{import,y}$) electricity since the project start operation. While on 02-June-2015, via checking the meter change/dismantle record, CCSC verification team confirmed that the local grid company replaced the gate meters with two new bi-directional electricity meters with an accuracy of 0.2s which are more fit for the remote monitoring, and by checking the latest Power Purchase Agreement signed between the project owner and the grid company on 09-May-2016, CCSC verification team verified that the new gate meters have been installed at supply side of the project site due to the change of property rights of grid-connected line which have been agreed by both project owner and the grid company. It is found that the new meters have higher accuracy than the old ones which is verified as more accurate for monitoring the electricity exported and imported, hence it is confirmed that no influence on the ER calculation will be occurred due to the meter replacement and no change of the application of applied methodology.*

3. *For the monitoring system, as per the PDD, to monitor the parameter $EC_{PJ,y}$, the on-site electricity consumption at the stalk collection sites was measured by electricity meters installed by power grid company with an accuracy of 1.0s. Via checking the previous monitoring report and verification report, CCSC verification team confirmed that there was only one stalk collection site was built to collect stalks since the start of the project, and the on-site electricity consumption at the stalk collection site was measured by an electricity mete (M2) installed on this collecting site by power grid company with an accuracy of 1.0s. However, via site inspection and meter change/dismantle record, CCSC verification team verified that this stalk collection site has been closed on 10-March-2014 and after that all biomass is transported directly to the project site, therefore, M2 has been dismantled and the electricity consumed by the project activity is 0 from 10-March-2014 onward.*

4. *For the monitoring system, as per the PDD, to monitor the parameter $FF_{projectsite,diesel,y}$, a flow meter (F1) was used to measure the diesel consumption for ignition, however, during the actual operation of the project, no diesel is needed for the ignition as the biomass residues used in the project are easy to be burnt in the boiler. During the previous monitoring period from 28-Oct-2009 to 31-Dec-2012, the diesel consumption for ignition was 0 which has been verified by checking the previous verification report, therefore the flow meter F1 has been dismantled on 02-Feb-2013 by the project owner which has been confirmed by checking the meter change/dismantle record.*

   For the diesel used in forklifts, the consumption was determined by the records of diesel purchase and remained which will be cross-checked with diesel fuel purchase invoices, the final conservative value was used for ER calculation.

The above deviations have been identified as deviations in the VCS second periodical verification process and no more deviations observed during this monitoring period. And based on above assessment, CCSC verification team verified that these changes of deviation do not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario and no risk impact on the higher emission reduction calculation. Hence, there is no need to do the re-validation of the project.

3.4 Grouped Project

Not applicable.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

CCSC verification team has performed an on-site visit and found that the Project has been put into operation and the electricity generated through renewable biomass residues is supplied to CCPG according to the signed Power Purchase Agreement (PPA). It's witnessed that the Project involves the installation of 2 sets of steam turbine and generator with unit capacity of 12 MW, with a total installed capacity of 24 MW, The utilization of biomass residues is for cogeneration of power and heat, the average annual power delivered to the grid by the project is expected to be 126,709 MWh and the generation of heat with 909,200GJ/yr as per the registered PDD. Due to the project doesn't claim the emission reductions due to displacement of heat, hence, the Project can reduce GHG emissions by replacing the electricity generated by fossil fuel fired power plants Central China Power Grid (CCPG) and CH_4 emissions will be reduced by avoiding dumping of biomass residues. Through checking the nameplates of boilers, steam turbines and generators on-site, the CCSC verification team can confirm the information of the physically installed facilities has been consistently reported in the MR which is in line with the PDD. The parameters of the hydro turbine generators are listed as following tables:

Table 3. Key technical data for the equipment of the Project

Parameter		*Value*
Installed capacity (MW)		*24*
Model of Boiler		
YG-75/3.82-T	*Units*	*2*
	Rated evaporative capacity	*75t/h*
	Steam-gas pressure	*3.821MPa*

	Water temperature	*150°C*
	Efficiency	*83%*
	Manufacture	*Jinan Boiler Group Co., Ltd.*
Model of steam turbine		
C12-3.43/0.98	*Units*	*2*
	Rated installed capacity	*12MW*
	Inlet pressure	*3.43MPa*
	Inlet temperature	*435°C*
	Rated steam flow	*75t/h*
	Rated revolution	*3,000r/min*
	Manufacture	*China Changjiang Energy Corp (Group)*
Model of generator		
QF-15-2	*Units*	*2*
	Rated power	*15MW*
	Rated voltage	*6,300V*
	Rated power factor	*0.8*
	Rated revolution	*3,000r/min*
	Manufacture	*China Changjiang Energy Corp (Group)*

Therefore, the CCSC verification confirmed there is no changes from the project design to actual implementation have been identified during this verification. The operation of the project activity has been conducted in accordance with the description of the registered CDM-PDD.

As per previous validation report and verification reports, it's confirmed that the construction of the project started since June 2008 and the 1st turbine generator's commissioning time was 28-October-2009 and 2nd turbine generator's commissioning time was 17-January-2011.

[Power System]

As shown in the diagram of the power connection system, quantities of utilized biomass residues are delivered to project site and through combustion of biomass residues in the boilers, the electricity generated through steam turbines and generators by the Project is delivered to the CCPG.

[Metering System]

Five monitoring devices involved in the monitoring system:

- *The M1 (Measure meter) and M1' (Check meter) have been installed on supply side of the project site, to measure the export ($EG_{export,y}$) and import ($EG_{import,y}$) electricity from the grid,*
- *The weight meter W1 has been installed at the gate of the project site, to monitor the*

quantity of the biomass residues that has been transported to the project site,

- *The electronic belt weight B1 has been installed at the feeding inlet of the boiler, to monitor the quantity of biomass residues combusted in the project plant*
- *The Drying oven & balance Ma1 have been installed at the Laboratory of the project site, to monitor the moisture content of the biomass residues*

4.2 Safeguards

4.2.1 No Net Harm

By checking the EIA summary and conclusion provided in the registered PDD, it is confirmed that the project does not have significant impacts on the environment or on the local society and economy as it results in zero GHG emissions due to installation and operation of clean, renewable energy technology for electricity generation. Negative impacts are mitigated with a set of environmental protection measures in consistent with national and local laws and regulations which has been verified by checking the Approval of EIA issued by Environment Protection Agency (EPA) of Henan Province.

After the completion of the construction, the project was put into operation after inspection and acceptance by the local environmental protection department. During the project operation, the project continues to contribute to the local society and economy by using clean renewable energy to reduce greenhouse gas emissions and the environmental pollution.

Also, no potential environment or social economic matter was found during the site visit. The project is renewable energy project and implementation of the project improved local socio-economic development through creating career opportunities and paying taxes which has been confirmed by site interview with local officer and resident

4.2.2 Local Stakeholder Consultation

According to the CDM-PDD, local stakeholders were invited to provide comments by carried out the stakeholders meeting on 03-March-2008 which was prior to the start date of the construction. The processes by which comments from local stakeholders have been invited and compiled, has been described within the CDM-PDD.

During the implementation stage of this monitoring period, representatives from the local community were interviewed, the relevant evidences were presented to CCSC for assessment.

The project owner conducted regular local stakeholder consultation during this monitoring period, i.e. in 2019 and 2021 respectively. 30 copies questionnaires were distributed respectively on 25-May-2019, 14-Jul-2021 and all of them were collected. In general, the interviewees show adequate understanding of the nature of the Project and agreed that the

Project would benefit the environment, society and economic development. The response is overall supportive. The verification team checked the 60 filled questionnaires and confirmed that no negative comments were received.

Hence there is no need to change the project design based on the stakeholder inputs and CCSC verification team confirmed that all the processes have been implemented to receive comments from local stakeholders as well as communicate with them at periodic intervals which in compliance with the VCS requirements.

4.3 AFOLU-Specific Safeguards

Not applicable.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

[Fixed ax-ante parameters]

The data and parameters fixed ex-ante have been reported in the MR, and have been checked against the registered monitoring plan and the applied methodology by the CCSC verification team.

GWP_{CH4} *- Global Warming Potential of methane*

The Global Warming Potential of methane has been determined ex-ante in the registered monitoring plan for the 1st crediting period but updated as per VERRA decisions, the value used in this monitoring period is derived from Fifth Assessment Report (AR5) as per VCS standard version 4.1.

$EF_{grid,CM,y}$ *- CO_2 emission factor for the electricity displaced due to the project/ The baseline grid emission factor*

$EF_{grid,CM,y}$ in the monitoring report have two values, 0.9735 tCO_2/MWh for 1st crediting period, which has been verified against the CDM-PDD and confirmed as consistent, and 0.4287 tCO_2/MWh for 2nd crediting period, which derived from 2019 Baseline Emission Factors for Regional Power Grids has been verified against the VCS-PD for 2nd crediting period.

$EF_{km,CO2}$ */* ***$EF_{CO2,f}$*** *- Average CO_2 emission factor for the trucks during the year y/ Default CO_2 emission factor for freight transportation activity f*

Average CO_2 emission factor in the monitoring report have two values, ***$EF_{km,CO2}$*** *is 1,097 g CO_2e/t km for 1st crediting period, which has been verified against the CDM-PDD and confirmed as consistent, and* ***$EF_{CO2,f}$*** *is 245 g CO_2e/t km for 2nd crediting period, which is the conservative default value from "TOOL12: Project and leakage emissions from transportation of freight version 1.1.0" has been verified against the VCS-PD for 2nd crediting period.*

$NCV_K \cdot EF_{burning,CH4,k,y}$ / $NCV_{BR,n,y} \cdot EF_{BR,n,y}$ - The CH_4 emission factor for the combustion of biomass residues in the project plant in year y

The CH_4 emission factor is 0.001971 tCH_4/t for both 1st crediting period and 2nd crediting period, which has been verified against the CDM-PDD and confirmed as consistent, and is confirmed as the default value from ACM0006 (Version 10 and 15.0).

$EF_{CH4,BF}$ / $EF_{CH4,BR}$ - The CH_4 emission factor for the combustion of biomass residues in the project plant

The CH_4 emission factor is 41.1 $kgCH_4/TJ$ for both 1st crediting period and 2nd crediting period, which has been verified against the CDM-PDD and confirmed as consistent, and is confirmed as the default value from ACM0006 (Version 10 and 15.0).

$NCV_{diesel,y}$ - The net calorific value (energy content) of diesel

The net calorific value of diesel is 42.652 GJ/t for both 1st crediting period and 2nd crediting period, which has been verified against the CDM-PDD and confirmed as consistent, and is confirmed as the Country-specific value from China Energy Statistical Yearbook.

$EF_{CO2,diesel,y}$ - The CO_2 emission factor of diesel in year y

CO_2 emission factor of diesel in the monitoring report have two values, 0.0741 t CO_2/GJ for 1st crediting period, which has been verified against the CDM-PDD and confirmed as consistent, and 0.0748 t CO_2/GJ for 2nd crediting period, which is the conservative default value from IPCC as per the tool "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion" (version 03.0) which has been verified against the VCS-PD for 2nd crediting period.

TDL_y - Average technical transmission and distribution losses in the grid in year y for the voltage level at which electricity is obtained from the grid at the project site

TDL_y in the monitoring report involved two parts, 20% for 1st crediting period, which has been verified against the CDM-PDD and confirmed as consistent, and not applicable for 2nd crediting period due to the calculation formula of the project emissions due to grid electricity imports to the project site do not involve this parameter as per the applied methodology ACM0006 version 15.0 which has been verified against the VCS-PD for 2nd crediting period.

[Monitoring parameters]

The monitoring parameters have been carried out in accordance with the monitoring plan contained in the registered CDM-PDD for 1st crediting period and VCS-PD for 2nd crediting period. All parameters were monitored and determined as per the monitoring plan which is listed in below table:

Means of verification	*The verification team has performed the following activities to determine whether the monitoring of parameters related to the GHG emission reductions has been implemented in accordance with the registered monitoring plan contained in the registered CDM-PDD for 1st crediting period and VCS-PD for 2nd crediting period.* • *Through the on-site inspection of the monitoring system, interview with the operation staff, document review including relevant records, procedures and technical specifications, the verification team has assessed the implementation of the registered monitoring plan followed by the PP;* • *The parameters stated in the registered monitoring plan have been checked by means above;* • *The verification team has checked the installation of the electricity meters and other monitoring devices by onsite inspection against PPA, diagram of power connection system and calibration reports by qualified third party;* • *The MRRs and sales/purchase receipts, biomass residues records etc. were checked by the team to confirm the monitoring results;* • *Based on the interview with the top management and operation staff and the review of the VCS Monitoring & Management Manual, the verification team has assessed the quality assurance and quality control procedures applied by the PP.* *No sampling plan was involved in the project activity.*
Findings	*According to the registered monitoring plan, the parameters which need to be monitored include:* ***1st crediting period:*** ***Baseline emission parameters:*** *According to the methodology and registered PDD, there is no direct BE calculation formular but the ER is calculated as below* $ER_y = ER_{heat,y} + ER_{electricity,y} + BE_{biomass,y} - PE_y - L_y$ *Where:* ER_y = *Emissions reductions of the project activity during the year y (tCO_2/yr)* $ER_{electricity,y}$ = *Emission reductions due to displacement of electricity during the year y (tCO_2/yr)* $ER_{heat,y}$ = *Emission reductions due to displacement of heat during the year y (tCO_2/yr)* $BE_{biomass,y}$ = *Baseline emissions due to natural decay or burning of anthropogenic sources of biomass residues during the year y (tCO_2e/yr)* PE_y = *Project emissions during the year y (tCO_2/yr)* L_y = *Leakage emissions during the year y (tCO_2/yr)* *Hence baseline emissions is considered in the MR including $ER_{heat,y}$, $ER_{electricity,y}$ and $BE_{biomass,y}$,* *For $ER_{heat,y}$, this project does not claim for the emission reductions due to displacement of heat, so $ER_{heat,y}$= 0.*

For $ER_{electricity,y}$, as per the PDD and applied methodology, it is calculated as below formular,

$$ER_{electricity,y} = EG_y \cdot EF_{electricity,y} = EG_{projectplant,y} \cdot EF_{grid,CM,,y}$$

Where:

$EG_{project\ plant,y}$	=	*Net quantity of electricity generated in the project plant during the year y, MWh*
$EF_{grid,CM,y}$	=	*CO_2 emission factor for the electricity displaced due to the project activity during the year y, tCO_2e/MWh*

For $BE_{biomss,y}$, as per the PDD and applied methodology, it is calculated as below formular,

$$BE_{biomass,y} = GWP_{CH_4} \cdot \sum_k BF_{PJ,k,y} \cdot NCV_k \cdot EF_{burning,CH_4,k,y}$$

Where:

GWP_{CH4}	=	*Global Warming Potential of methane valid for the commitment period, tCO_2e/ tCH_4*
$BF_{PJ,k,y}$	=	*Incremental quantity of biomass residue type k used as a result of the project activity in the project plant during the year y, tons of dry matter*
NCV_k	=	*Net calorific value of the biomass residue type k, GJ/ tons of dry matter*
$EF_{burning,CH4,k}$	=	*CH_4 emission factor for uncontrolled burning of the biomass residue type k during the year y, tCH_4/GJ*

2nd crediting period:

Baseline emission parameters:

The baseline emissions are calculated as below formulae,

$BE_y = EL_{BL,y} \times EF_{grid,CM,y} + BE_{BR,y}$

$= EL_{PJ,exp,y} \times EF_{grid,CM,y} + GWP_{CH4} \times \sum_n BR_{B1,n,y} \times NCV_{BR,n,y} \times EF_{BR,n,y}$

Where:

$BE_{BR,B1,y}$	=	*Baseline emissions due to aerobic decay of biomass residues in year y ($t\ CO_2$)*
GWP_{CH4}	=	*Global Warming Potential of methane valid for the commitment period ($t\ CO_2/t\ CH_4$)*
$BR_{B1,n,y}$	=	*Quantity of biomass residues of category n used in the CDM project activity in year y for which the baseline scenario is B1 (tonnes on dry-basis)*
$NCV_{BR,n,y}$	=	*Net calorific value of biomass residue of category n in year y (GJ/tonne on dry-basis)*
$EF_{BR,n,y}$	=	*CH_4 emission factor for uncontrolled burning of the biomass residues category n during the year y (tCH_4/GJ)*
n	=	*Biomass residue category*
$EL_{BL,y}$	=	*Baseline electricity generation in year y (MWh)*
$EL_{PJ,exp,y}$	=	*The project electricity exports to grid in year y (MWh)*

	$EF_{grid,CM,y}$ = *The baseline grid emission factor (tCO_2e/MWh)* • *$EF_{grid,CM,y}$: ex-ante determined as above* • *$EG_{Projectplant,y}$/$EG_{PJ,exp,y}$:* *For 1st crediting period, $EG_{projectplant,y}$ is net quantity of electricity generated in the project plant during the year y, it is monitored by two bi-directional electricity meters M1 (measure meter) and M1' (check meter) installed at supply side of the project site which can measure electricity export ($EG_{export,y}$) and import ($EG_{import,y}$) electricity from the grid, then the net quantity of electricity generated in the project plant is calculated by difference of the two values.* *The values are continuously measured by meter and monthly recorded which is verified as per PDD and the applied methodology. At 24:00 hr of the 23rd day of each month, the monitoring team record the bidirectional electricity meter's readings and complete Meter Reading Records (MRRs). The staff from power grid company issue the receipts from electricity sales and purchases according to the meter readings monthly. The receipts from electricity sales and purchases have been used for cross-check and via comparing the receipts from electricity sales and purchases for this motoring period with the electricity meter reading records, it is verified that the values are consistent.* *For 2nd crediting period, $EL_{PJ,exp,y}$ is project electricity exports to grid in year y, it is monitored by two bi-directional electricity meters M1 (measure meter) and M1' (check meter) installed at supply side of the project site which can measure the gross quantity of electricity generated directly.* *The values are continuously measured by meter and monthly recorded which is verified as per PDD and the applied methodology. From December 2019 onwards, bidirectional electricity meter reading record date was changed from 24:00 hr of the 23rd day to 24:00 hr of last day of each month, the monitoring team record the bidirectional electricity meter's readings and complete Meter Reading Records (MRRs). The staff from power grid company issue the receipts from electricity sales according to the meter readings monthly. The receipts from electricity sales have been used for cross-check and via comparing the receipts from electricity sales for this motoring period with the electricity meter reading records, it is verified that the values are consistent.* • *GWP_{CH4}: ex-ante determined as above* • *$NCV_{BR,n,y} \times EF_{BR,n,y}$: ex-ante determined as above* • *$BF_{k,y}$/ $BR_{B1,n,y}$: quantity of biomass residue type k combusted in the project plant during the year y/ Quantity of biomass residues of category n used in the CDM project activity in year y for which the baseline scenario is B1* *Along the crediting period, new categories of biomass (i.e. new types, new sources, with different fate) can be used in the CDM 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 categories 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.* *In this monitoring period, there is no new categories of biomass residues used by the project activity.* *It is monitored by electronic belt weight installed at the feeding inlet of the boiler. Adjust for the moisture content in order to determine the quantity of dry biomass. For*

the moisture content value, refer to below assessment for parameter Moisture content of the biomass residues

For consumption of biomass residues, the quantity (wet-basis) and type were measured and recorded in Monthly Report for Biomass Residues Consumption. Then Quantity (tonnes on dry-basis) of biomass residues were calculated based on Quantity (tonnes on wet-basis) of biomass residues and the moisture content (For the moisture content value, refer to below assessment for parameter Moisture content of the biomass residues) of the biomass residues accordingly and recorded in the Monthly Report for Biomass Residues Consumption.

The energy balance for this monitoring period based on biomass residues purchased quantities and stock changes have been used for cross-check and via comparing the Monthly Report for Biomass Residues Consumption for this motoring period with the energy balance on biomass residues purchased quantities and stock changes, it is verified that the values in Monthly Report for Biomass Residues Consumption are reasonable.

- *Moisture content of each biomass residues type k (used for calculate dry-basis of $BF_{k,y}$/ $BR_{B1,n,y}$)*

  It is monitored by moisture analyzer installed in gate of the project site. For each freight transported biomass residues, the moisture content of the biomass residues has been monitored continuously by using moisture analyzer/Drying oven & balance and recorded in the Monthly biomass residues transported statistics record. The moisture content was monitored for each freight transported of biomass of homogeneous quality, using moisture analyzer/Drying oven & balance. The mean values calculated monthly and used in the ER calculations.

(2) Project emission parameters:

The project emissions are calculated as below formulae,

1st crediting period:

According to the PDD and methodology, the project emissions within the project boundary is calculated on a seasonal basis using the following formula:

$$PE_y = PET_y + PEEF_y + PE_{EC,y} + GWP_{CH4} \times PE_{biomass,CH4,y}$$

Where:

PET_y	=	CO_2 emissions during the year y due to transport of the biomass residues to the project plant (tCO_2/yr)
$PEFF_{,y}$	=	CO_2 emissions during the year y due to fossil fuels co-fired by the generation facility or other fossil fuel consumption at the project site that is attributable to the project activity (tCO_2/yr)
$PE_{EC,y}$	=	CO_2 emissions during the year y due to electricity consumption at the project site that is attributable to the project activity (tCO_2/yr)
GWP_{CH4}		Global Warming Potential of methane valid for the commitment period, tCO_2e/ tCH_4
$PE_{Biomass,CH4,y}$		CH_4 emissions from the combustion of biomass residues during the year y (tCH_4/yr)

1. *For PET_y, as per the PDD and applied methodology, it is calculated as below formular,*

$$PET_y = \frac{\sum_k BF_{T,k,y}}{TL_y} \cdot AVD_y \cdot EF_{km,CO_2,y}$$

Where:

AVD_y	=	*Average round trip distance (from and to) between the biomass residue fuel supply sites and the site of the project plant during the year y (km)*
$EF_{km,CO2,y}$	=	*Average CO_2 emission factor for the trucks measured during the year y (tCO_2/km)*
$BF_{T,k,y}$	=	*Quantity of biomass residue type k that has been transported to the project site during the year y (tons of dry matter or liter)*
TL_y	=	*Average truck load of the trucks used (tons or liter) during the year y*
k		*Types of biomass residues used in the project plant and that have been transported to the project plant in year y*

2. *For $PEFF_{,y}$, as per the PDD and applied Tool to Calculate Project or Leakage CO_2 Emissions from Fossil Fuel Combustion(version 02), it is calculated as below formular,*

$$PEEF_y = \sum_i (FF_{projectplant,i,y} + FF_{projectsite,i,y}) \cdot NCV_i \cdot EF_{CO_2,i,y}$$

Where:

$FF_{project\ plant,i,y}$	=	*Quantity of the fossil fuel i (diesel) combusted in the project plant during the year y, t;*
$FF_{project\ site,i,y}$	=	*Quantity of the fossil fuel i (diesel) combusted at the project site for other purposes that are attributable to the project activity during the year y, t;*
NCV_i	=	*net calorific value of the fossil fuel i (diesel), GJ/t;*
$EF_{CO2,i,y}$	=	*CO_2 emission factor for the fossil fuel i (diesel) during year y, tCO_2e/GJ*

3. *For $PE_{EC,y}$, as per the PDD and applied Tool to Calculate Baseline, Project and/or Leakage Emissions from Electricity Consumption (version 01), it is calculated as below formular,*

$$PE_{EC,y} = EC_{PJ,y} \cdot EF_{grid,y} \cdot (1 + TDL_y)$$

Where:

$EC_{PJ,y}$	=	*Quantity of electricity consumed by the project activity during the year y, MWh*
$EF_{grid,y}$	=	*CO_2 emission factor of CCPG during the year y, tCO_2e/MWh*
TDL_y	=	*Average technical transmission and distribution losses in the grid in year y for the voltage level at which electricity is obtained from the grid at the project site, %*

4. *For $PE_{Biomass,CH4,y}$, as per the PDD and applied methodology, it is calculated as below formular,*

$$PE_{biomass,CH_4,y} = EF_{CH_4,BF} \cdot \sum_k BF_{k,y} \cdot NCV_k$$

Where:

$EF_{CH4,BF}$	=	*CH_4 emission factor for the combustion of biomass residues in the project plant, tCH_4/GJ;*
$BF_{k,y}$	=	*Quantity of biomass residue type k combusted in the project plant during the year y, t*
NCV_k	=	*Net calorific value of the biomass residue type k, GJ/t*

2nd crediting period

According to the methodology ACM0006 (version 15.0) and renewed VCS PD, the project emissions are calculated as follows:

$$PE_y = PE_{FF,y} + PE_{TR,y} + PE_{BR,y} + PE_{GR1,y}$$

Where:

PE_y	=	*Project emissions in year y (t CO_2)*
$PE_{FF,y}$	=	*Emissions during the year y due to fossil fuel consumption at the project site (t CO_2)*
$PE_{TR,y}$	=	*Emissions during the year y due to incremental transport of biomass to the project plant (t CO_2)*
$PE_{BR,y}$	=	*Emissions from the combustion of biomass during the year y (t CO_2e)*
$PE_{GR1,y}$	=	*Emissions during the year y due to grid electricity imports to the project site (t CO_2)*

1. Determination of PE_{FFy}

$$PE_{FFy} = \sum_i FC_{projectsite,i,y} \cdot NCV_{i,y} \cdot EF_{CO_2,i,y}$$

Where:

PE_{FFy}	=	*Are the CO_2 emissions from fossil fuel combustion in process j during the year y (tCO_2/yr)*
$FC_{projectsite,i,y}$	=	*Is the quantity of fuel type i combusted in process j during the year y (mass or volume unit/yr)*
$NCV_{i,y}$	=	*Is the weighted average net calorific value of the fuel type i in year y (GJ/mass or volume unit)*
$EF_{CO_2,i,y}$	=	*Is the weighted average CO_2 emission factor of fuel type i in year y (tCO_2/GJ)*
i	=	*Are the fuel types combusted in process j during the year y*

For 2nd crediting period, $FC_{projectsite,i,y}$ is Quantity of diesel combusted in the project activity during the year y, it is derived from diesel fuel purchase invoices.

The quantity of diesel fuel purchased which has been verified in the records of diesel purchase and remained and cross-checked with diesel fuel purchase invoices was

used for ER calculation which is more conservative as there could be stock for diesel. Thus, the purchase invoices are provided to calculate the project emission for conservativeness for this monitoring period.

- *$NCV_{diesel,y}$ - ex-ante determined as above*
- *$EF_{CO2,diesel,y}$ - ex-ante determined as above*

2. Determination of $PE_{TR,y}$

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

Where

$PE_{TR,m}$	=	*Project emissions from transportation of freight monitoring period m (t CO_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 (g CO_2/t km)*
f	=	*Freight transportation activities conducted in the project activity in monitoring period m*

- *$FR_{f,m}$:*

  It is monitored by weight meter installed in the gate of the project site and recorded by PP. For freight transported biomass residues, the total mass of each freight transported have been measured by weight meter and recorded by PP in Monthly biomass residues transported statistics record.

  The energy balance for this monitoring period based on purchased quantities and stock changes have been used for cross-check and via comparing the Monthly biomass residues transported statistics record for this motoring period with the energy balance of purchased quantities and stock changes, it is verified that the values are consistent.

- *$D_{f,m}$:*

  *It is from Monthly biomass residues transported statistics record recorded by PP. Via checking the Monthly biomass residues transported statistics record recorded by PP during this monitoring period, it is confirmed that no single trip road distance is more than 50km. As according to the law and regulation, the radius collection of every biomass project should be no more than 50 km. Therefore, it is most conservative to apply 50*2 as the value for ER calculation.*

- *$EF_{CO2,f}$ - ex-ante determined as above*

3. Determination of $PE_{BR,y}$

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

Where

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

	GWP_{CH4} = *Global Warming Potential of methane valid for the commitment period (tCO_2/tCH_4)* $EF_{CH4,BR}$ = *CH_4 emission factor for the combustion of biomass residues in the project plant (tCH_4/GJ)* $BR_{PJ,n,y}$ = *Quantity of biomass residues of category n used in the CDM project activity in year y (tonnes on dry-basis)* NCV_k = *Net calorific value of biomass residue of category k in year y (GJ/tonne on dry-basis)*, k=maize stalks and waste wood • *GWP_{CH4}: ex-ante determined as above* • *$EF_{CH4,BR}$ - ex-ante determined as above* • *$BR_{PJ,n,y}$ – same to $BR_{B1,n,y}$ which has been assessed above* • *NCV_k:* *It is from Biomass NCV value test reports issued by Henan Coal Quality Supervision and Inspection Center* *The NCV values were analyzed by Henan Coal Quality Supervision and Inspection Center every six months, taking at least three samples for each measurement and Biomass NCV value test reports were issued.* *The net calorific value in the second half of 2021 is not available temporarily, thus from period 01-July-2021 to 30-July-2021, the value used equals to the maximum of net calorific values of biomass residue from 01-Jan-2018 to 31-Dec-2020 which is confirmed as conservative.* ***4. Determination of $PE_{GR1,y}$*** $$PE_{GR1,y} = EF_{EG,GR,y} \times EL_{PJ,imp,y}$$ *Where* $PE_{GR1,y}$ = Emissions during the year *y* due to grid electricity imports to the project site (t CO_2) $EL_{PJ,imp,y}$ = Project electricity imports from the grid in year *y* (MWh) $EF_{EG,GR,y}$ /$EF_{grid,CM,y}$ = Grid emission factor in year *y* (t CO_2/MWh) *For the monitoring period from 28-Oct-2019 to 31-Jul-2021 in 2nd crediting period, electricity is imported from the grid to the project site, hence the corresponding emissions should be accounted for as project emissions* • *$EL_{PJ,imp,y}$: ex-ante determined as above* *$EL_{PJ,imp,y}$ is project electricity imports from grid in year y, it is monitored by two bi-directional electricity meters M1 (measure meter) and M1' (check meter) installed at supply side of the project site which can measure the quantity of electricity consumed by the project activity plant from the grid directly.* *The values are continuously measured by meter and monthly recorded which is verified as per PDD and the applied methodology. From December 2019 onwards, bidirectional electricity meter reading record date was changed from 24:00 hr of the 23rd day to 24:00 hr of last day of each month, the monitoring team record the bidirectional electricity meter's readings and complete Meter Reading Records (MRRs). The staff from power grid company issue the receipts from electricity purchases according to the meter readings monthly. The receipts from electricity purchases have been used for cross-check and via comparing the receipts from*

	electricity purchases for this motoring period with the electricity meter reading records, it is verified that the values are consistent. *The values for this monitoring period are comparing the measurement results with measurements from previous years, relevant data sources (e.g. values in the literature, values used in the national GHG inventory) and default values by the IPCC. And via checking the measurements from previous years as listed in the verification report and IPCC value, it is confirmed that the values are reasonable.* ***(3) Leakage emission parameters:*** *In accordance with ACM0006, for determine if the leakage not occurred in the project, PP can demonstrate that the quantity of available biomass residue of type k in the region is at least 25% larger than the quantity of biomass residues of type k that are utilized (e.g. for energy generation or as feedstock), including the project plant. The monitored parameter is listed as above* • *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* *Based on the biomass residues quantities survey in the annual biomass residues fuel special report of Hui Xian City from 2018 to 2021 and calculation as provide in MR, it is verified that the quantity of each type of biomass residues available in the region is at least 25% larger than the quantity of biomass residues of that type which is utilized in the region.* *Therefore, there is no leakage caused by the project activity for this monitoring period, i.e. $LE_y = 0$.* ***Management and operational system:*** *The PP has the responsibility of overall monitoring, which has established a monitoring team for monitoring of power generation, maintenance and operation of the VCS Project activity. All the records related to generation and maintenance have been satisfactorily maintained.* *Responsibilities have been allocated to well-trained monitoring staff as per the monitoring plan.* *The QA/QC procedures are part of management system and are documented in management procedures.* *The records and all relevant paper-based information are well archived by the project owner and available for verification.* *The responsibilities and the procedures included in the VCS Monitoring & Management Manual have been verified. VCS Monitoring & Management Manual and internal training records have been provided and verified by the verification team.*
Conclusion	*CCSC verification team confirms that:* • *The monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD and VCS-PD.* • *All parameters required by the monitoring plan have been sufficiently monitored and correctly listed. The monitored data for required parameters have been verified*

	by checking the whole information flow.

[Calibration information]

Meter ID	*Type*	*Serial Number*	*Accuracy*	*Calibration Date*	*Valid to*
M1	*DSZ188*	*47304-2-11301669*	*0.2S*	*06-Apr-2017*	*05-Apr-2018*
				04-Apr-2018	*03-Apr-2019*
				01-Apr-2019	*31-Mar-2020*
				30-Mar-2020	*29-Mar-2021*
				25-Mar-2021	*24-Mar-2022*
M1'	*DSZ188*	*47304-2-11301670*	*0.2S*	*06-Apr-2017*	*05-Apr-2018*
				04-Apr-2018	*03-Apr-2019*
				01-Apr-2019	*31-Mar-2020*
				30-Mar-2020	*29-Mar-2021*
				25-Mar-2021	*24-Mar-2022*
Electronic belt weight	*ICS-17B-1400*	*12060401*	*0.5*	*06-Dec-2017*	*05-Dec-2018*
				05-Dec-2018	*04-Dec-2019*
				04-Dec-2019	*03-Dec-2020*
				03-Dec-2020	*02-Dec-2021*
Moisture analyzer	*Sh-10A*	*-*	*0.2%*	*13-Apr-2017*	*12-Apr-2018*[1]
Drying oven	*101-2A*	*19120084*	*±1℃*	*08-Dec-2017*	*07-Dec-2018*
				07-Dec-2018	*06-Dec-2019*

[1] *From 04-Jan-2018 onwards, the moisture content of biomass residues is measured by drying oven & balance instead of moisture analyzer, which are installed in laboratory of the project site for the random sample when they are transported into the project site each time.*

				06-Dec-2019	05-Dec-2020
				02-Dec-2020	01-Dec-2021
Balance	TCS-30	Z121413	III	08-Dec-2017	07-Dec-2018
				07-Dec-2018	06-Dec-2019
				06-Dec-2019	05-Dec-2020
				02-Dec-2020	01-Dec-2021
Weight meter	XK3190-A9 (SCS-80)	0710430	III	01-Dec-2017	30-Nov-2018
				29-Nov-2018	28-Nov-2019
				28-Nov-2019	27-Nov-2020
				26-Nov-2020	25-Nov-2021
Calibration Entity	Power Measurement Center of Henan Power Supply Company Quality Technology Supervision and Checking Testing Centre of Hui Xian City				

[Calculation of baseline GHG emissions]

Means of verification	*The verification team has performed the following activities to assess the data and calculations of GHG emission reductions achieved by the Project as per the methodology:* • *Through desk review and on-site inspection on the monthly electricity reports and electricity invoice, to verify that a complete set of data for the specified monitoring period is available.* • *Information provided in the monitoring report has been cross-checked with other sources such as MRRs, sales receipts, biomass residues records.* • *Review the calculations of baseline GHG emissions have been carried out in accordance with the formulae and methods described in the registered CDM-PDD and VCS-PD, and the methodology;* • *Review emission factors, IPCC default values, GWPs and other reference values as per the registered CDM-PDD and VCS-PD.*
Findings	*According to the registered CDM-PDD and VCS-PD and the applied methodology, the baseline emissions are calculated as below* *The baseline emissions are calculated as formulae listed in above section for both 1st and 2nd crediting period.* *The verification team has checked and cross-checked the values for above parameters for this monitoring period as assessed in above section "[Monitoring parameters]", and found the data are totally correct and conservative for the BE calculation.*

The $ER_{electricity,y}$/ $EL_{BL,y}$ ×$EF_{grid,CM,y}$ is calculated as:

Period	$EL_{BL,y}$ ($EL_{PJ,exp,y}$) (MWh)	$EF_{grid,CM,y}$ (tCO_2e/MWh)	$ER_{electricity,y}$/ $EL_{BL,y}$ ×$EF_{grid,CM,y}$ (tCO_2e)
01-January-2018 – 31-December-2018	118,359.577	0.9735	115,223
01-January-2019 – 27-October-2019	78,262.120	0.9735	76,188
28-October-2019 – 31-December-2019	26,485.561	0.4287	11,354
01-January-2020 – 31-December-2020	151,825.455	0.4287	65,087
01-January-2021 – 31-July-2021	78,857.520	0.4287	33,806
Total monitoring period 01-January-2018 to 31-July-2021	**454,111.467**	-	**301,658**

The $BE_{biomss,y}$/ $BE_{BR,y}$ is calculated as:

Period	GWP_{CH4} (tCO_2/tCH_4)	$BF_{maizestalk,y}$/ $BR_{B1,maizestalks,y}$ (t)	$BF_{wastewood,y}$/ $BR_{B1,wastewood,y}$ (t)	NCV_k*$EF_{burning,CH4,k,y}$/ $NCV_{BR,n,y}$ · $EF_{BR,n,y}$	$BE_{biomss,y}$ / $BE_{BR,B1,y}$ (tCO_2e)
01-January-2018 – 31-December-2018	28	49,838.22	96,725.52	0.001971	8,088
01-January-2019 – 27-October-2019	28	49,760.63	47,952.28	0.001971	5,392
28-October-2019 – 31-December-2019	28	23,094.06	17,145.48	0.001971	2,220

01-January-2020 – 31-December-2020	*28*	*90,838.60*	*94,749.85*	*0.001971*	*10,242*
01-January-2021 – 31-July-2021	*28*	*46,707.68*	*72,612.06*	*0.001971*	*6,585*
Total monitoring period 01-January-2018 to 31-July-2021	***28***	***260,239.19***	***329,185.19***	*-*	***32,527***

*The **BE_y** is calculated as:*

Period	***$ER_{electricity,y}$/ $EL_{BL,y} \times EF_{grid,CM,y}$ (tCO_2e)***	***$BE_{biomss,y}$/ $BE_{BR,B1,y}$ (tCO_2e)***	***BE_y (tCO_2e)***
01-January-2018 – 31-December-2018	*115,223*	*8,088*	*123,311*
01-January-2019 – 27-October-2019	*76,188*	*5,392*	*81,580*
28-October-2019 – 31-December-2019	*11,354*	*2,220*	*13,574*
01-January-2020 – 31-December-2020	*65,087*	*10,242*	*75,329*
01-January-2021 – 31-July-2021	*33,806*	*6,585*	*40,391*
Total monitoring period 01-January-2018 to 31-July-2021	***301,658***	***32,527***	***334,185***

The verification team confirmed the calculation of baseline emissions as reported in the MR and the ER spreadsheet is correct and rounded down to integers.

Conclusion	*CCSC verification team confirms that:* • *A complete set of data for the monitoring period is available.* • *Information on the baseline GHG emission calculation provided in the monitoring report has been cross-checked with other sources.*

	• *Calculations of baseline emissions have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document.* • *There are no assumptions applied.* • *Appropriate emission factor and GWP value has been correctly applied.*

[Calculation of project GHG emissions]

Means of verification	*The verification team has reviewed the project emission calculation as per the CDM-PDD and VCS-PD and the applied methodology.*
Findings	*The project emissions are calculated as formulae listed in above section for both 1st and 2nd crediting period,* ***1. Determination of $PEFF_y/PE_{FFy}$*** *The verification team has checked and cross-checked the values for above parameters for this monitoring period as assessed in above section "[Monitoring parameters]", and found the data are totally correct and conservative for the PE calculation.* *The PE_{FFy} is calculated as:*

Period	*$FF_{projectsite,diesel,y}/FC_{projectsite,i,y}$ (t)*	*$NCV_{diesel,y}$ (GJ/t)*	*$EF_{CO2,diesel,y}$ (tCO_2/GJ)*	*$PEFF_y/PE_{FF,y}$ (tCO_2e)*
01-January-2018 – 31-December-2018	*105.99*	*42.652*	*0.0741*	*335*
01-January-2019 – 27-October-2019	*84.35*	*42.652*	*0.0741*	*267*
28-October-2019 – 31-December-2019	*23.65*	*42.652*	*0.0748*	*75*
01-January-2020 – 31-December-2020	*115*	*42.652*	*0.0748*	*367*
01-January-2021 – 31-July-2021	*40*	*42.652*	*0.0748*	*128*
Total monitoring period 01-January-2018 to 31-July-2021	***368.99***	*-*	*-*	***1,172***

2. Determination of $PET_y/PE_{TR,y}$

For the monitoring period from 01-Jan-2018 to 27-Oct-2019 attributed to 1st crediting period:

$$PET_y = \frac{\sum_k BF_{T,k,y}}{TL_y} \cdot AVD_y \cdot EF_{km,CO_2,y}$$

The verification team has checked and cross-checked the values for above parameters for this monitoring period as assessed in above section "[Monitoring parameters]", and found the data are totally correct and conservative for the PE calculation.

*The **PET_y** is calculated as:*

Period	*$BF_{T,k,y}$ (t)*	*TL_y (t)*	*AVD_y (km)*	*$EF_{km,CO2,y}$ (tCO_2/km)*	*PET_y (tCO_2e)*
01-January-2018 – 31-December-2018	*193,631.72*	*15.64*	*100*	*0.001097*	*1,359*
01-January-2019 – 27-October-2019	*153,238.38*	*15.40*	*100*	*0.001097*	*1,092*
Total monitoring period in 1st crediting period 01-January-2018 –27-October-2019	***346,870.10***	-	-	-	***2,451***

For the period from 28-Oct-2019 to 31-Jul-2021 attributed to 2nd crediting period,

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

The verification team has checked and cross-checked the values for above parameters for this monitoring period as assessed in above section "[Monitoring parameters]", and found the data are totally correct and conservative for the PE calculation.

*The **$PE_{TR,y}$** is calculated as:*

Period	*$FR_{f,m}$ (t)*	*$D_{f,m}$ (km)*	*$EF_{CO2,f}$ (gCO_2/t km)*	*$PE_{TR,y}$ (tCO_2e)*
28-October-2019 – 31-December-2019	*57,308.99*	*100*	*245*	*1,405*

01-January-2020 –31-December-2020	*274,841.81*	*100*	*245*	*6,734*
01-January-2021 –31-July-2021	*131,396.52*	*100*	*245*	*3,220*
Total monitoring period in 2nd crediting period *28-October-2019–31-July-2021*	***463,547.32***	*-*	*-*	***11,359***

*3. Determination of GWP_{CH4}*$PE_{biomass,CH4,y}$/ $PE_{BR,y}$*

The verification team has checked and cross-checked the values for above parameters for this monitoring period as assessed in above section "[Monitoring parameters]", and found the data are totally correct and conservative for the PE calculation.

The $PE_{BR,y}$ is calculated as:

Period	*$BF_{maizestalk,y}$/ $BR_{B1,maizestalks,y}$ (t)*	*$BF_{wastewood,y}$/ $BR_{B1,wastewood,y}$ (t)*	*$NCV_{maizestalk}$ (GJ/t)*	*$NCV_{wastewood}$ (GJ/t)*	*$EF_{CH4,BF}$/ $EF_{CH4,BR}$ (tCH_4/GJ)*	*GWP_{CH4}*$PE_{biomass,CH4,y}$/$PE_{BR,y}$ (tCO_2e)*
01-January-2018 – 31-December-2018	*49,838.22*	*96,725.52*	*15.11*	*13.93*	*0.0000411*	*2,417*
01-January-2019 – 27-October-2019	*49,760.63*	*47,952.28*	*14.9*	*14.34*	*0.0000411*	*1,645*
28-October-2019 – 31-December-2019	*23,094.06*	*17,145.48*	*14.9*	*14.34*	*0.0000411*	*679*
01-January-2020 – 31-December-2020	*90,838.60*	*94,749.85*	*13.6*	*13.39*	*0.0000411*	*2,882*
01-January-2021 – 31-July-2021	*46,707.68*	*72,612.06*	*15.11*	*16.25*	*0.0000411*	*2,170*
Total monitoring period 01-	***260,239.19***	***329,185.19***	*-*	*-*	*-*	***9,793***

January-2018 to 31-July-2021							

4. Determination of $PE_{GR1,y}$

The verification team has checked and cross-checked the values for above parameters for this monitoring period as assessed in above section "[Monitoring parameters]", and found the data are totally correct and conservative for the PE calculation for monitoring period in 2nd crediting period.

*The **$PE_{GR1,y}$** is calculated as:*

Period	*$EL_{PJ,imp,y}$ (MWh)*	*$EF_{grid,CM,y}$ (tCO_2e/MWh)*	*$PE_{GR1,y}$ (tCO_2e)*
28-October-2019 – 31-December-2019	5.239	0.4287	2
01-January-2020 – 31-December-2020	75.600	0.4287	32
01-January-2021 – 31-July-2021	57.120	0.4287	24

Based on the above calculation, the final Project Emission during this monitoring period is calculated as below table

Period	*$PET_{,y}$ /$PE_{TR,y}$ (tCO_2e)*	*$PEEF_y$ /PE_{FFy} (tCO_2e)*	*GWP_{CH4} · $PE_{biomass,CH4,y}$/$PE_{BR,y}$ (tCO_2e)*	*$PE_{EC,y}$/ $PE_{GR1,y}$ (tCO_2e)*	*PE_y*
01-January-2018 – 31-December-2018	*1,359*	*335*	*2,417*	*0*	*4,111*
01-January-2019 – 27-October-2019	*1,092*	*267*	*1,645*	*0*	*3,004*
28-October-2019 – 31-December-2019	*1,405*	*75*	*679*	*2*	*2,161*
01-January-2020 – 31-December-2020	*6,734*	*367*	*2,882*	*32*	*10,015*
01-January-2021 – 31-July-2021	*3,220*	*128*	*2,170*	*24*	*5,542*
Total monitoring period 01-January-2018 to 31-July-2021	***13,810***	***1,172***	***9,793***	***58***	***24,833***

	The verification team confirmed the calculation of project emissions as reported in the MR and the ER spreadsheet is correct and rounded up to integers.
Conclusion	*CCSC verification team confirms that:* • *A complete set of data for the monitoring period is available.* • *Information on the project GHG emission calculation provided in the monitoring report has been cross-checked with other sources.* • *Calculations of project emissions have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document.*

[Calculation of leakage GHG emissions]

Means of verification	*The verification team has reviewed the leakage emission calculation as per the CDM-PDD and VCS-PD and the applied methodology.*
Findings	*The leakage emissions are determined as 0 for this monitoring period as above assessment.* *The verification team confirmed the determination of leakage emissions as reported in the MR and the ER spreadsheet is correct.*
Conclusion	*CCSC verification team confirms that:* • *A complete set of data for the monitoring period is available.* • *Information on the leakage GHG emission calculation provided in the monitoring report has been cross-checked with other sources.* • *Determination of leakage emissions have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document.*

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

The monitoring has been carried out in accordance with the monitoring plan contained in the CDM-PDD and VCS-PD.

As a result of verification of the ER calculation process, the assessment team confirmed that all the parameters required for the determination of the emission reductions have been included in the MR Report and ER Calculation Spreadsheet and are consistent with the applied methodology ACM0006 and the monitoring plan contained in the CDM-PDD and VCS-PD. The parameters are complete in this monitoring period.

After verifying the reported figures with the raw data sources, it's confirmed that the values of the parameters from the raw data sources are consistent with those quoted in the ER Calculation Spreadsheet and the MR Report. The verification process for the same has been clearly described above in section 4.4 of the report.

4.6 Non-Permanence Risk Analysis

Not applicable.

5 VERIFICATION CONCLUSION

CCSC has been commissioned by Climate Bridge (Shanghai) Ltd. to perform the verification of greenhouse gas emission reductions of the project activity "Henan Xinxiang 24MW Biomass based Cogeneration Project " (UNFCCC Ref. No. 3054, VCS Ref. No. 1140).

The management of Xinxiang Tianjie Bio-Power Generation Co., Ltd. is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project's Monitoring Plan in the CDM-PDD for 1st crediting period and VCS-PD for 2nd crediting period.

Our verification approach was based on the requirements as defined under the applicable VCS standards and relevant UNFCCC requirements. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. The verification can confirm that:

- *the project is implemented and operated as per the VCS-PD and CDM-PDD;*
- *the monitoring plan in VCS-PD and CDM-PDD is as per the applied methodology;*
- *the monitoring complies with the monitoring plan in the VCS-PD and CDM-PDD;*
- *the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS and CDM requirements;*
- *the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;*
- *the monitoring system is in place and generates GHG emission reductions data;*
- *the GHG emission reductions are calculated without material misstatements.*

In our opinion, the GHG emission reductions for "Henan Xinxiang 24MW Biomass based Cogeneration Project " during the monitoring period 01-January-2018 to 31-July-2021 as reported in Monitoring Report, prepared on the basis of the project's Monitoring Plan are fairly stated. Based on the information we have seen and evaluated, we confirm the following statement:

Verification period: 01-January-2018 to 31-July-2021

Verified GHG emission reductions and removals in the above verification period:

Vintage	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
01-January-2018 – 31-December-2018	*123,311*	*4,111*	*0*	*119,200*
01-January-2019 – 31-December-2019	*95,154*	*5,165*	*0*	*89,989*
01-January-2020 – 31-December-2020	*75,329*	*10,015*	*0*	*65,314*
01-January-2021 –31-July-2021	*40,391*	*5,542*	*0*	*34,849*
Total	***334,185***	***24,883***	***0***	***309,352***

APPENDIX A: ABBREVIATIONS

Abbreviations	Full texts
AFOLU	Agriculture, Forestry and Other Land Use
BM	Build Margin
CAR	Corrective Action Request
CCPG	Central China Power Grid
CCSC	China Classification Society Certification Company
CCER	China Certified Emission Rrductions
CDM	Clean Development Mechanism
CL	Clarification Request
CM	Combined Margin
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DOE	Designated Operation Entity
DNA	Designated National Authority
CDM-EB	CDM Executive Board
EF	Emission Factor
EIA	Environmental Impact Assessment
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG(s)	Greenhouse gas(es)
GS	Golden Standard
IPCC	Intergovernmental Panel on Climate Change
MEE	Ministry of Ecology and Environment of the People's Republic of China
MP	Monitoring Plan

OM	Operating Margin
PD	Project Description
PP	Project Participant
PPA	Power Purchase Agreement
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCU	Voluntary Carbon Unit
VVB	Validation / Verification Body

APPENDIX B: COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS

CCS 认证公司

Appendix 9

CERTIFICATE OF COMPETENCE

Date of issue: 20/01/2021

Mr. Li Xingtong

Has been qualified in accordance with *CDM Personnel Competence Requirements and Professional Competence Evaluation Instructions* (CDMI0301) as

■ CDM validator for Technical Area(s): TA1.1/TA1.2/TA3.1/TA9.2/TA13.1

■ CDM verifier for Technical Area(s): TA1.1/TA1.2/TA3.1/TA9.2/TA13.1

☐ Technical expert for Technical Area(s):_____

Huang ShiYuan
CCSC General Manager

CCS 认证公司

Appendix 9

CERTIFICATE OF COMPETENCE

Date of issue: 20/01/2021

Mr. Xu Fangzhou

Has been qualified in accordance with *CDM Personnel Competence Requirements and Professional Competence Evaluation Instructions* (CDMI0301) as

■ CDM validator for Technical Area(s): TA1.2/TA3.1

■ CDM verifier for Technical Area(s): TA1.2/TA3.1

☐ Technical expert for Technical Area(s):_____

Huang ShiYuan
CCSC General Manager

CCS 认证公司

Appendix 9

CERTIFICATE OF COMPETENCE

Date of issue: 20/01/2021

Mr. Zhou Wusen

Has been qualified in accordance with *CDM Personnel Competence Requirements and Professional Competence Evaluation Instructions* (CDMI0301) as

■ CDM validator for Technical Area(s): TA1.2

■ CDM verifier for Technical Area(s): TA1.2

☐ Technical expert for Technical Area(s):_____

Huang ShiYuan
CCSC General Manager

CCS 认证公司

Appendix 9

CERTIFICATE OF COMPETENCE

Date of issue: 20/01/2021

Ms. Xie Fengjun

Has been qualified in accordance with *CDM Personnel Competence Requirements and Professional Competence Evaluation Instructions* (CDMI0301) as

■ CDM validator for Technical Area(s): TA1.2/TA13.1/TA13.2

■ CDM verifier for Technical Area(s): TA1.2/TA13.1/TA13.2

☐ Technical expert for Technical Area(s):_____

Huang ShiYuan
CCSC General Manager

APPENDIX C: DOCUMENTS REVIEWED OR REFERENCED

/1/ *Monitoring report, version 1.0, dated 10-Aug-2021; Version 1.1 dated 13-Oct-2021*

/2/ *ER calculation spreadsheet*

/3/ *Registered CDM-PDD, version 10, dated 05-March-2013*

/4/ *Registered VCS PD, version 01, dated 16-Feb-2013*

/5/ *Validation report, Rev No. 4, dated 07-July-2011*

/6/ *Previous CDM and VCS monitoring reports and verification reports*

/7/ *VCS Standard version 4.1*

/8/ *Statement of no double counting issued by the Project Owner on 08-Oct-2021*

/9/ *CDM Methodology ACM0006, version 10 and 15.0*

/10/ *VCS Monitoring Manual*

/11/ *Business license of project owner*

/12/ *Nameplates of the equipment*

/13/ *Grid Connection Agreement*

/14/ *Signed Power Purchase Agreement (PPA) with grid company*

/15/ *Meter Reading Record (MRRs)*

/16/ *Receipts of electricity sales and purchases covering the monitoring period*

/17/ *Monthly Report for Biomass Residues Consumption covering this monitoring period*

/18/ *Monthly biomass residues transported statistics record including source, freight No., freight type, freight load, biomass residue type, biomass residue quantities, moisture value, transportation distance*

/19/ *Biomass Energy balance for this monitoring period based on biomass residues purchased quantities and stock changes*

/20/ *Biomass resources survey report issued by Statistical Bureau of Hui Xian City from 2018 to 2021*

/21/ *Records of diesel purchase and remained*

/22/ *Diesel fuel purchase invoices*

/23/ *Calibration certificates of electricity meters of M1 and M1' covering the whole monitoring period issued by Henan Electric Power Company Measurement Center*

/24/ *Calibration report for Electronic belt weight with validity covering this monitoring period issued by Quality Technology Supervision and Checking Testing Centre of Hui Xian City*

/25/ *Calibration report for Weight meter with validity covering this monitoring period issued by Quality Technology Supervision and Checking Testing Centre of Hui Xian City*

/26/ *Calibration report for Moisture analyzer on 13-Apr-2017 issued by Quality Technology Supervision and Checking Testing Centre of Hui Xian City*

/27/ *Calibration report for Drying oven with validity covering this monitoring period issued by Quality Technology Supervision and Checking Testing Centre of Hui Xian City*

/28/ *Calibration report for Balance with validity covering this monitoring period issued by Quality Technology Supervision and Checking Testing Centre of Hui Xian City*

/29/ *Accreditation certificates for Henan Electric Power Company Measurement Center issued by Quality and Technical Supervision Bureau of Henan with validity covering this monitoring period*

/30/ *Accreditation certificates for Quality Technology Supervision and Checking Testing Centre of Hui Xian City issued by Xinxiang City Market Supervision Administration*

/31/ *Local stakeholder consultation records during this monitoring period*

/32/ *Technical training records*

/33/ *Labor contracts and payroll*

/34/ *NCV value of Biomass residues test reports covering this monitoring period*

/35/ *Technical Administrative Code of Electric Energy Metering (DL/T 448-2016)*

/36/ *Tool 02: Combined tool to identify the baseline scenario and demonstrate additionality, Version 02.2 and Version 07.0*

/37/ *Tool 03: Tool to calculate project or leakage CO2 emissions from fossil fuel combustion, Version 02 and Version 03.0*

/38/ *Tool 07: Tool to calculate the emission factor for an electricity system, Version 02 and Version 07.0*

/39/ *Tool 05: Tool to calculate baseline, project and/or leakage emissions from electricity consumption, Version 01 and Version 03.0*

/40/ *Tool 12: Project and leakage emissions from transportation of freight, Version 01.1.0*

/41/ *IPCC Fifth Assessment Report (AR5)*

/42/ *Google Earth Map* earth.google.com

/43/ *China CER* http://cdm.ccchina.org.cn/ccer.aspx

/44/ *UNFCCC http://cdm.unfccc.int*

/45/ *VCS https://verra.org/project/vcs-program/, https://registry.verra.org/app/projectDetail/VCS/1140*

/46/ *China cap & trade scheme http://www.mee.gov.cn/xxgk2018/xxgk/xxgk02/202101/t20210105_816131.html*

/47/ *Enforced company list http://mee.gov.cn/xxgk2018/xxgk/xxgk03/202012/W020201230736907682380.pdf*

/48/ *CDM dedicated website for project https://cdm.unfccc.int/Projects/DB/RWTUV1256116990.83/view*

/49/ *VCS- Monitoring-Report -Template-v4.0*

APPENDIX D: RESOLUTION OF CORRECTIVE ACTION REQUESTS AND CLARIFICATION REQUESTS

Two CARs, Five CLs and Zero FAR were raised in this verification.

Findings	PP's response	Verification teams conclusion
CL-1: In section 4.1 of the monitoring report, it is observed that for parameter $EF_{CO2,diesel,y}$, PP stated that the value for 2nd crediting period is from tool 03, however the name of the tool is not clarified.	The name of tool 03 version 03.0, "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion", has been added in the updated MR.	The verification team checked the revised MR against tool 03 version 03.0 and confirmed the name is correct. Thus, the CL-1 was closed out.
CL-2: In section 4.1 of the monitoring report, it is observed that for parameter TDL_y, PP provided the reason of the 2nd crediting period do not involve this parameter, however, it is not clear to understand, further clarification is requested.	In the 2nd crediting period, according to the methodology ACM0006 version 15.0, the calculation formula of the project emissions due to grid electricity imports to the project site do not involve this parameter. Therefore, the parameter is not applied in the 2nd crediting period. The relevant clarification has been added in the updated MR.	The verification team reviewed the revised MR with the applied methodology ACM0006 version 15.0, and confirmed the calculation formula of the project emissions due to grid electricity imports to the project site do not involve parameter of TDL_y. Thus, the CL-2 was closed out.
CL-3: In section 4.2 of the monitoring report, it is observed that for parameter $EL_{PJ,gross,y}$, PP stated that for 2nd crediting period, it is measured by measure meter to measure net electricity generation supplied by the project plant/unit to the grid, why the measure meter can directly measure "net electricity" is not clarified since it is not the case for 1st crediting period.	For 2nd crediting *period,* as per section 4.1 of renewed VCS PD, $EL_{BL,y} = EL_{PJ,exp,y}$, the monitored parameter $EL_{PJ,exp,y}$ is directly measured by measure meter and in line with the actual situation of the project and Electricity Purchase and Sale Agreement, which also does not influence the baseline emission calculation. Therefore, in this monitoring period, $EL_{PJ,exp,y}$ is monitored directly instead of the monitored parameters $EL_{PJ,aux,y}$ and $EL_{PJ,gross,y}$. The relevant description has been added in the updated MR.	The verification team reviewed the revised MR with the renewed VCS-PD and signed PPA, and confirmed the revision is correct and in line with the actual status of the monitoring of electricity. Thus, the CL-3 was closed out.

CL-4: In section 5.1 of the monitoring report, PP stated that since the baseline emissions in the registered PDD in the 1st crediting period are not defined directly, hence the formula of the baseline emission is calculated in line with methodology ACM0006 (Version 15.0), however, it is not clarified that why the formula in ACM0006 (Version 15.0) is applicable for the BE calculation in 1st crediting period.	The calculation formula of the baseline emissions in the 1st and 2nd crediting period has been described separately. The relevant description has been revised in the updated MR.	The verification team reviewed the revised MR with the PDD and applied methodology, and confirmed the calculation formula of the baseline emissions in the 1st and 2nd crediting period has been described separately and in line with the registered PDD and applied methodology ACM0006 version 15.0 Thus, the CL-4 was closed out.
CL-5: In section 5.2 of the monitoring report, **1,** PP did not provide the calculation formula for total PE. **2,** It is observed that the PE calculation formula for 1st crediting period is not same to 2nd crediting period, however, PP only use formula for 2nd crediting period to calculate PE for the whole monitoring period, clarification is requested.	1. The calculation formula of the total PE has been added in the updated MR. 2. PE calculation formula for 1st and 2nd crediting period has been provided separately in the updated MR.	1. The verification team reviewed the revised MR with the PDD and applied methodology, and confirmed the added calculation formula of the total PE is correct. 2. The verification team reviewed the revised MR with the PDD and applied methodology, and confirmed the calculation formula of the baseline emissions in the 1st and 2nd crediting period has been described separately and in line with the registered PDD and applied methodology ACM0006 version 15.0. Thus, the CL-5 was closed out.
CAR-1: In section 4.1 of the monitoring report, it is observed that for parameters $EF_{grid,CM,y}$, $EF_{km,CO2}/EF_{CO2,F}$, the description is different for 1st and 2nd crediting period, but the MR only list one. While for parameters $NCV_{BR,n,y}$ ·$EF_{BR,n,y}$ and $EF_{CH4,BR}$, the parameter	The corresponding description of parameters $EF_{grid,CM,y}$, $EF_{km,CO2}/EF_{CO2,F}$, $NCV_{BR,n,y}$ ·$EF_{BR,n,y}$ and $EF_{CH4,BR}$ for 1st and 2nd crediting period has been added in the updated MR.	The verification team reviewed the revised MR with the PDD and applied methodology, and confirmed the corresponding description of parameters in the 1st and 2nd crediting period has been described separately and in line with the registered PDD and applied methodology ACM0006 version 15.0.

name is different for 1st and 2nd crediting period, but the MR only list one.		Thus, the CAR-1 was closed out.
CAR-2: In section 4.2 of the monitoring report, it is observed that for parameter Moisture content of the biomass residues, the calibration validity for Moisture analyzer is not covering this monitoring period.	From 04-Jan-2018 onwards, the moisture content of biomass residues is measured by drying oven & balance instead of moisture analyzer, which are installed in laboratory of the project site for the random sample when they are transported into the project site each time, and the mean values calculated annually. The relevant calibration information of drying oven & balance was listed in parameter table in the MR version 1.0. And the calibration validity for Moisture analyzer and drying oven & balance can cover this monitoring period.	The verification team reviewed the revised MR and via site visit, it is confirmed that from 04-Jan-2018 onwards, the moisture content of biomass residues is measured by drying oven & balance instead of moisture analyzer. Hence verification team reviewed the calibration reports of drying oven & balance and moisture analyzer, it is confirmed that the calibration validity for Moisture analyzer and drying oven & balance covering this monitoring period. Thus, the CAR-2 was closed out.