ALLAIN DUHANGAN HYDROELECTRIC PROJECT (ADHP)

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Summary:

Verification purpose: The main purpose of this project activity is to generate clean form of electricity through Hydro power source. M/s A D Hydro Power Limited has set up a 102 MW run-of the river hydro power project at the confluence of Allain & Duhangan rivulets at Pirni village in Manali town, district Kullu in Himachal Pradesh,India.. The power project has commissioned on 17/07/2010.

The project activity displaces electricity from the generation-mix of power plants connected to the NEWNE regional grid (now Indian grid), which is mainly dominated by thermal/fossil fuel-based power plant, thereon avoids anthropogenic emissions of greenhouse gases (GHG's), which is estimated to be approximately 494,668 tCO_2e per year.

During the Current Monitoring Period from 01/10/2016 to 30/09/2019[1] (First and last date included) the project activity has supplied 20,83,080 MWh of electricity, and thus contributing to the GHG reductions 15,35,217 tCO_2e.

During the current monitoring period, project activity undergoes continued operation and no major breakdown had taken place.

The objective of this verification activity is to have an independent third party for the assessment of the project design, Actual ER sheet 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 version 06"*
- *the project's monitoring plan is assessed against "ACM0002 version 06"*
- *the projects compliance with, the requirements of Article 12 of the Kyoto Protocol, the CDM*

Modalities and Procedures as agreed in the Marrakech Accords under decision 3/CMP.1, the annexes to this decision, subsequent decisions and guidance made by COP/MOP & CDM Executive Board and other relevant rules, including the Host Country legislation and sustainability criteria along with VCS guideline and standard,

[1] The period prior to this based on change in CDM crediting period or 01/06/2010 to 30/09/2016 is claimed under CDM having project UN 0862.

version 4.0

- *CDM Validation and Verification Standard for project activities, version 02*
- *CDM Project Standard for project activities, version 02*
- *CDM project cycle procedure for project activities, version 02*
- *VCS standard, version 4.0*
- *VCS guideline, version 4.0*

GAP Validation purpose: *The project is registered under CDM mechanism (reference number: 0862). The present validation (gap validation) is under VCS mechanism and assessment of clause 1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4, 1.13, 1.14, 1.15.1, 1.16, 1.17 and 3.6 of the VCS Project Description Template. The same is in line with Para 3.19.5 of VCS standard version 4.0.*

A risk based approach has been followed to perform this verification activity. In the course of gap validation and verification, 07 Corrective Action request (CAR) and 00 Clarification Requests (CLs) were raised and successfully closed (Including GAP validation & verification). No FAR raised during this GAP Validation and verification. The review of the project description and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and PP have provided APPLUS with sufficient evidence to verify the fulfilment of the stated criteria of VCS.

1 INTRODUCTION

1.1 Objective

LGAI Technological Center S.A. (Hereinafter referred as Applus+ Certification) has been appointed by "M/s A D Hydro Power Limited" to perform the gap validation and verification of the project entitled "Allain Duhangan Hydroelectric Project (ADHP)." under VCS standard and guideline version 4.0. The objective of this gap validation & verification activity is to have an independent third party for the assessment of the VCS project design clause (1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 1.8,1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4, 1.13, 1.14, 1.15.1, 1.16, 1.17 3.6 and para 3.19.5 of VCS Standard, ver. 4) & Monitoring 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 version 06"
- the project's monitoring plan is assessed against "ACM0002 version 06"
- 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 4.0
- CDM Validation and Verification Standard for project activities, version 02
- CDM Project Standard for project activities, version 02
- CDM project cycle procedure for project activities, version 02
- VCS standard, version 4.0
- VCS guideline, version 4.0
- Gap Validation & 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 emission reductions (VERs).

1.2 Scope and Criteria

The scope of the gap validation and verification is the independent and objective review of the Project Description clause (1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 1.8,1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4, 1.13,3.6 and para 3.19.5 of VCS Standard, ver. 4) & Monitoring Report. The VCS PD & MR are reviewed against the relevant criteria (see 1.1) and decisions by the CDM Executive Board and VCS executive board, including the approved baseline and monitoring methodology. The validation and verification were based on the guidance given in the CDM Project Standard for project activities, version 02.0, CDM Project Cycle Procedure for project activities, version 02.0, VCS guideline and standard, version 4.0.

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 VCS PD & MR. The main focus of the assessment team is to identify the significant risks for the project implementation and the generation of VERs. The validation and verification are 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 and monitoring report combined.

The only purpose of the gap validation and verification is its usage during the registration /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 validation/verification opinion, which will go beyond that purpose.

1.3 Level of Assurance

The verification and validation has been planned and organized to achieve a Reasonable Level of assurance as per the requirement of VCS.

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. M/s A D Hydro Power Limited has set up a 102 MW run-of the river hydro power project at the confluence of Allain & Duhangan rivulets at Pirni village in Manali town, district Kullu in Himachal Pradesh,India.

The power project has commissioned on 17/07/2010.

The Project activity is a new facility (Greenfield) and the electricity delivered by the project activity is exported to the Indian electricity grid. The project will therefore displace an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid.

The project activity results in replacing anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 494,668 tCO2e per year. The project is registered under CDM and the details are given below:).

Project Title	Allain Duhangan Hydroelectric Project (ADHP)
CDM Reference No	0862[2]
Registration date	17/05/2007
Crediting period	01/06/2010 - 31/05/2020 (Fixed)

[2] https://cdm.unfccc.int/Projects/DB/DNV-CUK1169040011.34/view

Current CDM PDD	Version 1.4, Dated 12/04/2007
Applied Methodology	ACM0002 version 06
CERs issued up to	01/06/2010 to 30/09/2016

Now the project is proposed to be registered under VCS with the crediting period of 17/07/2010 to 31/05/2020. Hence present validation is a gap validation is under VCS mechanism which includes assessment of clause 1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4, 1.13, 1.14, 1.15.1, 1.16, 1.17 and 3.6 of the VCS Project Description Template. The same is in line with Para 3.19.5 of VCS standard version 4.0. Also, PP have submitted the undertaking dated 07/05/2020 for the avoidance of double counting of the emission reductions.

During the Current Monitoring Period from 01/10/2016 to 30/09/2019 (First and last date included) the project activity has supplied 20,83,080 MWh of electricity, and thus contributing to the GHG reductions 15,35,217 tCO_2e.

2 VERIFICATION PROCESS

2.1 Method and Criteria

Validation and Verification Scope: The scope is defined as an independent and objective review of the project design document (PD Clause: 1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4, 1.13, 1.14, 1.15.1, 1.16, 1.17 and 3.6) and Monitoring report. The VCS PD and 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 and guideline version 4.0, including the approved baseline and monitoring methodology ACM0002 version 06. The validation and verification were based on the requirements in the Validation and Verification Standard for project activities, version 02.0, Project standard for project activities, version 02.0, and VCS guideline and standard, version 4.0.

The validation and verification are 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 combined project description and the Monitoring report.

Validation and Verification Process: The project assessment is based on the Clean Development Mechanism Validation and Verification Standard for project activities, version 02.0 and VCS standard and guideline, version 4.0 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 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 project design documentation (Clause 1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4, 1.13, 1.14, 1.15.1, 1.16, 1.17 and 3.6) and monitoring report;

II. Follow-up interviews with project stakeholders;

III. The resolution of outstanding issues and the issuance of the final verification/ validation report and opinion.

The prepared gap validation and 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 for registration and issuance of retroactive credits as per Para 3.19.5 of VCS standard version 4.0.

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 validating/verifying the identified criteria.

Appointment of the assessment team

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
Mr. Pankaj Kumar	LA/TE	YES	YES	YES	YES
Mr. Simon Shen	TR	YES	YES	YES	NA

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

Document review

The VCS PD & MR 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 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

A site visit was conducted by LGAI Technological Center S.A. (Applus+ Certification) who 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 this report in the below sections.

Resolution of Clarification and Corrective Action Request

The objective of this phase of the gap validation and 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) 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 Applus+ Certification to guarantee the transparency of the validation process, the concerns raised and responses given are summarized below in the appendix 2.

The VCS PD, version 04 and Monitoring Report Version 04 submitted by project owner, both on 01/11/2020 serve as the basis for the final assessment presented. Additional changes to the project during the gap validation and 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 gap validation and 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 validation/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 gap validation and verification process are listed below in appendix 1 of this report.

2.3 Interviews

The site visit for the project activity was carried out from 07/03/2020 to 08/03/2020. No sampling procedures were adopted either in document verification and all the document were cross checked to ensure conservative estimation of emission reduction. Kindly find below names of the persons interviewed (during onsite and telephonic interview later) for the site.

Sr. No.	Name of Persons	Role/Designation
1.	Mr. O. P. Ajmera	VP-Finance
2.	Mr. Pankaj Agrawal	Engineer
3.	Shanta Thakur	Villager
4.	Jitendra Lal	Shopkeeper

5.	Nitish Parmar	Villager
6.	Ram Lal Thakur	Shopkeeper
7.	Kavita Devi	Villager
8.	Virbhadra K. Nadda	Teacher

2.4 Site Inspections

Duration of on-site inspection: 07/03/2020 to 08/03/2020				
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 CDM PDD is actually practised onsite. Also assessment team checked any change in host country criteria which may affect the baseline of the project activity.	Village- Pirni (Manali), District- Kullu., HP, India	07/03/2020 to 08/03/2020	Mr. Pankaj Kumar

2.5 Resolution of Findings

The objective of this phase of the gap validation and 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 VCS PD, version 04 & MR Version 04 submitted by project owners on 01/11/2020 serves as the basis for the final assessment presented. Additional changes to the project during the validation and 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 validation and verification findings	**No. of CL**	**No. of CAR**	**No. of FAR**
Project design document and Monitoring report	00	02	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

Areas of validation and verification findings	No. of CL	No. of CAR	No. of FAR
- 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	00	01	00
Calibration details	00	01	
Monitoring plan	00	01	00
No Net harm assessment	00	00	
Local stakeholder consultation	00	00	
Others (please specify)	00	00	00
Total	**00**	**07**	**00**

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

2.5.1 Forward Action Requests

No FAR was raised during this gap validation and verification process.

2.6 Eligibility for Validation Activities

The Validation and verification body holds accreditation to carry out both Gap validation and verification activities. The accreditation scope can be checked from the below link:

http://cdm.unfccc.int/DOE/list/DOE.html?entityCode=E-0032

3 VALIDATION FINDINGS

The present project activity is registered under CDM mechanism (UN reference number: 0862). The project can be traced via link (https://cdm.unfccc.int/Projects/DB/DNV-CUK1169040011.34/view)

The gap validation is performed for the project activity as per Para 3.4 of VCS standard version 4.0. As per the requirement of this template following are the observation of the assessment team:

1. The project is registered under CDM mechanism and UN reference number of the project is 0862. The project title is "Allain Duhangan Hydro Electric Project (ADHP)"
2. The project is eligible under Para 3.19.5 of VCS standard version 4.0.
3. Assessment team adopted a step wise procedure to assess the respective clause required for gap validation under VCS vide Para 3.19.5 of VCS standard version 4.0:

Clause 1.1: The main purpose of this project activity is to generate clean form of electricity through Hydro power source. M/s A D Hydro Power Limited has set up a run-of the-river 192 MW hydro power project at the confluence of Allain & Duhangan rivulets at Pirni village in Manali town of Kullu district in Himachal Pradesh state of India. The power project has commissioned on 17/07/2010. The project activity displaces electricity from the generation-mix of power plants connected to the NEWNE regional grid (now Indian grid), which is mainly dominated by thermal/fossil fuel-based power plant, thereon avoids anthropogenic emissions of greenhouse gases (GHG's), which is estimated to be approximately 494,668 tCO_2e per year. The project summary provided in the section is found to be consistent with the VCS PD and also in line with actual site condition which is verified during site visit. Hence, Clause 1.1 as depicted in the VCS PD for gap validation is acceptable to the assessment team.

Clause 1.2: According to the categorization system of the Clean Development Mechanism, which is part of Green House Gas (GHG) program that has been approved by the VCS board, the project is categorized as:

Type I: Renewable energy projects

Category: Grid connected renewable electricity generation – ACM0002 version 06

Sectoral Scope: Scope 1

Assessment team checked the type and category of the project activity and found that the project is eligible under Type I and renewable category of project. Hence the project is eligible under Clause 1.2 of VCS PD.

Clause 1.3: The project is registered under CDM and UNFCCC (Registration ID -0862[3]). Thus, eligible for gap validation under VCS version 04.

Clause 1.5: As per CDM registered PDD "M/s A D Hydro Power Limited" is the project proponent. In VCS PD also, the PP name is correctly mentioned as "M/s A D Hydro Power Limited". The name of the

[3] https://cdm.unfccc.int/Projects/DB/DNV-CUK1169040011.34/view

person, address and phone number is assessed correct for VCS (combined validation and verification) purpose. Hence, Clause 1.5 as depicted in the VCS PD for gap validation is acceptable to the assessment team.

Clause 1.6: In VCS PD, the Other Entities Involved name is mentioned as "M EKI Energy Services Limited". The name of the person, address and phone number is assessed correct for VCS (combined validation and verification) purpose. Hence, Clause 1.6 as depicted in the VCS PD for gap validation is acceptable to the assessment team.

Clause 1.7: The ownership details of M/s A D Hydro Power Limited (project owner/ project participant) were checked using: Power agreement between owner and State Utility, Commissioning certificate and Purchase order of the turbines. Thus clause 1.7 as depicted in the VCS PD for gap validation is acceptable to the assessment team.

Clause 1.8: The start date of the project is considered as 17/07/2010 which is the commissioning date of the project and the same is correct as per the definition of start date of VCS. Hence, Clause 1.8 as depicted in the VCS PD for gap validation is acceptable to the assessment team.

Clause 1.9: The Project activity is commissioned on 17/07/2010 (Commissioning certificate is checked). CDM crediting period is changed from 01/06/2008 to 31/05/2018 to 01/06/2010 to 31/05/2020. In CDM, the CERs are claimed up to 01/06/2010 to 30/09/2016. However, the Crediting period end date of the project will be the same as that of registered CDM project 0862[4] and will abide by it. Hence, the VCS crediting period is considered from 17/07/2010 to 31/05/2020. The project crediting period shall be a maximum of ten years which will be renewed at most twice.

The start date of the VCS crediting period is considered as 17/07/2010 and the end date of the VCS crediting period is considered as 31/05/2020[5]. This is in line with VCS Standard, section 3.8.7. Thus clause 1.9 as depicted in the VCS PD for gap validation is acceptable to the assessment team

Clause 1.10: The proposed project activity was categorized as "Large Project", since the estimated average annual GHG emission reductions is 494,668 tCO_2e, which is higher than 300,000 tCO_2e per year as per the registered CDM PDD.

Clause 1.12: Through reviewing the registered CDM PDD and validation report at UNFCCC website https://cdm.unfccc.int/Projects/DB/DNV-CUK1169040011.34/view , it was validated that the project is located at confluence of Allain and Duhangan rivulets near Pirni village, Manali, Kullu District, Himachal Pradesh, India. Geographical coordinates of the project activity are 32° 13'36" N and 77° 12' 35" E. The location of the project activity has been confirmed during site visit.

Clause 1.13: Through reviewing the registered CDM PDD and validation report at UNFCCC website https://cdm.unfccc.int/Projects/DB/DNV-CUK1169040011.34/view, it is confirmed that the project is a Greenfield project. The project activity replaces the carbon intensive grid electricity. The proposed project activity effectively utilises renewable hydro energy to generate electricity which will be feed into

[4] https://cdm.unfccc.int/Projects/DB/DNV-CUK1169040011.34/view

[5] The start date of Crediting period is according to VCS guidelines i.e. earliest commissioning date of the project however the end date is restricted to same as of the of registered CDM project activity.

the coal intensive Indian Grid. Thereby the project activity reduces the dependence on fossil fuel based generation units and as there are no associated emissions with this project it contributes to the reduction of greenhouse gases (GHG) emissions. Assessment team checked the same during the onsite visit and also cross checked with CDM PDD and validation report. Thus clause 1.13 as depicted in the VCS PD for gap validation is acceptable to the assessment team.

Clause 1.14: The project is registered under CDM and UNFCCC (Registration ID -0862). The project is also approved by the DNA and a copy of the approval is available on the UNFCCC page. The project activity is not mandatory by any local or national laws. Same is confirmed from section B.3 of the registered CDM PDD. Thus clause 1.14 as depicted in the VCS PD for gap validation is acceptable to the assessment team.

Clause 1.15.1: The project is registered under CDM and UNFCCC (Registration ID -0862). The project is also approved by the DNA and a copy of the approval is available on the UNFCCC page. Project Proponent has submitted undertaking that they will not claim same GHG emission reductions of the project from CDM and VCS. PP would not use net GHG emission reductions by the projects for compliance with emission trading program to meet binding limits on GHG emissions. Thus clause 1.15.1 as depicted in the VCS PD for gap validation is acceptable to the assessment team.

Clause 1.16: Project has been registered with UNFCCC under Clean Development Mechanism program. Registration reference number is 0862. Project Proponent has submitted undertaking for not availing other forms of environmental credit for the same crediting period under consideration. In CDM, the CERs are claimed up to 01/06/2010 to 30/09/2016. Hence, the PP is registering the VCS program with the crediting period effective from 17/07/2010. And PP also confirmed that the project will not claim CERs for the period when the VCUs are claimed under VCS.

PP also submitted undertaking for Project neither has any intends to generate any form of GHG related environmental credit for neither GHG emission reductions nor removals claimed under the VCS program. Thus clause 1.16 as depicted in the VCS PD for gap validation is acceptable to the assessment team.

Clause 3.6: No methodology deviation is applied in the VCS PD. Thus, clause 3.6 as depicted in the VCS PD for gap validation is acceptable to the assessment team.

The respective undertaking for Clause 1.15.1 and 1.16 were not submitted to the assessment team. CAR was raised regarding the same and after submission of satisfactory documents the Non Conformity (=NC) is closed. The detail regarding the Non Conformity could be found in Appendix 2 of this report.

3.1 Participation under Other GHG Programs

As mentioned above, Project has been registered with UNFCCC under Clean Development Mechanism program, Registration reference number is 0862. As per VCS Standard, section 3.19.5, the CDM registered projects are eligible under VCS when a gap validation is undertaken. Along with the verification report a gap validation is done by assessing sections 1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4, 1.13, 1.14, 1.15.1, 1.16, 1.17 and 3.6 of the project description.

In CDM, the CERs are claimed up to 01/06/2010 to 30/09/2016. Hence, the PP is registering the VCS program and the crediting period will be same as that of CDM effective from 17/07/2010. And PP also confirmed that the project will not claim CERs for the period when the VCUs are claimed under VCS.

PP also submitted undertaking for Project neither has any intends to generate any form of GHG related environmental credit for neither GHG emission reductions nor removals claimed under the VCS program

Hence, the project is eligible to participate under the VCS Program.

3.2 Methodology Deviations

The project activity used ACM0002 version 06 which is as per the registered CDM PDD 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

The project is implemented as per the description in the CDM PDD and thus no technical or any other deviation is sought. The same is confirmed during the site visit and interview. Hence, the applicability of the methodology, baseline and additionality as mentioned in the CDM PDD will not undergo any change and thus deemed appropriate for the project activity.

3.4 Grouped Project

The project do not involve any addition of new project activity and thus the project do not falls under grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

During the verification site visit it was concluded that the project is implemented as per the instruction of the VCS PD. During the current monitoring period it was observed that no unforeseen situation evolved which can impact the operation 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.

It was observed that the monitoring plan was implemented as per the requirement of the VCS PD, registered CDM PDD & approved revised monitoring Plan, Validation report & validation opinion for revised monitoring plan and approved methodology ACM0002 version 06. The organisational role and responsibility as mentioned in the registered VCS PD is followed onsite. The calibration 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 is implemented in a rural area that does not have proper roads and other infrastructure facilities. The project activity would augment infrastructural development like roads etc. in the area, thus benefitting local communities.
- The project activity would lead to enhanced direct and indirect employment opportunities at all levels from unskilled to skilled workers.

Economic well-being:

- The project activity involves capital investments, thus leading to the overall development of the region.
- The project activities would also lead to enhanced business opportunities for local stakeholders like consultants, suppliers, manufacturers, contractors etc. All this would lead to improved financial security and overall development of the region.

Environmental well-being:

- The project activity being run-of-the-river power project will have minimum environmental impact as compared to a reservoir based hydro power plant.
- Contribute in bridging the demand-supply gap of electricity by producing green energy
- The electricity generated by the project activity will be supplied to the NEWNE (Indian) grid, which otherwise would have been generated by fossil fuel fired power plants in the grid.

- The project activity also helps in conservation of depleting fossil fuels which at present are predominantly used for power generation.

Technical well-being:

The project activity is a clean and eco-friendly type of power generation in comparison to fossil fuel based projects. This not only helps reduce environmental pollution but also helps in conserving fossil fuels.

It was observed during the verification process is that project is not rejected by any other GHG program around the world. The project is registered under CDM mechanism and the same is checked by the assessment team from UN web page (https://cdm.unfccc.int/Projects/DB/DNV-CUK1169040011.34/view)

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 site visit. 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

4.2 Safeguards

4.2.1 No Net Harm

No potential environment or socio-economic matter was found during the site visit. 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.

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

SL.NO	Indicator	Assessment team opinion
		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.
3	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 visit. Therefore, it can be concluded that the project has no effect on soil conditions during its operation because it has no waste coming out.
4	Biodiversity	During the validation site visit 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 large 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.
5	Employment Generation	The project activity employed local population as skilled workers as well as security guards which were envisaged during the validation site visit. The personnel employed by the project activity are also provided trainings and exposed to various awareness programs therefore a positive indicator has been accepted.
6	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

SL.NO	Indicator	Assessment team opinion
		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 form the registered CDM PDD. 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, ver. 4.0and appropriate actions taken time to time by PP. Assessment team confirmed the same during the verification site visit.

During site visit, VVB has checked that since conception of project design, the project activity does not receive any negative feedback during ongoing communication which leads to changes in project design of project activity. Also section 2.2 of VCS PD is updated to confirm that there is no any updates to the project design due to stakeholder feedback.

It is to be noted that the project is registered under CDM Mechanism (UN0862) and as per para 3.19.5 of VCS Standard Version 4.0 *The following applies with respect to projects registered under an approved GHG program which are seeking registration with the VCS Program:*

1) For projects registered under the CDM, the cover page and sections 1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 1.12, 1.13, 1.14, 1.15.1, 1.16, 1.17 and 2.6 of the VCS Project Description Template shall be completed.

Thus section 2.2 of VCS PD is not required to complete as per above instruction for Gap Validation of project activity and However PP has voluntarily mentioned section 2.2 in VCS PD and VVB has assessed the same as a part of ongoing communication.

It was noticed that the complaint received to the CAO, signed by 63 villagers from Jagatsuk, in which they have raised concerns about the adequacy of water to be left in the Duhangan stream, as well as the capacity was received in the year 2004 and the all the raised points were very nicely taken care by the sponser which is being verified by CAO.

During the field visits of 2006, the CAO found that the sponser has responded to some of its commitments and a number of Panchayat leaders has come in favour of the project. For verification of remaining commitments by sponser, the CAO met with key stakeholders and facilated additional agreements between divergent community leaders and, subsequently between these leaders and the sponser which resulted in following outcomes:-

- Water supplies have been protected

- Additional water studies have been released
- Issues related to safety and labor conditions were addressed verified through enhanced supervision by IFC
- Together with the CAO, the sponsor prepared a commitments register of its obligations under the EIA

By February 2008, the CAO had received no further complaints relating to the project, and the case was concluded.

During site visit, it was verified that there was no issue from local stakeholders and project did not intrude on local community water rights. The project activity is running satisfactorily since commissioning and there is no any mitigation measured required for project activity. During site visit PP representatives and local stakeholders confirmed that there is no infringement of local community water rights and project is in operation in compliance with applicable regulatory guidelines of host country.

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	CAR 04 and CAR 05 were raised on this section and closed successfully. Please refer Appendix 2 for further details
Conclusion	Baseline emission: 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:- $BE_y = EF_y \text{ X } EG_y$ BE_y - are the baseline emissions due to displacement of electricity during the year y in tons of CO_2. EG_y- is the net quantity of electricity generated by the project activity during the

year y in MWh, and

EF_y- is the CO_2 baseline emission factor for the electricity displaced due to the project activity in during the year y in tons CO_2/MWh

The baseline emission factors are taken ex-ante in line with the registered CDM PDD and VCS- PD as well as cross checked with section of CDM validation report and found correct. CO_2 baseline emission factor is equal to 0.737 *tCO_2/MWh*. The calculation approach was in line with the CDM PDD and VCS PD.

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 all the parameters (*EGy* , *$FC_{diesel,y}$*) are monitored and recorded as per the monitoring plan in the registered CDM PDD and VCS PD. 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.

Project Emission: Since the project activity is a run of river hydro power plant and doesn't result in new reservoirs or increase of existing reservoirs.

The Project Emission for consumption of diesel by the DG sets installed at site has been calculated using the formula inline with revised CDM monitoring plan[6]:

$$PE_{HSD} = HSD_{CONS} \times Density_{DIESEL} \times CV_{Diesel} \times EF_{tCO2Diesel} \times 10^{-6} \times OF_{Diesel}$$

Where,

Density of diesel (HSD)	$Density_{Diesel}$	kg/m^3	855
Calorific Value of HSD	CV_{Diesel}	TJ/Gg	43.3
Emission factor for HSD	$EF_{tCO2Diesel}$	$KgCO_2/TJ$	74,800
Oxidation Factor for HSD	OF_{Diesel}	NA	1

The parameters $Density_{Diesel}$, CV_{Diesel}, $EF_{tCO2Diesel}$ & OF_{Diesel} are taken ex-ante in line with the registered CDM PDD and VCS- PD as well as cross checked with section of CDM validation report for revised monitoring plan and found correct.

The value of the diesel consumption is taken form the plant log book and same

[6] https://cdm.unfccc.int/Projects/DB/TUEV-SUED1169832479.13/view

	have been found correct. The calculation approach was in line with the CDM PDD and VCS PD. Leakage: As per registered PDD the leakage is zero. 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 $ER_y = BE_y - PE_y - Ly$

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 site visit the energy meters are also checked. The Calibration details of the monitoring meters are also checked with calibration certificates.
Findings	CAR 07 was raised on this section and closed successfully. Please refer Appendix 2 for further details
Conclusion	The metering arrangement is tri-vector bi-directional energy meters (main and check) at the State Electricity Board (SEB) substation. These meters record parameters including electricity exported & imported. Moreover, the meters are located at the HT side of the transformer and are of accuracy class of 0.2s for each project activity applied for verification. These electricity meters are being used by state electricity board for JMR (Joint Meter Reading) electricity generation statements. 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. Electricity export to the grid and import from the grid is metered by main and check tri-vector energy meters. The main 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. The PP is experienced in the monitoring system as the monitoring is continuously done as per the CDM monitoring requirements since commissioning. The validation team therefore is of the opinion that the project participant is capable of implementing the monitoring plan in the context of the project activity. Calibration of all the meters is done by state electricity board officials as per the industry/State Utility standards. However, the calibration is done once in a year as per registered CDM PDD. The details of Calibration of the meters are mentioned in Appendix 5 of this report. The energy meter recording the export and import from the grid at substation is under the control and supervision of state electricity board officials. Also the quantity of fuel combusted in the backup power plant (used as a backup source of power during emergency conditions) was monitored at plant and maintained in Logbooks. Same are crosschecked from diesel inventory records and was found appropriate. Inline with CDM PDD, NCV of diesel is taken from IPCC which conservative and accepted by verification team. It is reported that the data will be kept for 2 years following the end of the crediting periodor 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 site visit. On-site visit and interview with site personnel also confirms that the operational and organizational chart as mentioned in CDM PDD 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.

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 CONCLUSION

Applus+ Certification has been engaged by M/s A D Hydro Power Limited to perform the gap validation and verification of the "Allain Duhangan Hydroelectric Project (ADHP)"

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 CDM PDD/VCS PD and MR and the approved methodology ACM0002 version 06.

Our GAP Validation & 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 4.0. 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 project fulfills the requirements of the GAP validation vide Para 3.19.5 of VCS standard version 4.0;
- 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 02";
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements.
- No limitation observed for the present verification

Verification period: From 01/10/2016 to 30/09/2019 (first and last date included)

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

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
01/10/2016 to 31/12/2016	47,927	2	0	47,925
01/01/2017 to 31/12/2017	602,770	3	0	602,767
01/01/2018 to 31/12/2018	444,867	2	0	444,865
01/01/2019 to 30/09/2019	439,664	4	0	439,660
Total	1,535,228	**11**	**0**	**1,535,217**

The estimated emission reduction to be achieved from the project activity for the current monitoring period is 1,484,004[7] tCO_2e, whereas actual emission reductions achieved are 1,535,217 tCO_2e, which is approximately 3.45% higher than the estimated emission reductions. The generation of electricity depends upon many other climatic conditions, water availability, and not within the control of the project participant. As due to slight increase in generation there is no negative impact on additionality benchmark, same accepted by the assessment team.

[7] This estimation is based on annual (365 days) estimation of ER and current monitoring period days i.e. 1095 days.

APPENDIX I: DOCUMENTS REVIEWED DURING VALIDATION AND VERIFICATION

No.	Author	Title	References to the document	Provider
1.	NA	Commissioning certificates	Commissioning certificates 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	Manufacturer technical specifications	Project participant
5.	NA	Registered CDM PDD	Version 1.4 dated 12/04/2007	UNFCCC
6.		Final CDM Validation Report No. 2006-0873 https://cdm.unfccc.int/Projects/DB/DNV-CUK1169040011.34/view	Revision 02, 17/05/2007	UNFCCC
7.	NA	Initial VCS Project Description Final VCS Project Description	Version 01, dated 18/10/2019 Version 04, dated 01/11/2020	Project participant
8.	NA	Initial Monitoring report Final Monitoring report	Version 01, dated 29/02/2020 Version 04, dated 01/11/2020	Project participant
9.	NA	Emission Calculation sheet	Version 1, dated 27/03/2020	Project participant
10.	NA	Emission Calculation sheet	Version 03, dated 27/07/2020	Project participant
11.	NA	The operational lifetime of the project activity from the manufacturer = (Technical specifications)	Manufacturer technical specifications	Project participant
12.	NA	SERC order of the respective states RBI: Reserve Bank of India www.rbi.org.in Ministry of Environment and forest: www.envfor.nic.in UNFCCC www.cdm.unfccc.int CEA: Central electricity authority www.cea.nic.in Income tax act 1961 http://law.incometaxindia.gov.in/DIT/	Reference link provided	Independent Search

No.	Author	Title	References to the document	Provider
		VCS: Verified Carbon Standard www.v-c-s.org Ministry of New & Renewable Energy (MNRE) http://mnre.gov.in Central Electricity Regulatory Commission www.cercind.gov.in Renewable Energy Certificate Registry of India https://recregistryindia.nic.in		
13.	NA	Tools/ guidelines used in the project activity • UNFCCC Methodology: ACM0002 version 06 • VCS validation Report template, version 3.3 • VCS verification report template Version 3.4 • VCS Standard, version 4.0	UNFCCC CDM web site VERRA website	UNFCCC & VERRA
14.	NA	Calibration details of the project activity undergoing verification	Calibration certificates	Project participant
15.	NA	JMR records+ Invoices for the complete monitoring period	JMR copies Invoices for the complete Monitoring period	Project participant
16.	NA	PPA Agreement	Power purchase Agreement between Project Proponent & State Utility/buyer	Project participant
17.	NA	Break down details of the complete monitoring period	Log Sheet	Project participant
18.	NA	Logbooks	Diesel consumption records	Project participant
19.	NA	VCS Declaration	Declaration from PP for Participation under Other GHG Programs	Project participant

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

Project Implementation Status

CAR ID	01	Section no.	VCS PD	Date : 12/03/2020
Description of CAR				
Based on document review: 1. PP is requested to provide VCS PD in latest template of VCS Version 4.0 2. PP requested to submit commissioning certificate of the project activity. 3. PP requested to submit copy of PPA 4. PP requested to complete all sections of VCS PD and MR as applicable. 5. PP requested to provide copy of undertaking in effect of no double counting of CDM & VCS emission reductions achieved will take place. 6. In sec. 1.17 of VCS PD, under leakage management, solar project mentioned. PP shall clarify.				
Project participant response				**Date:** 31/05/2020
1. VCS PD is now being provided in latest template of VCS Version 4.0 2. Commissioning Certificate of the project activity is being submitted. 3. The project is based on a merchant power plant. So, any long term PPAs has been signed however, for the sale of power invoices have been attached with this submission 4. All sections of VCS PD and MR are now being completed as applicable. 5. Undertaking in effect of no double counting of CDM & VCS emission reductions achieved is being submitted. 6. In sec. 1.17 of the VCS PD, solar project mentioned is a typo error which is now being corrected with this submission.				
Documentation provided by project participant				
VCS PD, VCS MR, Invoices, Commissioning certificates and VCS declaration.				
DOE assessment				**Date: 11/06/2020**
1. PP has provided revised MR, Ver. 1.4 dated 01/06/2020 in VCS template ver. 4.0. **Comment**				

closed. 2. PP has provided commissioning certificates issued by Central Electricity Authority which was found to be correct. However, commissioning date of unit # 2 mentioned on commissioning certificate does not match with the date stated in sec. 1.8 of VCS-PD, Ver. 02 dated 01/06/2020 (i.e. 17/07/2010) which is also start date of project. PP shall clarify the discrepancy. **Comment open.** 3. As PP clarified that electricity generated sold to merchant power, PP shall provide sale agreement along with invoices which has not been submitted for review. **Comment open** 4. VCS PD ver. 2.0 dated 01.06/2020 submitted in version 4.0 template is now complete. **Comment closed.** 5. PP has submitted an undertaking dated 07/05/2020 regarding no double counting under any other GHG mechanism. Comment closed. 6. Typographical error rectified in VCS PD, Ver. 02 dated 01/06/2020. **Comment closed.**

Project participant response	**Date:** 20/06/2020
2. The commercial production of the project activity started on 17/07/2010 with the commissioning of first unit, Unit II of 96MW. Another unit, Unit I was commissioned on 16/09/2010. Evacuation of power from the project plant started from 17/07/2010 using 132 kV transmission line via Bajaura substation which continued till 04/09/2010. But after going through the assessment of commissioning certificates, it is concluded that the start date of the project activity in VCS mechanism is 16/09/2010 which the earliest commercial operation date of both the units. And the same has been mentioned in the PDD now. 3. The project is based on a merchant power plant. So, Short term PPAs has been signed for the project which is now being provided with this submission. Also, the invoices has also been provided with this submission.	
Documentation provided by project participant	
VCS PD V03, Short term PPAs, Invoices raised.	
DOE assessment	**Date: 07/07/2020**
2. PP has revised commissioning date of commissioning in sec. 1.8 of revised PD, ver. 03 dated 20/06/2020 which was checked and the date was found consistent with commissioning certificates provided by PP. **Comment closed.** 3. PP has provided copies of PPA signed along with invoices pertaining to current monitoring period. **Comment closed,**	

VERIFICATION FINDINGS

Project Implementation Status

CAR ID	02	**Section no.**	Section 1.1 VCS MR	**Date:** 12/03/2020

Description of CAR
1. Summary of the ER achieved during current monitoring period is missing in Section 1.1 of the VCS MR. Corrections requested. 2. PP also requested to correct editorial/formatting mistakes in the MR as in sec. 1.1, language of project description needs to be reframed as plant commissioned already and not proposed.

Project participant response	Date: 01/06/2020
1. Summary of the ER achieved during current monitoring period has been updated in Sec 1.1 of the VCS MR 2. The editorial mistakes are now being corrected with this submission.	

Documentation provided by project participant
VCS MR 02

DOE assessment	Date: 11/06/2020
1. PP has updated the summary of ER achieved during this monitoring period in sec. 1.1 of revised MR, Ver. 02 dated 01/06/2020. **Comment closed.** 2. Language of description provided in sec. 1.1 of MR, Ver. 02 dated 01/06/2020 still suggests that project is yet to be implemented. For example, "***Construction work at project site has been started and the project activity is expected to start generation of power from June 2008".*** Language need to be reframed accordingly through out in MR which pertains to verification of already implemented/ commissioned project. **Comment open.**	

Project participant response	Date: 20/06/2020
2. The discrepancy observed in the language of VCS MR has now been corrected with this submission.	

Documentation provided by project participant
VCS MR V03

DOE assessment	Date: 07/07/2020
PP has now reframed the language used in MR , Ver. 03 dated 20/06/2020. **Comment closed**	

CAR ID	03	Section no.	Section 1.11 VCS MR	Date: 12/03/2020
Description of CAR				
1. PP requested to correct name of host country DNA in relevant sections of MR				
Project participant response				Date: 01/06/2020

The name of host country DNA has now been corrected with this submission	
Documentation provided by project participant	
VCS MR V02	
DOE assessment	**Date: 11/06/2020**
1. The name of host country DNA corrected in revised MR ,Ver. 02 dated 01/06/2020. **Comment closed.**	

Accuracy of GHG Emission Reduction and Removal Calculations

CAR ID	04	**Section no.**	Section 4.1 of MR	**Date:** 12/03/2020
Description of CAR				
PP is requested to provide ER sheet for this monitoring period				
Project participant response				**Date:** 01/06/2020
ER sheet for this monitoring period is attached now being provided.				
Documentation provided by project participant				
ER Sheet				
DOE assessment				**Date: 11/06/2020**
PP has provided ER sheet for this monitoring period. However, in ER sheet, under tab "ER estimation" cell "J7" value of actual VERs achieved for this monitoring period is incorrect. **Comment open.**				
Project participant response				**Date:** 20/06/2020
ER sheet, under tab "ER estimation" cell "J7" value of actual VERs achieved for this monitoring period has now been corrected.				
Documentation provided by project participant				
ER Sheet				
DOE assessment				**Date: 27/07/2020**
PP has provided corrected ER sheet, ver. 03 dated 27/07/2020**. Comment closed.**				

CAR ID	05	**Section no.**	Section 5.1 VCS MR	**Date:** 12/03/2020
Description of CAR				

1. In sec. 5.1, PP has referred registered UNFCCC PDD but PP need to provide detail calculation of baseline emission for this monitoring period as registered period does not provide calculation for monitoring period. 2. As this is gap validation and verification, hence PP provided reference of UNFCCC registered PDD. However, PP is requested to provide necessary information in line with VCS MR template, ver. 4.0
Project participant response **Date:** 01/06/2020
1. Sec.5.1 of the MR has now been updated with the detailed calculation of the baseline emission for the monitoring period. 2. Necessary information has now been updated in the MR with this submission.
Documentation provided by project participant
VCS MR V02
DOE assessment **Date: 11/06/2020**
1. PP has provided calculation of baseline emissions in sec. 5.1 of revised MR, Ver. 02 dated 01/06/2020. **Comment closed**. 2. PP has now provided all necessary information in MR, ver. 02 dated 01/06/2020 in ver. 4.0 template in line with registered project under UNFCCC. However, comparison of actual VERs achieved during this monitoring period and estimated VERs for this MP as per registered PDD not provided. PP shall provide this comparison and cite reasons for exceeding the VERS than estimated VERs. **Comment open.**
Project participant response **Date:** 20/06/2020
2. In this submission, the comparison of actual VERs achieved during this monitoring period and estimated VERs for this MP as per registered PDD have been provided. Also, the reasons for exceeding the VERS than estimated VERs has been cited in that section
Documentation provided by project participant
VCS MR V03
DOE assessment **Date: 07/07/2020**
PP has now provided comparison of actual VER with estimated VER as per approved document and also provided the rationale for slight increase in VER . VVB checked the correction made in sec. 5.4 of revised MR, ver. 03 dated 20/06/2020 and found the description in line. **Comment closed.**

CAR ID	06	**Section no.**	MR	**Date:** 12/03/2020
Description of CAR				
PP requested to submit JMR/ ADHP records for total electricity supplied to grid by project activity for				

entire monitoring period.	
Project participant response	**Date:** 01/06/2020
JMR/ADHP records for total electricity supplied by the project activity is now being attached with this submission.	
Documentation provided by project participant	
Joint meter Reading reports	
DOE assessment	**Date: 11/06/2020**
PP has submitted JMRs for entire monitoring report. **Comment closed.**	

Quality of Evidence to Determine GHG Emission Reductions and Removals

CAR ID	07	**Section no.**	MR	**Date:** 12/03/2020
Description of CAR				
PP requested to furnish details of calibration carried out in compliance with calibration frequency along with calibration certificates of the monitoring meters involved in the project activity.				
Project participant response				**Date:** 01/06/2020
Calibration details have been furnished in compliance with the calibration frequency. Also, the calibrations certificates are being provided with this submission.				
Documentation provided by project participant				
DOE assessment				**Date: 11/06/2020**
PP has provided meter calibration details in Appendix 1 of MR which cross checked with calibration certificates provided and found the details in line with calibration frequency stated in registered PDD. **Comment 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 DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Verification findings
1.	Lead Auditor/Technical Expert	OR	Kumar	Pankaj	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	Shen	Simon	Applus+ Certification
2.	Approver	IR	Sendin	Juan	Applus+ Certification B.U. Managing Director

Short CVs of the Team:

1. **Pankaj Kumar** worked as team leader – Bihar for South Asia Climate Proofing and Growth Development(CPGD) – Climate Change Innovation Programme (CCIP) supported by DFID that seeks to mainstream climate change resilience into planning and budgeting at the national and sub-national level in India,Pakistan, Nepal, and Afghanistan. Pankaj Kumar has worked previously with IL&FS Infrastructure Development Corporation and BUIDCO(Bihar Urban Infrastructure Development Corporation), Govt. Of Bihar as Environmental Specialist for WB & ADB funded projects. Prior to this, he worked with Carbon Check (UNFCCC accredited DoE), Johannesburg, RSA as Team Leader for validation, verification of around 100 GHG projects in Asia, Africa, USA, Asia Pacific & Americas.

Pankaj is accredited Lead Auditor, Validator, Verifier and Technical Expert for Sectoral Scope/Technical Area – 1.1, 1.2, 3.1 & 13.1 by UNFCCC DoE (Designated Operational Entity), APPLUS, Spain. He is also member of task force on climate change & human health, Health Department, GoB and on roster of UNICEF's WASH experts.

He is an experienced, qualified and result oriented Environment Professional having more than 14 yrs. Of relevant experience in Climate Change (Mitigation &Adaptation), Environmental Due Diligence, Disaster Risk Reduction, Validation and Verification of GHG project under CDM, Verified Carbon Standard, Gold Standard & Social Carbon Standard, Brazil. He provides technical support for environmental investigative, consultative and remedial projects involving air, water and soil, Waste management, EIA, Environmental Compliance, ISO 14001, OHSAS 18001, GHG accounting (ISO 14064) and Carbon foot printing

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2. **Simon Shen** (Master Degree in Thermal Energy Engineering, Bachelor Degree in Environmental Engineering) is a Lead Auditor appointed by Applus+ LGAI for the GHG project assessment. He is based in Shanghai. He has several years of work experience in environmental protection field. Before he joined Applus+ LGAI, he had been worked for TÜV SÜD as a GHG Validator/Assessment team and ISO 9001/14001 Lead Auditor for 5 years.

APPENDIX 4: 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_2e	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
HPSEB	Himachal Pradesh State Electricity Board
RBI	Reserve Bank Of India
PP	Project Participant

APPENDIX 5: CALIBRATION DETAILS

Details of Meter Calibration:

As per standard practice followed in Himachal Pradesh, the energy meters on both the feeders are replaced by 2 pre calibrated energy meters every year as detailed below:

Meter location/name	Meter	Accuracy class	S. N.	Calibration frequency	Date of last calibrations	Validity of the calibration(As per the registered monitoring plan)	Validity of the calibration (As per the calibrating agency)	Calibration Agency	Date of change of meter
(Sent out) Switch yard line-1	Main Meter	0.2S	NP-7086-A	Half yearly	10-09-2019	09-03-2020	09-09-2020	ERDA[8]	Latest Meter
					13-03-2019	12-09-2019	12-03-2020	ERDA	Latest Meter
					19-09-2018	18-03-2019	18-09-2019	ERDA	Latest Meter
					25-03-2018	24-09-2018	24-03-2019	ERDA	Latest meter
					29-09-2017	28-03-2018	28-09-2018	ERDA	Latest Meter
					03-04-2017	02-10-2017	02-04-2018	ERDA	Latest Meter
					05-10-2016	04-04-2017	04-10-2017	ERDA	Latest Meter
					08-04-2016	07-10-2016	07-04-2017	ERDA	Latest Meter
	Check Meter	0.2S	875308	Half yearly	10-09-2019	09-03-2020	09-09-2020	ERDA	Latest Meter
					13-03-2019	12-09-2019	12-03-2020	ERDA	Latest Meter
					19-09-2018	18-03-2019	18-09-2019	ERDA	Latest Meter
					25-03-	24-09-	24-03-	ERDA	Latest

[8] Electrical Research and Development Association

					2018	2018	2019		meter
					29-09-2017	28-03-2018	28-09-2018	ERDA	Latest Meter
					03-04-2017	02-10-2017	02-04-2018	ERDA	Latest Meter
					05-10-2016	04-04-2017	04-10-2017	ERDA	Latest Meter
					08-04-2016	07-10-2016	07-04-2017	ERDA	Latest Meter
(Sent out point) Switch yard line-2	Main Meter	0.2S	NP-6973-A	Half yearly	10-09-2019	09-03-2020	09-09-2020	ERDA	Latest Meter
					13-03-2019	12-09-2019	12-03-2020	ERDA	Latest Meter
					19-09-2018	18-03-2019	18-09-2019	ERDA	Latest Meter
					25-03-2018	24-09-2018	24-03-2019	ERDA	Latest meter
					29-09-2017	28-03-2018	28-09-2018	ERDA	Latest Meter
					03-04-2017	02-10-2017	02-04-2018	ERDA	Latest Meter
					05-10-2016	04-04-2017	04-10-2017	ERDA	Latest Meter
					08-04-2016	07-10-2016	07-04-2017	ERDA	Latest Meter
	Check Meter	0.2S	875306	Half yearly	10-09-2019	09-03-2020	09-09-2020	ERDA	Latest Meter
					13-03-2019	12-09-2019	12-03-2020	ERDA	Latest Meter
					19-09-2018	18-03-2019	18-09-2019	ERDA	Latest Meter
					25-03-2018	24-09-2018	24-03-2019	ERDA	Latest meter

					29-09-2017	28-03-2018	28-09-2018	ERDA	Latest Meter
					03-04-2017	02-10-2017	02-04-2018	ERDA	Latest Meter
					05-10-2016	04-04-2017	04-10-2017	ERDA	Latest Meter
					08-04-2016	07-10-2016	07-04-2017	ERDA	Latest Meter
Import meter (11 kV)	Main meter	0.2S	203393/34-2610	Half yearly	10-09-2019	09-03-2020	09-09-2020	ERDA	Latest Meter
					14-03-2019	13-09-2019	13-03-2020	ERDA	Latest Meter
					19-09-2018	18-03-2019	18-09-2019	ERDA	Latest Meter
					26-03-2018	25-09-2018	25-03-2019	ERDA	Latest meter
					29-09-2017	28-03-2018	28-09-2018	ERDA	Latest Meter
					03-04-2017	02-10-2017	02-04-2018	ERDA	Latest Meter
					05-10-2016	04-04-2017	04-10-2017	ERDA	Latest Meter
					08-04-2016	07-10-2016	07-04-2017	ERDA	Latest Meter