



**Verified Carbon
Standard**

VALIDATION REPORT for Renewal of
Crediting Period FOR “1.6 MW BUNDLED
RICE HUSK BASED COGENERATION
PLANT BY M/S MILK FOOD LIMITED (MFL)
IN PATIALA (PUNJAB) & MORADABAD
(U.P) DISTRICTS”



Document Prepared by Earthhood Services Private Limited

Project Title	1.6 MW Bundled Rice Husk Based Cogeneration Plant by M/s Milk food Limited (MFL) in Patiala (Punjab) & Moradabad (U.P) Districts
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Report Title	Validation report for Renewal of Crediting Period for “1.6 MW Bundled Rice Husk Based Cogeneration Plant by M/s Milk food Limited (MFL) in Patiala (Punjab) & Moradabad (U.P) Districts”
Client	Enen Green Services Pvt. Ltd.
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Summary:

Earthood Services Private Limited (ESPL) has been contracted by Enen Green Services Pvt. Ltd. to conduct the validation for renewal of crediting period of the project “1.6 MW Bundled Rice Husk Based Cogeneration Plant by M/s Milk food Limited (MFL) in Patiala (Punjab) & Moradabad (U.P) Districts”, VCS ID 784, against VCS Standard Version 4.0/13/.

The validation for renewal of crediting period includes confirming the project’s design description, project's baseline, monitoring plan and the project’s compliance with relevant VCS and host party criteria and implementation of the monitoring plan of the PD for renewal of crediting period (Project ID 0784) and the application of the monitoring methodology as per AMS I C version 21: “Grid-connected electricity generation from renewable sources”/7/.

The purpose of the project activity is to utilize rice husk available in the region for steam and electricity generation for captive consumption. The project undertaken is a bundle of two cogeneration plants of capacity 1.0 MW (with 14TPH steam generation) and 0.6 MW ((with 12 TPH steam generation) located at Bahadurgarh, Patiala in the state of Punjab and Mugalpur, Moradabad in the state of Uttar Pradesh respectively. The proposed project activity is utilizing only biomass as fuel and steam and power is generated. The biomass is a carbon neutral fuel as it does not lead to the emission of any GHG in the atmosphere. The project will displace steam and electricity generation from Coal consumption leading to an emission reduction of 70,113 tonnes CO₂ equivalent every year and total emission reduction during crediting period will be 701,130 tCO₂e. In the absence of the proposed project activity, the steam and electricity would have been supplied to the processing plants by the Coal based Boilers and grid respectively.

The review of the project design documentation for renewal of crediting period and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and stakeholders have provided ESPL with sufficient evidence to validate the fulfillment of the stated criteria.

The assessment team is able to conclude that:

- A reasonable level of assurance has been applied.
- All data and information used for ex-ante calculation of emission reductions is correctly applied.
- The project is in line with all relevant host country legislation.
- The project additionality is not required to be reassessed, however it is sufficiently justified in the VCS-PD.
- The monitoring plan is in accordance with the approved methodology, transparent and adequate.
- Project deviations have sufficiently been addressed and justified.
- The calculation of the baseline emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 701,130 tCO₂e are most likely to be achieved within the 10 year renewable crediting period.

The conclusions of this validation report show, that the project, as it was described in the updated project documentation, is in line with all criteria applicable for the validation against the VCS standard Version 4.0/13/ standard without any qualifications or limitations.

A risk based approach has been followed to perform this validation. In the course of validation, 03 Corrective Action request (CARs) and 01 Clarification request (CLs) were raised and successfully closed. There is no FAR raised.

ESPL confirms that that the project is meeting the criteria specified by PD template version 4/23/, VCS Standard version 4.0/13/ and applied methodology AMS I C (version 21)/7/, and hence be successfully validated, verified and further certified for emission reductions under VCS. Further confirms a combined positive validation for RCP opinion confirming the project complies with the applicable VCS requirements, thus recommending the project for registration.

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1 INTRODUCTION

1.1 Objective

Earthood Services Private Limited (ESPL) has been contracted by Enen Green Services Pvt. Ltd., (project proponent), to undertake the validation for renewal of crediting period of the project titled “1.6 MW Bundled Rice Husk Based Cogeneration Plant by M/s Milk food Limited (MFL) in Patiala (Punjab) & Moradabad (U.P) Districts”. The objective of the validation for renewal of crediting period is to have an independent third-party assessment of the PD for RCP and supporting documentation to ensure compliance with the rules, regulations and guidelines by CDM and VCS requirements. In particular;

- The project's baseline is assessed against “AMS I C - Version 21”/7/
- The project’s monitoring plan is assessed against “AMS I C - Version 21”/7/
- The project activity baseline justification is assessed against Version 3.0.1 of Tool “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period”/20/.
- The projects compliance with, the requirements of Article 12 of the Kyoto Protocol, the CDM Modalities and Procedures as agreed in the Marrakech Accords under decision 3/CMP.1, the annexes to this decision, subsequent decisions and guidance made by COP/MOP & CDM Executive Board and other relevant rules, including the Host Country legislation and sustainability criteria along with VCS guideline and standard version 4.0/13/
- CDM project standard for project activities Version 02.0/21/
- CDM project cycle procedure for project activities Version 02.0/22/
- VCS standard v4.0/13/
- VCS guideline v4.0/14/

Particularly, inter alia, the validity of project's baseline and regulatory surplus are validated in order to confirm the compliance as outlined under VCS standard version 4 paragraph 3.8.9/13/for the renewal crediting period. Validation is seen as necessary to provide assurance to stakeholders on the quality of the project and its intended generation of Verified Carbon Units (VCUs) / Emission reductions.

This report contains the findings and resolutions from the validation for RCP of the project activity.

1.2 Scope and Criteria

For validation for renewable of crediting period:

The validation assessment was carried out in accordance with the requirements of VCS standard version 4.0 and included an assessment but not limited to, of the following:

Demonstration of the regulatory surplus, in reference to the additionality of the project, in accordance with the clause 3.8.9 VCS standard version 4.0/13/.

Validity of the original baseline scenario reviewing the following criteria:

- Evaluation of the impact of new relevant national and/or sectoral policies and circumstances on the validity of the baseline scenario.
- Assessment of the GHG emissions associated with original baseline scenario using the latest version of the CDM Tool to assess the validity of the original/ current baseline/20/.
- If the original baseline scenario is no longer valid, whether current baseline scenario is established in accordance with the VCS rules.
- The project description, containing updated information with respect to the baseline, the estimated GHG emission reductions or removals and the monitoring plan, submitted for validation is based upon the latest approved version of the methodology or its replacement.
- The updated project description is validated in accordance with the VCS rules.

The documents were reviewed against the following guidance and protocols:

- VCS Program Guide (v4.0, dated 19-September-2019) /14/
- VCS Standard (v4.0, dated 19-September-2019) /13/
- VCS Program Definitions (v4.0, dated 19-September-2019)
- VCS Registration & Issuance Process (v4.0, dated 19-September-2019)
- UNFCCC CDM approved methodology AMS I C (version 21) /7/

ESPL has performed validation based on a risk based approach focusing mainly on the significant risks to meet the qualification criteria and the ability to generate Verified Carbon Units (VCUs).

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

1.3 Level of Assurance

The level of assurance of the validation report falls under reasonable assurance engagements. The validation team verified the revised VCS PD/1/ for all the parameters of the monitoring plan and confirms that the revised VCS PD is inline with VCS standard version 4/13/ requirement for renewal of crediting period. The validation is based on the VCS PD /1/, proof of title, proof of right, additional documents related to baseline and monitoring methodology, additionality; the subsequent background investigation, monitoring plan, follow-up interviews and supporting documents made available to the validation team by project proponent. The information in these documents is reviewed against the requirements of VCS Standard Version 4.0/13/. ESPL has employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of Emission Reductions.

1.4 Summary Description of the Project

The purpose of the project activity is to utilize rice husk available in the region for steam and electricity generation for captive consumption. The project undertaken is a bundle of two cogeneration plants of capacity 1.0 MW (with 14TPH steam generation) and 0.6 MW ((with 12 TPH steam generation) located at Bahadurgarh, Patiala in the state of Punjab and Mugalpur, Moradabad in the state of Uttar Pradesh respectively. Which has been verified by assessment team from registered VCS PD /2/ and commissioning certificates of boilers/9/.

In the Pre – Project Scenario, the electricity demand of Milkfood Limited was met by the grid supply and the steam demand was met by low pressure coal fired boiler of 8 TPH capacity in Patiala. Coal was consumed in the pre project scenario for thermal energy generation. Whereas, the Moradabad plant is a new installation. There was no steam and power demand prior to the proposed project activity as it is a new installation.

In the project scenario, the power supply has partially been displaced and the steam generated from coal fired boiler has completely been displaced by the new rice husk-based co-generation plant. Whereas, in the project scenario in Moradabad plant, electricity and steam will be generated by the biomass-based cogeneration plant.

The proposed project activity is utilizing only biomass as fuel and steam and power is generated. The biomass is a carbon neutral fuel as it does not lead to the emission of any GHG

in the atmosphere. The project will displace steam and electricity generation from Coal consumption leading to an emission reduction of 70,113 tonnes CO₂ equivalent every year and total emission reduction during crediting period will be 701,130 tCO₂e. In the absence of the proposed project activity, the steam and electricity would have been supplied to the processing plants by the Coal based Boilers and grid respectively.

Location of the project was verified through Google Map (<https://www.gps-coordinates.net/>) and found consistent with the data provided in the registered PD. This information was verified from commissioning certificate of boiler/9/ and found to be in line with the details provided in the registered PD/2/ and the revised PD/1/as well. The project is applying for renewal of crediting period in VCS for crediting period 06-May-2019 to 05-May-2029. The same was verified against the registered VCS PD and commissioning certificates/9/. As per VCS standard version 4/13/ biomass based power generation projects are not eligible under VCS Standard version 4 but as per VCS Standard version 4/13/ appendix 2 "Registered projects and projects that complete validation on or before 19 March 2020 remain eligible to apply the crediting period requirements under VCS Version 3.". Therefore, current project activity is eligible for renewal of crediting period under VCS standard version 4/13/.

2 VALIDATION PROCESS

2.1 Method and Criteria

ESPL assessed and determined whether the proposed implementation and operation of the project activity, and the steps taken to report emission reductions comply with the criteria and relevant guidance provided by the VCS Board. The validation for RCP process consists of the following three phases;

- A desk review of the VCS PD for RCP /1/
- Follow up interviews with project stakeholders
- The resolution of outstanding issues and issuance of final report and opinion.

2.2 Document Review

For Validation of RCP:

The validation team has conducted the validation using the VCS Standard and the AMS I C version 21/7/ methodology as the reference criteria.

The validation team had done the completeness check of updated VCS PD submitted by the PP as per the VCS standard Version 4.0/13/requirements was reviewed. Furthermore a desk review was also carried out to assess the following:

- i. Information of project details in compliance with VCS PD template
- ii. Appropriateness of methodology AMS I C version 21 applied to the project activity

- iii. Compliance with relevant laws and regulations
- iv. Correctness of application of baseline and monitoring methodology
- v. Monitoring plan described in the updated VCS PD
- vi. Proof of listing of project ownership
- vii. Calculation of grid emission factor, etc. where applicable.

The validation is performed primarily as a document review of the registered VCS PD/2/, updated VCS PD for RCP/1/, VCS validation report and previous verification report. The assessment team also reviewed the documents related to project design like Name plate details of major equipment and commissioning certificates/09/.

The assessment is performed by a validation team using a protocol. The cross checks between information provided in the updated VCS PD and information from sources other than those used, if available, the team's sectoral or local expertise and, if necessary, independent background investigations. The details of the documentation reviewed during the validation are provided under Appendix 1 of this report.

2.3 Interviews

The site visit for the project location, by the assessment team, was conducted on 05-March-2020 and the following stakeholders were interviewed.

S N	Name	Role	Organization
1	Mr. Amar Baljeet Singh	Executive Director (Technical)	MFL
2	Mr. Rajesh Shorey	GM (Q.C.)	MFL
3	Mr. Sanjay Khanna	DGM(Engg.)	MFL
4	Mr. Tejindra Kumar	Manger (A/CS)	MFL
5	Mr. Avinash Sharma	VCS Project Consultant & Support as a new project proponent in project	Enen Green Services Pvt. Ltd.

The topics covered during interview ranges from general features and implementation of project to technical details of the project like calibration details, monitoring and measuring system and data collection, recording and archiving procedures. The assessment was drawn based on the feedback received during interview coupled with the documentation and on-site observations.

2.4 Site Inspections

Interview of project stakeholder undertaken by ESPL team on 05-March-2020 to carry out the following;

- a. An assessment of the implementation and operation of the registered project activity as per the registered VCS PD;
- b. A review of information flows for generating, aggregating and reporting the monitoring parameters;
- c. Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the PD;
- d. A cross check between information provided in the registered VCS PD/2/ and revised VCS PD /1/ data from other sources such as plant logbooks, inventories, purchase records or similar data sources;
- e. A check applicability of para 3.8.9 of VCS Standard version 4 /13/ and observations of monitoring practices against the requirements of the PD, the applied methodology including applicable tool(s), and, where applicable, the applied standardized baseline;
- f. A review of calculations and assumptions made in determining the GHG data and emission reductions;
- g. An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

2.5 Resolution of Findings

The objective of this step is to identify, discuss and conclude on the issues related to the monitoring, implementation and operations of the registered project activity that could impair the capacity of the registered project activity to achieve emission reductions or influence the monitoring and reporting of emission reductions. This is done based on the desk review. The ESPL team prepares and/or updates a validation protocol (internal document) that records the conformities and non-conformities, which may be of following types;

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

- a. Non-compliance with the monitoring plan, the methodology or the standardized baseline are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- b. Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- c. Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;

- d. Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

Clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met. All CARs and CLs raised by the ESPL during validation shall be resolved prior to submitting a request for issuance.

FAR (Forward Action Request) is raised during validation if the monitoring plan require attention and/or adjustment for the next verification period.

During the validation or RCP process 03 CARs, 01CL and 00 FARs were raised. All the findings that are raised and communicated to project participant during the validation are included under Appendix 4. The section also includes the response, if provided, by the project participants and an assessment by the validation team if it was closed out or otherwise.

2.5.1 Forward Action Requests

The project activity is undergoing periodic validation of renewal crediting period together under VCS; there were no FARs raised during the validation or previous verification.

3 VALIDATION FINDINGS

3.1 Project Details

Project type, technologies and measures implemented, and eligibility of the project:

TYPE I – Renewable energy power project

Category I.C: Thermal Energy Production with or without electricity

The project activity falls under the Sectoral Scope 1: Energy industries (renewable - / non-renewable sources) as per the sectoral scopes defined by the CDM Executive Board.

This is not a grouped project as it does not involve combination of GHG projects or other project categories. It is a single project and there are no other project participants involved.

The purpose of the project activity is to utilize rice husk available in the region for Steam and electricity generation for captive consumption. The project undertaken is a bundle of two cogeneration plants of capacity 1.0 MW and 0.6 MW located at Bahadurgarh, Patiala in the state of Punjab and Mugalpur, Moradabad in the state of Uttar Pradesh respectively.

Project proponent and other entities involved in the project-

The project proponent is Milkfood Limited. The assessment has verified this through the commissioning certificate/09/, found to be satisfactory, hence accepted.

Project start date-

Start date of project activity is 06-May-2009/09/, earliest commissioning of 14 TPH, 45 kg/cm² fluidized bed Combustion boiler at Milkfood Limited, Patiala (Project activity I), among both the project activity component.

Project crediting period-

As per the registered PD/2/, crediting period was considered from 06-May-2009 to 05-May-2019 which can be renewed twice for the duration of ten year each. However the project technical life is 20 years, hence only once the crediting period can be renewed.

The first crediting period considered was 06-May-2009 to 05-May-2019 and the second crediting period is from 06-May-2019 to 05-May-2029.

Project scale and estimated GHG emission reductions or removals-

The estimated annual emission reductions for the project activity are 70,113 tCO₂e which is less than 300,000 tCO₂e. Hence the category is applicable under "Project".

Project location-

Project I- The project is located at Milk food Limited at P.O. Bahadurgarh and Patiala District of Punjab. The project site is located within latitude 30° 21'55.23" N and longitude 76° 28'17.59" E respectively.

Conditions prior to project initiation-**Project I**

The electricity demand of Milkfood Limited was met by the grid supply and the steam demand was met by coal fired boilers. Coal was consumed in the pre project scenario for thermal energy generation.

Project II

The Moradabad plant is a new installation. There was no steam and power demand prior to the proposed project activity as it is a new installation.

Project compliance with applicable laws, statutes and other regulatory frameworks:

The project activity does not fall under the purview of the Environmental Impact Assessment (EIA) notification of the Ministry of Environment and Forest, Government of India (As per Ministry of Environment and Forests (MoEF) Notification No. - S.O. 1533, dated 14th September 2006)/24/. Also, all applicable laws and regulations in India were complied with. The required certification is obtained from the Deputy Director of Factories/ Boilers under Factories Act and

Indian Boiler act. The No Objection Certificate and consent to operate are obtained from the state Pollution Control Board under Air Act and water act.

Details of the approvals are provided below:

Project I:

“Consent to Operate” obtained from PPCB under section 25/26 of the Water (Prevention and Control of Pollution) Act, 1974 and its subsequent amendments dated 27-April-2008

“Consent to Operate” obtained from PPCB under section 21 of the Air (Prevention and Control of Pollution) Act, 1981 and its subsequent amendments dated 27-April-2008.

Project II:

“Consent to Operate” obtained from UPPCB under section 25/26 of the Water (Prevention and Control of Pollution) Act, 1974 and its subsequent amendments dated 21-April-2008

“Consent to Operate” obtained from UPPCB under section 21 of the Air (Prevention and Control of Pollution) Act, 1981 and its subsequent amendments dated 21-April-2008

Ownership and other programs-

Right of use

The Project activity is owned by Milkfood Limited. Further the Ownership is demonstrated through commissioning certificates/09/ issued by boiler supplier and company registration certificate.

Emissions trading programs and other binding limits-

The project is not participating in other emission trading programs. The letter of undertaking/12/ has been furnished by project participant confirming that net GHG emission reductions or removals generated by the project will not be used for compliance with an emissions trading program or to meet binding limits on GHG emissions.

Other forms of environmental credit sought or received and eligible to be sought or received:

The project is registered under the VCS (ID 784) and not listed under REC mechanism as verified from https://www.recregistryindia.nic.in/index.php/general/publics/registered_regens.

The emission reductions from the VCS monitoring period would not be used for compliance with emission trading program to meet binding limits on GHG emissions.

Participation under other GHG programs:

The project is registered under CDM with UNFCCC Reference number 5219 (<https://cdm.unfccc.int/Projects/DB/RWTUV1316003019.23/view>)

Rejection by other GHG programs:

The project has not been rejected by other GHG programs.

Additional information relevant to the project, including:**- Eligibility criteria for grouped projects**

The project activity is not a grouped project, hence not applicable to the project activity.

- Leakage management for AFOLU projects

Not applicable to the project activity.

- Commercially sensitive information

No commercially sensitive information has been excluded from the public version of the project description.

Conclusion:

In view of the assessment of VCS PD and supporting documents as listed in Appendix 1 of this report, the validation team is able to confirm that the description contained in the VCS PD of the project activity provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation. Consequently, ESPL confirms that the project description of the project contained in the VCS PD to be complete and accurate. The VCS PD complies with the relevant forms and guidance for completing the VCS PD.

3.2 Safeguards

3.2.1 No Net Harm

No potential negative environmental and socio-economic impacts have been identified by the project proponent. The project activity promotes environmental and socio-economic well-being as it results in zero GHG emissions due to installation and operation of clean, renewable energy technology for electricity generation.

This is as per the requirements laid out in VCS Standard (version 4.0)/13/ and deemed acceptable to the validation team.

3.2.2 Local Stakeholder Consultation

Not applicable since this is validation for renewal of crediting period. It is not obligatory to have a new stakeholders' consultation meeting while renewing the crediting period. PP has organized a stakeholder consultation meeting on 27-July-2009 held at its unit at Bahadurgarh

and Patiala District of Punjab and on 30-July-2009 at Village Mugalpur Agwanpur Mustakam, and Moradabad district of Uttar Pradesh in 1st crediting period.

3.2.3 Environmental Impact

The project activity is the installation and operation of biomass based power plant which would result in generation of clean energy. Thus, the project activity is not expected to have any significant adverse environmental impacts. Moreover, the project activity would help promote environmental and socio-economic well-being in the region. Also, there is no mandatory legal requirement in the host country to carry out environmental impact assessment of such project types. The assessment team reviewed the official government notification in the form of 'Schedule I of the EIA notification S.O.1533 (E)' dated 14-September-2006 and further affirmation provided by MOEF in the form of 'OM J-11013/41/2006 - IA II (I)' dated 13-May-2011 to confirm that biomass based power projects are not included in the list of project activities for which EIA is mandatory.

Thus, no EIA has been carried out by the PP which is deemed acceptable to the validation team.

3.2.4 Public Comments

Not applicable since this is validation for renewal of crediting period.

3.2.5 AFOLU-Specific Safeguards

Not applicable

3.3 Application of Methodology

3.3.1 Title and Reference

Title of the methodology applied: Thermal energy production with or without electricity

TYPE I – Renewable energy project

Category I.C: Thermal Energy production with or without electricity

AMS -I.C/Version 21/7/

Sectoral Scope: 1

In addition, the project activity also uses the following tools:

- Tool to calculate the emission factor for an electricity system --- Version 07.0/19/,
- Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period." Version 03.0.1/20/

The methodologies and the tools referenced are valid at the time of validation for RCP of the project activity have been checked and confirmed by the assessment team.

3.3.2 Applicability

The project activity applies the approved small-scale CDM methodology; AMS I.C Version 21/7/.Applicability criteria for the baseline line methodology are assessed by the validation team by means of document review and interview. Validation team confirms that the project activity meets the criteria of the applied methodology.

Applicability criteria as per methodology	Justification from PP	Means of validation
This methodology comprises renewable energy technologies that supply users i.e. residential, industrial or commercial facilities with thermal energy that displaces fossil fuel use. These units include technologies such as solar thermal water heaters and dryers, solar cookers, energy derived from renewable biomass and other technologies that provide thermal energy that displaces fossil fuel.	The proposed project activity (project I and II) at Milkfood Limited, is rice husk (biomass) based cogeneration plant and producing heat and electricity. This type of project activities is included in the methodology and therefore the methodology fulfils this requirement.	The validation team reviewed the PD for RCP/1/, interviewing representatives of PP confirms that the current project activity involves generation of electricity through biomass based cogeneration plant and producing heat and electricity. Thus, based on the above, the assessment team concludes that the project activity has successfully complied with requirements of the current applicability criteria of the applied methodology AMS I C, (version 21)/7/.
Biomass-based cogeneration and trigeneration systems are included in this category.	The proposed project activity (project I and II) at Milkfood Limited is rice husk (biomass) based cogeneration plant and producing heat and electricity. This type of project activities is included in the methodology and therefore the methodology fulfils this requirement.	The validation team reviewed the PD for RCP/1/ by interviewing representatives of PP during the site visit confirms that the current project activity involves installation and operation of biomass based cogeneration power plant thereby resulting in generation heat and electricity. This is consistent with registered PD. Thus, based on the above, the assessment team concludes that the project activity has successfully complied with requirements of the current applicability criteria of the applied methodology AMS I C, (version 21)/7/.

<p>Emission reduction from a biomass cogeneration system can accrue from one of the following activities: (a) Electricity supply to a grid; (b) Electricity and/or thermal energy (steam or heat) for on-site consumption or for consumption by other facilities; (c) Combination of (a) and (b).</p>	<p>As the proposed project activity (project I and II) is a biomass cogeneration system for captive utilization, Thus, Out of the listed options, option (b) is applicable for the project activity.</p> <p>(b) Electricity and/or thermal energy (steam or heat) for on-site consumption or for consumption by other facilities</p>	<p>The validation team reviewed the PD for RCP/1/ by interviewing representatives of PP during site visit confirms that the current project activity (project I and II) is a biomass cogeneration system for captive utilization. Thus Out of the listed options, option (b) is applicable for the project activity. Thus, based on the above, the assessment team concludes that the project activity has successfully complied with requirements of the current applicability criteria of the applied methodology AMS I C, (version 21)/7/.</p>
<p>Project activities that seek to retrofit or modify an existing facility for renewable energy generation are included in this category.</p>	<p>The proposed project activity is new installation and therefore this applicability criterion is not applicable for the project activity</p>	<p>Criterion not applicable as the project is a Greenfield project.</p>
<p>In the case of new facilities (Greenfield projects) and project activities involving capacity additions the relevant requirements related to determination of baseline scenario provided in the "General guidelines for SSC CDM methodologies" for Type-II and Type-III Greenfield/capacity expansion project activities also apply.</p>	<p>Project activity is type I activity therefore this criteria is not applicable.</p>	<p>Criterion not applicable as the project is a Greenfield project and type I activity.</p>
<p>The total installed/rated thermal energy generation capacity of the project equipment is equal to or less than 45 MW thermal (paragraph 9 for the applicable limits for cogeneration project activities).</p>	<p>The installed thermal energy generation capacity is 22.6 MWth (refer to the excel sheet provided separately) thermal which less than 45 MW thermal. Thus fulfils the criteria.</p>	<p>The validation team reviewed the PD for RCP/1/and ER sheet and confirms that the current project activity (project I and II) installed thermal energy generation capacity is 22.6 MWth thermal which is less than 45 MW thermal. Thus fulfils the criteria. Thus, based on the above, the assessment team concludes that the project activity has successfully complied with requirements of the current applicability criteria of the applied methodology AMS I C,</p>

		(version 21)/7/.
<p>For co-fired systems, the total installed thermal energy generation capacity of the project equipment, when using both fossil and renewable fuel shall not exceed 45 MW thermal (see paragraph 9 for the applicable limits for cogeneration project activities).</p>	<p>No Co-firing system is being utilized in the proposed project.</p>	<p>Criterion not applicable as the project is a not included co-firing system.</p>
<p>The following capacity limits apply for biomass cogeneration units: a) If the project activity includes emission reductions from both the thermal and electrical energy components, the total installed energy generation capacity (thermal and electrical) of the project equipment shall not exceed 45 MW thermal. For the purpose of calculating this capacity limit the conversion factor of 1:3 shall be used for converting electrical energy to thermal energy (i.e., for renewable project activities, the maximal limit of 15MW(e) is equivalent to 45 MW thermal output of the equipment or the plant). b) If the emission reductions of the cogeneration project activity are solely on account of thermal energy production (i.e. no emission reductions accrue from electricity component), the total installed thermal energy production capacity of</p>	<p>Out of the given capacity limits options (b) and (c) are not applicable, option (a) is applicable for the proposed project activity : a) The total installed energy generation capacity (thermal and electrical) of the proposed project is as follows: Project activity I: Thermal Generation: 9.3 MW thermal TG Installed Capacity= 1 MW (3 MWthermal) Project activity II: Thermal Generation: 8.48 MW thermal TG Installed Capacity= 0.6 MW (1.8 MWthermal)</p>	<p>The validation team reviewed the PD for RCP/1/and review ER sheet confirms that the current project activity (project I and II) installed thermal energy generation capacity is 22.6 MWth thermal which is less than 45 MW thermal. Thus fulfills the criteria. Thus, based on the above, the assessment team concludes that the project activity has successfully complied with requirements of the current applicability criteria of the applied methodology AMS I C, (version 21)/7/.</p>

<p>the project equipment of the cogeneration unit shall not exceed 45 MW thermal. c) If the emission reductions of the cogeneration project activity are solely on account of electrical energy production (i.e. no emission reductions accrue from thermal energy component), the total installed electrical energy generation capacity of the project equipment of the cogeneration unit shall not exceed 15 MW.</p>	<p>b) Thus the project activity as a whole qualifies this applicability criterion as it is within the limit of 45 MW thermal.</p>	
<p>The capacity limits specified in the above paragraphs apply to both new facilities and retrofit projects. In the case of project activities that involve the addition of renewable energy units at an existing renewable energy facility, the total capacity of the units added by the project should comply with capacity limits in paragraphs 7 to 9 and should be physically distinct from the existing units.</p>	<p>The proposed project activity is new installation and therefore this applicability criterion is not applicable for the project activity.</p>	<p>Project activity is green field project activity therefore this applicability criterion is not applicable.</p>
<p>If solid biomass fuel (e.g. briquette) is used, it shall be demonstrated that it has been produced using solely renewable biomass and all project or leakage emissions associated with its production shall be taken into account in emissions reduction calculation</p>	<p>The project activity does not utilize any biomass in the form of briquette therefore this applicability criterion is not applicable to the project activity.</p>	<p>Project activity is not utilizing any biomass in the form of briquette therefore this applicability criteria is not applicable.</p>
<p>Where the project participant is not the producer of the processed solid biomass fuel, the project participant and the producer are bound by a contract that shall enable the project participant to monitor the source of the renewable biomass to account for any emissions associated with solid biomass fuel production. Such a contract shall also ensure that there is no double-counting of emission reductions.</p>	<p>This case is not applicable as the electricity as well the steam is being consumed by the producer itself (for captive use).</p>	<p>Project activity utilize steam and electricity for captive use therefore this criterion is not applicable.</p>

<p>If electricity and/or thermal energy produced by the project activity is delivered to a third party i.e. another facility or facilities within the project boundary, a contract between the supplier and consumer(s) of the energy will have to be entered into that ensures there is no double-counting of emission reductions.</p>	<p>This case is not applicable as the electricity as well the steam is being consumed by the producer itself (for captive use).</p>	<p>Project activity utilize steam and electricity for captive use therefore this criterion is not applicable.</p>
<p>If the project activity recovers and utilizes biogas for producing electricity and/or thermal energy and applies this methodology on a standalone basis i.e. without using a Type III component of a SSC methodology, any incremental emissions occurring due to the implementation of the project activity (e.g. physical leakage of the anaerobic digester, emissions due to inefficiency of the flaring), shall be taken into account either as project or leakage emissions as per relevant procedures in the tool “Emissions from solid waste disposal sites” and/or “Project emissions from flaring”. In the event that the biomass fuel (solid/liquid/gas) is sourced from an existing CDM project, then the emissions associated with the production of the fuel shall be accounted with that project.</p>	<p>This case is not applicable as the electricity as well the steam is being consumed by the producer itself (for captive use).</p>	<p>Project activity utilize steam and electricity for captive use therefore this criterion is not applicable.</p>
<p>If project equipment contains refrigerants, then the refrigerant used in the project case shall have no ozone depleting potential (ODP).</p>	<p>This case is not applicable as the electricity as well the steam is being consumed by the producer itself (for captive use).</p>	<p>Project activity utilize steam and electricity for captive use therefore this criterion is not applicable.</p>
<p>Charcoal based biomass energy generation project activities are eligible to apply the methodology only if the charcoal is produced from renewable biomass sources provided: a) Charcoal is produced in kilns equipped</p>	<p>There is no charcoal being used hence this criterion is not applicable.</p>	<p>Project activity not using charcoal therefore this criterion is not applicable.</p>

<p>with methane recovery and destruction facility; or b) If charcoal is produced in kilns not equipped with a methane recovery and destruction facility, methane emissions from the production of charcoal shall be considered. These emissions shall be calculated as per the procedures defined in the approved methodology AMS-III.K. Alternatively, conservative emission factor values from peer reviewed literature or from a registered CDM project activity can be used, provided that it can be demonstrated that the parameters from these are comparable e.g. source of biomass, characteristics of biomass such as moisture, carbon content, type of kiln, operating conditions such as ambient temperature.</p>		
<p>In cases where the project activity utilizes biomass, sourced from dedicated plantations, applicability conditions prescribed in the tool "Project emissions from cultivation of biomass" shall apply.</p>	<p>Project activity procure rice husk from nearby local market therefore this criterion is not applicable.</p>	<p>Project activity procure rice husk from 75 km radius of the plant as it's easily available in nearby places of the plant. Therefore, this criterion is not applicable.</p>

3.3.3 Project Boundary

As per §24 of the applied methodology the project boundary is defined as: “The spatial extent of the project boundary encompasses: All plants generating electricity and/or thermal energy located at the project site, whether fired with biomass, fossil fuels or a combination of both;”

The information regarding the project boundary has been also correctly given in the PD for RCP^{1/}. the project boundary includes the plant generating electricity and thermal energy located the project site whether biomass used as fuel. The project activity is consuming power within plant. Therefore, the entire biomass storage, electricity production, steam production and electricity generation for plant have been considered in the project boundary for the VCS project activity.

The assessment team confirms that the project boundary for the project instances is based on the applied methodologies and that there are no sources and gases within the boundary.

The physical delineation of the project boundary and the description of the emission sources and GHGs that are included in the boundary are appropriate for the purpose of calculating project and baseline emissions for the project.

3.3.4 Baseline Scenario

According to VCS Standard, v4.0/13/, paragraph 3.8.9-2) The validity of the original baseline scenario shall be demonstrated, or where invalid a new baseline scenario shall be determined, when renewing the project crediting period, as follows:

Paragraph 3.8.9, Clause (2-a) “The validity of the original baseline scenario shall be assessed. Such assessment shall include an evaluation of the impact of new relevant national and/or sectoral policies and circumstances on the validity of the baseline scenario”.

VVB assessment:

Relevant mandatory national (ref:<https://mnre.gov.in/>) & sectoral policies in India and confirmed that there are no national or local laws or regulations that entail the installation of biomass based power project. Thus it can be concluded that original baseline scenario will remain valid for next crediting period.

Paragraph 3.8.9, Clause (2-b) “Where it is determined that the original baseline scenario is still valid, the GHG emissions associated with the original baseline scenario shall be reassessed using the latest version of the CDM Tool to assess the validity of the original/ current baseline and to update the baseline at the renewal of a crediting period”.

VVB assessment:

The project participant has included the assessment of the validity of the original baseline in line with UNFCCC in section 3.4 of the revised VCS PD, including the assessment of original baseline as per the “Tool to assess the validity of the original/ current baseline and to update

the baseline at the renewal of a crediting period, Version 3.0.1"/20/, which has been concluded to be still valid and applicable for the project.

The tool consists of two steps. The first step provides an approach to evaluate whether the current baseline is still valid for the next crediting period. The second step provides an approach to update the baseline in case that the current baseline is not valid anymore for the next crediting period.

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

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

As verified above (Para 3.8.9 2-a), there are no national or local laws or regulations that entail the installation of biomass based power project in India. Hence it can be concluded that current baseline is in compliance with relevant mandatory national and sectoral policies.

Step 1.2: Assess the impact of circumstances

As per the registered PD, the project activity is biomass based power project, electricity generated from project being consumed in plant, which was earlier taken from national grid. Hence grid was considered as appropriate and correct baseline. As discussed under step 1.1 above, there is no change observed in this regard and it can be concluded that the conditions used to determine the baseline emissions in the previous crediting period are still valid.

Complete assessment on the current operation of power plants is provided in the revised PD; from which it can be concluded that in the actual baseline scenario it is still predominant the installed capacity based on fossil fuel sources.

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

The lifetime of the project activity is 20 years; hence baseline equipment's (boiler) continuously used for electricity generation during next crediting period without any investment. The assessment team is able to conclude that an investment is not the most likely scenario for the renewal crediting period under consideration.

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

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

In the registered PD, the grid emission factor was calculated as per the combined margin approach described in the “Tool to calculate the emission factor for an electricity system” Version- 7/19/. The grid emission factor has been calculated as the weighted average of OM & BM; and has been fixed ex-ante for the entire crediting period.

The OM and BM was obtained from a publicly available source i.e. “CEA CO2 Baseline Database” Version 15/08/ latest version published by Central Electricity Authority, Ministry of Power (Government of India) at the time of validation.

Considering the guidance provided under this step, calculation of emission factor and baseline emissions are updated for the next crediting period as per step 2.

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

“Update the current baseline emissions for the subsequent crediting period, without reassessing the baseline scenario, based on the latest approved version of the methodology applicable to the project activity. The procedure should be applied in the context of the sectoral policies and circumstances that are applicable at the time of request for renewal of the crediting period”.

As demonstrated above the reassessment of baseline scenario is not required. However as per the latest version of applied methodology AMS I C version 21.0/7/, data and parameters are updated as following:

As referred in the methodology AMS I C version 21.0 the latest version of the “Tool to calculate the emission factor for an electricity system” (version 07.0)/19/ is used for calculation of emission factor and consequently the baseline emissions.

The Project proponent has adopted the combined margin approach for determination of the grid emission factor as per Tool to calculate the emission factor of an electricity system’ Version 7.0. The PP opted for combined margin emission factor ($EF_{grid,CM,y}$) for the project activity and it has been estimated ex-ante as 0.94193tCO₂e/MWh for Indian electricity grid in India. It will remain fixed throughout the crediting period for the project activity as opted by PP. The combined margin emission factor is obtained from the three years generation weighed average of the operating margin emission factor and the latest year build margin emission factors by applying suitable weights (i.e. 25 % to operating margin emission factor ($EF_{grid,OM,y}$) and 75 % to build margin emission factor ($EF_{grid,BM,y}$)) as referred to the EF tool version 7.0/19/.

The simple operating margin value of 0.9622 tCO₂e/MWh and build margin value of 0.8811 tCO₂e/MWh for Indian electricity grid in India have been referred from CO₂ baseline database published by Central Electricity Authority, Govt. Of India, version 15/8/. This is the latest available CO₂ baseline database at the time of the VCS PD submission for validation of the project activity. This is found to be appropriate and it is accepted.

It is worthy to note that there is no change in baseline scenario, however updated baseline calculations are provided in section 3.3.6 of this report.

The assessment team is able to conclude that:

- Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable.
- Documentary evidence used in determining the baseline scenario is relevant, and correctly quoted and interpreted in the project description.
- Relevant national and/or sectoral policies and circumstances have been considered and are listed in the project description.
- The procedures for identifying the baseline scenario have been correctly followed and the identified scenario reasonably represents what would have occurred in the absence of the project.

Finally, it can be concluded that the identified baseline scenario is justified and according to the VCS Standard version.4.0/13/ and the “Tool for the assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period v3.0.1/20/.

To describe the baseline scenario the PP has employed the requirements listed under §37 of the applied methodology which states that:

“For project activities that do not displace captive electricity generated by an existing plant but displace grid electricity import and/or supply electricity to a grid, the emission factor of the grid shall be calculated as per the procedures detailed in “AMS-I.D: Grid connected renewable electricity generation” or “AMS-I.F: Renewable electricity generation for captive use and mini-grid”/7/.The combined margin of the Indian grid used for the project activity is as follows:

Parameter	Value(tC O ₂ e/MWh)	Nomenclature	Source
EF _{grid,CM,y}	0.94193	Combined margin CO ₂ emission factor for the project electricity system in year y	Calculated as the weighted average of the operating margin (0.75) & build margin (0.25) values, sourced from Baseline CO ₂ Emission Database, Version 15/8/ published by Central Electricity Authority (CEA), Government of India
EF _{grid,OM,y}	0.9622	Operating margin CO ₂ emission factor for the project electricity system in year y	Calculated as the last 3 year (2016-17, 2017-18& 2018-19) generation-weighted average, sourced from Baseline CO ₂ Emission Database, Version 15/8/, published by Central Electricity Authority (CEA), Government of India
EF _{grid,BM,y}	0.8811	Build margin CO ₂ emission factor for the project electricity system in year y	Baseline CO ₂ Emission Database, Version 15/8/, published by Central Electricity Authority (CEA), Government of India

Other ex-ante parameters

Parameter	Unit	Value	Nomenclature	Source
EF_{EF,CO_2}	tCO ₂ / TJ	94.6	The CO ₂ emission factor per unit of energy of coal that would have been used in the baseline plant in absence of the project activity	As per IPCC 2006 Volume 2 Energy Table 1.4/25/
$\eta_{BL, thermal}$	%	82	The efficiency of the boiler using coal that would have been used in the absence of the project activity	Manufacturer specification/26/
$COEF_{i,y}$	tCO ₂ /litre	0.0032	The CO ₂ emission coefficient of fuel type I (Diesel) (tCO ₂ /mass or volume unit)	Table 1.2 & Table 1.4 Chapter 1 Volumes 2 of IPCC, 2006/25/.
PLF	%	90	Plant load factor	Third party determination
$\eta_{BL, biomass}$	%	78	The efficiency of the project activity biomass based boiler	Manufacturer specification

As that the project involves installation and operation of green-field, captive power plants, the above assigned baseline scenario is deemed to be consistent. This was confirmed based sectoral expertise of the assessment team and further by reviewing the PD and interviewing representatives of PP.

Thus, the baseline scenario has been identified in line with the requirements of the applied methodology AMS I C (version 21)/7/ and is deemed to be appropriate and justified.

3.3.5 Additionality

In accordance with the paragraph 3.8.9 clause 1 of VCS standard v 4.0/13/, “A full reassessment of additionality is not required when renewing the project crediting period. However, regulatory surplus shall be demonstrated in accordance with the requirements set out in the VCS Program rules and the project description shall be updated accordingly.”

As per the above guidelines, the assessment team has reviewed the sectoral and national policies implemented for the biomass based power projects in host country India.

Latest regulatory requirements for the project activity were checked through the official website of the Ministry of New and Renewable Energy, a nodal ministry of Government of India for the matters relating to new and renewable energy and state policies.

In view of the above assessment, it can be concluded that the proposed project is not mandated by any law, statute or other regulatory framework, or for UNFCCC non-Annex I countries, any systematically enforced law, statute or other regulatory framework and hence continued to be voluntary.

3.3.6 Quantification of GHG Emission Reductions and Removals

The equations and choices provided in the applied methodology AMS I C (version 21)^{7/} and all other methodological tools are correctly quoted in the PD for RCP^{1/}. The emission reductions of the project would be calculated using the formulae mentioned in the applied methodology.

Validation team based on the review of the PD for RCP^{1/} confirms that the formulae are correctly presented for the determination of emissions reductions. The parameters and equations presented in the PD for RCP, as well as other applicable documents, have been compared with the information and requirements presented in the applied methodology^{7/}. An equation comparison has also been made to ensure consistency between all the formulae presented in the PD^{1/} and ER validation spreadsheet and the applied methodology.

Baseline Emissions:

The baseline emissions associated with the applied methodology are calculated as:

$$\text{Baseline emission (tCO}_2\text{e)} = \text{Net Electricity generated (MWh)} \times 0.94193(\text{tCO}_2\text{e/MWh)}$$

The estimated to be 7227 MWh per year for project I and 4336.2 MWh per year for project II, which is same as in the registered VCS PD. This was confirmed based on assessment of PD for RCP and ER validation spreadsheet.

As reported in section 3.2.4 of this report, combined margin emission factor ($EF_{grid,CM,y}$) is calculated using the “Tool to calculate the emission factor for an electricity system” version 07/19/ and value obtained as 0.94193 tCO₂e/MWh.

Thus, the emission factor for the project is calculated to be $EF_{grid,CM,y} = 0.94193 \text{ tCO}_2\text{e/MWh}$ and it is fixed ex ante for the crediting period. Considering this process, combined margin emission factor has been considered and same value is confirmed correct.

Project I

$$\text{Baseline emission (tCO}_2\text{e)} = \text{Net Electricity generated (MWh)} \times 0.94193 (\text{tCO}_2\text{e/MWh}).$$

$$= 7227 \text{ MWh} \times 0.94193 (\text{tCO}_2\text{e/MWh}). = 6807 \text{ tCO}_2\text{e}$$

Project II

$$\text{Baseline emission (tCO}_2\text{e)} = \text{Net Electricity generated (MWh)} \times 0.94193 (\text{tCO}_2\text{e/MWh}).$$

$$= 4336.2 \text{ MWh} \times 0.94193 \text{ (tCO}_2\text{e/MWh)}. = 4084 \text{ tCO}_2\text{e}$$

Project I

2. For steam/ heat produced using fossil fuels the baseline emissions are calculated as follows:

As per the Para 34 of the AMS.I.C version 21:

The baseline emissions are calculated as follows:

$$BE_{\text{thermal, Co}_2, y} = (EG_{\text{thermal, y}} / \eta_{\text{BL, thermal}}) * EF_{\text{EF, CO}_2}$$

Where:

$BE_{\text{thermal, Co}_2, y}$ - The baseline emission from steam/heat displaced by the steam activity during the year y in tCO₂e.

$EG_{\text{thermal, y}}$ - The net quantity of heat supplied by the project activity during the year y TJ.

$EF_{\text{EF, CO}_2}$ - The CO₂ emission factor per unit of the energy of the fuel that would had been use in the base line plant in (tCO₂/ TJ), obtained from reliable local or national data if available, otherwise, IPCC Default emission factor should be used.

$\eta_{\text{BL, thermal}}$ - The efficiency of the plant using fossil fuel that would have been used in the absence of the project activity.

$$BE_{\text{thermal, Co}_2, y} = (EG_{\text{thermal, y}} / \eta_{\text{BL, thermal}}) * EF_{\text{EF, CO}_2}$$

$$= (268.19 \text{ TJ / yr} / .82) \times 94.6 \text{ tCO}_2 / \text{TJ}$$

$$= 30,940.99 \text{ tCO}_2\text{e/ yr}$$

“Since the project activity displaces both grid power and steam from coal fired boiler, the baseline is summation of both 1 and 2.”

$$\text{Total Baseline Emission Reduction} = 6807 \text{ tCO}_2\text{e} + 30,940.99 \text{ tCO}_2\text{e/ yr} = 37,748 \text{ tCO}_2\text{e/ yr}$$

Project II

2. For steam/ heat produced using fossil fuels the baseline emissions are calculated as follows:

As per the Para 34 of the AMS.I.C version 21:

The baseline emissions are calculated as follows:

$$BE_{\text{thermal, Co}_2, y} = (EG_{\text{thermal, y}} / \eta_{\text{BL, thermal}}) * EF_{\text{EF, CO}_2}$$

Where:

$BE_{\text{thermal, Co2},y}$ - The baseline emission from steam/heat displaced by the steam activity during the year y in tCO₂e.

$EG_{\text{thermal},y}$ - The net quantity of heat supplied by the project activity during the year y TJ.

$EF_{\text{EF,CO2}}$ - The CO₂ emission factor per unit of the energy of the fuel that would had been use in the base line plant in (tCO₂/ TJ), obtained from reliable local or national data if available, otherwise, IPCC Default emission factor should be used.

$\eta_{\text{BL, thermal}}$ - The efficiency of the plant using fossil fuel that would have been used in the absence of the project activity.

$$\begin{aligned} BE_{\text{thermal, Co2},y} &= (EG_{\text{thermal},y} / \eta_{\text{BL, thermal}}) * EF_{\text{EF,CO2}} \\ &= (245.14 \text{ TJ / yr} / .82) \times 94.6 \text{ tCO}_2 / \text{TJ} \\ &= 28,281.43 \text{ tCO}_2\text{e/ yr} \end{aligned}$$

“Since the project activity displaces both grid power and steam from coal fired boiler, the baseline is summation of both 1 and 2.”

$$\text{Total Baseline Emission Reduction} = 4084 \text{ tCO}_2\text{e} + 28,281.43 \text{ tCO}_2\text{e/ yr} = 32,365 \text{ tCO}_2\text{e/ yr}$$

Project Emissions:

For ex-post calculation, project emission (in case of coal used as a fuel in stand by boiler) and diesel used in DG sets, will be calculated based on para.67 of AMS.I.C, version 21/7/ “CO₂ emissions from on-site combustion of fossil fuels ($PE_{\text{FC},y}$) shall be calculated using the latest version of the “Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion”. As per Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion version 3 para 6 “CO₂ emissions from fossil fuel combustion in process j are calculated based on the quantity of fuels combusted and the CO₂ emission coefficient of those fuels, as follows:

$$PE_{\text{FC},j,y} = \sum_i FC_{i,j,y} \times COEF_{i,y}$$

$PE_{\text{FC},j,y}$ = the CO₂ emissions from fossil fuel (coal, diesel) combustion in process j during the year y (tCO₂/yr);

$FC_{i,j,y}$ = the quantity of fuel type (coal, diesel) i combusted in process j during the year y (mass or volume unit/yr);

$COEF_{i,y}$ = the CO₂ emission coefficient of fuel type (coal) i in year y (tCO₂/mass or volume unit)

i = the fuel types (coal) combusted in process j during the year y

Leakage Emissions:

As per Para 77 of AMS I C version 21/7/, if the energy generating equipment currently being utilized is transferred from outside the boundary to the project activity, leakage is to be considered. The equipments utilized in the project activity are not transferred from any other

activity. Besides, no existing equipment has been transferred from the project site. Hence leakage for this part is zero.

As per Para 78 of AMS I C version 21/7/, In cases where the collection, processing and transportation of biomass residues is outside the project boundary and due to the implementation of the project activity biomass residues are transported over a distance of 200 kilometers CO₂ emissions from the collection, processing and transportation of biomass residues to the project site shall be taken into account as leakage using with the latest version of tool “Project and leakage emissions from transportation of freight”. The project activity is procuring and utilizing biomass available within the 75 Km radius from Milkfood Limited. Hence leakage for this part isZero.

Emission Reductions:

Emission reduction:

$$ER_y = BE_y - PE_y - LE_y$$

Where:

ER_y = Emission reductions in year y (t CO₂e)

BE_y = Baseline emissions in year y (t CO₂e)

PE_y = Project emissions in year y (t CO₂)

LE_y = Leakage emissions in year y (tCO₂)

Project I :

$$ER_y = BE_y - PE_y - LE_y$$

$$= 37,748 \text{ tCO}_2\text{e/ yr} + 0 + 0$$

$$= 37,748 \text{ tCO}_2\text{e/ yr}$$

Project II:

$$ER_y = BE_y - PE_y - LE_y$$

$$= 32,365 \text{ tCO}_2\text{e/ yr} + 0 + 0$$

$$= 32,365 \text{ tCO}_2\text{e/ yr Total EmissionReduction:}$$

$$= \text{Project I} + \text{Project II}$$

$$= 37,748 + 32,365 \text{ tCO}_2\text{e/ yr} = 70,113 \text{ tCO}_2\text{e/ yr}$$

Conclusion:

The assessment team is able to conclude that the calculation of emission reductions is done as per the applied methodology. Changes due to the upgraded version of the methodology and the re-assessment of the baseline have been considered suitably. The calculation of the emission reductions provided in the in the ER spread sheet and the corresponding calculation in the relevant section of the PD have been checked and found to be satisfactory. The estimation of emission reductions for the second crediting period is deemed plausible and conservative.

All relevant assumptions and data are listed in the project description, including their references and sources, being CEA database version 15/8/, the main source of data for the emission factor calculation.

All estimates of the baseline emissions can be replicated using the data and parameter values provided in the project description.

The emission reductions were calculated in accordance with the methodology and tool.

3.3.7 Methodology Deviations

Not applicable

3.3.8 Monitoring Plan

The project employs the small-scale approved CDM methodology namely AMS I C (version 21)/7/ and in accordance with the same, the parameters to be monitored ex-post. During the second crediting period aspects of monitoring plan like monitoring procedure, calibration procedure, data recording, monitoring role and responsibility and QA/QC procedure will remain same as mentioned in the registered PD.

The updated PD has been reviewed to check that the procedure for data uncertainty, emergency preparedness, roles and responsibility, operational and management structure are mention in the PD. The monitoring plan completely describes all measures to be implemented for monitoring all parameters required. The assessment team confirm that:

- The monitoring plan included in the PD is based on the approved methodology AMS I C (version 21)/7/which has been applied to the VCS project activity
- The monitoring arrangements described in the monitoring plan are feasible within the project design.
- The PP has the ability to implement the monitoring plan as per the PD.

Based on the above assessment the validation team concludes that the PP is capable to implement the monitoring plan and hence confirms compliance of VCS guidelines and the applied methodology.

Compliance with the requirement of the methodology, for the parameters to be monitored ex-post during the 2nd crediting period is demonstrated in the table below:

Parameter 1: $EG_{PJ,y}$ Net electricity generated by project activity I

Revised PDD Approved Methodology	Requirement in the applicable methodology	Requirement in the registered monitoring plan in the revised PD	Opinion
Data/Parameter	$EG_{grid,y}$	$EG_{PJ,y}$	In compliance with the applicable methodology.
Description	Quantity of electricity generated/supplied	Net electricity generated by project activity I	In compliance with the applicable methodology.
Measured/Calculated /Default	Measured using calibrated meters	Measured	Monitoring: electronic energy meters at the sent out point of the project activity plant will measure the data of net electricity generated. If, in case the net electricity is not

			monitored directly, the net electricity will be calculated by subtracting the electricity used by the project activity auxiliaries from gross electricity generated
Source of data	Plant records	On site instruments	This is as per the actual practice on site. Hence accepted.
Monitoring equipment	Energy meters	Energy Meter	This parameter is monitored using electronic energy meters at the sent out point of project activity. Hence accepted.
Measuring/Reading/Recording frequency	Continuous monitoring, integrated hourly and at least monthly recording	Recording Frequency: Monthly	The Hourly measurement and monthly Recording is for the directly measured as per the applicable methodology. Hence the monthly recording frequency is acceptable since it is as per the actual practice on site. Hence accepted.
Calculation method (if applicable)	Not Applicable	The calculation method is as per Section 4 of the registered PDD.	This is as per the actual practice on site. Hence accepted. The same formula is mentioned in the registered monitoring plan.
QA/QC procedures	Not applicable	Energy meters will be duly calibrated by accredited agency and Yes, Quality Management System will be used and the same procedurally records of net electricity generation will be checked by Plant in charge and a consolidated monthly monitoring report will be submitted to top management for internal review	This is in compliance with the actual practice on site.

Parameter 2: $EG_{P,y}$ Net electricity generated by project activity II

Revised PDD Approved Methodology	Requirement in the applicable methodology	Requirement in the registered monitoring plan in the revised PD	Opinion
Data/Parameter	$EG_{grid,y}$	$EG_{P,y}$	In compliance with the applicable

			methodology.
Description	Quantity of electricity generated/supplied	Net electricity generated by project activity II	In compliance with the applicable methodology.
Measured/Calculated/Default	Measured using calibrated meters	Measured	Monitoring: electronic energy meters at the sent out point of the project activity plant will measure the data of net electricity generated. If, in case the net electricity is not monitored directly, the net electricity will be calculated by subtracting the electricity used by the project activity auxiliaries from gross electricity generated
Source of data	Plant records	On site instruments	This is as per the actual practice on site. Hence accepted.
Monitoring equipment	Energy meters	Energy Meter	This parameter is monitor using electronic energy meters at the sent out point of project activity. Hence accepted.
Measuring/Reading/Recording frequency	Continuous monitoring, integrated hourly and at least monthly recording	Recording Frequency: Monthly	The Hourly measurement and monthly Recording is for the directly measured as per the applicable methodology. Hence the monthly recording frequency is acceptable since it is as per the actual practice on site. Hence accepted.
Calculation method (if applicable)	Not Applicable	The calculation method is as per Section 4 of the registered PDD.	This is as per the actual practice on site. Hence accepted. The same formula is mentioned in the registered monitoring plan.
QA/QC procedures	Not applicable	Energy meters will be duly calibrated by accredited agency and Yes, Quality Management System will be used and the same procedurally records of net electricity generation will be checked by Plant in charge and a consolidated monthly monitoring report will be submitted to top management for internal review	This is in compliance with the actual practice on site.

Parameter 3: $Q_{fossil,i}$ Quantity of fossil fuel (coal) of type i combusted in boiler in year y

Revised PDD Approved Methodology	Requirement in the applicable methodology	Requirement in the registered monitoring plan in the revised PD	Opinion
Data/Parameter	$Q_{fossil,i}$	$Q_{fossil,i}$	In compliance with the applicable methodology.
Description	Quantity of fossil fuel (coal) of type i combusted in boiler in year y	Quantity of fossil fuel (coal) of type i combusted in boiler in year y	In compliance with the applicable methodology.
Measured/Calculated/Default	Measured	Measured	Quantity of fossil fuel type i-(coal) used in project activity would be measured using weigh scales and recorded in Log books.
Source of data	Plant records	plant sheet/records log	This is as per the actual practice on site. Hence accepted.
Monitoring equipment	Not Applicable	Weigh bridge	This parameter is monitor using Weigh bridge. Hence accepted.
Measuring/Reading/Recording frequency	Not Applicable	On Procurement basis	Frequency is acceptable since it is as per the actual practice on site. Hence accepted.
Calculation method (if applicable)	Not Applicable	Not Applicable	Not Applicable
QA/QC procedures	Not applicable	The data will be cross checked with the fossil fuel of type i procurement data (Invoices). Weigh scale will be calibrated annually by external accredited agencies.	This is in compliance with the actual practice on site.

Parameter 4: $FC_{i,y}$ Quantity of fossil fuel (Diesel) of type i combusted in DG set in year y

Revised PDD Approved Methodology	Requirement in the applicable methodology	Requirement in the registered monitoring plan in the revised PD	Opinion
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Data/Parameter	FC _{i,j,y}	FC _{i,j,y}	In compliance with the applicable methodology.
Description	Quantity of fossil fuel (Diesel) of type i combusted in DG set in year y	Quantity of fossil fuel (Diesel) of type i combusted in DG set in year y	In compliance with the applicable methodology.
Measured/Calculated /Default	Measured	Measured	Quantity of fossil fuel type i-(Diesel) used in project activity I & II (DG sets) would be measured through procurement data.
Source of data	Plant records	plant sheet/records log	This is as per the actual practice on site. Hence accepted.
Monitoring equipment	Not Applicable	Not Applicable	This parameter is monitor using <i>procurement invoice</i> . Hence accepted.
Measuring/Reading/ Recording frequency	Not Applicable	Daily	Frequency is acceptable since it is as per the actual practice on site. Hence accepted.
Calculation method (if applicable)	Not Applicable	Not Applicable	Not Applicable
QA/QC procedures	Not Applicable	Not Applicable	Not Applicable

Parameter 5: Q_{steam} Quantity of steam generated form project activity biomass boiler

Revised PDD Approved Methodology	Requirement in the applicable methodology	Requirement in the registered monitoring plan in the revised PD	Opinion
Data/Parameter	Ms,y	Q _{steam}	In compliance with the applicable methodology.
Description	Quantity of steam produced during the year y	Quantity of steam generated form project activity biomass boiler	In compliance with the applicable methodology.
Measured/Calculated /Default	The steam quantity discharged from the geothermal wells should be measured with a venture flow meter (or other equipment with at	Measured	Monitoring: <i>steam flow</i> meters will measure quantity of steam generated from project activity biomass boiler.

	least the same accuracy). Measurement of temperature and pressure upstream of the venture meter is required to define the steam properties.		
Source of data	Plant records	Onsite measurement taken from steam flow meter	This is as per the actual practice on site. Hence accepted.
Monitoring equipment	Steam flow meter	Steam flow meter	Reading will be directly taken from steam flow meter by boiler attendant supervisor on hourly basis. Hence accepted.
Measuring/Reading/Recording frequency	Daily	Recording Frequency: Daily	Daily recording frequency is acceptable since it is as per the actual practice on site. Hence accepted.
Calculation method (if applicable)	Not Applicable	Not Applicable	Not Applicable
QA/QC procedures	Not applicable	Steam flow meter will be calibrated once in a three year by external accredited agencies.	This is in compliance with the actual practice on site.

Parameter 6: T_{steam} Temperature of the steam generated

Revised PDD Approved Methodology	Requirement in the applicable methodology	Requirement in the registered monitoring plan in the revised PD	Opinion
Data/Parameter	T	T_{steam}	In compliance with the applicable methodology.
Description	Temperature	Temperature of the steam generated	In compliance with the applicable methodology.
Measured/Calculated/Default	Measured using calibrated meters	Measured using temperature gauge	Monitoring: temperature gauge will measure steam temperature.
Source of data	Plant records	On-site measurement from temperature gauge installed at steam outlet from boiler	This is as per the actual practice on site. Hence accepted.

Monitoring equipment	Meter	Temperature gauge	Reading will be directly taken from by boiler attendant supervisor on hourly basis. Hence accepted.
Measuring/Reading/Recording frequency	Continuous monitoring, integrated hourly and at least monthly recording	Recording Frequency: hourly	Hourly recording frequency is acceptable since it is as per the actual practice on site. Hence accepted.
Calculation method (if applicable)	Not Applicable	Not Applicable	Not Applicable
QA/QC procedures	Calibration shall be as per the relevant paragraphs of the "General guidelines for SSC CDM methodologies"	Temperature gauge will be calibrated once in a three year by external accredited agencies.	This is in compliance with the actual practice on site. Calibration frequency is in compliance with requirement of methodology.

Parameter 7: P_{steam} Pressure of the steam generated

Revised PDD Approved Methodology	Requirement in the applicable methodology	Requirement in the registered monitoring plan in the revised PD	Opinion
Data/Parameter	P	P_{steam}	In compliance with the applicable methodology.
Description	<i>Pressure</i>	Pressure of the steam generated	In compliance with the applicable methodology.
Measured/Calculated/Default	Measured using calibrated meters	Measured using pressure gauge	Monitoring: pressure gauge will measure steam pressure
Source of data	Plant records	On site measurement from pressure gauge	This is as per the actual practice on site. Hence accepted.
Monitoring equipment	Meter	Pressure gauge	Reading will be directly taken from by boiler attendant supervisor on hourly basis. Hence accepted.
Measuring/Reading/Recording frequency	Continuous monitoring, integrated hourly and at least monthly recording	Recording Frequency: hourly	Hourly recording frequency is acceptable since it is as per the actual practice on site. Hence accepted.
Calculation method (if applicable)	Not Applicable	Not Applicable	Not Applicable
QA/QC procedures	Calibration shall be as per the relevant paragraphs of the "General guidelines	Temperature gauge will be calibrated once in a three year by	This is in compliance with the actual practice on site. Calibration frequency

	forSSC CDM methodologies”	external accredited agencies.	is in compliance with requirement of methodology.
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Parameter 8: $Q_{\text{steam,HP,I}}$ Quantity of steam used in the process at high pressure(after conjunction point of direct and bleed steam)(at high pressure side) Source

Revised PDD Approved Methodology	Requirement in the applicable methodology	Requirement in the registered monitoring plan in the revised PD	Opinion
Data/Parameter	Ms,y	$Q_{\text{steam,HP,I}}$	In compliance with the applicable methodology.
Description	Quantity of steam produced during the year y	Quantity of steam used in the process at high pressure(after conjunction point of direct and bleed steam)(at high pressure side) Source	In compliance with the applicable methodology.
Measured/Calculated /Default	The steam quantity discharged from the geothermal wells should be measured with a venture flow meter (or other equipment with at least the same accuracy). Measurement of temperature and pressure upstream of the venture meter is required to define the steam properties.	Measured	Monitoring: <i>steam flow</i> meters will measure quantity of steam used in the process at high pressure from project activity biomass boiler.
Source of data	Plant records	Onsite measurement taken from steam flow meter	This is as per the actual practice on site. Hence accepted.
Monitoring equipment	Steam flow meter	Steam flow meter	Reading will be directly taken from steam flow meter by boiler attendant supervisor on hourly basis. Hence accepted.
Measuring/Reading/ Recording frequency	Daily	Recording Frequency: Daily	Daily recording frequency is acceptable since it is as per the actual practice on site. Hence accepted.
Calculation method (if applicable)	Not Applicable	Not Applicable	Not Applicable

QA/QC procedures	Not applicable	Steam flow meter will be calibrated once in a three year by external accredited agencies.	This is in compliance with the actual practice on site.
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Parameter 9: $T_{\text{steam,HP,I}}$ Temperature of the steam used in the process at high pressure(after conjunction point of direct and bleed steam)(at high pressure side)

Revised PDD Approved Methodology	Requirement in the applicable methodology	Requirement in the registered monitoring plan in the revised PD	Opinion
Data/Parameter	T	$T_{\text{steam,HP,I}}$	In compliance with the applicable methodology.
Description	Temperature	Temperature of the steam used in the process at high pressure(after conjunction point of direct and bleed steam)(at high pressure side)	In compliance with the applicable methodology.
Measured/Calculated /Default	Measured using calibrated meters	Measured using temperature gauge	Monitoring: temperature gauge will measure steam temperature at steam outlet from boiler.
Source of data	Plant records	On-site measurement from temperature gauge installed at steam outlet from boiler	This is as per the actual practice on site. Hence accepted.
Monitoring equipment	Meter	Temperature gauge	Reading will be directly taken from by boiler attendant supervisor on hourly basis. Hence accepted.
Measuring/Reading/Recording frequency	Continuous monitoring, integrated hourly and at least monthly recording	Recording Frequency: hourly	Hourly recording frequency is acceptable since it is as per the actual practice on site. Hence accepted.
Calculation method (if applicable)	Not Applicable	Not Applicable	Not Applicable
QA/QC procedures	Calibration shall be as per the relevant paragraphs of the "General guidelines for SSC CDM methodologies"	Temperature gauge will be calibrated once in a three year by external accredited agencies.	This is in compliance with the actual practice on site. Calibration frequency is in compliance with requirement of methodology.

Parameter 10: $P_{\text{steam,HP,I}}$ Pressure of the steam used in the process at high pressure(after conjunction point of direct and bleed steam)(at high pressure side)

Revised PDD Approved Methodology	Requirement in the applicable methodology	Requirement in the registered monitoring plan in the revised PD	Opinion
Data/Parameter	P	P_{steam,HP,I}	In compliance with the applicable methodology.
Description	Pressure	Pressure of the steam used in the process at high pressure(after conjunction point of direct and bleed steam)(at high pressure side)	In compliance with the applicable methodology.
Measured/Calculated /Default	Measured using calibrated meters	Measured using pressure gauge	Monitoring: pressure gauge will measure steam pressure
Source of data	Plant records	On site measurement from pressure gauge	This is as per the actual practice on site. Hence accepted.
Monitoring equipment	Meter	Pressure gauge	Reading will be directly taken from by boiler attendant supervisor on hourly basis. Hence accepted.
Measuring/Reading/ Recording frequency	Continuous monitoring, integrated hourly and at least monthly recording	Recording Frequency: hourly	Hourly recording frequency is acceptable since it is as per the actual practice on site. Hence accepted.
Calculation method (if applicable)	Not Applicable	Not Applicable	Not Applicable
QA/QC procedures	Calibration shall be as per the relevant paragraphs of the "General guidelines for SSC CDM methodologies"	Temperature gauge will be calibrated once in a three year by external accredited agencies.	This is in compliance with the actual practice on site. Calibration frequency is in compliance with requirement of methodology.

Parameter 11: $Q_{\text{steam,HP,II}}$ Quantity of steam used in the process at high pressure(after conjunction point of direct and bleed steam)(at high pressure side) Source

Revised PDD Approved Methodology	Requirement in the applicable methodology	Requirement in the registered monitoring plan in the revised PD	Opinion
Data/Parameter	Ms,y	Q_{steam,HP,II}	In compliance with the applicable methodology.

Description	Quantity of steam produced during the year y	Quantity of steam used in the process at high pressure(after conjunction point of direct and bleed steam)(at high pressure side) Source	In compliance with the applicable methodology.
Measured/Calculated/Default	The steam quantity discharged from the geothermal wells should be measured with a venture flow meter (or other equipment with at least the same accuracy). Measurement of temperature and pressure upstream of the venture meter is required to define the steam properties.	Measured	Monitoring: <i>steam flow</i> meters will measure quantity of steam used in the process at high pressure from project activity biomass boiler.
Source of data	Plant records	Onsite measurement taken from steam flow meter	This is as per the actual practice on site. Hence accepted.
Monitoring equipment	Steam flow meter	Steam flow meter	Reading will be directly taken from steam flow meter by boiler attendant supervisor on hourly basis. Hence accepted.
Measuring/Reading/Recording frequency	Daily	Recording Frequency: Daily	Daily recording frequency is acceptable since it is as per the actual practice on site. Hence accepted.
Calculation method (if applicable)	Not Applicable	Not Applicable	Not Applicable
QA/QC procedures	Not applicable	Steam flow meter will be calibrated once in a three year by external accredited agencies.	This is in compliance with the actual practice on site.

Parameter 12: $T_{\text{steam,HP,II}}$ Temperature of the steam used in the process at high pressure(after conjunction point of direct and bleed steam)(at high pressure side)

Revised PDD Approved Methodology	Requirement in the applicable methodology	Requirement in the registered monitoring plan in the revised PD	Opinion
Data/Parameter	T	$T_{\text{steam,HP,II}}$	In compliance with the applicable methodology.

Description	Temperature	Temperature of the steam used in the process at high pressure(after conjunction point of direct and bleed steam)(at high pressure side)	In compliance with the applicable methodology.
Measured/Calculated /Default	Measured using calibrated meters	Measured using temperature gauge	Monitoring: temperature gauge will measure steam temperature at steam outlet from boiler.
Source of data	Plant records	On-site measurement from temperature gauge installed at steam outlet from boiler	This is as per the actual practice on site. Hence accepted.
Monitoring equipment	Meter	Temperature gauge	Reading will be directly taken from by boiler attendant supervisor on hourly basis. Hence accepted.
Measuring/Reading/ Recording frequency	Continuous monitoring, integrated hourly and at least monthly recording	Recording Frequency: hourly	Hourly recording frequency is acceptable since it is as per the actual practice on site. Hence accepted.
Calculation method (if applicable)	Not Applicable	Not Applicable	Not Applicable
QA/QC procedures	Calibration shall be as per the relevant paragraphs of the "General guidelines for SSC CDM methodologies"	Temperature gauge will be calibrated once in a three year by external accredited agencies.	This is in compliance with the actual practice on site. Calibration frequency is in compliance with requirement of methodology.

Parameter 13: $P_{\text{steam,HP,II}}$ Pressure of the steam used in the process at high pressure(after conjunction point of direct and bleed steam)(at high pressure side)

Revised PDD Approved Methodology	Requirement in the applicable methodology	Requirement in the registered monitoring plan in the revised PD	Opinion
Data/Parameter	P	$P_{\text{steam,HP,II}}$	In compliance with the applicable methodology.
Description	<i>Pressure</i>	Pressure of the steam used in the process at high pressure(after conjunction point of direct and bleed steam)(at high pressure side)	In compliance with the applicable methodology.

Measured/Calculated /Default	Measured using calibrated meters	Measured using pressure gauge	Monitoring: pressure gauge will measure steam pressure
Source of data	Plant records	On site measurement from pressure gauge	This is as per the actual practice on site. Hence accepted.
Monitoring equipment	Meter	Pressure gauge	Reading will be directly taken from by boiler attendant supervisor on hourly basis. Hence accepted.
Measuring/Reading/ Recording frequency	Continuous monitoring, integrated hourly and at least monthly recording	Recording Frequency: hourly	Hourly recording frequency is acceptable since it is as per the actual practice on site. Hence accepted.
Calculation method (if applicable)	Not Applicable	Not Applicable	Not Applicable
QA/QC procedures	Calibration shall be as per the relevant paragraphs of the "General guidelines for SSC CDM methodologies"	Temperature gauge will be calibrated once in a three year by external accredited agencies.	This is in compliance with the actual practice on site. Calibration frequency is in compliance with requirement of methodology.

Parameter 14: $Q_{\text{steam,LP}}$ Quantity of steam extracted from the turbine that is used in the process at low pressure (Exhaust Steam at the outlet of the turbine) (at Low pressure side)

Revised PDD Approved Methodology	Requirement in the applicable methodology	Requirement in the registered monitoring plan in the revised PD	Opinion
Data/Parameter	Ms,y	$Q_{\text{steam,LP}}$	In compliance with the applicable methodology.
Description	Quantity of steam produced during the year y	Quantity of steam extracted from the turbine that is used in the process at low pressure (Exhaust Steam at the outlet of the turbine) (at Low pressure side)	In compliance with the applicable methodology.
Measured/Calculated /Default	The steam quantity discharged from the geothermal wells should be measured with a venture flow meter (or other equipment with at least the same accuracy). Measurement of temperature and pressure upstream of the venture meter is required to define the steam	Measured	Monitoring: <i>steam flow</i> meters will measure quantity of steam extracted from the turbine that is used in the process at low pressure.

	properties.		
Source of data	Plant records	Onsite measurement taken from steam flow meter	This is as per the actual practice on site. Hence accepted.
Monitoring equipment	Steam flow meter	Steam flow meter	Reading will be directly taken from steam flow meter by boiler attendant supervisor on hourly basis. Hence accepted.
Measuring/Reading/Recording frequency	Daily	Recording Frequency: Daily	Daily recording frequency is acceptable since it is as per the actual practice on site. Hence accepted.
Calculation method (if applicable)	Not Applicable	Not Applicable	Not Applicable
QA/QC procedures	Not applicable	Steam flow meter will be calibrated once in a three year by external accredited agencies.	This is in compliance with the actual practice on site.

Parameter 15: $T_{\text{steam,LP}}$ Temperature of the steam extracted from the turbine that is used in the process (at low pressure side)

Revised PDD Approved Methodology	Requirement in the applicable methodology	Requirement in the registered monitoring plan in the revised PD	Opinion
Data/Parameter	T	$T_{\text{steam,HP,II}}$	In compliance with the applicable methodology.
Description	Temperature	Temperature of the steam extracted from the turbine that is used in the process (at low pressure side)	In compliance with the applicable methodology.
Measured/Calculated/Default	Measured using calibrated meters	Measured using temperature gauge	Monitoring: temperature gauge will measure steam temperature extracted from the turbine that is used in the process.
Source of data	Plant records	On-site measurement from temperature gauge installed at steam outlet from boiler	This is as per the actual practice on site. Hence accepted.
Monitoring equipment	Meter	Temperature gauge	Reading will be directly taken from by boiler attendant supervisor on hourly

			basis. Hence accepted.
Measuring/Reading/Recording frequency	Continuous monitoring, integrated hourly and at least monthly recording	Recording Frequency: hourly	Hourly recording frequency is acceptable since it is as per the actual practice on site. Hence accepted.
Calculation method (if applicable)	Not Applicable	Not Applicable	Not Applicable
QA/QC procedures	Calibration shall be as per the relevant paragraphs of the "General guidelines for SSC CDM methodologies"	Temperature gauge will be calibrated once in a three year by external accredited agencies.	This is in compliance with the actual practice on site. Calibration frequency is in compliance with requirement of methodology.

Parameter 16: $P_{\text{steam,LP}}$ Pressure of the steam used in the process at high pressure (at low pressure side)

Revised PDD Approved Methodology	Requirement in the applicable methodology	Requirement in the registered monitoring plan in the revised PD	Opinion
Data/Parameter	P	$P_{\text{steam,LP}}$	In compliance with the applicable methodology.
Description	<i>Pressure</i>	Pressure of the steam used in the process at high pressure (at low pressure side)	In compliance with the applicable methodology.
Measured/Calculated/Default	Measured using calibrated meters	Measured using pressure gauge	Monitoring: pressure gauge will measure Pressure of the steam used in the process at high pressure
Source of data	Plant records	On site measurement from pressure gauge	This is as per the actual practice on site. Hence accepted.
Monitoring equipment	Meter	Pressure gauge	Reading will be directly taken from by boiler attendant supervisor on hourly basis. Hence accepted.
Measuring/Reading/Recording frequency	Continuous monitoring, integrated hourly and at least monthly recording	Recording Frequency: hourly	Hourly recording frequency is acceptable since it is as per the actual practice on site. Hence accepted.
Calculation method (if applicable)	Not Applicable	Not Applicable	Not Applicable
QA/QC procedures	Calibration shall be as per the relevant paragraphs of the "General guidelines	Temperature gauge will be calibrated once	This is in compliance with the actual

	forSSC CDM methodologies”	in a three year by external accredited agencies.	practice on site. Calibration frequency is in compliance with requirement of methodology.
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Parameter 17: T_{FW} Temperature of the feed water in the boiler

Revised PDD Approved Methodology	Requirement in the applicable methodology	Requirement in the registered monitoring plan in the revised PD	Opinion
Data/Parameter	T	T _{FW}	In compliance with the applicable methodology.
Description	Temperature	Temperature of the feed water in the boiler.	In compliance with the applicable methodology.
Measured/Calculated /Default	Measured using calibrated meters	Measured using temperature gauge	Monitoring: temperature gauge will measure steam temperature <i>feed water in boiler</i> .
Source of data	Plant records	On-site measurement from temperature gauge installed at steam outlet from boiler	This is as per the actual practice on site. Hence accepted.
Monitoring equipment	Meter	Temperature gauge	Reading will be directly taken from by boiler attendant supervisor on hourly basis. Hence accepted.
Measuring/Reading/Recording frequency	Continuous monitoring, integrated hourly and at least monthly recording	Recording Frequency: hourly	Hourly recording frequency is acceptable since it is as per the actual practice on site. Hence accepted.
Calculation method (if applicable)	Not Applicable	Not Applicable	Not Applicable
QA/QC procedures	Calibration shall be as per the relevant paragraphs of the “General guidelines forSSC CDM methodologies”	Temperature gauge will be calibrated once in a three year by external accredited agencies.	This is in compliance with the actual practice on site. Calibration frequency is in compliance with requirement of methodology.

Parameter 18: Q_{Biomass,LY} Quantity of rice husk consumed annually

Revised PDD Approved Methodology	Requirement in the applicable methodology	Requirement in the registered monitoring plan in the revised PD	Opinion

Data/Parameter	$B_{Biomass,y}$	$Q_{Biomass,l,y}$	In compliance with the applicable methodology.
Description	Net quantity of biomass consumed in year y	Quantity of rice husk consumed annually	In compliance with the applicable methodology.
Measured/Calculated/Default	Measured	Measured	Quantity of biomass used in project activity would be measured using weigh scales and recorded in Log books.
Source of data	Plant records	plant sheet/records log	This is as per the actual practice on site. Hence accepted.
Monitoring equipment	Not Applicable	Weigh bridge	This parameter is monitor using Weigh bridge. Hence accepted.
Measuring/Reading/Recording frequency	Continuously and estimate using annual mass/energy balance	On Procurement basis	Frequency is acceptable since it is as per the actual practice on site. Hence accepted.
Calculation method (if applicable)	Not Applicable	Not Applicable	Not Applicable
QA/QC procedures	Cross-check the measurements with an annual energy balance that is based on purchased quantities (e.g. with sales receipts) and stock changes. In cases where emission reductions are calculated based on energy output, check the consistency of measurements ex post with annual data on energy generation, fossil fuels and biomass used and the efficiency of energy generation as determined ex ante	The data will be cross checked with the biomass (rice husk) procurement data (Invoices). Weigh scale will be calibrated once in three year by external accredited agencies	This is in compliance with the actual practice on site.

Parameter 19: $NCV_{biomass}$ Net calorific Value of biomass residues

Revised PDD Approved Methodology	Requirement in the applicable methodology	Requirement in the registered monitoring plan in the revised PD	Opinion
Data/Parameter	$NCV_{biomass}$	$NCV_{biomass}$	In compliance with the applicable methodology.
Description	Net calorific Value of biomass type k	Net calorific Value of biomass residues	In compliance with the applicable methodology.

			methodology.
Measured/Calculated/Default	Measured	Measured	Net calorific value of biomass will be checked through Govt. approved independent laboratory.
Source of data	Plant records	Third party (lab test of biomass)	This is as per the actual practice on site. Hence accepted.
Monitoring equipment	Not Applicable	Not Applicable	Not Applicable
Measuring/Reading/Recording frequency	Determine once in the first year of the crediting period	Once in a year	Frequency is acceptable since it is as per the actual practice on site. Hence accepted.
Calculation method (if applicable)	Not Applicable	Not Applicable	Not Applicable
QA/QC procedures	Not Applicable	Not Applicable	Not Applicable

Conclusion:

The monitoring methodology applies consistently the choice of the option selected for monitoring of baseline emissions. The monitoring plan provide procedures for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary during the crediting period.

The project participant has the ability to implement the monitoring plan. This is checked through discussion with consultant, the project participant and O&M contractors of the project activity during the physical site inspection. The staffs at the sub-station and the representative of the technology providers were also interviewed to verify the accuracy in the documents. This has been checked during the site visit and is found to be acceptable.

The final VCSPD/01/ has been reviewed to check that the procedure for data uncertainty, emergency preparedness, roles and responsibility, operational and management structure are mention in the PD. The monitoring plan completely describes all measures to be implemented for monitoring all parameters required. Based on the above discussion and the requirements of VCS standard version 4.0/13/, the validation team confirm that:

1. The monitoring plan included in the VCS PD/1/ is based on the baseline methodology AMS I C version 21.0.0/7/ which has been applied to the proposed VCS project activity
2. The monitoring arrangements described in the monitoring plan are feasible within the project design.
3. The PP has the ability to implement the monitoring plan as per the VCS PD.

3.4 Non-Permanence Risk Analysis

Not applicable

4 VALIDATION CONCLUSION

Earthood Services Private Limited (ESPL), contracted by Enen Green Services Pvt. Ltd., to perform a validation for renewal of crediting period of the VCS project activity (VCS ID- 784) “1.6 MW Bundled Rice Husk Based Cogeneration Plant by M/s Milk food Limited (MFL) in Patiala (Punjab) & Moradabad (U.P) Districts” for the crediting period 06-May-2019 – 05-May-2029as reported in the PD for RCP Version 03 dated 28-August-2020.

The validation for RCP process was performed on the basis of all guidance and criteria as provided in VCS Standard (version 4.0) /13/, VCS Program Guide (version 4.0) /14/, VCS Validation and Verification Manual (version 3.2) /15/ and Registration & Issuance Process (version 4.0).

The conclusions of validation for RCP process can be individually summarized as follows:

Validation for RCP Conclusion:

Earthood Services Private Limited (ESPL), contracted by Enen Green Services Pvt. Ltd.forvalidation of the renewal of the crediting period of the Project - “1.6 MW Bundled Rice Husk Based Cogeneration Plant by M/s Milk food Limited (MFL) in Patiala (Punjab) & Moradabad (U.P) Districts”, with regard to the relevant requirements of VCS programme guidelines and standard (VCS standard version 4.0/13/, & VCS program guide version 4.0/14/) and the information provided by the project proponent related to the project design, operation, monitoring and reporting.

ESPL reviewed the project description documents and subsequently carried out interviews to confirm the fulfilment of stated criteria.

The purpose of the project activity is to utilize rice husk available in the region for steam and electricity generation for captive consumption. The project undertaken is a bundle of two cogeneration plants of capacity 1.0 MW (with 14TPH steam generation) and 0.6 MW ((with 12 TPH steam generation) located at Bahadurgarh, Patiala in the state of Punjab and Mugalpur, Moradabad in the state of Uttar Pradesh respectively.

A risk-based approach has been followed to perform this validation. In the course of the validation 01 Clarification Requests (CLs) 03 Corrective Action Requests (CARs) were raised and successfully closed. No Forward Action Request (FAR) was raised.

AMS I C: Grid connected electricity generation from renewable sources,Version 21.0/7/, which is an approved methodology under the CDM programme and is acceptable under VCS standard version 4.0/13/. The baseline has been determined in accordance with the statedapproved baseline methodology. The baseline has been determined in accordance with the stated approved baseline methodology.

As summary the validation team able to conclude that:

- The project is in line with all relevant host country criteria (India) and all relevant VCS standard version 4.0/13/ program guidelines requirements.
- A reasonable level of assurance has been applied.
- The project additionality is not required to be reassessed, however it is sufficiently justified in the VCS-PD for RCP/1/.
- The monitoring plan is transparent and adequate and in line with applied monitoring methodology of AMS-I.C., version 21/7/.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 70,113tCO₂e/year are most likely to be achieved within the 10 year renewable crediting period.
- The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation as outlined under VCS standard version 4/13/, without any qualifications or limitations.

Approved by



Dr. Kaviraj Singh
Managing Director

Date: 19/10/2020

Earthood Services Privated Limited

Place: Gurgaon

APPENDIX 1: DOCUMENT REFERENCES

S. No	Title of Document	Version	Date
1.	VCS PD for RCP	3.0	28-August-2020
2.	Registered VCS PD	02	15-April-2011
3.	VCS Validation Report	02	03-May-2011
4.	Previous VCS Verification report (For Monitoring period: 01-February-2014 –31-December-2017)	2.2	25-August-2018
5.	VCS PD for RCP	1.0	05-March-2020
6.	ER Sheet “Project I Calculation Sheet(Patiala)_27/06/2020” and “Project II Calculation Sheet(Moradabad)_27/06/2020”	2.0	06-July-2020
7.	“Thermal Energy production with or without electricity”, AMS I C,	21.0.0	-
8.	CEA Database http://cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver15.pdf	15.0	-
9.	Commissioning certificate for boiler	-	-
10.	Site interview and photos	-	-
11.	VCS webpage for the project, VCS ID 784; https://registry.verra.org/app/projectDetail/VCS/784	-	Last accessed on 06-July-2020
12.	Letter of declaration dated from PP regarding not having created or sought any other form of environmental credit for the same period	-	-
13.	VCS Standard	4.0	19-September-2019
14.	VCS Program Guide	4.0	19-September-2019
15.	VCS Validation and Verification Manual	3.2	19-October-2016
16.	Interview of project stakeholders and representative	-	05-March-2020
17.	Clean Development Mechanism Validation and Verification Standard	02.0	29-November-2018
18.	Tool for the demonstration and assessment of additionality	07.0	EB 70, Annex 8
19.	Tool to calculate the emission factor for an electricity system	07.0	EB 100 Annex 4
20.	Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period	3.0.1	EB 66 Annex 47
21.	CDM project standard for project activities	2.0	29-November-2018
22.	CDM project cycle procedure for project activities	2.0	29-November-2018

23.	VCS Project Description template	4.0	19-September-2019
24	Environment and Forest, Government of India (As per Ministry of Environment and Forests (MoEF) Notification No. - S.O. 1533)		Dated 14th September 2006
25	IPCC 2006 Volume 2 Energy		
26	Boiler specification		

APPENDIX 2: COMPETENCY STATEMENT

Competence Statement			
Name	Ravi Kant Soni		
Country	India		
Education	B. Tech. (Mechanical Engineering) M. Tech. (Energy Management)		
Experience	8 Years +		
Field	Energy and Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.D., AMS-I.C., ACM0002		
Local expert	YES (India)		
Financial Expert	No		
Technical Reviewer	No		
TA Expert	YES (TA 1.2)		
Reviewed by	Shreya Garg	Date	04/06/2019
Approved by	Anshika Gupta	Date	04/06/2019

Competence Statement			
Name	Shreya Garg		
Country	India		
Education	M.Sc. (Climate Science & Policy), TERI University		
Experience	6 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS.I.A., AMS.I.C., AMS.I.D., AMS.I.F., AMS.II.D., AMS.II.G., AMS.II.J., AMS.III.AV., ACM0002, ACM0012		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2, TA 3.1)		
Reviewed by	Abhishek Mahawar	Date	01/03/2018
Approved by	Ashok Gautam	Date	01/03/2018

APPENDIX 3: ABBREVIATIONS

Abbreviations	Full texts
ABT	Availability Based Tariff
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM PCP	Clean Development Mechanism Project Cycle Procedure
CDM PS	Clean Development Mechanism Project Standard
CDM VVS	Clean Development Mechanism Validation and Verification Standard
EB	Executive Board
EF	Emission Factor
EPC	Engineering ,Procurement and Construction
ER	Emission Reductions
CEA	Central Electricity Authority
CER	Certified Emission Reduction
CR	Clarification Request
DOE	Designated Operational Entity
DNA	Designated National Authority
FAR	Forward Action Request
GCEES	Green Carbon Energy and Environment Services
GHG	Greenhouse Gas(es)
GOI	Government of India
IPCC	Intergovernmental Panel on Climate Change
MGR	Monthly Generation Reports
MP	Monitoring Plan
MR	Monitoring Report
MWh	Megawatt hour
NCV	Net Calorific Value
PD	Project Description
PP	Project Proponent
PS	Project Standard

TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard

APPENDIX 4: FINDINGS OVERVIEW

Table 1. Remaining FAR from validation and/or previous verification

FAR ID	Section no.	NA	Date :DD/MM/YYYY
Description of FAR			
N/A			
Project participant response			Date :DD/MM/YYYY
NA			
Documentation provided by project participant			
NA			
DOE assessment			Date: DD/MM/YYYY
NA			

Table 2. CL from this validation

CL ID	1	Section no.	3.1	Date : 06/07/2020
Description of CL				
PP is requested to submit following documents: <ul style="list-style-type: none"> - Technical specification of boilers - Commissioning certificates - Supporting for lifetime 20 years 				
Project participant response				Date : 06/07/2020
PP has submitted following requested documents to DOE: <ol style="list-style-type: none"> 1. Technical specification of boilers 2. Commissioning certificates 3. Project lifetime certificate from Chartered Engineer 				
Documentation provided by project participant				
<ol style="list-style-type: none"> 1. Technical specification of boilers 2. Commissioning certificates 3. Project lifetime certificate from Chartered Engineer 				
DOE assessment				Date:16/07/2020
Assessment team confirm that PP has submitted required documents and all documents are inline with requirements.				
CL#1 Closed				

Table 3.CAR from this validation

CAR ID	01	Section no.	3.1	Date : 06/07/2020
Description of CAR				
PP is requested to include total emission reduction in 2nd crediting period under section 1.1 of VCS PD.				
Project participant response				Date : 06/07/2020
PP has updated total emission reduction in 2 nd crediting period under section 1.1 of revised VCS PD				
Documentation provided by project participant				
VCS PD version 2 dated 03/07/2020				
DOE assessment				Date: 16/07/2020
Assessment team confirm that PP has included total emission reduction in 2 nd crediting period under section 1.1 of revised VCS PD.				
CAR#1 Closed				

CAR ID	02	Section no.	3.3.4	Date : 06/07/2020
Description of CAR				
PP is requested to include Sources, sink and reservoir for baseline scenario of project I and Project II as mentioned in registered PD under section 3.3 of VCS PD.				
Project participant response				Date : 06/07/2020
<i>PP has included</i> Sources, sink and reservoir for baseline scenario of project I and Project II under section 3.3 of revised VCS PD.				
Documentation provided by project participant				
VCS PD version 2 dated 03/07/2020				
DOE assessment				Date: 16/07/2020
Assessment team confirm that <i>PP has included</i> Sources, sink and reservoir for baseline scenario of project I and Project II under section 3.3 of revised VCS PD. Hence accepted.				
CAR#2 Closed				

CAR ID	03	Section no.	3.3.8	Date : 06/07/2020
Description of CAR				
PP is requested to include total steam generated calculation under table 5 of section 3.5 of VCS PD.				
Project participant response				Date : 06/07/2020

<p><i>PP has included</i> include total steam generated calculation under table 5 of section 3.5 of revised VCS PD.</p>	
<p>Documentation provided by project participant</p>	
<p>VCS PD version 2 dated 03/07/2020</p>	
<p>DOE assessment</p>	<p>Date: 16/07/2020</p>
<p>Assessment team confirm that <i>PP has included</i> include total steam generated calculation under table 5 of section 3.5 of revised VCS PD. Hence accepted.</p>	
<p>CAR#3 Closed</p>	

Table 4.FAR from this validation

FAR ID		Section No.	-	Date : DD/MM/YYYY
Description of FAR				
NA				
Project participant response				Date :DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				Date: DD/MM/YYYY
NA				