



86 MW HYDRO PROJECT IN HIMACHAL PRADESH



Document Prepared by LGAI Technological Center S.A.
(Applus+ Certification)

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Client	M/s. Malana Power Company Limited
Prepared by	LGAi Technological Center, S.A. (Applus+ Certification)
Approved by	LGAi Technological Center S.A. (Applus+ Certification)

	VVB Technical Manager: Mr. Agustín Calle de Miguel
Work carried out by	Jitendra Mohan Singh¹ - Lead Auditor / Technical Expert Amit Rai – Lead Auditor/Technical Expert. M/s Karen Elizabeth Vega- Technical Reviewer.
Summary:	
LGAI Technological Center S.A. (Applus+ Certification) (Hereafter referred as Applus+ Certification) has been appointed by “M/s. Malana Power Company Limited” to perform the verification of the “86 MW Hydro Project in Himachal Pradesh” (VCS ID 93). The purpose of the project activity is to generate clean energy form of electricity through run-of-the river hydro power plant. The project activity is located in Jari village in district Kullu of Himachal Pradesh, India. The project plant consists of two units, each with a capacity of 43 MW cumulating to total 86 MW. Unit 1 was commissioned on 09-July-2001, and Unit 2 was commissioned on 05 -July - 2001. The objective of this verification activity is to have an independent third-party assessment of the monitoring report and Emission Reductions calculation to ensure a thorough assessment of the project activity implementation against the applicable VCS requirements. In particular: - the project's baseline is assessed against “ACM0002 - Version 20.0” - the project’s monitoring plan is assessed against “ACM0002 - Version 20.0” - CDM validation and verification standard for project activities, Version 03.0/^{16/} - VCS program guide v.4.4/^{10/} - VCS standard version v.4.7/^{10/} The scope of the verification is the independent and objective review of the Monitoring Report (MR)^{6/}. The MR^{6/}is reviewed against the rules and requirements for verification of projects under the VCS Program/^{10/}) and decisions by the CDM Executive Board. The verification was based on the guidance given in the CDM validation and verification standard for project activities, version 03.0, review against registered VCS joint PD&MR/^{4/}and final VCS validation report, VCS program guide v.4.4/^{10/} and VCS standard v.4.7/^{10/}. The monitoring period for this VCS verification is 01-November-2022 to 31-December-2023 (including both days) and the project activity achieved 237,607 tCO₂e emission reductions during this monitoring period thereon displaced 267,878 MWh amount of electricity from the generation-mix of power plants connected to the Indian Grid, which is mainly dominated by thermal/fossil fuel-based power plant.	

¹ Mr. Jitendra Mohan Singh was LA/TE till 15/06/2024. Since then, Mr. Amit Rai has been assigned as new LA and TE. The changes have been communicated accordingly to the PP(s)/client(s) in accordance with the VVB’s procedures.

A risk-based approach has been followed to perform this verification activity. In the course of verification, 10 Corrective Action request (CARs) and 03 Clarification Requests (CLs) were raised during the verification. No FAR was raised during this verification. The review of the Monitoring report, Emission Reduction Calculation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and Project Proponent have provided LGAI Technological Center S.A. (Applus+ Certification) (hereafter may be referred to as the VVB) with sufficient evidence to verify the fulfilment of the stated criteria of VCS.

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/⁶. The main focus of the assessment team is to identify the significant risks for the project implementation and the generation of VCUs. The verification is not meant to provide any consulting towards the project Proponent. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring report.

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.

The verification has been planned and organized to achieve a Reasonable Level of assurance as per the requirement of VCS. No sampling procedure applied for document verifications. Verification is based on the information made available to VVB. VVB's team did not identify any restriction or uncertainties related to verification of the project activity. The entire verification documents checked conducted to arrive at positive verification conclusions.

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1 INTRODUCTION

1.1 Objective

LGAI Technological Center S.A. (Applus+ Certification) (Hereafter referred as Applus+ Certification or VVB) has been appointed by “M/s. Malana Power Company Limited” to perform verification of the “86 MW Hydro Project in Himachal Pradesh.” under VCS guide V4.4 and VCS standard version 4.7. 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 - Version 20.0”^{/17/}
- the project's monitoring plan is assessed against “ACM0002 - Version 20.0”^{/17/}
- VCS program guide v.4.4^{/10/}
- VCS standard version v.4.7^{/10/}

LGAI Technological Center, S.A. (Applus+ Certification) as the Validation/Verification Body (VVB) for the project activity is accredited as a VVB by UNFCCC and also meets the competence requirements as set out in the normative reference ISO 14065:2020.

Verification is a requirement for all VCS projects and is seen as necessary through the provision of objective evidence, provide assurance to stakeholders for the quality of the project and requirements for a specific intended future use or application have been fulfilled regarding its intended GHG claims (i.e. generation of verified & certified units (VCUs)).

1.2 Scope and Criteria

The scope is defined as an independent and objective review of the Monitoring report MR^{/6/} prepared as per the registered joint PD&MR^{/4/} and registered approved methodology ACM0002 – Version 20.0. The MR is reviewed against the criteria (See Section 1.1 above) including the approved applied methodology ACM0002, Version 20.0^{/17/}. The verification has been conducted in accordance with the VCS Standard version 4.7^{/10/}, other valid and applicable VCS Regulatory Documents, template and ISO requirements (ISO 14064-3:2019 and ISO 14065:2020) (see Appendix 2 of this verification report below).

The verification is not meant to provide any consulting towards the project proponent. 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 (Version 02.0), 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 follows the paper trail back to the raw data such as meter reading records and invoices. There are no material errors, overestimation of Emission Reductions, omission or misstatement. Verification team conducted on-site inspection to verify metering/monitoring arrangement. The verification team has reviewed all the documents like commissioning certificates^{/1/}, technical specification^{/3/}, JMRs^{/11/}, grievance register^{/15/}.

1.3 Level of Assurance

Applus+ Certification has planned and performed the verification by obtaining evidence and other information and explanations that assessment team considers necessary to give reasonable assurance that reported GHG emission reductions are fairly stated. All documentary evidences were checked, Verification team conducted on-site inspection to verify metering/monitoring arrangement. The verification team has reviewed all the documents like commissioning certificates^{/1/}, technical specification^{/3/}, JMRs^{/11/}, grievance register^{/15/} to arrive at a verification conclusion by the assessment team.

In our opinion, GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology “ACM0002, Version 20.0” and the VCS standard v.4.7 (paragraph 4.1.10).

1.4 Summary Description of the Project

The project activity involves installation of 86 MW hydro power project by Malana Power Company Limited which is also a project proponent. The project activity is located at Jari village in Malana town of Kullu district, Himachal Pradesh, India. The location details of the project are as follows:

S No.	Name of project Investor	Location	Specific location of sub-part	Latitude (N)	Longitude (E)
1	Malana Power Company Limited	Village- Jari District – Kullu State – Himachal Pradesh Country – India	Coordinates of the Barrage	32° 02' 15" N	77° 15' 23" E
			Coordinates of Power House	32° 00' 15" N	77° 14' 55" E

The latitudes and longitudes of the project activity is verified through geotag stamped onsite photographs and found consistent with the VCS joint PD&MR^{/4/}

The technical details of the project activity are given below:

Bharat Heavy Electricals Limited Power Sector – Northern Region Malana HEP

Turbine Generators	
Turbine type	Pelton
Generators	2×43 MW TG sets
Head Regulator	
Width of Head Regulator	14.25 m
No. of bays	4
Width of each bay	2.50 m
Thickness of piers	0.85 m
Orientation with respect to Barrage axis	117 °
Regulation gates	2.50 m × 1.90 m vertical lift
Design discharge	26.25 cum/sec
DE-Silting Arrangement	
No. and Size of desilting chamber	04 Nos, Each of 102 m × 8.5 m
Particle size to be excluded	all particles down to 0.20 mm size
Flow through velocity	0.19 sec
Flushing velocity	6.0 m/sec.
Storage Reservoir Gross Storage	249000 cm
Full supply reservoir level	1893.60 m
Minimum reservoir level	1879.00 m
Type and height of boundary wall	Concrete gravity dam with height of 23.8 m

The project plant has 2 units (2*43 MW). The project activity was commissioned in phase wise manner, 1st unit 43 MW commissioned on 09-July-2001 and 2nd unit 43 MW commissioned on 05-July-2001 as verified from the commissioning certificate/^{1/}. This is also starting date of the project activity. Verification team found that there is no change in technical specification of implemented project from the registered VCS joint PD&MR/^{4/}. VVB concluded that project has been implemented as per the requirement of registered VCS joint PD&MR /^{4/} and approved monitoring plan. Training has been imparted in line with registered joint PD & MR, through experienced O&M staff. The VVB has verified that the training records/^{20/} and Quality Compliance Certificates/^{20/} for the current monitoring period and found are acceptable.

The project is currently operational with no changes to project proponent or other entities during the current monitoring period. Unit I was closed in December 2022 and Unit II in January 2023 for annual maintenance. In July and August 2023, generation loss occurred due to damage to the HPSEB 132 kV transmission line tower caused by heavy rain and landslides² at Thalout. Detailed information is available in Appendix 7. The project undergone continuous operation and only scheduled maintenance is observed as per the manufacture's specification as evident from JMRs. The organisational role and responsibility as mentioned in the registered joint PD&MR⁴ is followed onsite. All the emergency preparedness as mentioned in the registered VCS joint PD&MR⁴ is followed onsite and no discrepancies were found regarding the same confirmed and verified by VVB during onsite visit and interviews.

The current monitoring period is covered from 01-November-2022 to 31-December-2023 (inclusive of both dates) and the project activity is exported 267,878 MWh of net electricity to Indian grid and achieved 237,607 tCO_{2e} emission reductions.

2 VERIFICATION PROCESS

2.1 Method and Criteria

Verification Process: The project assessment is based on the, "VCS program guide v.4.4" and "VCS standard v.4.7" and is conducted using standard auditing techniques and pre-approved audit plan to assess the correctness of the information provided by the project proponent as per following verification schedule:

Scope of the assessment	Date
Initial meeting/Interview	18-April-2024
Project design and characteristics	18-April-2024
Interview with relevant personnel	18-April-2024
Audit team internal meeting	18-April-2024
Final meeting.	18-April-2024

The Verification process has been conducted following the regulatory documents and based on the ISO 14064-3:2019 and ISO 14065:2020 using standard auditing techniques as required by the VCS Standard v4.7.

² <https://reliefweb.int/report/india/india-flood-2023-dref-operation-no-mdrin028-final-report>

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 in accordance with the Applus+ Certification's procedures and policies, that are in accordance with ISO 14065:2020 regulatory provisions.

Applus+ Certification has completed a strategic review and risk assessment of the project activities and processes in order to gain a full understanding of:

- Activities associated with all the sources contributing to project emissions and emission reductions, including leakage if relevant;
- Protocols used to estimate or measure GHG emissions from these sources;
- Collection and handling of data;
- Controls on the collection and handling of data;
- Means of verification; and
- Compilation of the information in the VCS MR.

Based on the above, the VVB prepared a Verification Plan and applied an evidence-gathering plan designed to collect sufficient and appropriate evidence upon which to base the conclusion and to consider the inherent risk for the verification under section 3.23.3. The evidence-gathering plan is based on analytical procedures & tests and considers thresholds for materiality as per the regulatory documents applied for this verification (five percent for projects and one percent for large projects as per the applied para 4.1.10 (4) of VCS Standard version 4.7).

The applied evidence-gathering plan is used by VVB to determine the conformity of the statements made by client against the principles and requirements of applied regulatory documents during current verification.

The evidence-gathering plan designed by the VVB takes into consideration, as a minimum:

- The selection and management of the data and information;
- The processes for collecting, processing, consolidating, aggregating and reporting the data & information;
- Systems and processes in place to ensure the validity and accuracy of the data and information;
- The design and maintenance of the system to control the data and information;
- Systems, processes and personnel that support system in place, including activities for ensuring data quality;
- The plans for instrument maintenance and calibration where appropriate;

Once the project's initial documentation is received by the assessment team, the members of the assessment team carried out:

- Applus+ Certification has verified the implementation of the monitoring plan and the data presented in the Monitoring Report for the monitoring period applicable to this verification process.

The process of verification involved the following relevant milestones:

- The signature of the contract for verification between the PP and the VVB;
- A kick-off meeting/communication to require the documentary material to perform an initial desk review;
- An initial desk review of the documentary evidences prepared by the Project Proponent;
- The issuance of findings coming from this initial desk review (if any);
- The conduction of an onsite visit, including interviews with project proponent and project stakeholders (see Sections 2.3 and 2.4 below);
- The issuance of findings from the Site Visit/remote inspection and communication of such deviations (if any) to the Project Proponent;
- The assessment of their resolution and closure, when appropriate;
- Once all the findings have been closed, the elaboration of this Verification Report, in which such findings (if any) are described;
- The conduction of an independent Technical Review;
- Upon conclusion of the Technical Review, the VVB may perform a final quality check before the issuance of the Final Verification Report (FVR) and signature of the corresponding Verification Deed.

The process of this verification assessment has not implied any sampling plan.

Appointment of the assessment team

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 in accordance with the Applus+ Certification's procedures and policies, that are in accordance with the ISO 14065:2020 regulatory provisions.

According to the applicable sectoral scope / technical area and experience in the sectoral or national business environment, LGAI Technological Center S.A. (Applus+ Certification) has composed an 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 is approved by the LGAI Technological Center S.A. (Applus+ Certification) Central site during its Contract Review stage, ensuring that the required skills are covered by the team.

The qualification levels for Assessment Team members that are assigned by aforementioned appointment rules are as presented below:

- Lead Auditor (LA).
- Auditor (A).
- Technical Expert (TE).
- Technical Reviewer (TR).
- Any of the above-mentioned roles in training (iT, e.g. AiT for auditor in training).

The Sectoral Scopes / Technical Areas required knowledge linked to the applied methodology(ies) is covered by the Assessment Team as shown below:

Name	Role	SS/TA Coverage	Financial Aspect	Host country Experience
Mr. Jitendra Mohan Singh ³	LA/TE	YES (1.2)	NA	YES
Mr. Amit Rai	LA/TE	YES (1.2)	NA	YES
Ms. Karen Elizabeth Vega	TR/TE	YES (1.2)	NA	NA

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

Document review

The Monitoring report (version 01) submitted by the PP was reviewed against the approved methodology, registered VCS joint PD&MR ⁴, final validation 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 2.

On-site Audit

An on-site audit on 18-April-2024 is conducted by LGAI Technological Center S.A. (Applus+ Certification) assessment team who performed interviews and on-site inspection with project's stakeholders to confirm selected information and to resolve issues identified in the document

³ Mr. Jitendra Mohan Singh was LA/TE till 15/06/2024. Since then, Mr. Amit Rai has been assigned as new LA and TE. The changes have been communicated accordingly to the PP(s)/client(s) in accordance with the VVB's procedures

review. The detail is provided in this report in below sections Resolution of Clarification and Corrective Action Request.

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 final MR Version 1.4/⁶/ 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, the verification report have to undergo an internal quality control by the technical review committee.

Details of the Technical Reviewer(s) are provided within the verification Report in Section 2.1 and Appendix 3 for further references of knowledge and capability to conduct the quality checking.

After the Technical Review process, the final documentation may undergo a final quality checking process called Administrative Review, done by the Applus+ Certification's Project Manager and/or Technical Support.

For final approval, the final set of documents are prepared by the VVB's Technical Manager or its deputy and signed by the authorized signatory of the VVB.

In case any of the persons performing this final internal quality control approval process has acted as a part of the Assessment Team or Technical Review team, the approval can only be given by VVB's personnel who are not part of those teams.

After confirmation of the PP the positive verification opinion and relevant documents are submitted to the VCS board through the VCS web-platform.

2.2 Document Review

The details of the document observed during the verification process which included following:

- Compliance of the Monitoring Report with the current version of the template and its required contents;
- Monitored parameters and reporting requirements;
- Assessment of data and calculation of emission reductions or net removals (Conservativeness, use of calculation methods and assumptions, emission factors, reliability/reproducibility);
- Assessment on the differences from the estimated value of ERs in the registered joint PD&MR and the achieved ERs in the Monitoring Period;
- Remaining forward action requests from validation or previous verifications;
- Ongoing communication method with stakeholders;
- Sustainable development contributions.

The documents reviewed are listed below in Appendix 2 of this report.

2.3 Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Rafiq	M. A	Sr. Manager Malana Power Company Limited	18-April-2024 (On-site visit)	Project Implementation, JMR & invoicing procedure,	Jitendra Mohan Singh (Lead Auditor/Technical Expert)
2.	Upadhyay	Pankaj	Assistant Manager Malana Power Company Limited		Management practices, data storage, QA/QC, calibration, Grievance mechanism	
3.	Rana	A. S	Engineer Malana Power Company Limited			
4.	Dogre	Vivek	Officer (P&A) Malana Power Company Limited			
5.	Mittal	Ashish	Executive (I.T) Malana Power Company Limited			

6.	Prakash	Om	Local Stakeholder		Grievances, Issue related to local area development, Awareness about the project under GHGs reductions. SDGs	
7.	Singh	Pritam	Local Stakeholder			

2.4 Site Visit

As a part of verification an onsite visit has been performed by VVB team. Physical site visit was conducted for the project activity on 18-April-2024. During the onsite visit representative of the project proponent, operation and maintenance staff; personal responsible for monitoring, collecting data & management and QA/QC procedure & local stakeholders were interviewed. The details of the activity performed during site visit are mentioned in table below.

Duration of on-site visit: 18-April-2024			
Activity performed during on-site audit	Site location	Date	Team member
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 joint PD&MR/4/ is actually practised onsite. Also, assessment team checked any change in host country criteria which may affect the baseline of the project activity.	Jari village in district Kullu of Himachal Pradesh, India.	18-April-2024	Jitendra Mohan Singh (Lead Auditor/Technical Expert)

2.5 Resolution of Findings

The objective of the Verification was to resolve the requests for corrective actions & clarification and any other outstanding issues from validation which need to be clarified for Applus+ Certification's 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 final MR (Version 1.2)^{6/} 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 VCS objectives. The two 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	00	00
Description of project activity	01	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	00	01	00
Calibration details	01	01	00
Monitoring plan	01	01	00
No Net harm assessment	00	00	00
Local stakeholder consultation	00	04	00
Others (REC)	00	01	00
Total	03	10	00

The list findings and the resolution are presented in Appendix 2 of this report.

2.5.1 Forward Action Requests

This is 14th periodic verification of the project activity and no FAR was raised from validation or previous verification as verified from the validation and previous verification report.

2.6 Eligibility for Validation Activities

This section is not applicable for present verification, as Applus+ Certification's holds the necessary accreditation to perform validation activities under this Sectoral Scope.

3 VALIDATION FINDINGS

3.1 Methodology Deviations

PP has not sought methodology deviation. Hence, this section is not applicable for present verification.

3.2 Project Description Deviations

Deviation 1:

Project Proponent had sought deviation 1 during the previous monitoring period 01-November-2021 to 31-October-2022 related to calibration frequency of installed monitoring equipment (energy meter). Initially, at the time of registration the calibration frequency of the meters was set to once every three years. However, during last project verification, it was observed that the meters were being calibrated annually according to actual site practices. Therefore, the calibration frequency has been updated accordingly.

The above-mentioned deviations are of permanent nature. VVB confirmed that the deviation is appropriately described in the monitoring report. The deviation have not any impact on the project applicability, baseline scenario and additionality. The deviation is appropriately described and justified, and the project remains in conformance with VCS rules and project deviation is valid.

3.3 New Project Activity Instances in Grouped Projects

The project is not a grouped project - thus not applicable.

3.4 Baseline Reassessment

Did the project undergo baseline reassessment during the monitoring period?

☐ Yes ☒ No

4 VERIFICATION FINDINGS

4.1 Project Details

Item	Evidence gathering activities, evidence checked, and assessment conclusion:				
	Audit type	Period	Program	Validation/verification body name	Number of years
Audit history	Validation 1	(05-July-2001 – 04-July-2011)	VCS	TÜV NORD CERT GmbH	10

	Verification 1	(05-July-2001 to 31-March-2007)	VCS	TÜV NORD CERT GmbH	5.75
	Verification 2	(01-April-2007 to 31-March-2008)	VCS	TÜV NORD CERT GmbH	1
	Verification 3	(01-April-2008 to 31-March-2009)	VCS	TÜV NORD CERT GmbH	1
	Verification 4	(01-April-2009 to 30-September-2009)	VCS	TÜV NORD CERT GmbH	0.50
	Verification 5	(01-October-2009 to 31-March-2010)	VCS	TÜV NORD CERT GmbH	0.50
	Verification 6	(01-April-2010 to 30-September-2010)	VCS	TÜV NORD CERT GmbH	0.50
	Verification 7	(01-October-2010 to 30-June-2011)	VCS	TÜV NORD CERT GmbH	0.75
	Validation 2 (crediting period renewal 1)	(05-July-2011 – 04-July-2021)	VCS	TÜV NORD CERT GmbH	10
	Verification 8	(05-July-2011 to 31-August-2012)	VCS	SGS United Kingdom Limited	1.17
	Verification 9	(01-September-2012 to 28-February-2015)	VCS	KBS Certification Services Pvt. Ltd.	2.5
	Verification 10	(01-March-2015 to 31-December-2018 ⁴)	VCS	LGAI Technologic al Center, S.A.	1.75

⁴ The 10th VCS monitoring period is from 01-March-2015 to 31-December-2018. During this monitoring period, the duration for which I-REC have been issued, is excluded for the VCU calculations. And VCUs were only issued from 01-March-2015 to 31-December-2015, 01-July-2017 to 30-September-2017, 01-December-2017 to 31-December-2017 and 01-June-2018 to 31-December-2018.

				(Applus+ Certification)	
	Verification 11	(01-November-2020 to 04-July-2021)	VCS	LGAI Technological Center, S.A. (Applus+ Certification)	0.67
	Validation 3 (crediting period renewal 2)	(05-July-2021 to 04-July-2031)	VCS	LGAI Technological Center, S.A. (Applus+ Certification)	10
	Verification 12	(05-July-2021 to 31-October-2021)	VCS	LGAI Technological Center, S.A. (Applus+ Certification)	0.33
	Verification 13	(01-November-2021 to 31-October-2022)	VCS	VKU Certification Pvt. Ltd.	1
	Verification 14	(01-November-2022 to 31-December-2023)	VCS	LGAI Technological Center, S.A. (Applus+ Certification)	1.17
Double counting and participation under other GHG programs	The project activity is not registered or rejected by any other GHG programs other than VCS program during the current verification of project activity. Verification team checked independently other registries such as https://cdm.unfccc.int, https://registry.goldstandard.org/projects?q=&page=1 and confirmed that project is not participating in GHG programs other than VCS program. Verification team also checked that the projects are not registered under the REC mechanism of India and the same can be cross-checked at https://www.recregistryindia.nic.in/index.php/publics/registered_regens. However, VVB team checked International REC (I-REC) registry (https://evident.app/IREC/device-register/MALANAHY) and found that, project is registered under I-REC mechanism from dated 01-March-2015 and claimed/issued I-RECS for the following period:				

Duration	Volume claimed /issued
01-January-2016 to 18-January-2016	3,100
19-January-2016 to 10-June-2016	80,000
11-June-2016 to 07-July-2016	48,385
08-July-2016 to 31-December-2016	184,082
Total 2016	315,567
01-January-2017 to 30-June-2017	119,495
01-October-2017 to 31-October-2017	21,092
01-November-2017 to 30-November-2017	11,526
Total 2017	152,113
01-January-2018 to 28-February-2018	11,068
01-March-2018 to 31-May-2018	38,219
Total 2018	49,287
01-January-2019 to 24-June-2019	116,600
01-July-2019 to 30-August-2019	148,466
01-September-2019 to 30-November-2019	81,715
01-December-2019 to 31-December-2019	9,088
Total 2019	355,869
01-January-2020 to 28-February-2020	14,514
01-March-2020 to 31-May-2020	51,215
01-June-2020 to 31-October-2020	256,320
Total 2020	322,049

During the 10th VCS verification from 01-March-2015 to 31-December-2018, for VCU calculations the duration during which I-RECs were issued are excluded. VCUs were issued only during the intervals: 01-March-2015 to 31-December-2015, 01- July - 2017 to 30-September-2017, 01-December-2017 to 31-December- 2017 and 01-June-2018 to 31-December-2018 verified from submitted ER spreadsheet^{7/}, registered documents of previous verifications⁵ .

Also, for durations from 25-June-2019 to 30-June-2019 and for 31-August-2019 the project is not claiming either in VCS or I-REC apart being registered under the both registry, verified from submitted ER spreadsheet^{7/}, registered document of previous verifications and project portal of I-REC registry⁶and submitted I-REC issuance records^{14/}.

Therefore, it was confirmed by VVB through submitted documents and onsite interviews with representatives of project proponent that project is not claiming for I-RECs during current monitoring period from 01-November-2022 to 31-December-2023. Project Proponent has also submitted the declaration^{12/} regarding no double accounting by dated 13-May-2024 and as per para 3.23 of the VCS standards version 4.7, VVB team verified that, project activity is not receiving credit for reduction and removal from other GHG program during current monitoring period.

Thus, double counting for the current monitoring period is ruled out.

⁵ <https://registry.verra.org/app/projectDetail/VCS/93>

⁶ <https://evident.app/I-REC/device-register/MALANAHY>

No double claiming with emissions trading programs or binding emission limits	The project activity is not participating in other emission trading programs or binding emission limits during current monitoring period as confirmed in declaration submitted by the project proponent. VVB confirms that project activity not included in ET program and not used for compliance with an emission trading program or to meet binding limits on GHG emissions. Project Proponent has submitted a declaration dated: 13-May-2024 for no double counting with any other GHG program. VVB confirms that project activity not included in ET program and not used for compliance with an emission trading program or to meet binding limits on GHG emissions. PP also declared that that the credit claimed under VCS for the current monitoring period is not claimed under any other GHG mechanism.
No double claiming with other forms of environmental credit	The verification team has checked through publicly available domain (web-site/registries) and confirmed that the project activity is registered under VCS program (VCS ID 93) and I-REC registry ⁷, however not claiming for I-RECs during current monitoring period. Project Proponent has also confirmed the same in the declaration dated: 13-May-2024^{12/}, confirming no double counting with any other GHG program. PP confirmed that the GHG credits from 01-November-2022 to 31-December-2023 will be claimed under VCS only. At any point of time during the crediting period, the project proponent will abide by the “No Double Counting”.
Supply chain (scope 3) emissions double claiming	VVB team during site visit and interview with the project proponent found that, PP is not buyer or seller of a product whose emissions footprint is changed by the project activities. The project activity is hydro power project developed by project proponent M/s Malana Power Company Limited. The project a basic objective of the project is to generate electricity and supply to Indian grid. The project activity is not a part of supply chain. Hence, not applicable.

⁷ <https://evident.app/IREC/device-register/MALANAHY>

Sustainable development contributions	The Project activity is claiming SDG 7, SDG 8, & SDG 13. The same is described in Section 1.12 of VCS MR. VVB confirmed that the project implementation has led in contribution to SDG 07, 08 and SDG 13 with submitted electricity generation records/¹¹/, Training Records/²⁰/ & Employment records/¹⁴/ and found inline with the requirement para 3.17.1 of VCS standard v4.7. The project activity generated & supplies clean, affordable and renewable energy (267,878 MWh net electricity under the monitoring period) without reliance on fossil fuels for generation of electricity to meet the growing demands in the region. The generated electricity avoided release of 237,607 tCO₂ in to the atmosphere. PP has provided total 10 job opportunities during the current monitoring period as verified from the employment records/¹⁴/ such offer letters, attendance sheet and salary slips during the onsite visit and records submitted by PP.
Additional information relevant to the project	- Commercially sensitive information: - No commercially sensitive information has been excluded from the public version of the project description. - The project activity is not a grouped project, hence not applicable to the project activity. - VVB team conclude that the proposed project activity is eligible to register under VERRA registry and all calculation related to emission reduction are found correct. Thus accepted.

4.2 Safeguards and Stakeholder Engagement

4.2.1 Stakeholder Identification

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Stakeholder identification	The local stakeholder consultation was conducted on 18-May-2004 at the time of validation of project activity as verified from registered documents/4/ of the project activity. Also, local stakeholders were interviewed during the on-site visit by dated 18-April-2024 & topics related to their local area development, Grievances etc were discussed. Project proponent has identified following stakeholders: - Government Parties - HPSEB (Himachal Pradesh State Electricity Board)

	• Pollution Control Board of Himachal Pradesh • Environmental Department of Himachal Pradesh • Ground Water Department • MNES (Ministry of Non-Conventional Energy Sources) 2. Non- Government Parties • Gram Panchayat of Jari Village • Land Owner • Non-Government Organization (NGOs) • Consultants • Equipment suppliers Since the validation, the stakeholder makeup has remained unchanged, therefore, this section is not applicable. It was confirmed during the on-site interviews with PP representatives and the local stakeholders that the stakeholder composition for this project activity remains the same since the start of project activity. Therefore, this section is not applicable.
Legal or customary tenure/access rights	Assessment team verified that, before commissioning of the project activity project proponent has acquired land from few local landowners, with the acquisition process completed after obtaining all the necessary consent. Further, no concerns/disputes raised during local stakeholder consultation which was checked and confirmed with the interview with local stakeholders during the onsite visit . Thus, Not applicable
Stakeholder diversity and changes over time	Verification team interviews the local stakeholders and reviewed the registered documents of previous verifications⁸ and confirmed that stakeholders identified for this project activity are diverse in nature – in terms of socio-economic status, age and gender wise and the diversity is unlikely to change over time. The main local stakeholders were relocated for the project’s construction. No additional local stakeholders have been identified since then, as confirmed by the PP representatives and local stakeholders during the on-site audit interviews.

Expected changes in well-being	The project facilitated the creation of employment opportunities during both the construction and operation phases. Additionally, it contributed to regional infrastructure development, including the construction of roads. The VVB team confirms the same through onsite inspection and interviewing local stakeholders.
Location of stakeholders	Local stakeholders consist of residents within and surrounding the project area and same has been verified by assessment team through local stakeholder records ⁹ (Grievance register/ ^{15/}) and onsite interviews with local stakeholders.
Location of resources	The project is installation of a new hydro power plant. And not involve any resources owned by the stakeholders. Hence, not applicable

4.2.2 Stakeholder Consultation and Ongoing Communication

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Ongoing consultation	Project Proponent has submitted the grievance register kept at site for the ongoing communication with the local stakeholder. Grievances can also be submitted through e-mail at info@malanapower.com . in line with clause 3.18.3 of VCS Standard, v.4.7. The VVB verified this through on-site inspections and interviews with stakeholders, ensuring the system was accessible and functional. Further, VVB team reviewed complaints and feedback collected through e-mail and grievance register.
Date(s) of stakeholder consultation	18-May-2004 (Initial LSC conducted at the time of registration)
Communication of monitored results	Verification team has checked the grievance register/ ^{15/} kept at site for the ongoing communication of the local stakeholders and confirmed from the grievance book maintained by the PP that no any open comments during the current monitoring period. However, local issues related to reconstruction & cleaning of local drainages, restoration work of nearby roads which were damaged during the rainy seasons, installation of street lights etc has been addressed during the current verification period and completed.

⁹ Villagers are mostly from nearby 'chowki', village of Kullu district of State Himachal Pradesh, India.

	Verification team has interviewed the project representatives, local stakeholders & assessed registered documents and confirmed that that the stakeholder consultation meeting was focused towards making aware local stakeholders including local community, local administration representatives etc., about the project activity that involves electricity generation produced by Hydro power plant with the primary objective of reducing emissions of GHGs in compared to pre-project or baseline scenario
Consultation records	Verification team checked Suggestion/ grievance register submitted by project proponent. Upon review, the verification team concludes that the register is comprehensive, adequately addresses the raised concerns.
Stakeholder input	Verification team checked the feedbacks/grievances received from stakeholders. which are quite positive and no negative comments were received during current monitoring period. On few occasions, requests were made for repairing a retaining wall and cleaning village drainage systems. All tasks were fulfilled, and detailed actions were logged in the register and was verified by VVB by interviewing local stakeholder during onsite inspection.

4.2.3 Free, Prior, and Informed Consent

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Consent	No rehabilitation, relocation, or resettlement of local residents occurred as a result of the project activity. The project acquired small parcels of land and provided appropriate compensation to the local villages. Furthermore, no ongoing or unresolved conflicts arose due to the project activity. During onsite inspection VVB team verified the clarity and stability of land tenure, access rights, usage rights, and ownership, eliminating any uncertainties in these aspects.
Outcome of FPIC discussion	The project activity is under 14 th verification. These aspects have been covered under validation. Project proponent asserts that no land encroachment occurred, no individuals were relocated without consent, and no instances of forced physical or economic

	displacement were initiated by the project. VVB team verified the same by interview local stakeholder and during onsite inspection.
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4.2.4 Grievance Redress Procedure

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Grievance received and steps taken to resolve the grievance including the outcomes of the resolution	Verification team has checked the feedback cum grievance register/ ^{15/} submitted by project proponent. Verification team found that on few occasions, requests were made for repairing a retaining wall and cleaning village drainage systems. All tasks were fulfilled, and detailed actions were logged in the register and was verified by VVB by interviewing local stakeholder during onsite inspection. Thus, verification team is of the opinion that the ongoing stakeholder mechanism is adequate and appropriate.
Grievance redress procedure	Assessment team during site visit found that, Grievance redressal mechanism is established as per the company policy. PP has maintained the grievance register at the project site for any kind of complaints if any. PP regularly review the grievance book and resolve the issue of local stakeholder and employee as well. Same has been confirmed during site visit.

4.2.5 Public Comments

Comments received	Actions taken by the project proponent	Evidence gathering activities, evidence checked, and assessment conclusion
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No negative comments received	Not applicable as no negative comments received from public channel.	This is verification of the project. The expected comment is from the local stakeholder only. Verification team checked the feedback cum grievance register and confirmed that no negative input received during monitoring period. Further, few request were made for cleaning village drainage systems during the current monitoring. Thus, verification team is of the opinion that the ongoing stakeholder mechanism is adequate and appropriate
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4.2.6 Risks to Local Stakeholders and the Environment

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Risks to stakeholder participation	Stakeholder meeting was conducted during the validation stage of the project activity. There is no separate stakeholder consultation for the current verification other than ongoing communication with the stakeholders. Verification team has checked feedback registered and found that there is no risk to stakeholder for registering the grievances.
Working conditions	No risk identified. PP has implemented the Environment Health and Safety (EHS) policy/ ^{22/} to mitigate such risks.
Safety of women and girls	No risk identified. PP has implemented the POSH/ ^{22/} and CSR policy/ ^{23/} to mitigate the risk.
Safety of minority and marginalized groups, including children	No risk identified. PP has implemented the CSR and EHS policy to mitigate the same.
Pollutants (air, noise, discharges to water, generation of waste, release of hazardous materials)	No risk identified. The project is a hydro power plant, thus eliminating concerns regarding air pollution. Additionally, the power generated by this project contributes to improved air quality, avoiding use of coal dominated power plants in baseline and thus eliminating waste water discharge & hazardous materials, excess noise generating heavy machineries . The VVB has reviewed the evidence (JMR, Invoices and commissioning

certificate) and concludes that the project effectively enhances nearby environment and achieved significant emission reductions.

Verification team noted that, Construction activities result in creation of fugitive dust, excess noise, release of hazardous waste are considered to have occurred during the construction period only. Owing to the fact that construction period being a short-term activity, the impact is considered to be low. and mitigation measures/policies/^{22/} are in place for the other applicable risk related to operation of the project activity.

4.2.7 Respect for Human Rights and Equity

4.2.7.1 Labor and Work

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Discrimination and sexual harassment	During the site visit, representative of the PP confirmed that the national law prohibiting the discrimination and sexual harassment ¹⁰ is being followed strictly. Further, verification team did not find any complain regarding the same in grievance register and through independent search. PP representative confirmed during onsite inspection that there has been no reports of discrimination or sexual harassment for this monitoring period. The same has been confirmed from the HR policy of the company. Also, PP has implemented “Policy on Prevention of Sexual Harassment”/ ^{22/} .
Management experience	No new entity is involved in project design or implementation, of project activity. The VVB team verified this by reviewing the credentials of the management team members during on-site inspection. Additionally, the VVB team conducted interviews with key personnel and checked the Company policy for the sexual harassment and ethics committee formation procedure and member selection process. Same was found appropriate.
Gender equity in labor and work	PP provides equal opportunities in the context of gender equity and pay for labour and work as confirmed during the onsite inspection. The VVB team verified this by reviewing the policy documentation and interviewing personnel responsible for talent acquisition to ensure adherence to the outlined parameters. Additionally, Assessment team has checked the company human right policy and found it consistent with national labor law.

¹⁰ The Sexual Harassment Of Women At Workplace (PREVENTION, PROHIBITION AND REDRESSAL) ACT, 2013
ACT NO. 14 OF 2013, Dated 22-April-2013

Human trafficking, forced labor, and child labor	Assessment team verified that, project is undergoing verification, project activity is already validated, thus during site visit and interview with site in-charge and project proponent it was conformed that, the project operates in compliance with the national labor law and PPs not employ victims of human trafficking, forced labor, or child labor, as required by the Act. No force/child labour observed during the interviews of PPs representatives and employment records submitted by PP.
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4.2.7.2 Human Rights

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Human rights	Project Proponent following the International human rights law ¹¹, 38 conventions of ILO including Minimum Age Convention, 1973 (No. 138 Indigenous and Tribal Peoples (No 169)). Moreover, Companies operating in the country are required to conduct their operations in compliance with local regulations¹² by default. Thus, there are no human rights violation of any kind to any of the stakeholders during construction and operation of the project activity. During the project development, local villagers were consulted and kept informed about the activities. No villagers were displaced as a result of the project. While land from a few villagers was acquired, they received adequate compensation which is confirmed during the interviews with local stakeholders and representatives of project proponent. A suggestion and grievance register is available at the project site for people to register/^{15/} any complaints which is also checked by the VVB and found no any negative comments. The project complies with all regulation/^{22/} and laws on human rights. The land on which the project was developed was previously vacant and undeveloped. Thus, the main social impact is only job creation by the project, which is being mitigated by PPs by creating employment/^{14/} to local people as well.

¹¹ <https://www.ohchr.org/sites/default/files/Documents/Publications/fs9Rev.2.pdf>

¹² https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:102691.

	The project is a hydro power project activity which is implemented without cultural or social biases, safeguarding the rights of IPs, LCs, and customary rights holders to be free from discrimination. There are no human rights violation of any kind to any of the stakeholders during construction and operation of the project activity. The same was confirmed through onsite audit and registered documents/^{4/} with the PPs, project staff and local stakeholders and also checked by declaration by the PP in the joint PD and MR/^{4/}.
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4.2.7.3 Indigenous Peoples and Cultural Heritage

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Preservation and protection of cultural heritage	The project activity is Implemented on barren land. Hence, no tangible cultural heritage has been hampered for the project activity. There is no indigenous and cultural heritage near the project as observed from the on-site photographs and plant videos shared by the PP. Further, PP s committed to protect regional as well as national cultural heritage

4.2.7.4 Property Rights

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Disputes over rights to territories and resources	The project is implemented on land purchased by PP. Thus, not applicable.
Respect for property rights	No rehabilitation, relocation, or resettlement of local people occurred due to the project activity. The project acquired small parcels of land and provided adequate compensation to the local villages. VVB team confirm the same during on-site inspection and interviewing local stakeholders.

4.2.7.5 Benefit Sharing

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Summary of the benefit sharing plan	During onsite interview with project proponent representatives, it was observed that MPCL has acquired land parcels from local villages for its project activities, ensuring fair compensation for the local villagers

	(stakeholders. In addition to this, MPCL actively supports the villagers through various social welfare initiatives. These include the construction of roads, footpaths, a cremation ground, and a footbridge in the project area. Further, from interview with local stakeholder it was confirmed that project proponent also supports local educational institutions and provides health services through its plant dispensary. MPCL's CSR policy ¹³ reflects its commitment to ongoing community development efforts
Benefit sharing during the monitoring period	Details of the activities undertaken for the welfare of local communities during the current monitoring period are provided in the CSR Report ^{23/} which has been checked and verified by the VVB during the onsite visit and interview with local stakeholders & project representatives.

4.2.8 Ecosystem Health

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Impacts on biodiversity and ecosystems	No risk identified. The project proponent's not store large amounts of river water, preventing submergence of forests, fertile land, or inhabited areas. The structures are not large enough to significantly disturb the ecosystem. Therefore, no impact on biodiversity is likely to be caused as observed by the VVB.
Soil degradation and soil erosion	No risk identified. No soil erosion and degradation are likely to be caused by project as observed by the VVB during onsite inspection.
Water consumption and stress	No risk identified. The project is a hydro power project and its operation not affecting the quality and quantity of underground water. Hence stress is not likely to be caused.
Usage of fertilizers	No risk identified.

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https://www.malanapower.com/certificatepdf/csrMPCL_Corporate%20Social%20Responsibility%20Policy_r1_1.9.15.pdf

	No fertilizer is used as project activity is a Hydro power plant. The Verification team concludes that this is appropriate and consistent with the project's nature.
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4.2.8.1 Rare, Threatened, and Endangered species

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Species or habitat	Not applicable, as project is not situated in or near the habitat of any rare, threatened, or endangered species, as confirmed by the VVB through onsite observations and interviews with site personnel.
...	...

4.2.8.2 Introduction of Species

Species introduced	Evidence gathering activities, evidence checked, and assessment conclusion
N/A, as no new species introduced.	This section is not applicable since no new species have been introduced in the project implementation area as verified by the assessment team during the onsite interviews with PP representatives

Existing invasive species	Evidence gathering activities, evidence checked, and assessment conclusion
N/A, as no invasive species exists.	This section is not applicable since there are no existing invasive species in the project implementation area as verified by the assessment team during the remote interviews with PP representatives.

4.2.8.3 Ecosystem conversion

Item	Evidence gathering activities and evidence checked
Ecosystem conversion	The project activity is not ARR, ALM, WRC or ACoGS project hence it is not applicable

4.3 Accuracy of Reduction and Removal Calculations

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the VCS joint PD&MR ^{14/} . The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have
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	been carried out in accordance with the formulae and methods described in the monitoring plan of the VCS joint PD&MR ^{14/}.
Findings	CL 02 and CAR 09 were raised during the verification process and closed successfully. Please refer Appendix 2 of this report for the detail closure of the CAR.
Conclusion	Baseline Emissions: The baseline Emissions for a given year is calculated by multiplying the energy baseline with the grid emission factor. The grid in this case would be the 'Indian Grid' Formula Used: - $BE_y = EG_{PJ,y} \times EF_{grid,y}$ Where; BE_y = Baseline Emissions (tCO₂/year) $EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/year) $EF_{grid,CM,y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the "Tool to calculate the emission factor for an electricity system" (tCO₂/MWh) Ex-ante parameters: The baseline emission factors are taken ex-ante in line with the registered VCS joint PD&MR^{4/}as well as cross checked with section validation report and found correct. Combined margin CO₂ emission factor ($EF_{grid,CM,y}$) is equal to 0.8870 tCO₂/MWh. The calculation approach was in line with the VCS joint PD&MR. Values are as follows: $EF_{grid,OM,y} = 0.9522$ tCO₂/MWh $EF_{grid,BM,y} = 0.8653$ tCO₂/MWh $EF_{grid, CM, y} = 0.8870$ tCO₂/MWh Ex-post parameter: As per the registered monitoring plan and requirement of the registered methodology following parameters needs to be monitored: EG_{PJ,y} :- Net Electricity supplied to the Unified Indian Grid by the project activity during the year y; The net electricity supplied from the project is calculated using parameters i.e., EG_{Malana} , EG_{Aux, Malana} & L_{Malana}. Net electricity calculated using below formula: $EG_{PJ,y} = [EG_{Malana} - EG_{Aux, Malana} - L_{Malana}]$. Further, Meters installed at three locations, at generation point, plant sent out point and at Bajaura Substation, which accurately monitors electricity

	supplied to the grid. Joint Meter readings taken at all three stations have been used to achieve the parameter $EG_{pj,y}$. The billing of the net energy supplied is prepared based on the net energy supplied to the state utility board. The net electricity supplied to the grid by the given HPP for the given month (net export MWh) is obtained by subtracting gross electricity generated from auxiliary electricity generated and transmission losses. The net electricity supplied the grid by the project activity during the monitoring period is 267,878 MWh. $EG_{Gen, Malana}$: Energy generated by Malana Hydro Power project at the Generation point.; This parameter is taken from joint metering reading report as the energy generated by Malana Hydro Power project at the Generation point. These parameters are monitored through monitoring arrangement using tri vector energy meters of 0.2s accuracy class. State electricity board issues JMR report for this parameter to the PP and same shall be used to calculate EG_{malana} parameter. During current monitoring period total energy generated by 86 MW Hydro Project in Himachal Pradesh at the generation point is 269,706 MWh, assessment team conformed that, it has checked the Joint meter reading issued by state electricity board records it is also further crosscheck with the invoices and found consistent with emission reduction sheet. During onsite visit and interview with the site in-charge it is found that project proponent has used the Secure made energy meter for electricity measurement, assessment team has checked the calibration certificate of the energy meter and found that, meter is found calibrated as per the host country and state regulation and no delay in schedule calibration of the energy meter is observed. Thus, no discrepancy has been observed. Details of the energy meter is provided in appendix 6 of the verification report. EG_{Malana} : Energy supplied by the Malana Hydro Power Project to the Malana transmission line at Malana Yard; The electricity supplied by the Malana Hydro Power Project to the Malana transmission line at Malana Yard is calculated through subtracting energy generated from auxiliary consumption by project activity. Formula for the same calculation is as follow: - $EG_{Malana} = (EG_{Gen, Malana} - EG_{Aux, Malana})$ During current monitoring period 268,843.199 MWh energy supplied by 86 MW Hydro Project in Himachal Pradesh to the Malana transmission line at Malana Yard Assessment team conformed that, it has checked with Joint meter reading issued by state electricity board records, it is also further crosscheck with the invoices and found consistent with emission reduction sheet. During onsite visit and interview with the site in-charge it is found that project proponent has used the electronic tri-vector meter for
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	electricity measurement, assessment team has checked the calibration certificates^{5/} of the energy meters and found that, meters are calibrated as per the host country and state regulation and no delay in schedule calibration of energy meters are observed. Thus, no discrepancy has been observed. Details of the energy meter is provided in appendix 6 of the verification report. EG_{Toss} : The units/ Energy supplied by the Toss Hydro Power Project to the Malana transmission line at Malana Yard; This parameter is taken from monthly meter reading report issued by Himachal Pradesh state electricity board as energy supplied by the Toss hydro power project to the Malana transmission line at Malana yard. This parameter is used to calculate auxiliary consumption of energy made by Malana hydro power plant. During current monitoring period 96,277.732 MWh energy supplied by the Toss Hydro Power Project to Malana transmission line at Malana Yard. Assessment team conformed that; it has checked the monthly meter readings issued by HPSEB (Himachal Pradesh State Electricity Board) records and found consistent with emission reduction sheet. During onsite visit and interview with the site in-charge it is found that project proponent has used the Secure made energy meter for electricity measurement, assessment team has checked the calibration certificate of the energy meter and found that, meter calibration was delayed by approx. 4months. To account for the delay, error factor of 0.2% has been applied to energy readings for the period from December 2022 to April 2023 for conservatively adjusted. Details of the energy meter is provided in appendix 6 of the verification report. EG_{M&T} : Total Energy sent out both Malana and Toss hydro power project to the Malana transmission line at Malana yard; This parameter is taken from joint meter reading report issued by SEB as energy supplied by the both Malana and Toss hydro power project to the Malana transmission line at Malana yard. This parameter is used to calculate auxiliary consumption of energy made by Malana hydro power plant. During current monitoring period 365,120.931 MWh energy supplied by both Malana and Toss hydro power. Assessment team conformed that, it has checked with Joint meter reading issued by state electricity board records and found consistent with emission reduction sheet. During onsite visit, assessment team has checked the calibration certificate of the energy meter and found that, meter is found calibrated as per the host country and state regulation and no delay in schedule calibration of the energy meter is observed. Thus, no discrepancy has been observed. Further, assessment team observed that few meter were replaced by state electricity board and same has been confirmed by meter replacement
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	certificate. Details of the energy meter is provided in appendix 6 of the verification report. EG_{Aux, Malana}: Auxiliary consumption by Malana hydro power project; This parameter is calculated and taken as auxiliary consumption of energy by Malana hydro power project. This parameter is used to calculate from below formula: $EG_{Aux, Malana} = [EG_{Gen, Malana} + EG_{Toss} - EG_{M\&T}]$ During current monitoring period total Auxiliary consumption by 86 MW Hydro Project in Himachal Pradesh is 862.801 MWh. Assessment team conformed that, it has checked with Joint meter reading issued by state electricity board and with calculation provided in emission reduction sheet. EG_{Bajoura, M&T} : Energy injected at Bajoura substation by both Malana and Toss hydro power project; This parameter is taken from joint meter reading report issued by SEB as Energy injected at Bajoura substation by both Malana and Toss. This parameter is used to calculate transmission losses of energy between Malana yard and Bajoura substation. During current monitoring period total energy injected at Bajoura substation by both Malana and Toss hydro power project is 363,898 MWh, assessment team conformed that, it has checked the Joint meter reading issued by state electricity board records it is also further crosscheck with the invoices and found consistent with emission reduction sheet. During onsite visit and interview with site in-charge it is found that project proponent has used the Secure made energy meter for electricity measurement, assessment team has checked the calibration certificate of the energy meter and found that, meter is found calibrated as per the host country and state regulation and no delay in schedule calibration of the energy meter is found. Thus, no discrepancy has been observed. Details of energy meter is provided in appendix 6 of this verification report. L_{Transmission} : Total transmission losses between Malana yard and Bajoura substation. This parameter shall be calculated and taken as Total transmission losses between Malana yard and Bajoura substation. This parameter is calculated as below formula: $L_{Transmission} = (EG_{M\&T} - EG_{Bajoura, M\&T})$ During current monitoring period total transmission losses between Malana yard and Bajoura substation is 1,222.931 MWh. Assessment team conformed that, it has checked the Joint meter reading issued by state electricity board and the calculation provided in emission reduction sheet. L_{Malana} : Share of losses of Malana hydro power project.
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	This parameter shall be calculated and taken as Share of losses of Toss hydro power project. This parameter is calculated as below formula: $L_{\text{Malana}} = (L_{\text{Transmission}} * EG_{\text{Malana}}) / EG_{\text{M\&T}}$ During current monitoring period total share of losses for 86 MW Hydro Project in Himachal Pradesh is 958.487 MWh. Assessment team conformed that, it has checked the Joint meter reading issued by state electricity board and the calculation provided in emission reduction sheet L_{Toss} : Share of losses of Toss hydro power project This parameter shall be calculated and taken as Share of losses of Toss hydro power project. This parameter is calculated as below formula: $L_{\text{Toss}} = (L_{\text{Transmission}} * EG_{\text{Toss}}) / EG_{\text{M\&T}}$ During current monitoring period total Share of losses of Toss hydro power project is 264.444 MWh. Assessment team conformed that, it has checked the Joint meter reading issued by state electricity board and the calculation provided in emission reduction sheet. A_{PJ}: Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full. This parameter shall be taken from project site as area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full. This parameter shall be monitored annually. As this project is run-of-river project. The concrete reservoir is constructed for storing diverted water from the stream, and surface area of reservoir remains constant. Any excess water in the reservoir passes to Malana stream through overflow structure. There is no change in A_{PJ} during the current verification period and the value of A_{PJ} is same as previous verification i.e. 18,250 m². C_{apPJ} : Installed capacity of the hydro power plant after the implementation of the project activity. This parameter shall be taken from project site as Installed capacity of the hydro power plant after the implementation of the project activity. Thus, the value for the current monitoring period is taken as 86,000,000 W. The monitoring plan describes the organizational structure, roles and responsibility, the monitoring instruments, data monitoring procedures, emergency preparedness and the management system. The verification team has checked the net electricity generation supplied to the grid from the monthly “JMRs^{11/}”. All relevant monitoring parameters have been verified with regard to the appropriateness of the applied measurement/determination method, the correctness of the
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	values applied for ER calculation, the accuracy, and applied QA/QC measures. Baseline emission factor is calculated as combined margin, consisting of a combination of operating margin (OM) and build margin (BM) factors. BE_y baseline emissions, tCO₂e $BE_y = 267,878 \text{ MWh} \times 0.8870 \text{ tCO}_2\text{e/MWh}$ $= 237,607 \text{ tCO}_2\text{e (round down values)}$ As per applied methodology ACM0002, version 20.0^{/17/} and the VCS PDMR^{/4/}, project emission is considered zero. According to sub-section (c) of para 38 of ACM0002, Version 20.0 The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density, calculated using equation $PD = (C_{apPj} - C_{apBL}) / (A_{Pj} - A_{BL}), \text{ is greater than } 10 \text{ W/m}^2$ $\text{joint PD\&MR} = 86,000,000 \text{ W} / 18,250 \text{ m}^2 = 4,712.32 \text{ W/m}^2$ As the calculated value from the given equation is 4,712.32 W/m² which is greater than 10 W/m², so as per applied methodology for the project activity, there would no any project emission. Hence, PE_y = 0 No leakage emissions are considered for the proposed project activity. Since, no energy generating equipment is transferred from another activity and/or the existing equipment is transferred to another activity. Therefore, as specified in ACM0002, Version 20.0, project proponents do not need to consider leakage. Hence, LE_y=0. Hence, ER_y = BE_y – PE_y $ER_y = 237,607 \text{ tCO}_2\text{e} - 0$ $= 237,607 \text{ tCO}_2\text{e (run-down value's)}$ Verification team confirms that the monitoring has been carried out in accordance with the monitoring plan contained in the registered VCS joint PD&MR^{/4/}. Assessment team confirmed that the GHG emission reductions and removals have been quantified correctly in line with the registered VCS joint PD&MR^{/4/}
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4.4 Quality of Evidence to Determine Reductions and Removals

Means of verification	The verification team checked the Calibration details of the monitoring meters with the calibration certificates ^{/5/} and whether the monitoring has been carried out in accordance with the applicable regulatory documents, inter alia, the applied methodology and registered monitoring plan ^{/10//16//17/} .
Findings	CAR 03 was raised during the verification process and closed successfully. Please refer Appendix 2 of this report for the detail closure of the CAR.

Conclusion	The assessment team checked the calibration certificates of the energy meters. The calibration and installed energy meter details are provided in appendix 6 below for detailed assessment on equipment details, accuracy class, meter replacements, calibration compliance etc. To ensure that the readings were accurate, calibration certificates of all meters were checked and were found satisfactory. Further, VVB observed that energy meter calibration was delayed by approx. 04 months for energy meter installed at the Malana yard. To account for the delay, error factor of 0.2% has been applied to energy readings for the period from December 2022 to April 2023 which is conservatively adjusted. The calibration certificates submitted by the PP confirmed the dates listed in appendix 6 and also confirms the details of the meters/equipment's. Details of the meters were also checked & verified during onsite visit. Emission reductions are calculated based on Meters installed at three locations, at generation point, plant sent out point and at Bajaura Substation which accurately monitors electricity supplied to the grid and the same as confirmed by the assessment team for project activity in ER sheet^{/7/}, Calibration certificates^{/5/} and found in compliance with para 366-368 of CDM validation and verification standard for project activities, version 3.0. The calibration details are provided in appendix 6 below for calibration compliances. The project is currently operational with no changes to the project proponent or other entities during the current monitoring period. Unit I was closed in December 2022 and Unit II in January 2023 for annual maintenance. In July and August 2023, generation loss occurred due to damage to the HPSEB 132 kV transmission line tower caused by heavy rain and landslides at Thalout. Detailed information is available in Appendix 7. No sampling procedure applied for monitoring of the data parameter and entire documents were checked by the assessment team to arrive at positive verification conclusions. The monitoring plan is followed at the project site. The energy meters have been calibrated by third party entity accredited by NABL (National Accreditation Board for Laboratory, Govt of India) to carry out the testing of energy meters which is as per the national regulation in-line with para 3.16.5 of VCS standard, V4.7 and thus traceability of Calibration is also confirmed by the verification team. Thus, verification team concluded that the evidences are sufficient in quantity, and appropriate for the quality, to determine the GHG reductions and removals. No unforced errors were observed. No sampling procedure applied for monitoring of the data parameter and entire documents were checked by the assessment team to arrive at positive verification conclusions. The monitoring plan is followed at the project site. All relevant documents were checked to assess the correctness and quality of data submitted by the project proponent, which are used to determine emission reductions. All the records needed for monitoring are archived in line with the requirements of the registered monitoring plan. No significant lack of evidence and missing data were detected during onsite audit discussion. Hence, the
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	verification team confirms that the monitoring system ensures required quality of the monitoring system to ensure the quality of the monitored data. All internal data are subjected to QA/QC measures. The monitoring parameters have been measured / determined without material misstatements and is in line with all applicable standards and relevant requirements. Moreover, As a result of verification of the Emission Reductions calculation process, the VVB confirms that all the parameters required for their determination have been included in the Monitoring Report^{/6/} and ER Calculation sheet^{/7/} for which this verification applies.
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4.5 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	
NA	NA	NA	NA	NA

5 VERIFICATION OPINION

5.1 Verification Summary

Applus+ Certification has been engaged by M/s Malana Power Company Limited to perform the 14th periodic verification of the “86 MW Hydro Project in Himachal Pradesh”. The project Proponent is responsible for the preparation of GHG emissions data and the reported GHG emission reductions on the basis set out within the project’s monitoring plan in registered VCS joint PD&MR^{/4/} and applied methodology ACM0002 - Version 20.0^{/17/}.

VVB confirms that, GHG statement is the responsibility of the project proponent. The project activity fulfills the criteria for the verification as established in section 4 of the VCS standard version 4.7. Verification team has reviewed the monitoring report including registered VCS joint PD&MR and subsequently carried out the site visit, follow-up interview with PP representatives and confirm the fulfilment of stated criteria. Verification team has the un-modified opinion regarding the project activity, VVB team has checked all the details and found it consistent and free of material errors or misstatements.

As per VCS Standard version 4.7 Para 4.1.10, VVB team verified that, the criteria for verification of the project activity are in line with the relevant VCS Version 4 criteria. The objective of this verification activity is to have an independent third party for the assessment of the Monitoring report, emission reduction sheet and to ensure a thorough assessment of the project activity against the applicable regulatory requirements.

VVB concluded the assessment, as per para 4.1.18 of the VCS standard version 4.7, with a positive verification opinion regarding the project activity. The VVB team has raised 3 Clarification (CLs), 10 CAR (Corrective action request), and no FAR (forward action request). All the deviations identified as CARs and/or CLs have been successfully closed and mentioned in Appendix 2 of the verification report. The VVB team clearly state that there is no material misstatement at the level of the GHG statement and GHG declarations made by the Project Proponent. VVB declared that the validation and/or verification of the GHG statement was conducted in accordance with ISO 14064-3.

5.2 Verification Conclusion

Our verification approach was based on the requirements as defined under the applicable VCS regulatory requirements and ISO requirements (ISO 14064-3:2019 and ISO 14065:2020). The verification has been conducted in accordance with the VCS standard version 4.7, other valid and applicable VCS regulatory documents and templates (see under appendix 2 of this report). 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. Further, the verification has been planned and organized to achieve a Reasonable Level of assurance as per the requirement of paragraph 4.1.10(1) of the VCS standard V4.7. No sampling procedure applied for document verifications. The entire documents checked/Power plant verification conducted to arrive at positive verification conclusions. The verification team can confirm that:

- the project is implemented and operated as planned and described in the project document;
- the monitoring plan is as per the applied methodology^{/17/};
- the monitoring process in Monitoring Report is as per the VCS joint PD&MR ^{/4/}
- 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;
- 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 as planned, during verification process.

Verification period: From [01-November-2022] to [31-Decemberr-2023]

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

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCU (tCO ₂ e)	Removal VCU (tCO ₂ e)	Total VCUs (tCO ₂ e)
01-November-2022 to 31-December-2022	17,621	0	0	17,621	0	17,621

01-January-2023 to 31-December-2023	219,986	0	0	219,986	0	219,986
Total	237,607			237,607		237,607

5.3 Ex-ante vs Ex-post ERR Comparison

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
01-November-2022 to 31-December-2022	47,608	17,621	-63.0%	The actual emission reduction achieved during this vintage is 63.0 % less than the estimated emission reduction in registered VCS joint PD&MR for corresponding vintaged, which is due to planned shutdown at Unit 1 for annual maintenance in December-22. VVB team verified the same during onsite inspection and through crosschecking break down details & power outage data.
01-January-2023 to 31-December-2023	284,869	219,986	-22.8%	The actual emission reduction achieved during this vintage period is 22.8 % lower than the estimated emission reduction in registered VCS joint PD&MR for corresponding Vintage period, which is due to planned shutdown at Unit 2 for annual maintenance in January-23 and also due to damage to HPSEB 132 KV Transmission line tower by heavy rain/land slide at Thalout in the month of July & August. VVB team verified the same by interviewing PP during onsite inspection, and through crosschecking break down details & power outage data.
Total	332,477	237,607	-28.5%	The total actual emission reductions achieved is -28.5%

				lower than estimated in the VCS Joint PD&MR. Assessment team also compared actual VCUs with the estimated VCUs and found that the actual VCUs is 237,607 tCO₂e which is 28.5% lower than the estimated emission reductions 332,477 tCO₂e (284,869 tCO₂e/365 days x 426 days).
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APPENDIX 1: COMMERCIALLY SENSITIVE INFORMATION

<i>Section</i>	<i>Information</i>	<i>Justification</i>	<i>Assessment method and conclusion</i>
N/A	N/A	N/A	Not applicable as there is no commercial sensitive information available

APPENDIX 2: DOCUMENTS REVIEWED OR REFERENCED (VERIFICATION)

No.	Author	Title	References to the document	Provider
1.	Project Proponent	Commissioning certificates unit 1 Commissioning certificates unit 2	09-july-2001 05-july-2001	Project Proponent
2.	Project Proponent	Contract of the project Proponent with the VVB	Contract document signed between PP and VVB	Project Proponent
3.	Project Proponent	The operational lifetime of the project activity from the manufacturer = (Technical specifications)	Manufacturer technical specifications	Project Proponent
4.	Project Proponent	VCS joint PD&MR <u>VCS-Joint-PDMR- VCS 93_Clean.pdf</u> <u>Previous Verification registered documents</u>	Version 06, dated 19-July-2022 Covering period 01-November-2021 to 31-October-2022	Project Proponent https://registry.terra.org/app/projectDetail/VCS/93
5.	Project Proponent	Calibration Certificates of energy meters/ Meter Sealing certificate	-	Project Proponent
6.	Project Proponent	MR version 1.0 (Initial) MR version 1.4 (Final)	04-March-2024 05-Feb-2025	Project Proponent
7.	Project Proponent	Emission reduction sheet version 01 Emission reduction sheet version 05	04-March-2024 05-Feb-2025	Project Proponent
8.	HPSEB	Calculation for transmission losses and power generation	-	Project Proponent
9.	Project Proponent	8 th supplementary agreement 9 th supplementary agreement	30-March-2022 13-March-2023	Project Proponent
10.	VERRA, ISO	Tools/ guidelines used in the project activity - VCS standard V.4.7 - VCS Program Guide V.4.4 - ISO Requirements	VCS web site	VERRA, ISO
11.	Project Proponent Project Proponent	Monthly statement- JMR & invoices	November-2022 to December-2023	Project Proponent
12.	Project Proponent	Declaration regarding no participation in other GHG program for the concerned monitoring period	13-May-2023	Project Proponent
13.	Project Proponent	Breakdown details/ Outage data	November-2022 to December-2023	Project Proponent
14.	Project Proponent	Employment records for plant persons CSV file for I-REC issuance since 2016	-	Project Proponent
15.	Project Proponent	Grievance Register maintained at site	November-2022 to December-2023	Project Proponent

No.	Author	Title	References to the document	Provider
16.	UNFCCC	CDM validation and verification standard for project activities, Version 03.0	-	UNFCCC
17.	UNFCCC	Applied Methodology ACM0002, version 20.0	AG07ZJ03EXD42LT5YV9HR16M8KINPO (unfccc.int)	UNFCCC
18.	NA	Onsite photographs/Videos /Technical SPECS/Meters photographs	-	Project Proponent
19	UNFCCC	Guidelines for Application of materiality in verifications (version 02.0)	Version 02.0	UNFCCC
20	Project Proponent	- Internal audit reports (Compliance Certificates) - Training Records	Covering current monitoring-period	Project Proponent
21	Project Proponent	Policy on Prevention of Sexual Harassment	Dated:21-December-2022	Project Proponent
22	Project Proponent	EQHS&S Policy Equal Opportunity Policy MPCL Issuance OF PPE Policy on Prevention, Prohibition and Redressal against Sexual Harassment of Women Employees	Dated:22-March-2022	Project Proponent
23	Project Proponent	Corporate Social Responsivity (CSR) policy	-	Project Proponent
24	HPSEB	Calculation for transmission losses and power generation	-	Project Proponent

APPENDIX 3: CORRECTIVE ACTION REQUESTS, CLARIFICATION REQUESTS AND FORWARD ACTION REQUESTS (CAR/CL/FAR)

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

FAR ID	Section no.	Date :
Description of FAR		
NA.		
Project Proponent response		Date : DD-Month-YYYY
-		
Documentation provided by project Proponent		
-		
VVB assessment		Date: DD-Month-YYYY
-		

Table 2. CL from this verification

CL ID	01	Section no.	4.1	Date: 04-May-2024
Description of CL				
Information related to break down is missing in Section 3.1 of monitoring report. PP is requested to clarify the same.				
Project proponent response				Date: 13-May-2024
Information related to generation loss due to maintenance and rains has been added in section 3.1. This can be checked with outage data.				
Documentation provided by project proponent				
MR V1.1 Outage Data				
VVB assessment				Date: 07-June-2024
Break down detail has been incorporated in section 3.1 of submitted monitoring report. Further, PP has submitted Outage data with this submitting to verify the same. Thus accepted. CL closed.				

CL ID	02	Section no.	4.3	Date: 04-May-2024
Description of CL				
In Section 4.3 of MR, PP has mentioned that the calculation for auxiliary consumption and transmission losses for Malana HEP is described in the section 4.2. Calculation is based on the authenticated Letter issued by HPSEB, 12-October-2009. However, PP has not submitted this letter. PP is requested to submit the same for verification.				
Project proponent response				Date: 13-May-2024
HPSEB authentication letter is provided.				
Documentation provided by project proponent				
HPSEB authentication letter dated 12-October-2009.				
VVB assessment				Date: 07-June-2024
With this submission PP has submitted Letter issued by HPSEB, 12-October-2009 for the calculation of transmission losses and power generated by Malana HEP and auxiliary consumption and transmission losses are calculated in accordance with the same. Thus accepted. CL closed.				

CL ID	03	Section no.	4.4	Date: 04-May-2024
Description of CAR				
During the review of submitted supporting evidences and MR, Verification team has observed following:				
1. Verification team found that few meter are changed as mentioned in the Appendix 2 of the MR. PP is requested to submit the meter change report to check the calibration compliance. 2. Supporting of calibration certificate of the meter serial number Q0333437 and Q0333467 are found missing in share folder				
Project proponent response				Date: 13-May-2024
1. Meter change report is submitted now. 2. Calibration certificate of the meter serial number Q0333437 and Q0333467 have been submitted.				
Documentation provided by project proponent				
Meter change report Calibration certificate				
VVB assessment				Date: 07-June-2024
During review of submitted MR and supporting document, VVB team observe following:				
1. PP has submitted MoM held on 27-April-2023 at Malana between HPSEB Ltd and MPCL regarding replacement of Tri-vector Meters dated 30-June-2023 signed by Assistant Engineer M&T Sub-division HPSEBL. Which is found appropriate and relevant to the project activity. Thus, accepted and Comment closed. 2. Calibration certificate of the meter serial number Q0333437 and Q0333467 for complete monitoring period is still missing. Calibration was delayed for approx. 4 months PP to apply error factor for applicable period. Comment open.				
CL open.				
Project proponent response				Date: 07-June-2024
2. The mentioned meters pertain to metering of EG_{Toss}. The calibration was delayed by approx. 4 months but meters were found to be working within the permissible limit of error. To account for the delay, energy readings have already been adjusted conservatively for the period Dec 2022-April 2023 for EG_{Toss}. Same was indicated in Appendix 2 of the MR.				
Documentation provided by project proponent				
MR V1.2 ERR sheet				
VVB assessment				Date: 14-June-2024
2. Calibration of monitoring equipment for monitoring parameter EG_{Toss} delayed by approx. 4 months. PP has applied error factor of 0.2% for applicable period (from Dec-2022 to April-2023). Which is found appropriate and relevant to project activity. Thus, accepted and comment closed.				
CL closed.				

Table 3. CAR from this verification

CAR ID	01	Section no.	4.1	Date: 04-May-2024
Description of CAR				
1. PP requested to update the monitoring report in accordance with latest available version of the VCS standard version i.e. 4.7. 2. Project crediting period mentioned in the section 1.7 of the MR is not in line with the registered VCS PD MR. Also, this section is not filled as per guidance mentioned in VCS MR template version 4.3.				
Project proponent response				Date: 13-May-2024
1. Monitoring report has been updated as per VCS standard version 4.7 2. The crediting period mentioned in the section 1.7 of the MR is now made in line with the registered VCS PD-MR.				
Documentation provided by project proponent				
MR V1.1				
VVB assessment				Date: 07-June-2024
During review of submitted MR, VVB team observed following:				
1. PP has referred latest available version of VCS project standard i.e., version 4.7. further monitoring report has been updated in accordance VCS project standard. Thus, accepted and comment closed. 2. In section 1.7 current crediting period of project activity made consistent with registered PD-MR. Thus, accepted and comment closed.				
CAR closed.				

CAR ID	02	Section no.	4.1	Date: 04-May-2024
Description of CAR				
- As per requirement of the para 3.24.4 of the VCS standard 4.7, PP requested to submit no double counting declaration that GHG related credit for the same GHG emission reduction and carbon dioxide removal has not and will not be otherwise counted, used or credited under the GHG related environmental credit system. - PP is requested to submit the REC certificate and also provide a declaration confirming that they are not participating in any other GHG program and I-REC during the current monitoring period. Also, verification team has checked the I-REC website and found that the credits were claimed upto the year 2020 as well, however, the same is not indicated in MR.				
Project proponent response				Date: 13-May-2024
- Double counting declaration has been submitted. - Details of the I-REC claimed from 2015 to 2020 have been given in section 1.10.2 of MR.				
Documentation provided by project proponent				
MR V1.1				
Double counting declaration				
VVB assessment				Date: 07-June-2024
During review of submitted MR and supporting document, VVB team observe following; - PP has submitted no double counting declaration that GHG related credit for the same GHG emission reduction and carbon dioxide removal has not and will not be otherwise counted, used or credited under the GHG related environmental credit system dated 15-May-2024. Thus, accepted and comment closed. - PP has submitted declaration that they will not seek I-REC benefits from the project activity for same monitoring period. Further, details of the I-REC claimed from 2015 to 2020 have been incorporated in section 1.10.2. however, some claimed I-REC valued found inconsistent with registered joint PDMR. Comment open. CAR open.				
Project proponent response				Date: 07-June-2024
I-REC values are now made consistent with the registered joint PDMR.				
Documentation provided by project proponent				
MR V1.2				
VVB assessment				Date: 14-June-2024
Details of the I-REC claimed from 2015 to 2020 have been incorporated in section 1.10.2. further, volume claimed under I-REC found consistent with registered joint PDMR. Thus, accepted and comment closed. CAR closed.				

CAR ID	03	Section no.	4.2.1	Date: 04-May-2024
Description of CAR				
- As per VCS MR 4.3 template guidelines, Stakeholder identification description is found missing. Description about process(es) used to identify stakeholders likely impacted by the project missing. List the stakeholders identified are also not mentioned. - Stakeholder Identification in Section 2.1.1 of the MR is missing, Also, llocation of the resources is found missing.				
Project proponent response				Date: 13-May-2024
- As per VCS MR 4.3 template stakeholder identification description is needed only if there is a change in stakeholder makeup after the validation. As there is no change in makeup of stakeholders description is not added. However grievances received from community have been addressed appropriately - Refer point 1 above.				
Documentation provided by project proponent				
MR V1.1.				
VVB assessment				Date: 07-June-2024
- As per VCS MR 4.3 template "Where the stakeholder make up has changed since validation, or stakeholders were not identified at verification, use the table below to describe the stakeholder identification". Therefore, PP shall incorporate List the stakeholders identified at the time of validation so that VVB team assess for any changes in stakeholder makeup after validation. Comment open. - PO has mentioned "location of resource" is Not Applicable as the project is installation of a new hydro power plant. It does not involve resources owned by the stakeholders. Which is found appropriate and relevant to the project activity. However, Stakeholder Identification in Section 2.1.1 of the MR is missing. Thus, comment open. CAR open.				

Project proponent response	Date: 07-June-2024
1. List the stakeholders identified at the time of validation has been added in section 2.1.1 of MR now.	
2. List of stakeholders has been added now.	
Documentation provided by project proponent	
MR V1.2	
VVB assessment	Date: 14-June-2024
During review of submitted MR, assessment team observed following;	
1. PP has incorporated list of stakeholders identified and same has been verified from validation report. Which is found appropriate and relevant to project activity. Thus, accepted and comment closed .	
2. PP has incorporated list of stakeholders identified and same has been verified from validation report. Which is found appropriate and relevant to project activity. Thus, accepted and comment closed .	
CAR closed.	

CAR ID	04	Section no.	4.2.2	Date: 04-May-2024
Description of CAR				
1. Date of the stakeholder consultation is found missing in Section 2.1.2 of MR.				
2. Description of any ongoing or unresolved conflicts and demonstrate that the project does not exacerbate nor influence the outcomes of unresolved conflicts is missing in Section 2.1.3'(Refer guidance to fill the section).				
Project proponent response				Date: 13-May-2024
1. No separate stakeholder meeting took place during the current monitoring period. However grievances received from community have been addressed appropriately				
2. There are no on-going or unresolved conflicts.				
Documentation provided by project proponent				
MR V1.1				
VVB assessment				Date: 07-June-2024
During review of submitted MR, VVB team observed following;				
1. Date of the stakeholder consultation is found still missing in Section 2.1.2 of MR. PP shall incorporate last stakeholder consultation date prior to this verification. Comment open .				
2. PP has submitted grievance register with this submission and VVB team confirms that there are no ongoing or unresolved conflict took place due to the project activity. Thus, accepted and comment closed .				
CAR open.				

Project proponent response	Date: 07-June-2024
1. Date of the stakeholder consultation has been added in Section 2.1.2 of MR.	
Documentation provided by project proponent	
MR V1.2	
VVB assessment	Date: 14-June-2024
PP has incorporated last local stakeholder consultation date conducted prior to this verification. Thus accepted and comment closed .	
CAR closed.	

CAR ID	05	Section no.	4.2.3	Date: 04-May-2024
Description of CAR				
Section 2.1.3 of MR is not filled as per instruction to fill the section in MR 4.3 template, Assurance that the project has not encroached on land, relocated people without consent, and forced physical or economic displacement in clarified.'				
Project proponent response				Date: 13-May-2024
A statement to this effect is added to the section.				
Documentation provided by project proponent				
MR V1.1.				
VVB assessment				Date: 07-June-2024
In section 2.1.3 PP has assured that No rehabilitation, relocation or resettlement of local people has taken place due the project activity. Further, PP has also submitted grievance register and VVB team confirms that there are no ongoing or unresolved conflict took place due to the project activity. Thus, accepted.				
CAR closed.				

CAR ID	06	Section no.	4.2.4	Date: 04-May-2024
Description of CAR				

1. In Section 2.1.4 of the MR, PP has mentioned some grievances received during the current monitoring period. However, some grievances are found missing in the MR from the submitted grievance register during the current monitoring period.
2. In Section 2.1.4 of MR, Grievance redressal outcome is found missing.'
Project proponent response
1. The grievances received have been mentioned in MR.
2. Grievance outcome has been mentioned.
Documentation provided by project proponent
MR V1.1
VVB assessment
Date: 07-June-2024
During review of submitted MR and supporting documents, VVB team observed following;
1. Section 2.1.4 has been revised in accordance with MR template filling instruction and the grievances received have been mentioned in MR. Also, VVB team cross check the same with grievance register and found consistent. Thus, accepted and comment closed .
2. Section 2.1.4 has been revised in accordance with MR template filling instruction and grievance redressal outcome has been incorporated. Thus, accepted and comment closed .
CAR closed.

CAR ID	07	Section no.	4.2.6	Date: 04-May-2024
Description of CAR				
PP is requested to submit the following evidence for the following MPCL policy:				
- Environment, Quality, Occupational Health, Safety & Social (EQHS&S) Policy - Equal Opportunity Policy				
Project proponent response				Date: 13-May-2024
- Environment, Quality, Occupational Health, Safety & Social (EQHS&S) Policy is submitted. - Equal Opportunity Policy is submitted.				
Documentation provided by project proponent				
- EQHS&S Policy - Equal opportunity Policy				
VVB assessment				Date: 07-June-2024
With this submission PP has submitted following documents;				
- Environment, Quality, Occupational Health, Safety & Social (EQHS&S) Policy dated 25-March-2022 signed by Director and &CEO - Equal Opportunity Policy				
Which is found appropriate and relevant to the project activity thus, accepted and CAR closed .				

CAR ID	08	Section no.	4.2.8	Date: 04-May-2024
Description of CAR				
In Section 2.4 of the MR, PP has indicated that the project does not affect the quality and quantity of underground water. Approval for the same has been given by ground water works department. PP is requested to submit this document.				
Project proponent response				Date: 13-May-2024
The text is edited in MR.				
Documentation provided by project proponent				
MR V1.1				
VVB assessment				Date: 07-June-2024
PP has revised section 2.4 of the MR, in accordance with project activity as the project activity is hydro power project and does not affect the quality and quantity of underground water. Thus, accepted CAR closed .				

CAR ID	09	Section no.	4.3	Date: 04-May-2024
Description of CAR				
In Section 4.1 of the MR, Combined margin CO ₂ emission factor, EF _{CM,grid,y} calculation is found inconsistent with the BM and OM values mentioned in the Registered PD.				
Project proponent response				Date: 13-May-2024
EF _{CM,grid,y} calculation is corrected now.				

Documentation provided by project proponent	
MR V1.1	
VVB assessment	Date: 07-June-2024
PP has revised section 4.1 and calculation for combine margin CO2 emission factor made consistent with the registered joint PD. Thus, accepted and comment closed .	

CAR ID	10	Section no.	4.4	Date: 04-May-2024
Description of CAR				
PP is requested to submit the Invoices for the cross verification of the Electricity generation during the current monitoring period. Further, PP is requested to submit the supporting of monitoring parameter " A_{PJ} "				
Project proponent response				Date: 13-May-2024
Invoices have been submitted. Supporting for monitoring parameter " A_{PJ} " are submitted.				
Documentation provided by project proponent				
Invoices Supporting for A_{PJ} .				
VVB assessment				Date: 07-June-2024
PP has submitted invoices for complete monitoring period from November 2022 to December 2023 for the cross verification of the Electricity generation. Further, PP has also submitted reservoir diagram indicating reservoir area at different water surface level. Thus, accepted and CAR closed .				

APPENDIX 4: 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	OR	Singh	Jitendra Mohan ¹⁴	TQC- Outsourced entity	Yes	Yes	Yes	Yes
2.	Lead Auditor/ Technical Expert	OR	Rai	Amit	TQC- Outsourced entity	Yes	No	No	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 VVB or outsourced entity)
1.	Technical reviewer (TR) / Technical Expert (TE)	IR	Vega	Karen	Applus+ Certification
2.	Approver	IR	Calle de Miguel	Agustin	Applus+ Certification

Short CVs of the Team:

- Jitendra Mohan Singh**, Mr. Jitendra Mohan Singh, has done Advanced MSc in Sustainable Energy Systems and Management from International Institute of Management, University of Flensburg, Germany and B.Tech. in Agricultural Engineering from University of Allahabad, India. He has more than (22) years of working experience in different organizations like Indian Agricultural Research Institute (IARI), IIT Delhi, Indian Council of Agricultural Research (ICAR), Integrated Research and

¹⁴ Mr. Jitendra Mohan Singh was LA/TE till 15/06/2024. Since then, Mr. Amit Rai has been assigned as new LA and TE. The changes have been communicated accordingly to the PP(s)/client(s) in accordance with the VVB's procedures

Action for Development (IRADe), Council of Advancement of People's Action and Rural Technology (CAPART), SMEC India Pvt.Ltd. Perenia Carbon and M B Power (Madhya Pradesh) Ltd. in the area of Agriculture, Energy & Environment and Climate Change. Jitendra has done special training course on “Statistics with special focus on sampling” by the Indian Statistical Institute (Pune) and Auditors Training Course on “Quality Management Systems”. Jitendra has done special training course on “Statistics with special focus on sampling” by the Indian Statistical Institute (Pune) and Auditors Training Course on “Quality Management Systems”. He has also done Lead Auditor Trainings on GHG accounting on ISO 14064-3: 2019 & 14064-2:2019 including requirement of ISO 14064-1:2018 and ISO17029:2019 including requirements of ISO14065:-2020. Jitendra was also a RIT expert (adhoc) as in UNFCCC from 2010 to 2013. Jitendra is qualified Lead Auditor for the Sectoral Acopes 1, 3 and 13. Currently, he is associated with True Quality Certifications Private Limited (Applus+ Certification's Outsourced Entity). Mr. Jitendra Mohan Singh is based in Ghaziabad (Uttar Pradesh), India.

Mr. Jitendra Mohan Singh participates as part of the Audit Team as Lead Auditor and Technical Expert.

2. **Mr. Amit Rai**, has done Bachelor of Technology in Electrical & Electronics Engineering from Dr. A.P.J. Abdul Kalam Technical University, India and Government Certified Competency Class – I, Electrical Supervisor from Government of National Capital Territory of Delhi, India. He has more than 8 years of working experience in different organizations like Sunrator Technologies, Sun Source Energy Private Ltd. (SHV Energy Group, Singapore) & KBS Certification Services Private Ltd. (UNFCCC's – DOE), In the area of Renewable Project Management, Execution, Designing & Climate Change Services. Currently, he is associated with True Quality Certification Services (Applus+ Certification's Outsourced Entity) to carry out validation & Verification activity related to GHG reduction projects as Lead Auditor & Technical Expert. Mr. Amit Rai is based in South – East Delhi, India.
3. **Ms. Karen Vega**, has a Bachelor's Degree in Environmental Sciences from the University of Barcelona, she has post-graduate studies in renewable energies, and a master's degree in finances. Karen has more than 6 years of experience in the sector of quality, environment, and climate change. Her professional career has been mainly focused, but not limited to, on the sector of validation and verification of GHG emission compensation and mitigation projects, in different countries and under universally recognized standards (CDM-UNFCCC, VS, GS). She has also worked as Sustainability and Environment consultant mainly for the metal coating sector, conducting transversal roles and opening successfully the sustainability department in the company. Currently, she works in the CDM Department of Applus + Certification, as CDM Project Manager, being especially involved in technical and management tasks in the VVB to ensure the quality of the performance of different assessments, coordinate the global team, and maintenance of the Accreditations.
Karen has attended different CDM, VCS, GS4GG, GCC, ISO 9001, and ISO 14001 training processes. She has conducted consultancy services for ISO 9001 and ISO 14001 implantation in various companies, being in charge from its beginnings until final certification and certificate obtain; in the same way she has conducted Carbon Footprint Analysis and Reports. Karen is already qualified as an auditor for ISO 9001, ISO 14001, GHG audits, Carbon footprint Audits and CDM renewable projects audits (Sectoral Scopes 1.1 and 1.2).

Ms. Karen Vega participates as Technical Reviewer during this verification

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
VVB	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
PP	Project Proponent

APPENDIX 6: METER CALIBRATION DETAILS

SN	Meter No	Make	Accuracy class	Main/Check	Location	Purpose	Date of Calibration 1	Validity	Date of Calibration 2	Validity
1	Q0333358	Secure	0.2s	Main	Generating Point (Malana G-1 Main Meter)	EG _{Gen,Malana}	28-Apr-22	27-Apr-23	27-Apr-23	26-Apr-24
2	Q0333416	Secure	0.2s	Main	Generating Point (Malana G-2 Main Meter)	EG _{Gen,Malana}	28-Apr-22	27-Apr-23	27-Apr-23	26-Apr-24
3	18168106	L&T	0.2s	Check	Generating Point (Malana G-1 Check Meter)	EG _{Gen,Malana}	28-Apr-22	27-Apr-23	27-Apr-23	26-Apr-24
4	18168111	L&T	0.2s	Check	Generating Point (Malana G-2 Check Meter)	EG _{Gen,Malana}	28-Apr-22	27-Apr-23	27-Apr-23	26-Apr-24
5	HPU05987	Secure	0.2s	Main	Sarabai Transmission Line at Jari (Malana Line-1 Main Meter)	EG _{M&T}	28-Apr-22	27-Apr-23	Meter was replaced with Meter No 21009542 on 27-April-2023	-
6	HPU05988	Secure	0.2s	Main	Sarabai Transmission Line at Jari (Malana Line-2 Main Meter)	EG _{M&T}	28-Apr-22	27-Apr-23	Meter was replaced with Meter No 21009547 on 27-April-2023	-
7	HPU06607	Secure	0.2s	Check	Sarabai Transmission	EG _{M&T}	28-Apr-22	27-Apr-23	Meter was	-

					Line at Jari (Malana Line-1 Check Meter)				replaced with Meter No 21009543 on 27-April-2023	
8	HPU06608	Secure	0.2s	Check	Sarabai Transmission Line at Jari (Malana Line-2 Check Meter)	EG _{M&T}	28-Apr-22	27-Apr-23	Meter was replaced with Meter No 21009549 on 27-April-2023	-
9	21009542	Schneider	0.2s	Main	Sarabai Transmission Line at Jari (Malana Line-1 Main Meter)	EG _{M&T}	NA	NA	26-Apr-23	25-Apr-24
10	21009547	Schneider	0.2s	Main	Sarabai Transmission Line at Jari (Malana Line-2 Main Meter)	EG _{M&T}	NA	NA	26-Apr-23	25-Apr-24
11	21009543	Schneider	0.2s	Check	Sarabai Transmission Line at Jari (Malana Line-1 Check Meter)	EG _{M&T}	NA	NA	26-Apr-23	25-Apr-24
12	21009549	Schneider	0.2s	Check	Sarabai Transmission Line at Jari (Malana Line-2 Check Meter)	EG _{M&T}	NA	NA	26-Apr-23	25-Apr-24
13	*Q0333328	Secure	0.2s	Main	Sarabai Transmission Line at Sarabai (Bajaura Line-1 Main Meter)	EG _{Bajoura,M&T}	28-Apr-22	27-Apr-23	27-Apr-23	26-Apr-24
14	*Q0333399	Secure	0.2s	Main	Sarabai Transmission Line at Sarabai (Bajaura Line-2 Main Meter)	EG _{Bajoura,M&T}	28-Apr-22	27-Apr-23	27-Apr-23	26-Apr-24
15	*Q0333343	Secure	0.2s	Check	Sarabai Transmission Line at Sarabai (Bajaura	EG _{Bajoura,M&T}	28-Apr-22	27-Apr-23	27-Apr-23	26-Apr-24

					Line-1 Check Meter)					
16	*Q0333519	Secure	0.2s	Check	Sarabai Transmission Line at Sarabai (Bajaura Line-2 Check Meter)	EG _{Bajoura,M&T}	28-Apr-22	27-Apr-23	27-Apr-23	26-Apr-24
17	Q0333437	Secure	0.2s	Main	Toss	EG _{Toss}	21-Dec-21	20-Dec-22	**27-Apr-23	26-Apr-24
18	Q0333467	Secure	0.2s	Check	Toss	EG _{Toss}	21-Dec-21	20-Dec-22	**27-Apr-23	26-Apr-24

*All the four meters at Sarabai Transmission Line at Sarabai (Bajaura) were changed on 20-Dec-2021 during the last monitoring period (01-November-2021 to 31-October-2022). The details of the changed meters are as given below:

Location	Purpose	Old Meter	New Meter	Date of Installation of new meter
Sarabai Transmission Line at Sarabai (Bajaura Line-1 Main Meter)	EG _{Bajoura,M&T}	KRB09865	Q0333328	20-Dec-2021
Sarabai Transmission Line at Sarabai (Bajaura Line-2 Main Meter)	EG _{Bajoura,M&T}	HPU05989	Q0333399	20-Dec-2021
Sarabai Transmission Line at Sarabai (Bajaura Line-1 Check Meter)	EG _{Bajoura,M&T}	HPU06609	Q0333343	20-Dec-2021
Sarabai Transmission Line at Sarabai (Bajaura Line-2 Check Meter)	EG _{Bajoura,M&T}	HPU06610	Q0333519	20-Dec-2021

**The calibration was delayed by approx. 4 months but found to be working within the permissible limit of error. To account for the delay, EG_{Toss} energy readings have been adjusted conservatively for the period Dec 2022-April 2023.

APPENDIX 7: BREAKDOWN/ OUTAGE DETAILS

Month-Year	Unit 1 (Hours)	Unit 2 (Hours)	Reason
Nov-22	00:20	00:20	Planned shutdown for PPV Operation Check.
Dec-22	393:00	-	Planned shutdown for annual maintenance
Jan-23	-	00:56	Grid Failure
	-	373:20	Planned shutdown for annual maintenance
Feb-23	00:20	00:20	Planned shutdown for PPV Operation Check.
	00:14	-	Grid Failure
	-	17:00	Planned shutdown for annual maintenance
Mar-23	-	-	-
Apr-23	-	-	-
May-23	06:20	05:45	Planned shutdown for Runner replacement work
Jun-23	00:20	00:20	Planned shutdown for PPV Operation Check.
Jul-23	472:58	450:44	Loss of Generation due to HPSEB 132 KV Transmission line tower damaged by heavy rain/land slide at Thalout
Aug-23	112:48	127:14	Loss of Generation due to HPSEB 132 KV Transmission line tower damaged by heavy rain/land slide at Thalout
Sept-23	00:45	00:39	Grid Failure
	18:03	13:00	Malana-2 dam Silt Flushing
Oct-23	0:34	0:06	Grid Failure
Nov-23	00:20	00:20	Planned shutdown for PPV Operation Check.