



**Verified Carbon
Standard**

TEESTA LOW DAM PROJECT, STAGE-IV



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LGAI Technological Center S.A. (Applus+ Certification)

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Summary:

The main purpose of this project activity is to generate clean form of electricity through Hydro power source. Teesta Low Dam Project, Stage-IV has set up a Greenfield 160 MW (4 unit of 40 MW) capacity run of-the river large hydro power project near village Kalijhora, Darjeeling district, West Bengal state, India Unit I of 40MW of the Project Activity was commissioned on 14-February-2016. The electricity generated from the project activity is supplied to Indian grid, which is mainly dominated by thermal/fossil fuel-based power plant. The power generated by the project activity is being sold to respective State Electricity Board.

Start date of the project activity is 14-February-2016. This is the day on which the project has accounted for emission reductions as per the registered VCS PD/^{5/} version 03, dated 16-June-2015 and final validation report version/^{13/} 03.0 dated 10-December-2015.

This is 3rd verification under VCS and covers this activity from 01-April-2021 to 30-June-2022 (inclusive both days). During the current verification period, the project activity has supplied 883,765 MWh of electricity, and thus contributing to the GHG reductions 855,307 tCO₂e.

The VCS crediting period is chosen 10 years (Renewable). The start date of crediting period inline with VCS standard version 4.4/^{08/} is 14-February-2016 which commissioning date of the project activity upto 13-February-2026 is the end date of the crediting period i.e. 10 years. .

A risk-based approach has been followed to perform this verification activity. In the course of verification, 08 Corrective Action requests (CAR), 01 Clarification Requests (CLs) and 00 Forward action requests (FARs) were raised and successfully closed. The review of the monitoring report and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and PP have provided VVB with sufficient evidence to verify the fulfilment of the stated criteria of VCS.

LGAI Technological Center S.A. (Applus+ Certification) (Hereafter referred as Applus+ Certification) has been appointed by “NHPC Limited” to perform the 3rd periodic verification of the “Teesta Low Dam Project, Stage-IV” under VCS standard version 4.4/^{08/} and guideline version 4.3/^{08/}. The objective of this verification activity is to have an independent third party for the assessment of the project design, monitoring report and Final Verification report and to ensure a thorough assessment of the proposed project activity against the applicable CDM and VCS requirements. In particular;

the project's baseline is assessed against "ACM0002: Grid-connected electricity generation from renewable sources Version 16.0"/^{08/}

the project's monitoring plan is assessed against "ACM0002 Version 16.0"

the project's 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 4.4

- CDM Validation and Verification Standard for project activities, version 03.0/^{08/}
- CDM Project Standard for project activities, version 03.0/^{08/}
- CDM project cycle procedure for project activities, version 03.0/^{08/}
- VCS standard, version 4.4/^{08/}
- VCS guideline, version 4.3/^{08/}

Verification is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of verified emission reductions (VERs).

The scope of the verification is the independent and objective review of the monitoring report (MR)/06/. The MR is reviewed against the relevant criteria (see above) and decisions by the CDM Executive Board and VCS executive board, including the approved baseline and monitoring methodology. The verification was based on the guidance given in the CDM Validation and Verification Standard for the project activities, version 03, review against registered PD and Final verification report, CDM Project Standard for project activities, version 03.0; CDM Project Cycle Procedure for project activities, version 03.0 and VCS program guideline version 4.3 and standard version 4.4

The assessment team has employed a risk-based approach to assess the completeness and accuracy of the claims and conservativeness of the assumptions in the MR. The main focus of the assessment team is to identify the significant risks for the project implementation and the generation of VERs. The verification 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 monitoring report combined.

The only purpose of the verification is its usage during the issuance process as part of the VCS project cycle. Therefore, LGAI Technological Center S.A. (Applus+ Certification) can't be held liable by any party for decisions made or not made based on the verification opinion, which will go beyond that purpose.

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1 INTRODUCTION

1.1 Objective

LGAI Technological Center S.A. (Hereinafter referred as Applus+ Certification) has been appointed by “NHPC Limited” to perform the 3rd periodic verification of the project entitled “Teesta Low Dam Project, Stage-IV” under VCS standard version 4.4^{/8/} and guideline version 4.3^{/8/}. The objective of this verification activity is to have an independent third party for the assessment of the project design, monitoring report and final verification report and to ensure a thorough assessment of the proposed project activity against the applicable CDM and VCS requirements.

Verification is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of estimated verified carbon units (VCUs).

1.2 Scope and Criteria

The scope is defined as an independent and objective review of:

- a) The Monitoring report (MR) prepared as per the registered PD and registered approved methodology ACM0002 Version 16.0. /08/
- b) The MR 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 and VCS standard version 4.4 and guideline version 4.3, including the approved baseline and monitoring methodology ACM0002 Version 16.0/08/.
- c) The verification was based on the requirements in the CDM validation and verification standard for project activities, Version 03.0, CDM Project Standard for project activities, version 03.0, CDM project cycle procedure for project activities, version 03.0 and VCS program guideline version 4.3 and standard version 4.4.

The verification 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 Monitoring report. In line with Guidelines for Application of materiality in verifications, the verification team has conducted a complete verification of all the information presented in the monitoring report and data monitored as presented in the emission reduction calculation spread sheet. It invoices follows the paper trail back to the raw data such as meter reading records and invoices. There are no material errors, overestimation of ER, omission or misstatement. The verification team has reviewed all the documents like commissioning certificates, JMR, invoices etc.

1.3 Level of Assurance

The verification has been planned and organized to achieve a Reasonable Level of assurance as per the requirement of VCS. The entire documents checked/Power plant verification conducted to arrive at positive verification conclusions.

LGAI Technological Center S.A. (Hereinafter referred as Applus+ Certification) verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. Verification is planned and performed the obtaining evidence and other information and explanations that Applus+ Certification has considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated. In our opinion the GHG emissions reductions reported for the project activity for the period 01-April-2021 – 30-June-2022(Including first and last dates) are fairly stated in the Monitoring Report Version 03, dated 10-May-2023. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology ACM0002, Version 16.0, and the VCS standard.

1.4 Summary Description of the Project

The main purpose of this project activity is to generate clean form of electricity through Hydro power source. Teesta Low Dam Project, Stage-IV has set up a Greenfield 160 MW(40MW each) capacity run of-the river large hydro power project near village Kalijhora, Darjeeling district, West Bengal state, India. The project activity was commissioned on 14-February-2016. The project activity lies between Latitude 26.9273N and Longitude 88.4553 E.

The entire renewable power generated by the project activity is exported to West Bengal State Electricity Board as per the Power Purchase Agreement (PPA)/04/.

During the Current Monitoring Period from 1-April-2021 to 30-June-2022 (First and last date included) the project activity has supplied 883,765 MWh of electricity, and thus contributing to the GHG reductions 855,307 tCO₂e.

The Project is already commissioned & fully operational. The details of commissioning are as follows: -

Project Name	Unit No.	Turbine Capacity	Location	Commissioning Date
Teesta Low Dam Project, Stage-IV	I	40 MW	Kalijhora, Darjeeling (W.B)	14- February -2016
	II	40 MW	Kalijhora, Darjeeling (W.B)	16-March-2016
	III	40 MW	Kalijhora, Darjeeling (W.B)	03-July-2016
	IV	40 MW	Kalijhora, Darjeeling (W.B)	11-August-2016

2 VERIFICATION PROCESS

2.1 Method and Criteria

Verification Process: The project assessment is based on the Clean Development Mechanism Validation and Verification Standard for project activities, version 03.0 and VCS standard version 4.4 and guideline, version 4.3 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 VCS project activity are appointed.

Once the project is received by the assessment team, the members of the assessment team carried out:

- I. A desk review of the monitoring Report against the registered PD/05/;
- II. Follow-up interviews with project participant;
- III. The resolution of outstanding issues and the issuance of the final verification report and opinion.

The prepared verification report and other supporting documents then undergo an internal quality control at the HQ (Accredited office) before being submitted to the VCS executive board.

In order to ensure transparency, assumptions must be clear and stated explicitly and background material must also be referenced. LGAI Technological Center, S.A. (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 verifying the identified criteria.

According to the sectoral scope / technical area and experience in the sectoral or national business environment, LGAI Technological Center S.A. (Applus+ Certification) has composed a project assessment team in accordance with the appointment rules in the internal Quality Management System of LGAI Technological Center S.A. (Applus+ Certification).

The composition of audit team shall be approved by the LGAI Technological Center S.A. (Applus+ Certification) ensuring that the required skills are covered by the team.

The four qualification levels for team members that are assigned by formal appointment rules are as presented 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	NA	YES
Mr. Deepak Pundlik	LAiT	YES	YES	NA	YES
Mr. Denny Xue	TR	YES	YES	NA	NA

The complete list of CVs is included as Appendix 3 of this report.

Document review

The Monitoring Report version 03/08/ submitted by the PP was reviewed against the approved methodology, registered PD, final verification report 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 has been done. A complete list of all documents and evidence material reviewed is included in this report below in appendix 1.

Follow-up interviews

An onsite audit was conducted by LGAI Technological Center S.A. (Applus+ Certification) who performed interviews, telephone conferences with project stakeholders to confirm selected information and to resolve issues identified in the document review. The detail is provided in this report in the below sections.

Resolution of Clarification and Corrective Action Request

The objective of this phase of the Verification 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 Monitoring report. 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 verification process, the concerns raised and responses given are summarized below in the Appendix 2.

The revised final MR submitted by PP serves as the basis for the final assessment presented. Additional changes to the project during the verification process are not considered to be significant with respect to the main CDM/VCS objectives. The two CDM/VCS 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 verification of the final documentation including the final verification 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 project owners the positive verification opinion and relevant documents are submitted to the VCS secretariat through the VCS web-platform.

2.2 Document Review

The details of the document observed during the verification process are listed below in appendix 1 of this report.

2.3 Interviews

Onsite audit was conducted for the project activity on 19- October-2022.

The VVB has taken measures to reach reasonable level of assurance and conducted Onsite audit with site personal & consultant (refer section 2.3) with the PP representative.

Technical details & metering/monitoring arrangement verified through onsite photographs/name plates and calibration certificates shared by PP. All the documents were cross checked to ensure conservative estimation of emission reduction.

During the Onsite audit, the PP representatives were questioned about the implementation of the project activity. Several topics like the verification of commissioning date of meters/⁰¹/, the generation, recording, and monitoring of the data and the error accountability were discussed. To cross check the information provided by PP, various documents like technical specifications, commissioning certificates, PPA, JMR sheets, invoice/¹⁰/, calibration certificates/⁰⁹/, etc. were also verified. The names of the persons interviewed during Onsite audit interview is given below.

Organization	Name of Persons/Designation	Topics discussed	Team Member
Teesta Low Dam Project, Stage-IV	Mr. Upendra Hajra General Manager (Electrical)	Project activity implementation, Project description, Mechanism	1. Dr. Atul Takarkhede and

Organization	Name of Persons/Designation	Topics discussed	Team Member
	- Mr. Om Prakash Site-in-charge - Mr. Sanjay Kumar Singh Senior Manager (Mechanical)	Operation, Calibration, O&M practices, JMR, Mechanical maintenance, Electrical maintenance Invoicing practices	Mr. Deepak Pundlik
EKI Energy	Mr. Krishan Kapil	MR, ER calculations etc.	

2.4 Site Visits

Duration of Onsite audit: 19-October-2022				
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. Assessment team also checked that whether the monitoring plan as described in the VCS PD is actually practised onsite. Also, assessment team checked any change in host country criteria which may affect the baseline of the project activity.	Village Kalijhora, District Darjeeling, West Bengal.	19-October-2022	- Dr. Atul Takarkhede - Mr. Deepak Pundlik

2.5 Resolution of Findings

The objective of this phase of the verification was to resolve the requests for corrective actions and clarification and any other outstanding issues which need to be clarified for LGAI Technological Center S.A. (Applus+ Certification)'s positive conclusion on the project design and Monitoring report. The Corrective Action Requests and Clarification Requests raised by LGAI Technological Center S.A. (Applus+ Certification) were resolved during communications between the Client and LGAI Technological Center S.A. (Applus+ Certification) to guarantee the transparency of the validation process, the concerns raised and responses given are summarized below in the appendix 2.

The final MR Version 03 submitted by project owners on 10-May-2023 serves as the basis for the final assessment presented. Additional changes to the project during the verification process are not considered to be significant with respect to the main CDM/VCS objectives. The two CDM/VCS main objectives are the reduction of anthropogenic GHG emissions and the contribution of sustainable development to the host country.

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Project design document and Monitoring report	00	01	00
Description of project activity	00	02	00
Application of selected baseline and monitoring methodology and selected standardized baseline			
- Applicability of methodology and standardized baseline	00	00	00
- Deviation from methodology	00	00	00
- Clarification on applicability of methodology, tool and/or standardized baseline	00	00	00
Project boundary	00	00	00
Establishment and description of baseline scenario	00	00	00
Demonstration of additionality	00	00	00
Emission reductions	01	02	00
Calibration details	00	01	00
Monitoring plan	00	00	00
No Net harm assessment	00	00	00
Local stakeholder consultation	00	01	00
Others (undertaking for no double accounting)	00	01	00
Total	01	08	00

The list of findings and their resolution is presented in appendix 2 of this report.

2.5.1 Forward Action Requests

This is 3rd periodic verification of first Crediting Period the project activity and no FAR was raised from previous and during this verification process.

2.6 Eligibility for Validation Activities

This section is not applicable for present verification.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project activity has not participated in any other GHG programs. PP does not webhosted monitoring report for the current monitoring report on the UNFCCC project webpage. PP has given declaration that the project activity will not claim emission reductions for the monitoring period claimed in VCS and avoid double counting of the emission reductions.

Verification team has also checked REC India registry and confirms that project activity is not availing any REC benefits.

3.2 Methodology Deviations

The project activity used ACM0002 Grid-connected electricity generation from renewable sources Version 16.0 which is as per the registered VCS PD and thus no deviation is sought regarding the methodology. The project complies with all the requirement of the methodology and thus deviation to the methodology is not a requirement for the present project activity.

3.3 Project Description Deviations

VVB team confirms that one Project description deviations applied during current monitoring period.

Project description deviations applied in previous monitoring reports.

Deviation- 1: The source document for electricity exported has been changed from Joint Meter Reading (JMR) to “Deviation Settlement Account document” which are publicly available documents issued by the ‘Northern Regional Power Committee”, Ministry of power; Government of India.

Deviation- 2:

- The source for the import data has been changed from Monthly electricity sales bills to import data certified by State Electricity Board.
- The second deviation is related to applying Maximum permissible error factor in the import meter reading, as the calibration of the import meters is not under the control of PP. The state electricity board who decides about when to calibrate the import meters. The state electricity board does not share the calibration certificates with the PP for import meters and this is common practice followed by them.

In above mentioned deviation there is no change in project design, monitoring approach, methodology, additionality and baseline scenario of project activity. Thus, acceptable to VVB team. Thus, found acceptable to VVB, hence deviation is approved.

PP has sought following deviation for the crediting period of the project activity during this verification.

Deviation 03:

During current monitoring period (01-April-2021 to 30-June-2022), There is a change in other entity as per registered VCS PD. The details for other entity involved for the current monitoring period is mentioned below-

Organization name	MPCON Ltd
Role in the Project	Project Consultant
Contact person	Mr Manoj Mishra
Title	Chief Engineer
Address	Ground Floor, Rajiv Gandhi Bhawan-2, 35, Shyamla Hills Bhopal-462002
Telephone	0755-4909829,2666556
Email	operationscc.mpcon@mpconsultancy.org

The applied deviation doesn't have any impact on the project applicability, baseline scenario, additionality etc. Thus, acceptable to VVB team.

3.4 Grouped Project

This is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

During the Onsite audit, it was concluded that the project is implemented as per the instruction of the VCS PD and this is verified from the commissioning certificate. During the current monitoring period it was observed that no unforeseen situation evolved which can impact the operation of the project activity. The same was verified through the breakdown summary sheet of the project activity. Scheduled maintenance was carried out as per the instruction of the manufacturer and the same is acceptable to the assessment team.

Project location is confirmed by the assessment team through interview with PP and monitoring report. Assessment team also checked with the photograph of project site containing latitude and longitude of the project site and confirmed that the details as mentioned in the registered PD are correct. The latitude and longitude of the project activity is given below;

District	State	Latitude	Longitude
Darjeeling	West Bengal	26.9273(N)	88.4553(E)

The technical specifications have been verified with the photographs of sites and name plates as well as with the technical specifications of hydro turbine and also cross checked from the technical manual of the Manufactures. The project activity consists of 4 units of 40 MW capacity.

Power is generating with the grid of West Bengal State Electricity at 220kV. Brief technical details are as follows:

TEESTA LOW DAM PROJECT (STAGE-IV) IN WEST BENGAL

(4 X 40 =160 MW)

1	LOCATION	
	State	West Bengal
	District	Darjeeling
	River	Teesta
	Dam Site	18.3km Downstream Of Teesta
	Power House	50 M Downstream Of Dam Axis On The Left Bank
2	HYDROLOGY	
	Catchment Area	8021 Sq. Km.
3	RESERVOIR	
	Full Reservoir Level (FRL)	EL 182.25 M
	Min. Draw Down Level (MDDL)	EL 179.0 M
	Gross Storage	36.63 MCM
	Live Storage	7.91 MCM
	Area Under Sub-Mergence At FRL	257.26 HA
4	DAM	
	Type	Concrete Gravity /RCC
	Top Elevation	EL 185.00 M
	Length At the Top	521 M
	Height of dam above river bed level	± 30 M
	Height of dam above deepest foundation level	+ 45 M
5	SPILLWAY	
	Design flood	15400 cumec (PMF)
	Type	Sluice type with breast wall
	Crest elevation	EL 157 m
	Number & size of spillway opening	7 NOS, 11 m (W) X 17 m (H)
6	DIVERSION CHANNEL	
	NO. of channels	
	Length	700 m
7	COFFER DAMS	
	Length	
	U/S coffer dam	200 M
	D/S coffer dam	200 M
	Height	
	U/S coffer dam	13m
	D/S coffer dam	12.5m

8	INTAKE	
	Invert Level	EL 165.50 m
	Number of intakes	4 NOS
	Gate opening	7 m (W) X 7m (H)
9	PENSTOCK	
	Number	FOUR
	Shape	Circular, Steel Lined
	Length	45 m Each
	Diameter	7 m
10	POWER HOUSE	
	Type and location	Surface; Left Bank
	Design discharge	716.00 CUMECS
	Type of turbine	Kaplan
	Installed capacity	4 x 40MW
	Power house size	134 M x 24.5 M x 66 M
	Gross head	25.76 M
	Rated net head	25.05 M
11	TAIL RACE CHANNEL	
	Shape	Trapezoidal
	Bottom Width	100m
	Length	98m
	Weir Level	El. 152.12m
12	SWITCHYARD	
	Size and location	200M X 95 M on Left Bank at

Project activity was commissioned in 4 phase.

Project Name	Unit No.	Turbine Capacity	Location	Commissioning Date
Teesta Low Dam Project, Stage-IV	I	40 MW	Kalijhora, Darjeeling (W.B)	14- February -2016
	II	40 MW	Kalijhora, Darjeeling (W.B)	16-March-2016
	III	40 MW	Kalijhora, Darjeeling (W.B)	03-July-2016
	IV	40 MW	Kalijhora, Darjeeling (W.B)	11-August-2016

Assessment team checked the commissioning certificate of all units and confirms that the commissioning dates are correct

The assessment team confirmed through interview with O & M personal that there are no changes into the project design during this monitoring period. It was found that the monitoring

plan was implemented as per the requirement of the VCS PD & approved monitoring Plan and approved methodology ACM0002 Version 16.0/08/. The organisational role and responsibility as mentioned in the registered VCS PD is followed onsite. The calibration of energy meter is done as per the required frequency mentioned in the VCS PD. All the emergency preparedness as mentioned in the registered VCS PD is followed onsite and no discrepancies were found regarding the same.

The Project participant contribution from the project activity towards sustainable development in accordance to NCDMA as explained below:

Social well-being:

The project helps in generating employment. The project activity leads to development in infrastructure in the region like development of roads and also may promote business with improved power generation.

Economic well-being:

The project is clean technology investment in the area, thus leading to the overall development of the region and helping demand supply gap in the state.

The project activity generates power using zero emissions hydro-based power generation which helps to reduce GHG emissions and specific pollutants like SO_x, NO_x, and SPM associated with the conventional thermal power generation facilities.

Environmental well-being:

The project activity being a renewable source of energy, it reduces the dependence on fossil fuels and conserves natural resources which are on the verge of depletion. Due to its zero emission the project activity also helps in avoiding significant amount of GHG emissions.

Technical well-being:

The operation of project activity leads to promotion of hydro based power generation and encourages other entrepreneurs to participate in similar projects.

It was observed during the verification process is that project is not registered in any other mechanism nor rejected by any other GHG program around the world.

The project is not involved in any other form of GHG emission program and VERs generated from this verification will not be used for other trading program to avoid any kind of double counting. The same is confirmed by the PP during the verification Onsite audit. Assessment team also conducted independent review regarding the same and found that the statement of the PP is accurate and project is not involved in any other kind of GHG trading for the present verifications/monitoring period. Further during this verification process project activity is not registered in any other mechanism nor rejected by any other GHG program around the world.

Further, Assessment team confirms that given project activity is not a supply chain project. Hence, scope 3 emissions are not applicable.

The assessment team observed that the project is in line with the registered PD and applied methodology and thus no clarification/deviation is sought. CAR 01 and CAR 02 were raised during the verification process and closed successfully. Please refer below Appendix 2 for the detail closure of the CAR.

Assessment team confirms following during the verification Onsite audit:

1. Start date of the project is 14-February-2016¹ (as per commissioning Certificate).

S. no	Period	Program	Verification/Validation	VVB Name
1	10- December-2015	VCS	Validation	Earthood Services Private Limited
2	14-February -2016 to 16-July-2017	VCS	1 st Verification	Earthood Services Private Limited
3	17-July-2017 to 31-Mar-2021	VCS	2 nd Verification	LGAI Technological Center, S.A. (Applus+ Certification)
4	01-April-2021 to 30-June-2022	VCS	3 rd Verification (undergoing)	LGAI Technological Center, S.A. (Applus+ Certification)

The VVB team has confirmed the accuracy of the above audit history table by comparing it with the information available on the VERRA project webpage and the report provided by the project participant. This diligent cross-referencing process ensures that the audit history aligns with the official project documentation, promoting transparency and reliability in the project's reporting.

2. An undertaking letter dated 31-January-2023 has been submitted by PP for double counting with any other GHG program. PP also has given a written declaration that project has not claimed other form of GHG credit for the concerned monitoring period.
3. Assessment team confirms that this is the 3rd monitoring under VCS and covers the activity from 1-April-2021 to 30-June-2022 (inclusive of both dates). Thus, VCS crediting period should be 10 years (Renewable) till end date of crediting period. 14-February -2016 is the start date and 13-February-2026 will be the end date of the crediting period.

¹ As per the definition of VCS Ver-4.0 Guidelines

VCUs for the period 14-February -2016 to 16-July-2017 (inclusive of both the days) has been already issued & claimed by PP. However, till date no CERs claimed under CDM mechanism or other mechanism.

The GHG credits from 1-April-2021 to 30-June-2022 will be claimed under VCS only. At any point of time during the crediting period, the project proponent will abide by the “Double Counting”.

4. Assessment team checked and found that the Project proponent of the project activity is as below for the current monitoring period:

Organization name	NHPC Limited
Contact person	Mr. Avinash Kumar
Title	General Manager (Environment)
Address	NHPC Limited, NHPC Office Complex, Sector 33, Faridabad, 121003, Haryana, India
Telephone	+91-129-2271405
Email	-

Other entity involved in project activity:

Organization name	MPCON Ltd
Role in the Project	Project Consultant
Contact person	Mr Manoj Mishra
Title	Chief Engineer
Address	Ground Floor, Rajiv Gandhi Bhawan-2, 35, Shyamla Hills Bhopal-462002
Telephone	0755-4909829,2666556

5. The quantified emission reduction calculation for the monitoring period is correct and conservative. Assessment team also compared actual VER with the estimated VER and found that the actual VER is 855,307 tCO₂e which is 1.75% lower than the estimated emission reduction 870,543tCO₂e during this monitoring period. The decrease in Emission Reductions is due to the variations in hydrological pattern, grid availability and other parameters which are not in the control of PP. thus assessment team found it acceptable.

4.2 Safeguards

4.2.1 No Net Harm

No potential environment or socio-economic matter was found during the Onsite audit. The project is renewable energy project and thus no negative impact observed onsite.

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. The report on “Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects” prepared by MNRE dated September 2013. This report clearly mentioned that hydro power project activity operations do not result in direct air pollution, noise pollution.

The assessment team observed that the project is in line with the registered PD and applied methodology and thus no clarification/deviation is sought. CAR03 was raised during the verification process and closed successfully. Please refer below Appendix 2 for the detail closure of the CAR.

However, assessment team still conducted the No net harm assessment for some of the parameters and the result is described below:

SL.NO	Indicator	Assessment team opinion
1	Air quality	The project generates clean energy which replaces the fossil fuel intensive electricity generation. Also report on “Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects” prepared by MNRE dated September 2013. This report clearly mentioned that hydro plant operations do not result in direct air pollution. Adequate measures were taken to mitigate the envisaged impacts like spraying water on the road side to reduce dust level, etc. This was confirmed by the local stakeholders. Therefore, it is validated that mitigation measures were robustly implemented on ground for air quality issues project will have a positive impact on air quality.
2	Soil condition	There are negligible impacts envisaged during operation of the project activity being run of river project.

		For mitigating the impacts during construction, various mitigation measures were taken which is validated from the plant records of PP and the interview with local villagers. It was also confirmed that, the vegetation done at site helps for soil erosion. The same is confirmed during the stakeholder meetings during Onsite audit. Therefore, it can be concluded that the project has no effect on soil conditions during its operation because it has no waste coming out.
3	Biodiversity	During the Onsite audit it was observed that the condition of ground vegetation will be gradually improved; No rare species has been found in the around area. The project site is not on the migration route of migratory bird. As Such small hydro plant do not have any obstruction in the path of migratory birds. Nor project is affecting aquatic life. With the implementation of Project, the greening water will be increased significantly; the biodiversity in the vicinity will be improved with the vegetation improvement. No negative impact envisaged.
4	Employment Generation	The project activity employed local population as skilled workers as well as security guards which were envisaged during the Onsite audit. The personnel employed by the project activity are also provided trainings and exposed to various awareness programs therefore a positive indicator has been accepted.
5	Livelihood of the poor	The project is associated with infrastructure development like roads in the nearby areas and promoting economic activities like grants to local school and communities temples etc. Also, project employed local villagers as guards for the security of power project. Positive impact envisaged.

4.2.2 Local Stakeholder Consultation

All the stakeholders are happy with the implementation and operation of the project activity and no negative comments envisaged for the project activity. There was no change in project description from the VCS PD. Complaint/suggestion/feedback register is maintained at site as a part of ongoing communication with stakeholders in line with clause 3.16.17 of VCS Standard, version. 4.4 and appropriate actions taken time to time by PP. Assessment team confirmed the same during the Onsite audit and document review i.e., grievance register/^{15/} etc.

The assessment team observed that the project is in line with the registered PD and applied methodology and thus no clarification/deviation is sought. CAR 04 was raised during the verification process and closed successfully. Please refer below Appendix 2 for the detail closure of the CAR.

4.3 AFOLU-Specific Safeguards

Not applicable.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the MR. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the monitoring plan of the VCS PD and MR.
Findings	CL01, CAR05, CAR06 and CAR07 were raised on this section and closed successfully. Please refer Appendix 2 for further details
Conclusion	<u>Baseline emission:</u> The baseline Emissions for a given year is calculated by multiplying the energy baseline (EB) with the regional grid emission factor of the grid. Formula Used: - $BE_y = EG_{PJ,y} * EF_{grid,CM,y}$ BE_y : baseline emissions in year y (tCO₂/yr) $EG_{PJ,y}$: Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the VCS project activity in year y (MWh/yr) $EF_{grid,CM,y}$: CO₂ baseline emission factor of the grid in year y (t CO₂e/MWh) Baseline Emission:

	$BE_y = 883,765 * 0.9678$ $= 855,307 \text{ tCO}_2\text{e (round down values)}$ Ex-ante parameters The baseline emission factors are taken ex-ante in line with the registered VCS PD as well as cross checked with section validation report and found correct. The calculation approach was in line with the VCS PD. Values are as follows: $W_{OM} = 0.50 \%$ $W_{BM} = 0.50 \%$ $EF_{grid,OM,y}$ Operating Margin CO₂ emission factor in year y (tCO₂/MWh). The data are obtained from “CO₂ Baseline Database for Indian Power Sector” version 10.0, published by the Central Electricity Authority, Ministry of Power, Government of India. The value for this parameter is 0.9862 tCO₂/MWh $EF_{grid,BM,y}$ Build Margin CO₂ emission factor in year y (tCO₂/MWh). The data are obtained from “CO₂ Baseline Database for Indian Power Sector” version 10.0, published by the Central Electricity Authority, Ministry of Power, Government of India. The value for this parameter is 0.9495 tCO₂/MWh. $EF_{grid,CM,y}$ Combined Margin CO₂ emission factor in year y (tCO₂/MWh).The data are obtained from “CO₂ Baseline Database for Indian Power Sector” version 10.0, published by the Central Electricity Authority, Ministry of Power, Government of India. The value for this parameter is 0.9678 tCO₂/MWh. Ex-post parameter: Following parameters are considered as ex-post during validation: - $EG_{PJ,y}$: Quantity of net electricity generation supplied by the project plant/unit to the grid in year y Net electricity supplied to grid will be calculated as Net electricity generated and supplied by the project plant/unit to the grid = Electricity exported by the project to the grid at project site switch yard – Electricity imported by the project from the grid at interconnection point of the Regional Supply $EG_{PJ,y} = EG_{Export,y} - EG_{Import,y}$ This parameter is taken by Deviation Settlement Account statement issued by NRPC which in turn is taken from the meters installed at project site switch yard. Frequency of Monitoring is Continuous measurement and at least monthly recording. The Value for this monitoring parameter during current monitoring period is 883,765 MWh for the current monitoring period.
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	Assessment team verified the same with copies of Deviation Settlement Account statement reports, thus accepted. EG_{Export,y} : Quantity of Electricity exported by the project to the grid at project site switch yard in year y (MWh) This parameter is monitored by trivector meters (SEMs), which record both import and export Electricity exported by the project to the grid at project site switch yard is the actual generation recorded and monitored by the metering system installed at the project site switch yard. Frequency of monitoring of this parameter is Continuous measurement and recorded on monthly basis and Energy meters will be calibrated once in a five year. The value for this current monitoring period recorded is 890,326 (after applying error factor) MWh for the current monitoring period. Assessment team verified the same with copies of Deviation Settlement Account statement reports, thus accepted. EG_{Import,y}: Quantity of electricity generation supplied by the project plant/unit to the grid in year y (MWh) This parameter is monitored by trivector meters (SEMs), Electricity imported by the project to the grid at project site switch yard is the actual generation recorded and monitored by the metering system installed at the project site switch yard. Frequency of monitoring of this parameter is Continuous measurement and at least monthly recording and Energy meters will be calibrated once in a five year. Value for this monitoring parameter is taken as 973 MWh (after applying error factor) for the current monitoring period. Assessment team verified the same with copies of Deviation Settlement Account statement reports, thus accepted. The verification team has checked the entire monthly JMR report and invoices applicable for the monitoring period as per the project activity applied for verifications and found the monitoring parameter are monitored and recorded as per the monitoring plan in the registered VCS PD. Net electricity supplied to the grid during the current monitoring period 883,765 MWh which is sourced from Joint meter readings. The net electricity supplied by project activity to grid is calculated by subtracting total electricity imported by project from grid from total electricity delivered by project to grid. The verification team has crosschecked the emission reduction sheet and monitoring report data with the JMR sheet and invoice bills and found all the values are matching.
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	Project Emission: The project emission calculation as per para 35 of ACM0002 version 16, Hence, $PE_y = 0$. Leakage: No leakage emissions are considered. The emissions potentially arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport etc.) are neglected Thus, Emission Reductions are: The emission reductions (ER_y) by the Project activity during a given year y is the difference between baseline emissions (BE_y), project activity emissions (PE_y) and leakage, as follows $ER_y = BE_y - PE_y$ $= 855,307 - 0$ $= 855,307 \text{ tCO}_2\text{e}$
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4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

Means of verification	The verification team checked the break down log for the monitoring period. During the verification Onsite audit, the energy meters are also checked. The Calibration details of the monitoring meters are also checked with calibration certificates.
Findings	CAR08 was raised on this section and closed successfully. Please refer Appendix 2 for further details
Conclusion	The metering system comprises of three individual special energy meters (SEMs) (acts as standby meters) installed at the power station, for each generating unit. These are connected via four transmission lines of 220 kV, each having its own SEM meter (main meter and check meter). In case, anyone transmission line is not in service than complete load will be shifted to other transmission line which is in operation. The energy meters are special energy meters which are installed and sealed by the Power Grid Corporation of India Limited in the presence of the representatives of the power producer. The Net electricity supplied to the grid is then calculated from export and import values. The electricity Export, Import and Net electricity exported to the grid are cross checked from the invoices raised to respective state electricity board which is in line with Methodology requirement for large scale project activity. Hence assessment team confirmed that the value of net electricity

	exported to the grid as used in emission reduction calculation is correct. The calibration frequency of meters is once in 5 years as per the VCS PD. During current monitoring period, Delay has been observed during current monitoring period by assessment team (01-April 2021 to 16-January-2022), However PP has applied error factor for complete month from April 2021 to January 2022), observed error in calibration of meters were within permissible limit. Hence, PP has applied maximum permissible error factor of 0.2% in export and 0.5% in import electricity generation value for delayed period of current monitoring period. PP has calculated the net electricity exported to grid accordingly as per requirement of paragraph 366 (a) of VVS, version 03.0 Thus, acceptable to VVB team. Details of the calibration of monitoring instruments are described in the Appendix 4 Further VVB team observed that 3 transmission meters has been installed at the project site however all three not in control of project participant also PP requested deviation related to calibration of the same, but unable to submit the calibration certificate. Hence VVB team only confirmed the calibration status of those meter which involves in electricity sales purpose refer appendix 4. The meter reading is taken jointly on a fixed day of every month for the preceding month at the delivery point and signed by the representatives of state utility and PP. In the event of failure of main meter, the check meter will be used in monitoring the electricity data. It is reported that the data will be kept for 2 years following the end of the crediting period or till the last issuance of VERs for the project activity whichever occurs later. The responsibilities and authorities of project management, data handling and recording, measurement methods and QA/QC procedure have been systematically established and formalized and the same was verified during the Onsite audit. Onsite audit and interview with site personnel also confirms that the operational and organizational chart as mentioned in VCS PD is as per the site practice and thus assessment team confirms that the details are correct. The break down log is checked and found that the plant undergone scheduled maintenance and break down. No unforced error observed.
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4.6 Non-Permanence Risk Analysis

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Not applicable	Not applicable	Not applicable	Not applicable

5 VERIFICATION OPINION

Applus + Certification has been engaged by Teesta Low Dam Project, Stage-IV to perform 3rd verification of the “Teesta Low Dam Project, Stage- IV”.

The management of the project participant/owner is responsible for the preparation of the GHG emissions data and the reported/estimated GHG emissions reductions on the basis set out within the project’s Monitoring Plan in the VCS PD and MR and the approved methodology ACM0002 Version 16.0. /08/

Our Verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakesh accord, as well as those defined by the CDM Executive Board and VCS Standard version 4.4. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. The verification can confirm that:

- the project is operated as planned and described in the project document;
- the monitoring plan is as per the applied methodology;
- the monitoring process in Monitoring Report is as per the PD
- the development and maintenance of records and reporting procedures are in accordance with the monitoring plan
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately except delayed calibration is addressed in line with para 366 (a) of the “CDM validation and verification standard for project activities, Version 03”;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements.
- A reasonable level of assurance was achieved during the verification.
- No limitation observed for the present verification

Verification period: From 1-April-2021 to 30-June-2022 (first and last date included).

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

Verified GHG emission reductions and removals in the above verification period, broken down by calendar year below:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
01-April-2021 to 31-	597,401	0	0	597,401

December-2021				
01-Januray 2022 to 30-June-2022	257,907	0	0	257,907
Total	855,307	0	0	855,307

The quantified emission reduction calculation for the monitoring period is correct and conservative. Assessment team also compared actual VER with the estimated VER and found that the actual VER is 855,307 tCO₂e which is 1.75 % lower than the estimated emission reduction 870,543 tCO₂e during this monitoring period. The decrease in Emission Reductions is due to the variations in hydrological pattern, grid availability and other parameters which are not in the control of PP. Hence acceptable.

Year	Ex-ante emissions reductions/removals	Achieved emissions reductions/removals	Percent difference	Justification for the difference
1-April-2021 to 30-June-2022	870,543	855,307	-1.75%	The quantified emission reduction calculation for the monitoring period is correct and conservative. Assessment team also compared actual VER with the estimated VER and found that the actual VCU is 855,307 tCO ₂ e and total days 456 which is 1.75% lower than the estimated emission reductions 870,543 tCO ₂ e during this monitoring period due to the variability in the wind pattern during the monitoring period. Thus, acceptable to VVB.
Total	870,543	855,307	-1.75%	

APPENDIX I: DOCUMENTS REVIEWED DURING VALIDATION AND VERIFICATION

No.	Author	Title	References to the document	Provider
1.	NA	Commissioning certificate	Commissioning of the Hydro turbine unit	Project participant
2.	NA	Contract of the other entity with the DOE	Contract of the other entity with the DOE	Project participant
3.	NA	Technical specifications	Technical specifications of turbines	Project participant
4.	NA	Power Purchase agreement for the project activity	Dated: 02-September-2021	Project participant
5.	NA	VCS Project Description	Version 03, Dated: 16-Jun-2015	Project participant
6.	NA	Initial Monitoring report Final Monitoring Report	Version 01, dated 24-August-2022 Version 03, dated 10-May-2023	Project participant
7.	NA	Initial Emission Calculation sheet Final Emission Calculation sheet	Version 01, dated 24-August-2022 Version 03, dated 10-May-2023	Project participant
8.	NA	Tools/ guidelines used in the project activity - UNFCCC Methodology: ACM0002 Version 16.0 - VCS verification report template Version 4.2 - VCS Standard, version 4.4 - VCS Program guideline 4.3	UNFCCC CDM web site VERRA website	UNFCCC & VERRA
9.	NA	Calibration details of the project activity undergoing verification	Calibration certificates	Project participant
10.	NA	JMR records+ Invoices for the complete monitoring period	JMR copies Invoices for the complete Monitoring period	Project participant
11.	NA	Break down details of the complete monitoring period	Log Sheet	Project participant
12.	NA	VCS Declaration	Declaration dated 31-January-2023 from PP for Participation under Other GHG Programs	Project participant
13.	NA	Verification report for 1 st verification of project activity by ESPL	Version 02 dated 22-May-2018	Project participant

No.	Author	Title	References to the document	Provider
		Validation Report for 1 st verification of project activity by ESPL	Version 03 dated 10-December-2015	
14.	NA	Ministry of Environment, forest & Climate Change: www.envfor.nic.in UNFCCC www.cdm.unfccc.int CEA: Central electricity authority www.cea.nic.in VCS: Verified Carbon Standard www.terra.org	Reference link is provided	Independent Search
15.	PP	Grievance Register	-	Project participant
16.	PP	O & M Agreement		Project participant
17.	PP	Training	Project Training Data	
18.	pp	Schematic Diagram Energy Metering Panel		

APPENDIX 2: CORRECTIVE ACTION REQUESTS, CLARIFICATION REQUESTS AND FORWARD ACTION REQUESTS (CAR/CL/FAR)

Project Implementation Status

CI ID	01	Section no.	4.4	Date: 13-December-2022
Description of CL				
During document review assessment team has found that, Emission reduction for current monitoring report is higher than estimated emission reduction. However, PP is requested to demonstrate it's effect on additionality.				
Project participant response				Date: 07-March-2023
The revised emission reduction for current monitoring period is 1.75% lower than estimated emission reduction. The relevant justification for this decreased value has been provided in revised Monitoring Report				
Documentation provided by project participant				
Monitoring Report (Ver 02) ER Sheet (Ver 02)				
VVB assessment				Date: 10-March-2023
Assessment team found that; PP has revised the emission reduction sheet, and achieved emission reduction is found 1.75% lower than estimated emission reduction. Which is found conservative hence, CL is closed.				

CAR ID	01	Section no.	4.1	Date: 13-December-2022
Description of CAR				
During review of monitoring report following inconsistencies observed:				
1. PP requested to submit copies of technical specifications details, O&M agreement, PPA of the project activity to the assessment team. Kindly Submit. 2. PP has mentioned commissioning date of project activity in section 3.1 of monitoring report, however to verify the same, supporting documents is missing. Kindly submit. 3. Title of authorized ministry for providing indicators of sustainable development throughout the Monitoring report is not provided. Thus, corrective action sought. 4. PP is requested to reframe the language throughout the MR as the project activity is implemented and contributing towards sustainable development. Corrective action sought. 5. PP needs to correct the Content page as per VCS Template V. 4.1. and provide page no. on monitoring report. 6. Table format in section 3.1 of MR is found inconsistent with VCS MR template V.4.1. 7. Appendix no. is missing in monitoring report. Hence, Correction sought for the same.				
Project participant response				Date: 07-March-2023

1. Copies of technical specifications details, O&M agreement (Not Applicable), PPA of the project activity is attached 2. Copy of commissioning certificate is attached 3. Title of authorized ministry, for providing indicators of sustainable development has been provided in the revised Monitoring Report. 4. Language of MR has been reframed in revised Monitoring Report 5. Monitoring Report has been updated & revised in latest VCS MR template (Ver 4.2). 6. Table format in section 3.1 of MR is revised as per VCS MR template V.4.2. 7. Appendix no. is corrected in the in the revised Monitoring Report.	
Documentation provided by project participant	
• Technical Specification • Power Purchase Agreement • Commissioning certificate • O&M Agreement • Monitoring Report (Ver 02) • ER Sheet (Ver 02)	
VVB assessment	Date: 10-March-2023
1. Assessment team verified that; PP has submitted the PPA, technical specification of project activity. Operation and maintenance of project activity is maintained by PP itself. 2. Assessment team verified that, Commissioning certificate is found missing. Thus, CAR is open. 3. PP has revised the monitoring report and assessment team verified that, title of authorized ministry is now updated in revised monitoring report. 4. Language is now found inline with VCS monitoring report template. 5. PP has revised the monitoring report and content page as per guideline. 6. Table format in section 3.1 of MR is now consistent. 7. PP has corrected the appendix no. in revised monitoring report.	
Project participant response	Date: 13-March-2023
Teesta Low Dam-IV Unit #1: Commissioned on 14.02.2016. Unit #2: Commissioned on 16.03.2016. Unit #3: Commissioned on 03.07.2016. Unit #4: Commissioned on 11.08.2016. Central electricity authority - Project Monitoring – Quarterly Review No.86 has been submitted as supporting. (Page 24). The report can also be referred from below weblink https://cea.nic.in/hydro-project-monitoring-division/?lang=en Commissioning date are also as per registered VCS PD & First verification report for the project https://registry.terra.org/app/projectDetail/VCS/1423	
Documentation provided by project participant	
Central electricity authority - Project Monitoring – Quarterly Review No.86	
VVB assessment	Date: 17-March-2023
PP has submitted the Commissioning certificate. Commissioning dates of the Project Activity is now found inline with Commissioning certificate. Thus CAR is closed.	

CAR ID	02	Section no.	4.1	Date: 13-December-2022
Description of CAR				
PP is requested to submit an undertaking for no double accounting for current monitoring period. Corrective action sought.				
Project participant response				Date: 07-March-2023
Undertaking for no double accounting is provided				
Documentation provided by project participant				
Undertaking for no double accounting				

VVB assessment	Date: 10-March-2023
Assessment team verified that; PP has submitted the no double accounting declaration dated 31-01/2023. Hence, CAR is closed.	

CAR ID	03	Section no.	4.2.1	Date: 13-December-2022
Description of CAR				
PP is requested to submit evidence of training provided during current monitoring period.				
Project participant response				Date: 07-March-2023
Evidence of training is provided				
Documentation provided by project participant				
Training Record				
VVB assessment				Date: 10-March-2023
PP has provided the trainings records to the assessment team. Thus, CAR is closed.				

CAR ID	04	Section no.	4.2.2	Date: 13-December-2022
Description of CAR				
PP is request to submit the copy of grievance register to the assessment team.				
Project participant response				Date: 07-March-2023
Copy of grievance register is provided				
Documentation provided by project participant				
grievance register				
VVB assessment				Date: 10-March-2023
Assessment team verified that; grievance register has been submitted by PP and no major grievances recorded for current monitoring period. Hence CAR is closed.				

Accuracy of GHG Emission Reduction and Removal Calculation

CAR ID	05	Section no.	4.4	Date: 13-December-2022
Description of CAR				
1. value applied for Data / Parameter $EF_{BM,y}$ & $EF_{OM,y}$ is not in line with the value mentioned in the registered PDD. Thus, corrective action sought.				
Project participant response				Date: 07-March-2023
Value applied for Data / Parameter $EF_{BM,y}$ & $EF_{OM,y}$ is now corrected in the revised monitoring report				
Documentation provided by project participant				
Monitoring Report (Ver 02) ER Sheet (Ver 02)				
VVB assessment				Date: 10-March-2023
Assessment team found that; PP has corrected the Parameter $EF_{BM,y}$ & $EF_{OM,y}$ and it is found consistent with registered PD. Thus, CAR is closed.				

CAR ID	06	Section no.	4.4	Date: 13-December-2022
Description of CAR				
1. PP has submitted Emission Reduction sheet. However, to verify same "Deviation Settlement Account statement forms" and "import data certified by State Electricity Board" is found missing. Kindly submit.				
2. Assessment team found that, Complete details about monitoring parameter is found inconsistent with registered PDD. However, same was found missing in emission reduction sheet. Thus, Correction sought for the same.				
Project participant response				Date: 07-March-2023

1. “Deviation Settlement Account statement forms” and “import data certified by State Electricity Board” has been provided for the entire crediting period. 2. Monitoring report & ER sheet has been revised.	
Documentation provided by project participant	
Deviation Settlement Account statement forms <i>for the entire period</i> Import data forms <i>for the entire period</i> Monitoring Report (Ver 02) ER Sheet (Ver 02)	
VVB assessment	Date: 10-March-2023
1. Assessment team verified that; PP has submitted Deviation Settlement Account statement forms” and “import data certified by State Electricity Board to VVB team. Thus acceptable. 2. PP has revised the emission reduction sheet and PP has update monitoring parameter with registered PD. Thus, CAR is closed.	

CAR ID	07	Section no.	4.4	Date: 13-December-2022
Description of CAR				
1. During document review assessment team has found that, in order to cross check, the electricity exported to the grid, invoice values relevant the current monitoring period are missing in the emission reduction sheet. Further, PP requested to submit complete invoices for monitoring period. Hence, Correction sought for the same. 2. GHG emission reduction value in section 5.4 is inconsistent with VCS template v.4.1. 3. The value of achieved emission reduction is not round down in monitoring report. Correction sought.				
Project participant response				Date: 07-March-2023
1. Cross check mechanism has been included in the revised ER Sheet 2. GHG emission reduction value is now corrected in section 5.4 of VCS template v.4.2. 3. Round down value of achieved emission reduction is now provided in the revised monitoring report.				
Documentation provided by project participant				
Monitoring Report (Ver 02) ER Sheet (Ver 02)				
VVB assessment				Date: 10-March-2023
1. Assessment team verified that; Cross check mechanism has been included in the revised ER Sheet. Moreover, to verify the same PP has submitted the invoices for complete monitoring period, and found error free. 2. Vintage vice GHG emission reduction value in section 4.2 of monitoring report has been corrected in revised monitoring report. 3. Achieved emission reduction value has been round down in revised monitoring report.				
Thus, CAR is closed in this section.				

Quality of Evidence to Determine GHG Emission Reductions and Removals

CAR ID	08	Section no.	4.5	Date: 13-December-2022
Description of CAR				
PP has not submitted complete information of metering equipment like serial number, make, calibration date and validity of calibration and calibration frequency in Appendix I of MR. However, to verify, calibration dates supporting documents of electricity meters for current monitoring period under this verification found missing. Kindly submit.				
Project participant response				Date: 07-March-2023
Meter details along with calibration has been provided in section 4.3 of the revised monitoring report. Calibration certificate is attached				
Documentation provided by project participant				
Monitoring Report (Ver 02) Meter Calibration certificate				
VVB assessment				Date: 10-March-2023
Assessment team found that; PP has not submitted the meter calibration certificate to verify the that, meter has been calibrated at particular time interval. Thus, CAR is open till the complete meter calibration certificate submitted.				
Project participant response				Date: 13-March-2023
All the meters were first calibrated at the time of installation on 07/10/2013. The calibration certificate was valid till 06/10/2018. (Certificate Attached). The Second Calibration of meters was done on 17/1/2022. The calibration certificate is valid till 16/1/2027. There was a delay in calibration from 07/10/2018 to 16/01/2022. Also, there is no change in meters during this delay period. Accordingly, an error factor has been applied in ER estimation for period (01/1/2021 to 16/1/2022). The Error factor has been applied for full months from April 2021 to Jan 2022),				
Documentation provided by project participant				
Meter Calibration certificate-7/10/2013				
VVB assessment				Date: 17-March-2023
Assessment team found that; PP has submitted the meter calibration certificate and found inline with dates mentioned in VCS MR. The observed error in calibration of meters were within permissible limit. Hence, PP has applied maximum permissible error factor of 0.2% in export and 0.5% in import value of electricity generation value throughout the current monitoring period. PP has calculated the net electricity exported to grid accordingly as per requirement of paragraph 366 (a) of VVS, version 03.0 Thus, acceptable to VVB. Thus, CAR is closed.				

APPENDIX 3: COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS

Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Verification findings
1.	Lead Auditor/Technical Expert	IR	Takarkhede	Atul	TQC-Outsourced entity	Yes	Yes	Yes	Yes
2.	Lead Auditor in Trainee	IR	Pundlik	Deepak	TQC-Outsourced entity	Yes	Yes	Yes	Yes

Technical reviewer and approver of the verification and certification report

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 (TR)	EI	Xue	Denny	Applus+ Certification
2.	Approver	IR	Calle	Agustín	Applus+ Certification

Short CVs of the Team:

1. **Dr. Atul Takarkhede** : is Ph.D. (Environmental Sciences) from Institute of Science, RTM Nagpur University, Nagpur, and he has already published different technical papers related to environmental sciences. He counts with more than 11 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, functional area expert in Water

Pollution & Solid & Hazardous Waste management among others. Furthermore, he counts with solid experience on CDM-VCS-GS consultancy and auditing. Currently he is associated with True Quality Certifications Private Limited and empanelled with Applus+ Certification to carry out GHG audits in the aforementioned schemes. Dr. Atul Takarkhede is based in Nagpur, India. Dr. Atul Takarkhede participate as part of the Audit Team as the Lead Auditor and Technical Expert for the assessment.

2. **Mr. Deepak Pundlik** have 15 years of experience in climate change, waste management and environmental management. After completing Masters in Environment Sciences from Pune university, He has worked in waste management field. As a GHG consultant, He handled more than 50 projects under renewable energy, waste management sectors during his stint with companies - MITCON and Thermax. Post Thermax, Deepak was involved in organic farming research project with Tata Institute of Social Sciences. As a GHG auditor, He has validated/verified projects under CDM/VCS/GS and GCC mechanisms from renewable energy, energy demand, waste management sectors handling more than 15 projects.
3. **Mr. Denny Xue** (Master's Degree in Environmental Engineering, Bachelor's Degree in Thermal Engineering) is an Auditor appointed by Applus+ LGAI for the GHG project assessment, auditing and technical review. He has more than 6 years of work experience in CDM/GS4GG/VCS project assessment and technical review with Applus+. Before he joined Applus+ LGAI, he has been working for Shanghai Chuanji Investment and Management which is a CDM consultancy company as a project manager for CDM project development. Mr. Denny Xue is based in Shanghai, China. Mr. Denny Xue participates in the project's technical review team.

APPENDIX 4: CALIBRATION DETAILS

The details of the Export Meters are given below.

Feeder Details	Meter Details	Make	Meter Serial No	Accuracy Class	Calibration Date	Calibration Date	Due date	Delay in calibration During current MP
220 KV NJP, Feeder-1	Main	Secure	WBE12813	0.2s	07-October-2013	17-January-2022	16-June-2027	01- April-2021 to 16-January-2022
	Check	Secure	WBE12816	0.2s	07-October-2013	17-January-2022	16-June-2027	01- April-2021 to 16-January-2022
220 KV NJP, Feeder-2	Main	Secure	WBE12784	0.2s	07-October-2013	17-January-2022	16-June-2027	01- April-2021 to 16-January-2022
	Check	Secure	WBE12817	0.2s	07-October-2013	17-January-2022	16-June-2027	01- April-2021 to 16-January-2022
220 KV TLDP-III, Feeder-3	Main	Secure	WBE12815	0.2s	07-October-2013	17-January-2022	16- June -2027	01- April-2021 to 16-January-2022
	Check	Secure	WBE12818	0.2s	07-October-2013	17-January-2022	16- June -2027	01- April-2021 to 16-January-2022

The details of the Import Meters are given below

Meter Details	Make	Meter Serial No	Accuracy Class
Main	Secure	WBE18371	0.5s

Main	Secure	RSH5D104	0.5s
Main	Secure	WBE12815	0.5s

Note: - The import meters are owned by the state electricity board and are not under the control of PP and the calibration certificates of the import meters could not be traced for the current monitoring period. same has been approved in previous verification period deviation included in section 3.3 of this report.

APPENDIX 5: 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
CM	Combined Margin
CMS	Central Monitoring system
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reductions
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GWP	Global Warming potential
PGCIL	Power Grid Corporation of India Limited
RBI	Reserve Bank of India
PP	Project Participant