Validation report form for renewal of crediting period for CDM project activities

(Version 03.0)

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION	
Title and UNFCCC reference number of the project activity	(ABGSPL): Methane recovery in waste water treatment & Methane/Biomass Energy Generation (UNFCCC number-3880[1])
Number and duration of the next crediting period	2nd renewable crediting period 04/03/2018 to 03/03/2025 (Inclusive both days)
Version number of the validation report	02
Completion date of the validation report	18/02/2020
Version number of PDD to which this report applies	08
Project participants	M/s AB Grain Spirits Pvt. Ltd. (ABGSPL) M/s Nutrition and Sugar Consultants Amsterdam Capital Trading B.V.
Host Party	India
Applied methodologies and standardized baselines	AMS-I.C. - Thermal energy production with or without electricity, version 21.0
Mandatory sectoral scopes	01
Conditional sectoral scopes, if applicable	NA
Estimated amount of annual average GHG emission reductions or GHG removals by sinks in the next crediting period	29,334 tCO_2e
Name and UNFCCC reference number of the DOE	LGAI Technological Center, S.A. (Applus+ Certification) UNFCCC Ref. No.: E-0032
Name, position and signature of the approver of the validation report	Mr. Juan Sendín Caballero *Applus+ Certification Business Unit Managing Director* Signature: 

[1] https://cdm.unfccc.int/Projects/DB/DNV-CUK1280209384.47/view

SECTION A. Executive summary

M/s AB Grain Spirits Pvt. Ltd. (ABGSPL), herein after referred to as, "project participant (PP)" has established a grain based distillery, at village Kiri Afgana, in a rural area of Batala Tehsil, Punjab to produce potable spirit from grain. The installed capacity of distillery is 120 kilolitres per day (KPLD). The purpose of the project activity is to utilize the biogas generated from treatment of wastewater in the Biomethanation plant and the rice husk available in the region for generation of steam and power. The project activity involves installation of a 5.5 MW cogeneration facility to meet the steam and power requirements of the distillery unit and export the surplus electricity to the grid.

The cogeneration unit is fired on rice husk (biomass residue) and biogas. The biogas used is generated from treatment of waste water in an in-house anaerobic digester and is used as fuel along with rice husk in project boiler to generate steam and power.

Out of 5.5 MW, about 0.405 MW of power is used for auxiliary consumption i.e. by the boiler & its accessories. The remaining renewable energy (4.586 MW) is displacing fossil fuel dominant grid electricity. The project involves export of a maximum of 3 MW of surplus power to the grid while the balance is consumed as captive consumption (2 MW) in the industrial facility.

The project activity was successfully commissioned on 08/04/2008.

Validation Scope: M/s AB Grain Spirits Pvt. Ltd. (ABGSPL) has contracted Applus+ Certification to conduct the validation of the renewal of the crediting period of the project activity. The scope is defined as an independent and objective review of the project design document (PDD) for the renewal of the crediting period. The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology AMS-I.C. - Thermal energy production with or without electricity, version 21.0 The validation of the renewal of the crediting period was based on the requirements in the CDM validation and verification standard for project activities, version 02.0 and renewal of crediting period in accordance with requirements of CDM methodological tool "TOOL11 – 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.

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

Validation Process: The project assessment is based on the "CDM validation and verification standard for project activities, version 02.0 and is conducted using standard auditing techniques to assess the correctness of the information provided by the project participants. Before the assessment begins, members of the team covering the technical scope(s), sectoral scope(s), and relevant host country experience for evaluating the CDM project activity are appointed.

Once the project is made available for the global stakeholder consultation process, the members of the assessment team carried out:

I A desk review of the project design documentation for renewal of crediting period;
II Follow-up interviews with project stakeholders;
III The resolution of outstanding issues and the issuance of the final validation report and opinion.

The prepared validation report and other supporting documents then undergo an internal quality control at the HQ (Accredited office) before being submitted to the CDM-EB.

In order to ensure transparency, assumptions must be clear and stated explicitly and background material must also be referenced. Applus+ Certification has developed a specific Checklist customized for the project. The checklist demonstrates, in a transparent manner, the project criteria (requirements), discussion on each criterion by the assessment team, and the results from validating the identified criteria.

Appointment of the assessment team

According to the sectoral scope / technical area and experience in the sectoral or national business environ ment, Applus+ Certification has composed a project assessment team in accordance with the appointment ru les in the internal Quality Management System of Applus+ Certification.

The composition of audit team shall be approved by Applus+ Certification ensuring that the required skills ar e covered by the team.

The four qualification levels for team members that are assigned by formal appointment rules are as present ed below:

●Lead Auditor (LA).

●Auditor (A) / Auditor in Training (AiT).

●Technical Expert (TE).

●Technical Reviewer (TR).

The sectoral scope / technical area knowledge linked to the applied methodology/ies shall be covered by the assessment team.

Name	Role	SS Coverage	TA Coverage	Financial aspect	Host country experience
Dr. Atul Takarkhede	LA/TE	YES	YES	YES	YES
Denny Xue	TR	YES	YES	YES	NA

The complete list of CVs is included as Appendix 2 of this report.

Document review

The Project Design Document submitted by the Client was reviewed against the approved methodology and other relevant criteria to verify the correctness, credibility, and interpretation of the presented information. Furthermore, a cross-check between information provided and information from other sources like 3rd party Government documents has been done. A complete list of all documents and evidence material reviewed is included in Appendix 3 of this report.

Follow-up interviews

A site visit is conducted by Applus+ Certification performed interviews, telephone conferences, and physical site inspection with project stakeholders to confirm selected information and to resolve issues identified in the document review. The detail is provided in section C.2 and C.3 of this report.

Resolution of Clarification and Corrective Action Request

The objective of this phase of the validation was to resolve the requests for corrective actions and clarification and any other outstanding issues which need to be clarified for Applus+ Certification positive conclusion on the project design. The Corrective Action Requests and Clarification Requests raised by Applus+ Certification were resolved during communications between the Client and Applus+ Certification to guarantee the transparency of the validation process, the concerns raised and responses given are summarized in Appendix 4 below.

The final PDD version 8 submitted by PP on 11/02/2020 serves as the basis for the final assessment presented. Additional changes to the project during the validation process are not considered to be significant with respect to the main CDM objectives. The two CDM main objectives are the reduction of anthropogenic GHG emissions and the contribution of sustainable development to the host country.

Internal quality control

As final step of a validation of the final documentation including the validation report and the checklist have to undergo an internal quality control by the technical review committee, i.e. each report has to be finally approved either by the head of the technical review committee or the deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one to avoid any conflict of Interest.

After confirmation of the PP the validation opinion and relevant documents are submitted to the EB through the UNFCCC web-platform.

Conclusion

Applus+ Certification has performed a validation of the renewal of the crediting period of the "(ABGSPL): Methane recovery in waste water treatment & Methane/Biomass Energy Generation". The validation was performed on the basis of UNFCCC criteria and host country criteria, as well as criteria, e.g. AMS-I.C. - Thermal energy production with or without electricity, version 21.0, given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation for the renewal of the crediting period and the subsequent follow-up interviews have provided Applus+ Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria. The project will hence be recommended by Applus+ Certification for the renewal of the crediting period with the UNFCCC.

Applus+ Certification has received a confirmation from the host Party that the project activity assists it in achieving sustainable development.

By displacing fossil fuel-based electricity with electricity generated from a renewable source, the project results in reductions of CO_2 emissions that are real, measurable and give long-term benefits to the mitigation of climate change. An analysis of the positive list of renewable project demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of annual emission reductions of 29,334 tCO_2e.

The validation has been performed following the requirements of the latest version of the CDM validation and verification standard for project activities, version 02.0 and on the basis of the contractual agreement. The single purpose of this report is its use during the registration process as part of the CDM/ UNFCCC project cycle.

SECTION B. Validation team, technical reviewer and approver

B.1. Validation team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interview(s)	Validation findings
1.	Lead Auditor/ Technical Expert	OR	Takarkehede	Atul	True Quality Certifications Private Limited-Outsourced	YES	YES	YES	YES

					entity				

B.2. Technical reviewer and approver of the validation report for RCP

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical Reviewer	EI	Xue	Denny	Applus+ Certification
2.	Approver	IR	Sendín Caballero	Juan	Applus+ Certification

SECTION C. Means of validation

C.1. Desk/document review

The details of the document observed during desk review /validation process are listed below in Appendix 3 of this report.

C.2. On-site inspection

Duration of on-site inspection: 05/11/2019				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	Assessment team checked the implementation of the project, Baseline emission, Emission reduction calculation, technical description of the project and Monitoring.	Village: Kiri Afgana, Batala, Dist. Gurdaspur, Punjab, India	05/11/2019	Dr. Atul Takarkhede

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Mr. Bhatia	Harinder Pal	PP representative	05/11/2019	As explained in section C.2	Dr. Atul Takarkhede
2.	Mr. Singh	Jasdip	Enginner			

C.4. Sampling approach

The assessment team did not apply any sampling approach for the project activity. The site visit was conducted for complete power plant implemented in the locations as mentioned in the PDD.

C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Area of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	01	02	00
Application and selection of methodologies and standardized baselines	00	00	00
Validity of original baseline or its update	00	00	00
Estimated emission reductions or net anthropogenic removals	00	00	00
Validity of monitoring plan	00	02	00
Crediting period	00	00	00
Project participants	00	02	00
Post-registration changes	00	00	00
Others (please specify)	00	00	00
Total	**01**	**06**	**00**

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	Assessment team checked the PDD version 11.0 forms supplied by the project

	participant and found that the latest form applicable in the UNFCCC web site is used for the presentation of the PDD.
Findings	CL 01, CAR 01 & CAR 02 was raised during the validation process and closed successfully. Please refer Appendix 4 for the detail closure of the CAR
Conclusion	The PDD mentions all the criteria as detailed out in PDD form version 11.0 properly and found correct by the assessment team. Assessment team also checked the commissioning details and found the same to be correct. The cogeneration power plant of 5.5 MW plant capacity was commissioned on 08/04/2008 as confirmed from Letter dated 02/05/2008 from the Senior Executive Engineer of Punjab State Electricity Board (PSEB) and found to be accurate. The technical details for the renewal of Crediting period were checked by the assessment team from the details available from the manufacturers and also during the onsite visit. The details are as below: The project comprises of setting up of a cogeneration power plant with a 5.5 MW straight back pressure type turbo generator set and bi-drum type multi-fuel boiler with fluidised bed combustion, balanced draft and bottom supported by RCC construction. The methane generated from the in-house bio-methanation plant is combusted in a boiler along with biomass to generate steam and electricity. A high pressure boiler of 36 tons per hour (TPH) has been installed. The steam conditions at the outlet are a pressure of 87 kg/cm^2 and a temperature of 540 + 5 deg. C. The low pressure steam coming out from the TG set is used for operation of distillery. From the total power generated from the combustion of the biogas and rice husk, 0.405 MW power is used for operation of power plant auxiliaries. The balance power is thus be available for displacing the grid electricity generated by combusting the fossil fuels. Out of this balance power 3 MW is supplied to the grid while the balance is consumed as captive consumption in the industrial facility. All the necessary auxiliary facilities of the power plant including DM water treatment plant, cooling tower, condensate system, fuel storage and handling systems, electrical power evacuation system, compressed air system, instrumentation and control system etc. have been provided for the project activity plant. Power is generated at 11 kV at the plant and is evacuated to grid at 66 kV. Combustion technology has been selected for the project activity plant, wherein biogas and biomass would be burnt as fuel in a steam generator to produce high-pressure steam, which is then expanded in turbo-generators to generate power. Assessment team checked the geographical coordinate of the project activity with GPS meter and found that same were correct. The latitude and longitude as mentioned in the registered PDD for 1st crediting period are 31° 46' 04.4" N and 75° 31' 50.3" E and are also confirmed during site visit for 2nd crediting period. No post registration changes is envisaged for the 2nd CP as the project is implemented as per the registered PDD of 1st CP and in continuous operation apart from scheduled maintenance (as per manufacturer specification) and thus there is no scenario observed which can alter the requirement of the methodology. The project activity complies with the applicability criteria of the small scale CDM Project activity category. The capacity of the proposed project is 5.5 MW, which is lower than the maximum qualifying Type I capacity of 15 MW. Thus the project qualifies as small scale project. There is no change in installed capacity of the project as mentioned in registered PDD for 1st CP. The same is checked by the assessment team during onsite visit and found correct.

D.2. Application and selection of methodologies and standardized baselines

Means of validation	The assessment team has validated the documentation referred to in the revised PDD for renewable of crediting period and verified the documentation content for verifying the justification of the applicability of the methodology AMS-I.C. - Thermal energy production with or without electricity, version 21.0 and confirmed that the documentation referred to in the PDD is correctly quoted and interpreted. The

assessment team has also cross-checked the information provided in the registered PDD of 1st CP with the documentation other than from the PDD based on the local and sectoral knowledge of the assessment team.

Following documentation has been reviewed by the assessment team:
- Site visit
- Interview with the concerned person mentioned in this report
- Technical detail analysis of the power plant from the documents submitted by the manufacturer.
- Commissioning certificates of the turbines

The assessment of the project's compliance with the applicability criteria of AMS-I.C. - Thermal energy production with or without electricity, version 21.0 are documented in detail in section B.2 of the PDD.

Findings

Applicability criteria were explained properly as per the requirement of the applied approved methodology for the present crediting period. No CAR raised in this Section.

Conclusion

The applied baseline methodology is justified as it has been demonstrated that the proposed project activity is:

Para No.	Criteria	Justification
3	As per Para 3, Biomass-based cogeneration and trigeneration systems are included in this category.	The project involves a cogeneration system for producing heat and electricity.
4	As per Para 4, Emission reductions from a biomass cogeneration or tri-generation system can accrue from one of the following activities: (a) Electricity supply to a grid; (b) Electricity and/or thermal energy production for on-site consumption or for consumption by other facilities; (c) Combination of (a) and (b).	The project involves a cogeneration system for producing heat and electricity. Electricity is utilized onsite for auxiliary consumption (0.405 MW) for co-generation purposes (i.e. the boiler its accessories). The remaining electricity (4.586 MW) displaces the fossil fuel based grid electricity from INDIAN grid. The steam is utilized for operation in distillation process. Thus, the project falls under option (c) of para 4, i.e. electricity supply to the grid and electricity and thermal energy generation for on-site consumption
5	Project activities that seek to retrofit or modify an existing facility for renewable energy generation are included in this category	The project activity is a green field project activity and does not involve any retrofit or modification in an existing facility. Hence, this criteria is not applicable.
6	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.	The project activity is a Type-I green field project activity and does not involve any capacity addition to the existing facility. Hence, this criteria is not applicable.

	7	The total installed/rated thermal energy generation capacity of the project equipment is equal to or less than 45 MW thermal[2] (see paragraph 9 for the applicable limits for cogeneration and trigeneration project activities).	The project involves a cogeneration system for producing heat and electricity. Electricity is utilized onsite for auxiliary consumption (0.405MW) for co-generation purposes (i.e. the boiler its accessories). The remaining electricity (4.586 MW) displaces the fossil fuel based grid electricity from INDIAN grid. The steam is utilized for operation of distillation process. The total installed/ rated thermal capacity of the project equipment is 27.8 $MW_{thermal}$ which is below 45 $MW_{thermal}$ as specified in the methodology. Hence, the capacity of the project equipment is less than 45 $MW_{thermal}$. Therefore this applicability criterion has been met.	
	8	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).	The project involves the usage of renewable energy sources i.e. rice husk and biogas for generation of electricity. The project does not involve any co-firing of fossil and renewable fuel for thermal energy generation except during start ups and emergencies when its usage is monitored. Hence, this criterion has not been considered.	
	9	The following capacity limits apply for biomass cogeneration and trigeneration units: (a) If the emission reductions of the project activity are on account of thermal and electrical energy production, the total installed thermal and electrical energy generation capacity of the project equipment shall not exceed 45 MW thermal. For the purpose of calculating the capacity limit the conversion factor of 1:3 shall be used for converting electrical energy to thermal energy (i.e. for renewable energy project activities, the installed capacity of 15 MW(e) is equivalent to 45 MW thermal output of the equipment or the plant); (b) If the emission reductions of the project activity are solely on account of thermal energy production (i.e. no emission reductions	The project involves a cogeneration system for producing heat and electricity. Electricity is utilized onsite for auxiliary consumption (0.405MW) for co-generation purposes (i.e. the boiler its accessories). The remaining electricity (4.586 MW) displaces the fossil fuel based grid electricity from INDIAN grid. The steam is utilized for operation of distillation process. The total installed/ rated thermal capacity of the project equipment is 27.8 $MW_{thermal}$ which is below 45 $MW_{thermal}$ as specified in the methodology.	

[2] Thermal energy generation capacity shall be manufacturer's rated thermal energy output, or if that rating is not available the capacity shall be determined by taking the difference between enthalpy of total output (for example steam or hot air or chilled water in kcal/kg or kcal/m^3) leaving the project equipment and the total enthalpy of input (for example feed water or air in kcal/kg or kcal/m^3) entering the project equipment. For boilers, condensate return (if any) must be incorporated into enthalpy of the feed.

		accrue from the electricity component), the total installed thermal energy production capacity of the project equipment shall not exceed 45 MW thermal; (c) If the emission reductions of the project activity are solely on account of electrical energy production (i.e. no emission reductions accrue from the thermal energy component), the total installed electrical energy generation capacity of the project equipment shall not exceed 15 MW.	
	10	The capacity limits specified in paragraphs 7 to 9 above 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 shall comply with capacity limits specified in the paragraphs 7 to 9, and shall be physically distinct [3] from the existing units.	It may be noted that the project activity meets the capacity limits specified in paragraphs 7 to 9 above. The project activity is a green field project activity and does not involve any retrofit or modification in an existing facility. Hence, this criteria is not applicable.
	11	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 the emissions reduction calculation.	Project involves usage of rice husk and biomass for generation of electricity. No solid biomass fuel is involved in the project activity; hence, this criteria is not applicable.
	12	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	Project involves usage of rice husk and biomass for generation of electricity. No solid biomass fuel is involved in the project activity; hence, this criteria is not applicable.

[3] Physically distinct units are those that are capable of producing thermal/electrical energy without the operation of existing units, and that do not directly affect the mechanical, thermal, or electrical characteristics of the existing facility. For example, the addition of a steam turbine to an existing combustion turbine to create a combined cycle unit would not be considered “physically distinct”

		reductions.	
	13	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	The electricity generated at the project site is not supplied to any other facility or facilities within the project boundary. The surplus electricity after auxiliary consumption is supplied to the grid. Hence the above mentioned condition has not been considered by the project proponent.
	14	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.	It is to be noted that although the project activity recovers and utilizes biogas for producing electricity and/or thermal energy, the UASB / Digester and Biomass source has not been considered as part of project boundary. Hence, this criterion has not been considered.
	15	If project equipment contains refrigerants, then the refrigerant used in the project case shall have no ozone depleting potential (ODP).	Not applicable, as the project equipment do not contain refrigerants.
	16	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 with methane recovery and destruction facility; or (b) If charcoal is produced in kilns not equipped with a methane recovery and destruction	Project involves usage of rice husk and biomass for generation of electricity. No charcoal based biomass energy generation is involved in the project activity; hence, this condition is not applicable

		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: Avoidance of methane release from charcoal production by shifting from traditional open-ended methods to mechanized charcoaling process". 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.	
	17	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.	The project activity does not utilizes biomass sourced from dedicated plantations, hence this criterion is not applicable.

(Applus+ Certification) confirms that the application of the baseline methodology is transparent and conservative and confirms that the chosen baseline and monitoring methodology i.e. AMS-I.C. - Thermal energy production with or without electricity, version 21.0 is applicable to the project activity.

The capacity of the proposed project is 5.5 MW, which is less than the maximum qualifying Type I capacity of 15 MW. Thus the project qualifies as small scale project.There is no change in installed capacity of the project as mentioned in registered PDD for 1st CP. As there is no change in design of the plant; the project activity will remain under small scale project activity during every year of 2nd crediting period.

D.3. Validity of original baseline or its update

Means of validation	The baseline scenario as depicted in the PDD version 8 is checked during the validation site visit and also during the interview with the plant official.
Findings	The baseline is selected as per the requirement of the approved methodology AMS-I.C. - Thermal energy production with or without electricity, version 21.0 for the present Crediting period. However, No CAR is raised for this section.
Conclusion	Assessment team referred "Methodological tool (EB 66, Annex 47) "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)" and CDM validation and verification standard for project activities, version 02.0" to check the originality of the baseline. Following are the observation of the assessment team regarding selected baseline for the project activity in this present 2nd renewable crediting period:

	Step 1.1 (EB 66, Annex 47): Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies The baseline for the project activity is the electricity delivered to the grid by the project activity which would have otherwise been generated by the operation of grid connected power plants and by the addition of new generation sources into the grid. The project activity is claiming the emission reductions from the net exported electricity to the grid only. In absence of project activity this quantity of electricity would have been generated from the electricity grid mix (mainly fossil fuel). The Government of India enacted the Electricity Act in the year 2003 to harmonize and rationalize the provisions in the then existing laws. The Act consolidated the laws relating to generation, transmission, distribution, trading and use of electricity. With the Enactment of the act, the then existing laws viz, The Indian Electricity Act 1910, The Electricity Supply Act, 1948 and The Electricity Regulatory Commissions Act, 1998 were repealed. The Electricity Act 2003 was in force at the time of the completion of the baseline study during first crediting period. The baseline remains unchanged for the present (2nd) crediting period since there is no policy been revised and/or is currently in force as well, therefore the baseline scenario is still in compliance with all the relevant mandatory national and/or sectoral policies. Step 1.2 (EB 66, Annex 47) : Assess the impact of circumstances There are no new circumstances that can impact the original baseline. The baseline emission factor value is however updated based on the current data available for the grid. Step 1.3 (EB 66, Annex 47): Assess whether the continuation of the use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested As per the "Tool to determine the remaining lifetime of equipment", the remaining lifetime of the equipment is the time for which the existing equipment can continue to operate before it has to be replaced/discarded. As per this Tool, Project participant can use one of the following options to determine the remaining lifetime of the equipment: (a) Use manufacturer's information on the technical lifetime of equipment and compare to the date of first commissioning; (b) Obtain an expert evaluation; (c) Use default value The project activity is commissioned on 08/04/2008 and since commissioning, the project activity is running satisfactorily. As per Manufacturer specification and Registered PDD, the technical lifetime of hydro power plant is 25 years (As per 1st CP). Thus the remaining lifetime of equipment's exceeds the crediting period for which renewal is requested. Thus as per manufacturers information, the remaining lifetime of equipment exceeds crediting period as per option 1 of Tool to determine the remaining lifetime of the Equipment. The below conditions are fulfilled. (i)The equipment has been operated and maintained according to the recommendations of the equipment supplier; (ii) There are no periodic replacement schedules or scheduled replacement practices specific to the industrial facility, that require early replacement of equipment before the expiry of the technical lifetime; and (iii) The equipment has no design fault or defect and did not have any industrial accident due to which the equipment cannot operate at rated performance levels. An per option (a), evaluating the remaining lifetime for the type of equipment has been approached and requested to determine the remaining lifetime of the equipment. The assessment of remaining life time of the equipment's had been done and confirmed that the remaining technical lifetime of the equipment of the

project activity exceeds the crediting period for which renewal is requested. As the remaining technical lifetime of the equipment is not less than the end of the crediting period or which renewal is requested, the current baseline holds good for this crediting period too.

Step 1.4(EB 66, Annex 47): Assessment of the validity of the data and parameters

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

The project chosen **ex-ante default value i.e. Emission Factor**. As per the Guidance given in Tool the emission factor is updated as follows:

1. The operating margin is calculated as per the latest version of CEA CO_2 baseline database (Version 14) available to the project participant. The operating margin calculation is checked by the assessment team and found correct.

2. The build margin is considered from CEA database version 14 as per "Tool to calculate the emission factor for electricity system" version 07. The value considered is checked by the assessment team and found correct

3. The Combined margin calculation is carried out as per "Tool to calculate the emission factor for electricity system" version 07. The value considered is checked by the assessment team and found correct

The emission factor is fixed ex-ante and thus will be used for the complete 2nd renewable crediting period and for entire verification conducted under 2nd renewable crediting period.

Application of Steps 1.1, 1.2, 1.3 and 1.4 confirmed that the current baseline is valid for the Second crediting period but data and parameters needs to be updated. Therefore step 2 is used

Step 2.1: Update the current baseline
This step is applicable since the Steps 1.1, 1.2, 1.3 and/or 1.4 showed that the current baseline needs to be updated. As evident from the explanation provided above the baseline scenario remains unchanged.

Updated the baseline emissions based on the latest approved version of the methodology applicable to the project activity for the subsequent crediting period, without reassessing the baseline scenario.

Step 2.2: Update the data and parameters
The updated Data and/or parameter are followed for estimating the baseline emissions

Hence as per AMS-I.C. - Thermal energy production with or without electricity, version 21.0 (latest Methodology), para 29(e) the baseline of the project is as follows:

"Electricity is imported from a grid and/or produced in an on-site captive power plant using fossil fuels (with a possibility of export to the grid); thermal energy is produced using biomass;".

The above selected baseline is correct and thus applicable to the project activity and in line with approved methodology for the applied renewable of crediting period.

D.4. Estimated emission reductions or net anthropogenic removals

Means of validation	The emission reduction sheet, CEA database version 14.0 (Latest applicable) and PDD version 8 is checked by the assessment team.
Findings	No CAR/CL raised on the section.
Conclusion	The baseline emissions as discussed in section B.6.1 will include emissions that would have occurred in the absence of the project activity. The emission reduction calculation has been done as per the AMS-I.C. - Thermal energy production with or without electricity, version 21 **Baseline Emission (BE_y):** $$BE_{grid,y} = EG_{grid,y} \times EF_{grid,y}$$ Where: $BE_{grid,y}$ = Baseline emissions for the grid electricity displaced by the project in year y (t CO_2e) $EG_{grid,y}$ = Amount of grid electricity displaced by project in year y (MWh) $EF_{grid,y}$ = Emission factor of the grid (t CO_2e/MWh) $EF_{grid,CM,y} = EF_{grid,y}$ = Baseline emission factor = 0.8885 tCO_2/MWh BE_y = 33,016 x 0.8885 = 29,334 tCO_2 (round down value) Baseline emission factor is calculated as combined margin, consisting of a combination of operating margin (OM) and build margin (BM) factors according to the procedure prescribed in the "Tool to calculate the emission factor for an electricity system" version 07.0 which is sourced from CEA version 14.0, Govt. of India and forms the part of emission reduction calculation. The baseline emission factor calculation is checked by the validation team and found that the calculation is transparent and conservative. Hence, BE_y= 29,334 tCO_{2e} **Project Emissions:** Project Emissions (PEy) As per para 66, Project emissions shall be calculated using the following equation: $$PE_y = PE_{FF,y} + PE_{Ec,y} + PE_{Geo,y} + PE_{ref,y} + PE_{cultivation,y}$$

Where:

PE_y	=	Project emissions from the project activity during the year y (t CO_2)
$PE_{FF,y}$	=	Project emissions from fossil fuel consumption during the year y (t CO_2)
$PE_{Ec,y}$	=	Project emissions from electricity consumption during the year y (t CO_2)
$PE_{Geo,y}$	=	Project emissions from a geothermal project activity in year y (t CO_2)
$PE_{ref,y}$	=	Project emissions from use of refrigerant in project activity in year y (t CO_2)
$PE_{cultivation,y}$	=	Project emissions from cultivation of biomass in a dedicated plantation in year y (t CO_2e)

Since collection/ transportation of biomass residues is outside the project boundary, hence CO_2 emissions from collection and transportation of biomass residues to the project site have been considered under leakage emissions as per para 78 of AMS I.C. Hence, project emissions due to collection/processing/transportation of the biomass residues to the project site are not applicable.

In the project scenario, a D.G. set is installed at the site for any emergency purposes that may arise and any emissions due to fossil fuel consumption shall be monitored and accounted for ex-post. Also coal consumption by the boiler (if any) during start ups or emergencies will be monitored and accounted for ex-post. On-site fossil fuel emissions have been considered as 0 for ex-ante calculations.

A part of electricity generated through will be used for meeting the electricity requirements of the project, i.e. electricity requirement by the co-generation facility (0.405 MW). Hence, the emissions from electricity consumption by the project activity have been taken as 0 for ex-ante calculations. However, the site will be connected to the grid for emergency purposes. The electricity consumption, if any, will be monitored and accounted ex-post.

Also, the project does not involve any emissions from geothermal activity and there are no other significant emissions associated with the project activity within the project boundary.

Lastly, since, no refrigerant are involved in any of the equipment and there is no dedicated cultivation for supply of biomass for the project activity, project emission from these sources are not applicable.
Hence,

$PE_y = PE_{FFy} + PE_{ECy}$

Where:

PE_y	=	Project emissions from the project activity during the year y (t CO_2)
$PE_{FF,y}$	=	Project emissions from fossil fuel consumption during the year y (t CO_2)
$PE_{Ec,y}$	=	Project emissions from electricity consumption during the year y (t CO_2)

As per para 67, CO_2 emissions from on-site combustion of fossil fuels ($PE_{FF,y}$) is calculated using the latest version of the "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion". As per para 68, CO_2 emissions from electricity consumption ($PE_{EC,y}$) is calculated using the latest version of the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption".

Project emissions from fossil fuel consumption during the year y (t CO_2) (PE_{FFy})
As per Tool 03 to calculate project or leakage CO_2 emissions from fossil fuel combustion (Version 03.0) , para 6, CO_2 emissions from fossil fuel combustion in

process j are calculated based on the quantity of fuels combusted and the CO_2 emission coefficient of those fuels, as follows:

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

Where:

$PE_{FC,j,y}$ = Are the CO_2 emissions from fossil fuel combustion in process *j* during the year *y* (tCO_2/yr)

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

$COEF_{i,y}$ = Is the CO_2 emission coefficient of fuel type *i* in year *y* (tCO_2/mass or volume unit)

i = Are the fuel types combusted in process *j* during the year *y*

The CO_2 emission coefficient $COEF_{i,y}$ can be calculated using one of the two Options, depending on the availability of data on the fossil fuel type i. The Project Proponent has opted for Option B, The CO_2 emission coefficient $COEFi,y$ is calculated based on net
calorific value and CO2 emission factor of the fuel type i, as follows

$$COEF_{i,y} = NCV_{i,y} \times EF_{CO2,i,y}$$

Where:

$COEF_{i,y}$ = Is the CO_2 emission coefficient of fuel type *i* in year *y* (tCO_2/mass or volume unit)

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

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

i = Are the fuel types combusted in process *j* during the year *y*

In this case, the fuel considered is diesel.

Project emissions from electricity consumption during the year y (tCO_2) (PE_{ECy})

Emissions due to electricity consumption (as per equation 1 of "Tool to calculate baseline project and/or leakage emissions from electricity consumption)

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

Where
$PE_{EC,y}$ Project emissions from electricity consumption in year y (tCO2/yr)

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

$EF_{EL,j,y}$ Emission Factor of the Electricity Generation for source j in year y (tCO_2/MWh)

	$TDL_{j,y}$ Average technical transmission and distribution losses for providing electricity to source j in year y **Leakage Emissions:** As per 78 of the methodology, 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 kilometres CO_2 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". Hence, as per TOOL12; Methodological tool: Project and leakage emissions from transportation of freight Version 01.1.0[4] the parameter $D_{f,m}$ (Return trip distance between the origin and destination of freight transportation activity f in monitoring period m) in km will be monitored ex post during verification of the project activity. The source of data will be the Vendor certificates and or logbooks showing the distance travelled by the origin and destination of the freight transported and the road (or rail line) distance between the origin and the destination ($D_{f,m}$). Assement team checked the ex-post parameter for provision of determination of the distance of the biomass procurement and found inline with the methodology requrements. As per the paragraph 77 of the methodology AMS I.C. Version 21.0, If the energy generating equipment currently being utilised is transferred from outside the boundary to the project activity, leakage is to be considered. The project is a new installation and no equipment transfer of any type is taking place, hence the leakage is considered as zero. Thus, the only source of GHG emissions which are attributable to the project activity lying outside the project boundary (as per the paragraph 78 of methodology) will be the emissions arising during the transportation of rice husk. This will be monitored ex post and the distance travelled by the origin and destination of the freight transported and the road (or rail line) distance between the origin and the destination ($D_{f,m}$) has been assumed as within 200 km for ex ante calculations. Thus, Leakage Emissions from project activity can be neglected as per the methodology. As per Table 1 of the general guidance on leakage in biomass project activities, TOOL 22 - Leakage in biomass small-scale project activities Version 04.0 [5] emission sources for biomass residues or wastes consists only of the emissions from "competing use of biomass". Accordingly, emissions from shift of pre-project activities and emissions from biomass generation/cultivation are not applicable to the project activity as the project involves use of biomass residues (rice husk).

[4] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-12-v1.1.0.pdf

[5] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-22-v1.pdf

Table 1. Emission source per type of biomass

Biomass type	Activity / source	Shift of pre-project activities	Emissions from biomass generation / cultivation	Competing use of biomass
Biomass from forests	Existing forests	-	-	x
	New forests	x	x	-
Biomass from croplands or grasslands (woody or non-woody)	In the absence of the project the land would be used as cropland / wetland	x	x	-
	In the absence of the project the land would be abandoned	-	x	-
Biomass residues or wastes	Biomass residues or wastes are collected and used	-	-	x

As per para 18 of the guidance, the project participant shall evaluate ex-ante if there is a surplus biomass in the region of the project activity, which is not utilized. Survey for the availability of the biomass was conducted to ascertain the quantity of biomass available to the project. As per survey report, the availability of biomass is more than 25% the requirement. The survey report was also submitted to the Punjab Energy Development Agency (PEDA). As per the report, the total consumption of biomass including the project activity works out to be 67,365 MT/annum as against a total availability of 90,401 MT. Thus availability of biomass (rice husk) is more than 25% than the requirement.

The availability of biomass would again be monitored ex post at the beginning of the next crediting periods through similar surveys conducted by the project participant. Hence, as per the guidance, this source of leakage has been neglected for ex ante calculations.

Biomass assessment has been carried out by PP shows that more than 25% surplus biomass is available for PP; hence biomass leakages can be neglected.

Emission Reductions:

Emission reductions are calculated as follows:

$ER_y = BE_y – PE_y – LE_y$

$ER_y = 29,334 – 0 – 0$ t CO_{2e}

$ER_y = 29,334$ t CO_{2e} (Rounded Down)

D.5. Validity of monitoring plan

Means of validation	Assessment team checked the monitoring practice onsite and also checked the requirement of AMS-I.C. - Thermal energy production with or without electricity, version 21.0 and procedure mentioned in the registered PDD of 1st CP.
Findings	CAR 03 & CAR 04 was raised during the validation process. Please refer Appendix 4 for the complete closure of the CAR.

Conclusion	**Parameters determined ex-ante:** 1. **$EF_{grid,OM,y}$ = (0.9610 tCO_2/MWh) =** Operating Margin emissions factor for grid connected power generation in year y calculated using the latest version of "Tool to calculate the emission factor for an electricity system version 07." $EF_{grid, OM, y}$ is computed using the Simple Operating margin CO_2 emission factor. Simple Operating margin CO_2 emission factor is calculated from 3-year generation weighted average using data for the years 2015-2016, 2016-2017 & 2017-2018 CO_2 emissions per unit net electricity generation of all power plants serving the system, not including low-cost / must-run. This is in agreement with the guidance provided in the Tool to calculate the emission factor for an electricity system. **The value is considered from CEA CO_2 bseline database version 14**.The value is fixed ex-ante for the entire duration of 2nd crediting period. As the value is sourced from CEA (publicly available document) no further analysis is required 2. **$EF_{grid,BM,y}$ = (0.8644 tCO_2/MWh)** Build Margin emissions factor for grid connected power generation in year y calculated using the latest version of "Tool to calculate the emission factor version 07 for an electricity system. Build margin emission factor is the generation-weighted average emission factor of all power plants *m* during the most recent year *y* for which generation data is available. **The value is considered from CEA CO_2 bseline database version 14**. The value is fixed ex-ante for the entire duration of 2nd crediting period. As the value is sourced from CEA (publicly available document) no further analysis is required 3. **$EF_{grid,CM,y} = EF_{grid,y}$ = (0.8885 tCO_2/MWh)** Combined Margin emissions factor for grid connected power generation in year y calculated using the latest version of "Tool to calculate the emission factor for an electricity system version 07." Combined Margin is computed using the official data sources and is in-line with the guidance provided in the tool. **The value is considered from CEA CO_2 bseline database version 14**. The combined margin emissions factor is calculated as follows: **$EF_{grid,CM,y} = EF_{grid,y} = EF_{grid,CM,y}$** = $EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * W_{BM}$ Where: $EF_{grid,BM,y}$= Build margin CO_2 emission factor in year y (tCO_2/MWh) $EF_{grid,OM,y}$= Operating margin CO_2 emission factor in year y (tCO_2/MWh) W_{OM} = Weighting of operating margin emissions factor (%) = 25% W_{BM} = Weighting of build margin emissions factor (%) = 75% The above weighing is as per "Tool to calculate the emission factor for an electricity system", version 07.0.0 for other projects (Hydro in this case) and for second crediting period. The value is fixed ex-ante for the entire duration of 2nd crediting period. As the value is sourced from CEA (publicly available document) no further analysis is required. 4. **$TDL_{j, y}$ = (**20%) A default value of 20% has been taken since electricity consumption by all project and leakage electricity consumption sources shall be larger than the electricity consumption of all the baseline electricity consumption. As the value is sourced from CDM tool no further analysis is required. 5. **GWP_{CH4} = (25)** Global warming potential (GWP) of methane taken from IPCC and conservative. As the value is sourced from IPCC no further analysis is required. 6. **NCV_{diesel} = (**43.3 TJ/Gg**)** Net Calorific Value of fossil fuel (diesel) taken from IPCC 2006 guidelines for National Greenhouse gas Inventories, volume 2, Table 1.2, p.1.1. As the value is sourced from IPCC no further analysis is required. 7. **NCV_{coal} = (**26 TJ/Gg**)** Net Calorific Value of fossil fuel (coal) taken from IPCC 2006 guidelines for National Greenhouse gas Inventories, volume 2, Table 1.2, p.1.1. As the value is sourced from IPCC no further analysis is required.

8. **$EF_{CO2,diesel}$ = (**74.8 tCO_2e/GJ**)** CO_2 emission factor of fossil fuel used onsite (Diesel) taken IPCC 2006 guidelines for National Greenhouse gas Inventories, volume 2, Table 1.4, p.1.23. As the value is sourced from IPCC no further analysis is required.

9. **$EF_{CO2,coal}$ = (**100 tCO_2e/GJ**)** CO_2 emission factor of fossil fuel used onsite (coal) taken IPCC 2006 guidelines for National Greenhouse gas Inventories, volume 2, Table 1.4, p.1.23. As the value is sourced from IPCC no further analysis is required.

10. **ρ_{diesel} = (**0.880 Kg/L**)** Density of diesel taken from Indian Oil Corporation Limited (IOCL) which gives density of diesel in the range of 820 – 880 kg/m^3. When converted to kg/L, it gives a value of 0.882 – 0.880 kg/L. Hence, 0.880 kg/L have bben used, since conservative. As the value is sourced from publically available reliable & authentic data, no further analysis is required.

Parameters determined ex-post:

$EG_{grid,y}$ = Quantity of electricity supplied to grid by project activity (MWh)

Quantity of electricity supplied to grid by project activity is calculated as the difference between the gross generation and auxiliary consumption; i.e. = Gross Electricity generation – Auxiliary consumption. The gross generation and auxiliary consumption is monitored continuesly through the energy meters at the power plant and recorded in the plant logbook daily. The meters is AC static, HT, 3 Phase 4 wire type with 0.5 class accuracy. The meters will be calibrated as per the manufacturer's specifications or at least once a year. Socomec make meter with Serial No/Model : DIRISA40 is installed for monitoroing of the Gross electricity produced in the plant. AEL make meter with Serial No/Model : 05/09/001786/06 is installed for monitoroing of the auxiliary electricity consumed in the plant. The practice is as per the 1st CP registered PDD and approved methodology.

$FC_{diesel\ y}$ = Quantity of fuel (diesel) combusted onsite

Amount of the diesel combusted is monitored through Consumption records at plant site and can be cross checked with purchase invoices.

$FC_{coal,\ y}$= Quantity of fuel (coal) combusted onsite

The quantity of coal used as a fuel in the project activity would be measured using a weigh-bridge of class I, II & III. coal consumption is recorded mothly basis. The weigh-bridges are calibrated by Weight & Measure Department of Government once in a year. The amount of coal fired would be crosschecked through fuel purchase receipts and the coal stock inventory records.

Surplus Biomass Availability = Surplus biomass residue availability in the region

The biomass assessment report carried out by external agency, M.C. Jain & ASSOCIATES to assess the surplus availability of the biomass residue in the region shows that more than 25% of surplus biomass is available in the region.

$D_{f,m}$ **=** Return trip distance between the origin and destination of freight transportation activity *f* in monitoring period *m*

Biomass procured will not be transported over a distance of 200 kilometres. Parameter value will be sourced from the Vendor Certificates provided by the biomass vendors of the Project Participant.

The data will be archived electronically for a minimum of two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.

D.6. Crediting period

Means of validation	The crediting period is checked as per UN home page (reference number : 3880 and discussion with Client.
Findings	No findings raised on the section.
Conclusion	This is 2nd renewable crediting period and the duration is 7-year renewable (2nd CP duration: (04/03/2018 to 03/03/2025).

D.7. Project participants

Means of validation	The project participant names were checked from UN homepage https://cdm.unfccc.int/Projects/DB/DNV-CUK1280209384.47/view
Findings	CAR 05 & CAR 06 was raised and closed succesfully .
Conclusion	Following are the details of PP (host country) and Annex 1 country. The same is correct and in line with PDD registered under 1st Crediting period as well as revised MOC is submitted by PP. The details are true for the 2nd Crediting period as well. The PP has also obtained the new Host Country Approval letter from the DNA-India vide letter number 4/13/2007-CCC dated 10/08/2007. The updated MoC from UNFCCC web site is checked and assessment team confirm that the changed PP is reflected in the updated MoC[6]. There is no change in the MOC as informed by PP. The detail of the PP is as follows:

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
India (Host)	M/s AB Grain Spirits Pvt. Ltd. (ABGSPL)	No
India (host)	M/s Nutrition and Sugar Consultants	No
The Netherlands	Amsterdam Capital Trading B.V.	No

D.8. Post-registration changes

Type of post-registration changes (PRCs)	Confirmation (Y/N)	Validation report for PRCs	
		Version	Completion date
Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents[7]	N	NA	NA
Corrections	N	NA	NA
Change to the start date of the crediting period	N	NA	NA
Inclusion of a monitoring plan	N	NA	NA
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents	N	NA	NA
Changes to the project design	N	NA	NA
Changes specific to afforestation and reforestation project activities	N	NA	NA

[6] https://cdm.unfccc.int/Projects/DB/DNV-CUK1280209384.47/view

[7] Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

SECTION E. Internal quality control

As final step of a validation of the final documentation including the Renewable crediting period validation report and the checklist have to undergo an internal quality control by the technical review committee, i.e. each report has to be finally approved either by the head of the technical review committee or the deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one to avoid any conflict of Interest.

SECTION F. Validation opinion

Applus+ Certification has performed validation of the renewal of the crediting period of the project activity "(ABGSPL): Methane recovery in waste water treatment & Methane/Biomass Energy Generation". The validation of the renewal of the crediting period was performed on the basis of UNFCCC criteria and host country criteria, as well as criteria, e.g. AMS-I.C. - Thermal energy production with or without electricity, version 21.0, given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation for renewal of crediting period and the subsequent follow-up interviews have provided Applus+ Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria. The project will hence be recommended by Applus+ Certification for the renewal of the crediting period with the UNFCCC.

Applus+ Certification has received a confirmation from the host Party that the project activity assists it in achieving sustainable development.

By displacing fossil fuel-based electricity with electricity generated from a renewable source, the project results in reductions of CO_2 emissions that are real, measurable and give long-term benefits to the mitigation of climate change. An analysis of the positive list of renewable project demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of annual emission reductions of 29,334 tCO_2e.

The validation of the renewal of the crediting period has been performed following the requirements of the latest version of the CDM validation and verification standard for project activities, version 02.0 and on the basis of the contractual agreement. The single purpose of this report is its use during the registration process as part of the CDM/UNFCCC project cycle.

Appendix 1. Abbreviations

Abbreviations	Full texts
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction(s)
CEA	Central Electricity Authority
CL	Clarification request
CMS	Central Monitoring system
CP	Crediting period
CM	Combined Margin
CMS	Central Monitoring system
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EF	Emission Factor
ER	External Resource
EIA	Environmental Impact Assessment
ER	Emission Reductions
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GWP	Global Warming potential
IR	Internal Resource
KPTCL	Karnataka Power Transmission Corporation
OR	Outside resource
OEM	Original Equipment manufacturer
OM	Operating Margin
PP	Project Participant

Appendix 2. Competence of team members and technical reviewers

1. Dr. Atul Takarkhede counts with 9 years of experience in field of Environmental Auditing, consulting and accreditation. He is an Expert in ISO 9001-14001, CO2/GHG Reporting, Carbon Foot Print, Energy, Water and Waste Management Reporting for organizations environmental performance. His professional portfolio is mainly related with carrying out EIA, conducting QA/QC of EIA Reports; Conducting Environmental/water Audits; NABET requirements appliance. Furthermore, he counts with solid experience on CDM-VCS-GS consultancy and auditing. He has Ph.D. (Environmental Science) from Institute of Science, RTM Nagpur University, Nagpur, and he has already published different technical reports related to environmental science

2. Mr. Denny Xue has a Bachelor's Degree on Thermal Energy Engineering and Master´s Degree on Environmental Engineering. He has more than 10 years of experience on CDM project development. Before he joined Applus+ LGAI, he has been worked for Shanghai Chuanji Investment and Management which is a CDM consultancy company as a project manager for CDM project development. He is working with Applus+ since 2011 carrying out Validation and verification for CDM/GS/VCS project under scope 1 and 13 as auditor, lead auditor, technical expert and technical reviewer.

Appendix 3 Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	NA	Contract of the project participant with the DOE	Contract document signed between PP and DOE	Project participant
2	NA	Technical specifications of hydro power plant and other equipements	Manufacturer technical specifications	Project participant
3	NA	Draft updated PDD for RCP version 05 Revised PDD - Version 06 Revised PDD - Version 07 PDD based on which opinion is provided- Version 08	11/11/2019 29/11/2019 29/01/2020 11/02/2020	Project participant
4	NA	Estimated Emission reduction calculation sheet- version 01 Estimated Emission reduction calculation sheet- version 02	11/11/2019 29/11/2019	Project participant
5	NA	AMS-I.C. - Thermal energy production with or without electricity, version 21	UNFCCC CDM web site	UNFCCC
6	NA	Ministry of Environment and forest: www.envfor.nic.in UNFCCC www.cdm.unfccc.int CEA: Central electricity authority www.cea.nic.in	Reference link is provided.	Independent Search
7	NA	Tools/ guidelines used in the project activity: • Clarification on national and/or sectoral policies Para 27 EB 55. • Tool to determine the remaining lifetime of the project activity in line with Annex 15 EB 50. • Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion, Version 3. • Tool to calculate the emission factor for an electricity system version 07. • Assessment of the validity of the	UNFCCC CDM web site	UNFCCC

		original / current baseline and update of the baseline at the renewal of the crediting period." (Version 03.0.1).		
8	NA	Commission Certificate for hydro Power plant	Commissioning certificate as provided by 3rd party	Project participant
9	NA	Sample JMR copies for the power plant	Logbooks	Project Participant
10	NA	Registered CDM PDD (CP1) Version: 04	16/02/2011	Project Participant
11	NA	Validation Report (CP1) Revision 03	04/03/2011	Project Participant

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. CL from this validation

CL ID	01	**Section no.**	D.1	**Date :** 15/11/2019
Description of CL				
PP requested to submit commissioning certificates, Sample JMRs and PPA for the project activity.				
Project participant response				**Date :** 27/11/2019
The Commissioning Certificate, Sample JMRs and PPA are now provided to the DOE for further assessment.				
Documentation provided by project participant				
1. *Commissioning Certificate* 2. *Sample JMRs* 3. *PPA*				
DOE assessment				**Date:** 28/11/2019
PP have submitted supporting documents, however commissioning certificate, Sample Logbooks are missing. CL open.				
Project participant response				**Date :** 29/11/2019
The Commissioning Certificates and sample logbooks are now provided to the DOE for further assessment.				
Documentation provided by project participant				
1. *Commissioning Certificate* 2. *Sample logbooks*				
DOE assessment				**Date:** 30/11/2019
Msissing supporting documents; commissioning certificates and sample logbooks have been submitted now. CL closed.				

Table 2. CAR from this validation

CAR ID	01	**Section no.**	D.1	**Date :** 15/11/2019
Description of CAR				
Updation of the registered PDD for renewal of crediting period is not inline with the guidelines. Updations carried out in track changes not traceable with registered PDD particularly Section B.7.1. Corrections requested.				
Project participant response				**Date :** 27/11/2019
The RCP PDD version 06 now provided to DOE has been updated in line with the guidelines with all corrections, now provided for further assessment.				
Documentation provided by project participant				
Revised PDD				
DOE assessment				**Date:** 28/11/2019
PP have submitted the revised PDD for the RCP and found inline with the guidelines and latest version of applied methodology AMS.IC.				

CAR ID	02	**Section no.**	D.2	**Date :** 15/11/2019
Description of CAR				
PP requested to submit Sample logbooks for all parameters required inline with the meth requirements for the project activity.				
Project participant response				**Date :** 27/11/2019
The sample logbooks for all parameters required in line with the methodology requirement are now provided to the DOE for further assessment.				

Documentation provided by project participant	
1. Rice Husk Logbook *2. Fuel Consumption Logbook*	
DOE assessment	**Date:** 28/11/2019
PP have submitted copies of the logbooks maintained at the site for the monitoring of various parameters in the plant. Monitoring information in the PDD is found inline with onsite observations and logbooks. CAR closed.	

CAR ID	03	**Section no.**	D.5	**Date :** 15/11/2019
Description of CAR				
Though it is envisaged that biomass Will be procured from the distance not more than 200 km, monitoring arrangements for the same missing in the PDD. Corrections requested.				
Project participant response				**Date :** 27/11/2019
The Biomass survey report and sample Invoices of transportation of biomass to and from the project activity site are now provided to the DOE for further assessment.				
Documentation provided by project participant				
1. Biomass Survey report *2. Sample biomass transportation invoices*				
DOE assessment				**Date:** 28/11/2019
Ex-post Parameter for the monitoring of distance of biomass procurement is still missing. Corrections requested in Section B.7.1 of the PDD. CAR still open.				
Project participant response				**Date :** 29/11/2019
The Ex post parameter for the monitoring of distance of biomass procurement has been added in Section B,7.1 of RCP PDD now provided to DOE for further assessment.				
Documentation provided by project participant				
1. RCP PDD version 06				
DOE assessment				**Date:** 30/11/2019
Parameter for the monitoring of distance of biomass procurement has been added in Section B.7.1 of revised PDD and found appropriate. CAR closed.				

CAR ID	04	**Section no.**	D.5	**Date :** 15/11/2019
Description of CAR				
Calibration frequencies of the monitoring equipment's not consistent in the PDD. Corrections requested.				
Project participant response				**Date :** 27/11/2019
The monitoring equipment as installed and their calibration frequency has been included in PDD version 06 now provided to DOE for further assessment.				
Documentation provided by project participant				
RCP PDD version 06				
DOE assessment				**Date:** 28/11/2019
Calibration instruments and calibration frequency still missing in PDD. CAR open				
Project participant response				**Date :** 29/11/2019
The Calibration Instruments and their respective Calibration Frequency has been updated in Section B.7.1 of the RCP PDD now provided to DOE for further assessment.				
Documentation provided by project participant				
1. RCP PDD Version 06				
DOE assessment				**Date:** 30/11/2019
Calibration frequency is now defined for all parameters and found appropriate. CAR closed				

CAR ID	05	**Section no.**	D.7	**Date :** 15/11/2019
Description of CAR				
Section A.4 of the revised PDD lack details of other parties involved.				
Project participant response				**Date :** 27/11/2019
The Section A.4 has been updated with details of other parties involved in RCP PDD version 06 now provided to the DOE for further assessment.				
Documentation provided by project participant				
1. RCP PDD Version 06				
DOE assessment				**Date:** 28/11/2019

Other parties involved is now included in the revised PDD and inline with UN webpage. CAR closed.

CAR ID	06	**Section no.**	D.7	**Date :** 15/11/2019
Description of CAR				
PP requested to submit updated MOC for the project activity if applicable.				
Project participant response				**Date :** 27/11/2019
There is no change in the MOC for the project activity, the MOC available on UN project page is valid.				
Documentation provided by project participant				
-				
DOE assessment				**Date:** 28/11/2019
As there is no change in the MOC, revised MOC is not required. CAR closed.				

Table 3. FAR from this validation

FAR ID	00	**Section No.**		**Date :** DD/MM/YYYY
Description of FAR				
There is no FAR from this validation				
Project participant response				**Date :** DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				**Date:** DD/MM/YYYY
NA				

- - - - -

Document information

Version	*Date*	*Description*
03.0	31 May 2019	Revision to: • Ensure consistency with version 02.0 of the "CDM validation and verification standard for project activities" (CDM-EB93-A05-STAN) and version 02.0 of the "CDM project cycle procedure for project activities" (CDM-EB93-A06-PROC); • Make editorial improvements.
02.0	31 October 2017	Revision to align with the requirements of the "CDM validation and verification standard for project activities" (version 01.0).
01.0	23 March 2015	Initial publication.

Decision Class: Regulatory
Document Type: Form
Business Function: Renewal of crediting period
Keywords: crediting period, project activities, validation report