




**Verification and certification report form for
CDM project activities
(Version 03.0)**

BASIC INFORMATION

Title and UNFCCC reference number of the project activity	Title: 4.80 MW renewable energy project by Aleo Manali Hydropower Pvt. Ltd. UNFCCC reference number: 9212
Scale of the project activity	<input type="checkbox"/> Large-scale <input checked="" type="checkbox"/> Small-scale
Version number of the verification and certification report	03
Completion date of the verification and certification report	31/08/2020
Monitoring period number and duration of this monitoring period	01 Monitoring period: 31/01/2014 ¹ -30/06/2019 (Including both dates)
Version number of the monitoring report to which this report applies	04
Crediting period of the project activity corresponding to this monitoring period	31/01/2014 - 30/01/2021 (Renewable)
Project participants	Aleo Manali Hydropower Pvt. Ltd.
Host Party	India
Applied methodologies and standardized baselines	AMS I.D-Grid connected renewable electricity generation, Version-17 Standardized baseline: NA
Mandatory sectoral scopes	Sectoral scope – 01 Energy industries (renewable - / non-renewable sources)
Conditional sectoral scopes, if applicable	NA
Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD	83,915 tCO ₂ e
Certified amount of GHG emission reductions or GHG removals for this monitoring period	83,701 tCO ₂ e
Name and UNFCCC reference number of the DOE	KBS Certification Services Private Limited (KBS) Ref. No. E-0051
Name, position and signature of the approver of the verification and certification report	 Mr. Kaushal Goyal

¹ The crediting period starts from 31/01/2014, however as project was commissioned later i.e. 26/09/2014, hence for CER calculation the generation prior to commissioning is taken as zero.

	Managing Director
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SECTION A. Executive summary

>> KBS Certification Services Private Limited has been commissioned by Aleo Manali Hydropower Pvt. Ltd. to perform an independent verification of its registered CDM project, "4.80 MW renewable energy project by Aleo Manali Hydropower Pvt. Ltd.", UNFCCC ref. no. 9212 for the reported GHG emission reductions for the given monitoring period 31/01/2014²-30/06/2019 (both dates included). The CDM projects must undergo independent third-party verification and certification of emission reductions as the basis for issuance of Certified Emission Reductions (CERs).

The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The project activity has been implemented and operated as per the registered PDD and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- Monitoring report and other supporting documents are complete;
- The actual monitoring systems & procedures and monitoring report conforms with the requirements of the approved monitoring plan and the approved monitoring methodology;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.

Scope:

The scope of the verification is the independent and objective review and ex post determination of the monitored reductions in GHG emission by the project activity. The verification is based on review of monitoring report, supporting information and

- a) The registered PDD, including the monitoring plan and the corresponding validation opinion(s);
- b) Previous verification reports, deviation requests, requests for revision of monitoring plan;
- c) Monitoring report for the monitoring period under verification including CER calculations sheets and all supporting documents;
- d) The applied monitoring methodology;
- e) Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board;
- f) All information and references relevant to the project activity's resulting in emission reductions
- g) The project is assessed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance.

KBS has, based on the recommendations in the latest version of CDM Validation and Verification Standard for project activity, employed a rule-based approach in the verification, focusing on the identification of significant reporting risks and the reliability of project monitoring.

Description of project:

The project activity consists of a hydroelectric run-of-river plant with an installed capacity of 4.8 MW. It includes two turbines each of the capacity of 2400 kW to generate clean and reliable electric power that is transmitted to the 33/11 KV Sub-Station of HPSEB at Prini, Manali. The project displaces power generation using fossil fuels and hence leads to a reduction in greenhouse gas emissions. Aleo Manali Hydropower Pvt. Ltd. has developed the project. It is located in Aleo Village in Kullu District, Himachal Pradesh State, India.

Methodology:

KBS follows a rule based verification approach, wherein, as a first step, the contract review is undertaken as per latest version of CDM Accreditation Standard. Subsequently, after the contract is signed, the monitoring report of the project activity is made publicly available at UNFCCC website as per CDM procedures. A desk review of the project documentation is undertaken, which is followed by a remote audit by the members of verification team in accordance with the latest version of CDM VVS. The verification protocol is filled by the verification team that is based on standard auditing practices and version 02 of CDM VVS for project activities, to capture the assessment of applicable CDM requirements viz., version 02 of CDM Project Standard for project activities, registered PDD, applied methodology, applied standardized baseline and/or tools and recent decisions. The verification protocol provides transparent means to record the observations and compliances by the verification team members and the nonconformities, if any. The verification protocol

² The crediting period starts from 31/01/2014, however as project was commissioned later i.e. 26/09/2014, hence for CER calculation the generation prior to commissioning is taken as zero.

is an internal document, and is available on request. Following are the major milestones for the verification under consideration.

Verification contract	22/04/2019
Publication of MR	22/07/2019
Remote audit (Skype interview)	17/07/2020
Draft Verification Report	21/08/2020
Final Verification Report	31/08/2020

KBS Certification Services Pvt. Ltd. confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements.

Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 83,701 tCO₂e emission reductions during period 31/01/2014³-30/06/2019 (Including both the days).

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Verification findings
1.	Team Leader, Technical Expert (1.2) , Local Expert	IR	Kandari	Sanjay	Central office	x	Remote audit	x	x
2.	Verifier	IR	Dey	Deboshmita	Central office	x	Remote audit	x	x

B.2. Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical Reviewer (TA 1.2)	IR	Badaya	Mr. Rohit	Central office
2.	Manager (Technical & Certification)	IR	Nanda	Dr. Madhuri	Central office
3.	Authorizer	IR	Goyal	Mr. Kaushal	Central office

SECTION C. Application of materiality

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	The data monitoring is done	High	There are two parameters	The complete dataset for the

³ The crediting period starts from 31/01/2014, however as project was commissioned later i.e. 26/09/2014, hence for CER calculation the generation prior to commissioning is taken as zero.

through electronic meters and errors can be perceived during the information transfer from the source to the emission reduction sheet.		which are the Net electricity exported to the grid by the project ($EG_{BL,y}$) monitored through energy meters and Quantity of diesel used in year ($FC_{i,j,y}$) monitored through Ruler gauge. Errors can be perceived during the information transfer from the source to the emission reduction sheet. There is no leakage emission during this monitoring period as discussed under section E.8.3 of this report.	monitoring parameters $EG_{BL,y}$ and $FC_{i,j,y}$ was cross checked with plant shut downs and it was confirmed with the import of electricity from grid, whenever there was a minor shutdown. No major shut down found in plant logs.
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C.2. Consideration of materiality in conducting the verification

>> The prescribed thresholds for materiality, as per VVS PA, Version 02/15/.

Prescribed range of ERs/annum	500,000+	300,000+ to 500,000	300,000	SSC Pas	MSC PAs
Prescribed Threshold	0.5%	1.0%	2.0%	5.0%	10.0%

The identified/selected materiality threshold for the project activity under current monitoring period is 5.0% as the project activity is a small-scale project activity.

	MR Version (Draft)/01/	MR Version (Final)/02/
Emission reductions	83,701 tCO ₂ e	83,701 tCO ₂ e
Identified Threshold	5.0%	5.0%

There is no change in the emission reduction during the verification process. The complete dataset for the project activity was checked and it can be confirmed that the values are consistent with their sources. The assessment team confirms that the reported emission reductions are free from material errors, omissions or misstatements.

SECTION D. Means of verification

D.1. Desk/document review

>> A desk review is undertaken, involving but not limited to,

- A review of the data and information presented to verify their completeness;
- A review of the monitoring plan and monitoring methodology, paying attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures;
- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

The list of documents reviewed is included in the section 'Appendix 3' of this report.

D.2. On-site inspection

As a result of the COVID-19 pandemic, taking into account the rules of relevant national and local authorities (local to the DOE offices as well as to locality of the site visits), World Health Organization (WHO) recommendations, policies of the DOE and other relevant travel restrictions and guidance (for example, a requirement to self-isolate upon return from specific countries), A DOE may postpone site visits for onsite inspections required by the “CDM validation and verification standard for project activities (version 02.0) (VVS-PA)"/15/.

If the site visits cannot be postponed, a proper justification should be provided by the DOE why the site visits cannot be postponed, including the demonstration of a significant impact of delaying the site visits on the DOE, or project participants or coordinating/ managing entity (e.g. commitment/ timeline as per the validation or verification contract, CER delivery commitment by project participants) reliance on applicable force majeure provisions in the validation or verification contracts, if needed.

Since the site visit is mandatory for this project activity, PP has contractual commitment for the verification process with KBS/21/ and site visit was not undertaken due to COVID-19 travel restrictions. Hence, the DOE has skipped the on-site visit. However as per the CDM EB, the DOE may use other standard auditing techniques for validation or verification as referred to in sections 9.1.3 of the VVS for PA /15/.

Verification team has used the following alternative means for its assessment and to justify that they are sufficient for the purpose of verification. Along with desk review, audit team has conducted remote audit interview as follows:

- A complete desk review of the MR, registered PDD, Joint Meter Reading, Invoices, Power Purchase Agreement, commissioning certificates, calibration certificates etc. as well as all applicable country legal requirement and other supportive evidences have been checked by the verification team.
- Verification team has performed Skype interview with PP in order to check implementation, project boundary, current situation, evaluation of data management, QA/QC system, monitoring and metering equipment, monitoring procedures, calibration etc. Interview questions were filled as per Verification team interview checklist and also videos were captured.
- Cross checks between information provided by interviewed personnel (i.e. by checking sources) to ensure that no relevant information has been omitted.
- Cross-check evaluation, for information received from interviews, under the scope of all information and references provided in MR and supporting documents.

Details of interviewees, topics covered and additional information presented in the below section “D.3 Interviews”.

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Chaudhary	Naveen	Plant official, Aleo Manali Hydropower Pvt. Ltd	17/07/2020	Operational and implementation data, CDM Requirements, Data collection, Calibration Requirements, Monitoring and data recording etc.	Sanjay Kandari Team Leader, Technical Expert (1.2) , Local Expert and Deboshmita Dey (Verifier)
2.	Chand	Phool	CDM consultant			

D.4. Sampling approach

>> No Sampling Approach is used during verification.

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

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	--	--	--
Compliance of the project implementation and operation with the registered PDD	--	CAR 04	--
Post-registration changes	--	--	--
Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines	--	--	--
Compliance of monitoring activities with the registered monitoring plan	CL 02	CAR 01, CAR 02, CAR 03	--
Compliance with the calibration frequency requirements for measuring instruments	--	CAR 05	--
Assessment of data and calculation of emission reductions or net removals	--	--	--
Assessment of reported sustainable development co-benefits	--	--	--
Global stakeholder consultation	--	--	--
Others (Document requirement)	CL 01	--	--
Total	02	05	00

SECTION E. Verification findings

E.1. Compliance of the monitoring report with the monitoring report form

Means of verification	Verification team checked the monitoring report/02/ with "Instructions for filling out the monitoring report form" mentioned as attachment to Monitoring report form (version 07.0)/18/.
Findings	No findings raised.
Conclusion	In accordance with §352 of CDM validation and verification standard for project activities, Version 02.0 /15/, verification team confirms that final monitoring report /02/ is completed using the latest valid version of the applicable monitoring report form /18/.

E.2. Remaining forward action requests from validation and/or previous verifications

>>The current verification is for the first monitoring period of the project activity. All raised CARs and CLs were successfully closed during validation. There is no pending FAR from validation to be addressed during the 1st verification.

E.3. Compliance of the project implementation and operation with the registered project design document

Means of verification	<p>The project activity consists of a hydroelectric run-of-river plant with an installed capacity of 4.8 MW. It includes two turbines each of the capacity of 2400 kW to generate clean and reliable electric power that is transmitted to the 33/11 KV Sub-Station of HPSEB at Prini, Manali. The project displaces power generation using fossil fuels and hence leads to a reduction in greenhouse gas emissions. Aleo Manali Hydropower Pvt. Ltd. has developed the project. It is located in Aleo Village in Kullu District, Himachal Pradesh State, India.</p> <p>Through remote auditing (Skype interview) and document review, the verification team confirms that all physical features of the project activity including technology, data collection systems and storage systems have been implemented in accordance with the registered project design document/4/. The project activity harnesses the hydro energy available at project site to generate electricity and net generated electricity supplied to the HPSEB/6/.</p> <p>The monitoring plan required for the ex-post monitoring of the emission factor as per the registered monitoring plan/4/. The energy meters were found to be installed</p>
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	<p>at the respective places during remote audit (video conferencing) conducted by the verification team. The rated capacity of hydroelectric turbines, location/identification number, meter serial number and make were verified from the name plates and found to be consistent with the information provided in the MR/2/.</p> <p>The verification team has reviewed the power purchase agreement/06/ to confirm the power from the project activity is being supplied to the HPSEB in compliance to the applied methodology AMS I.D-Grid connected renewable electricity generation, Version-17/14.1/ and registered PDD/4/.</p> <p>The power from the project activity is being sold to HPSEB, assessment team has reviewed the copy of invoices/09/ raised by the project proponent to the buyer to confirm the same.</p> <p>The rated capacity of hydroelectric turbines/generator, location/identification number, meter serial number and make were verified from the name plates /11/ and the technical specifications /11/ and found to be consistent with the information provided in the MR/2/.</p> <p>The project boundaries and all key equipment are in line with the registered PDD/4/. The verification team confirmed during the remote auditing (video conferencing) that the CDM project is completely operational and the name plate details of all key equipment i.e. turbine and generators are in line to the registered PDD/4/.</p> <p>The details of operation of turbines installed were cross checked through interviews and found consistent. No special events which might affect the monitoring of the project have been observed as reported in the MR/2/.</p> <p>The allocation of the responsibilities is followed as described in the registered PDD /4/. Routines for the archiving of data are defined and documented. Calculations, laid down in the monitoring report are in line with registered PDD /4/.</p> <p>Interviews (refer section D.3 of this report) were carried out with the plant personals during the Skype interview to verify the actual monitoring system practiced by PP. It was found that the plant personals are well aware of their roles & responsibilities. The actual monitoring system presently practiced complies with the monitoring plan provided in the registered PDD/4/ and the monitoring methodology/14.1/.</p> <p>The actual emission reductions are 83,701 tCO₂e for the current monitoring period /3/, which is lower than the estimated emission reduction in registered PDD/04/ i.e., 83,915 tCO₂e for corresponding current monitoring period.</p>
Findings	CAR 04 was raised and successfully closed. Refer to Appendix 4 for further details.
Conclusion	<p>The verification team confirms that:</p> <ol style="list-style-type: none"> The project activity is implemented as per the registered PDD/4/, the project activity was fully commissioned on 26/09/2014. The actual operation of the proposed CDM project activity is in line to the registered PDD/04/, the power generated from the project activity is supplied to northern Indian grid. No approvals of the deviation, request for revision in monitoring plan, request of notification or request for approval of changes from the project activity as described in the registered PDD/04/ were requested in the current monitoring period. The actual emission reductions are lower than the expected emission reductions for the current monitoring period; <p>It has reviewed the registered PDD, including the monitoring plan and the corresponding validation report, the applied monitoring methodology, relevant decisions from the CMP and the CDM EB and found that the revised MR for this monitoring period is in line with all the above mentioned documents.</p>

E.4. Post-registration changes**E.4.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents⁴**

>> No Post Registration Changes have occurred during this monitoring period. Therefore, this section is not applicable.

E.4.2. Corrections

>> No Post Registration Changes have occurred during this monitoring period. Therefore, this section is not applicable.

E.4.3. Changes to the start date of the crediting period

>> The changes to the start date of crediting period are accepted by CDM EB prior to the publication of monitoring report and approved by the CDM EB.

E.4.4. Inclusion of a monitoring plan

>> No Post Registration Changes have occurred during this monitoring period. Therefore, this section is not applicable.

E.4.5. Permanent changes from registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents

>> No Post Registration Changes have occurred during this monitoring period. Therefore, this section is not applicable.

E.4.6. Changes to the project design

>> No Post Registration Changes have occurred during this monitoring period. Therefore, this section is not applicable.

E.4.7. Changes specific to afforestation and reforestation project activities

>> This section is not applicable.

E.5. Compliance of the registered monitoring plan with applied methodologies, applied standardized baselines, and other applied methodological regulatory documents

Means of verification	<p>The verification team was able to confirm that the monitoring plan contained in registered PDD/4/ and MR/2/ is in accordance with the approved methodology applied for the project activity i.e. AMS I.D-Grid connected renewable electricity generation, Version-17/14.1/.</p> <p>All parameters stated in the monitoring plan /4/ and the applied methodology /14.1/ has been fulfilled in the current monitoring period. The discussion regarding each parameter has been elaborated in the further sections (E.6.1 and E.6.2) of this Verification report.</p>
Findings	No findings have been raised.
Conclusion	As per para 357 and 358 of CDM VVS for project activity version 02.0 /15/, In the opinion of the verification team the monitoring plan of the registered PDD complies with the monitoring requirement of the applied approved methodology AMS I.D-Grid connected renewable electricity generation, Version-17/14.1/ in the context of the project activity.

⁴ Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied (selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

E.6. Compliance of monitoring activities with the registered monitoring plan

E.6.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification	As per the registered PDD/4/, the following parameter is listed as fixed ex-ante parameter for estimating emission reductions.		
	Parameter	Value	Verification Assessment
	EF_{grid,CM,y}/EF_{grid,CO2,y} Combined Margin Emission Factor of NEWNE Electricity Grid	0.8401 tCO ₂ e/MWh	The combined grid emission factor has been calculated in accordance with the "Tool to calculate the emission factor for an electricity system", version 2.2.1 /14.2/. The values have been correctly taken as per the registered PDD /4/ and hence accepted by the verification team.
	EF_{grid,OM,y} Operating Margin Emission Factor of NEWNE Electricity Grid	1.0049 tCO ₂ e/MWh	The Operating Margin emission factor has been calculated from CO ₂ baseline database for Indian Power Sector/12/. The values have been correctly taken as per the registered PDD /4/ and Hence accepted by the verification team.
	EF_{grid,BM,y} Build Margin Emission Factor of NEWNE Electricity Grid	0.6752 tCO ₂ e/MWh	The Build Margin emission factor has been calculated from CO ₂ baseline database for Indian Power Sector/12/. The values have been correctly taken as per the registered PDD /4/ and Hence accepted by the verification team.
	NCV_{DG} Net Calorific value of Diesel	43.3 TJ/Gg	The value has been correctly taken as per the registered PDD /4/ and the source/19/. Hence, it is accepted by the verification team.
	OF Oxidation factor of Diesel	1	The value has been correctly taken as per the registered PDD /4/ and the source/19/. Hence, it is accepted by the verification team.
	EF_{DG} Emission factor of Diesel	74.8 tCO ₂ /TJ	The value has been correctly taken as per the registered PDD /4/ and the source/19/. Hence, it is accepted by the verification team.
	D_{DG} Density of Diesel	0.832 Kg/liter	The value has been correctly taken as per the registered PDD /4/ and the source/20/. Hence, it is accepted by the verification team.
Findings	CAR 01 was raised and successfully closed. Refer to Appendix 4 for further details.		
Conclusion	As per para 360 to 361 of CDM VVS for project activity version 02.0 /15/, the		

	<p>assessment team concludes that the ex-ante parameter of the project activity is in accordance with the registered monitoring plan /4/ and meets the requirements of the applied monitoring methodology/14.1/.</p> <p>The verification team confirms that the value used for grid emission factor (Fixed ex-ante for the 1st crediting period) for calculation of emission reduction is consistent with registered PDD/4/ and correctly applied in MR /02/ and emission reduction spread sheet /03/ and justified.</p>
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E.6.2. Data and parameters monitored

Means of verification	Verification team confirms through remote audit (Skype interview) verification and from the document review, the actual monitoring system complies with the monitoring plan mentioned in the registered validated PDD/4/.									
	During the verification, the monitoring parameter of the registered monitoring plan /4/ have been verified with regard to the appropriateness of the verification method; the correctness of the values applied for ER calculation, the accuracy and applied QA/QC measures. The monitoring parameters have been measured / determined without material misstatements and is in line with all applicable standards and relevant requirements.									
	The assessment for the monitoring parameters is given below:									
	Data/Parameter, Unit: EG_{BL,y} (MWh)									
	<table><tr><th></th><th>Discussion and verification assessment</th></tr><tr><td><i>Purpose of data</i></td><td>Baseline Emissions</td></tr><tr><td><i>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</i></td><td><p>Electronic Trivector meters (one main and one check meter) are installed at the grid-connected point to measure the amount of electricity exported to grid.</p><p>The technical details of the meters specified in the MR/2/ were found consistent with the actual records and on ground as checked during the remote auditing (video conferencing).</p><p>The accuracy of the main and the check energy meters are 0.2s as verified during the remote audit (video conferencing), which is as per the registered PDD/4/ and hence acceptable.</p><p>Calibration frequency is once in three years which is in compliance with the registered PDD /4/ and hence acceptable. Meters were calibrated for the whole monitoring period.</p><p>The Calibration of all the meters have been done by Electronics regional Test Laboratory and Electrical research and development association /10/ which is accepted to the verification team. The calibration certificates /10/ are verified and found that the error in calibration test is within the accuracy class of the respective meter.</p></td></tr><tr><td><i>Measuring/Reading / Recording frequency</i></td><td><p>Net electricity exported by the project activity to the grid is monitored continuously and recorded on monthly basis in the form of Monthly Joint meter readings (JMR) /08/.</p><p>The measuring and recording frequency is in compliance with the registered PDD /4/ and the applied methodology /14.1/.</p></td></tr><tr><td><i>Data collection (from data generation.</i></td><td><p>Net electricity exported by the project activity to the grid is monitored continuously and reported on monthly basis in form of Monthly Joint meter readings (JMR) /08/.</p></td></tr></table>		Discussion and verification assessment	<i>Purpose of data</i>	Baseline Emissions	<i>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</i>	<p>Electronic Trivector meters (one main and one check meter) are installed at the grid-connected point to measure the amount of electricity exported to grid.</p> <p>The technical details of the meters specified in the MR/2/ were found consistent with the actual records and on ground as checked during the remote auditing (video conferencing).</p> <p>The accuracy of the main and the check energy meters are 0.2s as verified during the remote audit (video conferencing), which is as per the registered PDD/4/ and hence acceptable.</p> <p>Calibration frequency is once in three years which is in compliance with the registered PDD /4/ and hence acceptable. Meters were calibrated for the whole monitoring period.</p> <p>The Calibration of all the meters have been done by Electronics regional Test Laboratory and Electrical research and development association /10/ which is accepted to the verification team. The calibration certificates /10/ are verified and found that the error in calibration test is within the accuracy class of the respective meter.</p>	<i>Measuring/Reading / Recording frequency</i>	<p>Net electricity exported by the project activity to the grid is monitored continuously and recorded on monthly basis in the form of Monthly Joint meter readings (JMR) /08/.</p> <p>The measuring and recording frequency is in compliance with the registered PDD /4/ and the applied methodology /14.1/.</p>	<i>Data collection (from data generation.</i>
	Discussion and verification assessment									
<i>Purpose of data</i>	Baseline Emissions									
<i>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</i>	<p>Electronic Trivector meters (one main and one check meter) are installed at the grid-connected point to measure the amount of electricity exported to grid.</p> <p>The technical details of the meters specified in the MR/2/ were found consistent with the actual records and on ground as checked during the remote auditing (video conferencing).</p> <p>The accuracy of the main and the check energy meters are 0.2s as verified during the remote audit (video conferencing), which is as per the registered PDD/4/ and hence acceptable.</p> <p>Calibration frequency is once in three years which is in compliance with the registered PDD /4/ and hence acceptable. Meters were calibrated for the whole monitoring period.</p> <p>The Calibration of all the meters have been done by Electronics regional Test Laboratory and Electrical research and development association /10/ which is accepted to the verification team. The calibration certificates /10/ are verified and found that the error in calibration test is within the accuracy class of the respective meter.</p>									
<i>Measuring/Reading / Recording frequency</i>	<p>Net electricity exported by the project activity to the grid is monitored continuously and recorded on monthly basis in the form of Monthly Joint meter readings (JMR) /08/.</p> <p>The measuring and recording frequency is in compliance with the registered PDD /4/ and the applied methodology /14.1/.</p>									
<i>Data collection (from data generation.</i>	<p>Net electricity exported by the project activity to the grid is monitored continuously and reported on monthly basis in form of Monthly Joint meter readings (JMR) /08/.</p>									

	<i>aggregation, to recording, calculation and reporting)</i>	<p>The details of roles and responsibilities for the monitoring is provided in the MR/2/. The plant personnel were interviewed during remote auditing and the assessment team confirms that the details as provided are followed at site and are effective reliable for the accounting of emission reductions.</p> <p>The verification team has verified all the JMRS/08/ for this monitoring period and confirms that the same values are applied in the ER calculation sheet /03/.</p>
	<i>Verified value</i>	99632.55 MWh
	<i>Cross checks</i>	The monthly reported data was cross-checked, as prescribed in the registered PDD/4/, with the invoices /09/ and was found to be consistent.
	<i>QA/QC procedures applied</i>	The energy meters were calibrated by Electronics regional Test Laboratory and Electrical research and development association. For the details of calibrations of energy meters please refer the section E.7 of report.
	<p>Data/Parameter, Unit: FC_{i,i,y} (Liters/yr)</p>	
		Discussion and verification assessment
	<i>Purpose of data</i>	Baseline Emissions
	<i>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</i>	<p>Ruler gauge is installed at the plant to measure the Quantity of diesel used in year.</p> <p>The technical details of the ruler gauge specified in the MR/2/ were found consistent with the actual records and on ground as checked during the remote auditing (video conferencing).</p> <p>The accuracy of the ruler gauge is 0.1 cm as verified during the remote audit (video conferencing) and hence acceptable.</p>
	<i>Measuring/Reading / Recording frequency</i>	<p>Quantity of diesel used is monitored continuously and recorded on daily basis.</p> <p>The measuring and recording frequency is in compliance with the registered PDD /4/ and the applied methodology /14.1/.</p>
	<i>Data collection (from data generation, aggregation, to recording, calculation and reporting)</i>	<p>Quantity of diesel used is monitored continuously and recorded on daily basis.</p> <p>The details of roles and responsibilities for the monitoring is provided in the MR/2/. The plant personnel were interviewed during remote auditing and the assessment team confirms that the details as provided are followed at site and are effective reliable for the accounting of emission reductions.</p> <p>The verification team confirms by reviewing the supportives/08/ that there were no major shutdown during the current monitoring period, hence, DG set was not used and therefore no diesel consumption took place. Also, during any minor shutdown cases, electricity was imported from the grid as verified by the verification team through remote audit (Skype interviews) and also evident in the joint meter readings.</p>
<i>Verified value</i>	0	
<i>Cross checks</i>	The reported data was not cross-checked, as prescribed in the registered PDD/4/, with the receipts of diesel bought	

		since there was no diesel consumption during the monitoring period as verified by the verification team through remote audit (Skype interviews). The verification team confirms by reviewing the supportives/08/ that there were no major shutdown during the current monitoring period, hence, DG set was not used and therefore no diesel consumption took place. Also, during any minor shut down cases, electricity was imported from the grid as verified by the verification team through remote audit (Skype interviews) and also evident in the joint meter readings.
	QA/QC procedures applied	Since no emission reduction is accounted from this parameter as there was no diesel consumption during the monitoring period, hence no calibration details have been provided which is found to be consistent by the verification team. PP had not undertaken the calibration of ruler gauge but it has no impacts on CERs as no diesel has been used in current verification period.
Findings	CL 02, CAR 02 and CAR 03 were raised and successfully closed. Refer to Appendix 4 for further details.	
Conclusion	As per para 360 to 361 of CDM VVS for project activity version 02.0 /15/, The assessment team concludes that the monitoring of the project activity is being carried out in accordance with the registered monitoring plan and meets the requirements of the applied monitoring methodology. The adequacy and compliance of the registered monitoring plan in the MR can be concluded to be conforming. The flow of the information from the point of generation up to reporting has been reviewed and found to be correct and appropriate meeting the requirements of the applied methodology.	

E.6.3. Implementation of sampling plan

Means of verification	No sampling plan applied for the project activity. Therefore, this section is not applicable.
Findings	-
Conclusion	Not applicable.

E.7. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	The registered monitoring plan refers that the frequency for calibration is once in three years for the energy meters. The electricity meters at Aleo Manali Hydropower plant has undergone maintenance/calibration as per the registered PDD/04/.		
	The calibration details of the monitoring equipments corresponding to monitoring parameter is given in the below table.		
		Main Meter	Check Meter
	Make	Secure	Secure
	Accuracy class	0.2S	0.2S
	Serial No.	HPU05217	HPU05218
	Calibration Frequency	Once in 3 years	Once in 3 years
	Calibration Date	09/01/2014	09/01/2014
	The above main and check meter were replaced by below main meter and check meter on 27/11/2015.		
	Make	Secure	Secure
	Accuracy class	0.2S	0.2S
	Serial No.	HPU05946	HPU05947
	Calibration Frequency	Once in 3 years	Once in 3 years
	Calibration Date	23/09/2015	23/09/2015
	The above main and check meter were replaced by below main meter and check meter on 16/06/2016.		
	Make	Secure	Secure

	Accuracy class	0.2S	0.2S
	Serial No.	HPU05217	HPU05218
	Calibration Frequency	Once in 3 years	Once in 3 years
	Calibration Date	14/05/2016	14/05/2016
	The above main and check meter were replaced by below main meter and check meter on 22/08/2017.		
	Make	Secure	Secure
	Accuracy class	0.2S	0.2S
	Serial No.	HPU05947	HPU05946
	Calibration Frequency	Once in 3 years	Once in 3 years
	Calibration Date	11/07/2017 and 06/06/2019	11/07/2017 and 06/06/2019
	Next Calibration Date	05/06/2020	05/06/2020
	The Calibration performance was checked from the calibration reports /10/ and found that the meters were within the respective accuracy level as verified from the calibration results.		
	The calibration validity of the energy meters during this monitoring period were verified from the corresponding calibration certificates/10/. No delay in calibration was observed.		
	The monitoring equipment's have been installed in the project activity according to registered monitoring plan /04/.		
Findings	CAR 05 was raised and successfully closed. Refer to Appendix 4 for further details.		
Conclusion	As per para 365 to 370 of CDM VVS for project activity version 02.0 /15/, the Verification team confirms that the calibration frequency is in line with the monitoring plan mentioned in the registered PDD /04/.		

E.8. Assessment of data and calculation of emission reductions or net removals

E.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	<p>The calculation, applied formulae and the method for calculation of baseline emissions are in accordance with the registered PDD /04/ and are in line with the requirements of the applied methodology /14.1/. The formulae and the methods referred in the MR /02/ and the emission reduction calculation spread sheet/03/ for estimation of emission reduction complies with the corresponding formulae and methods in the registered PDD /04/.</p> <p>The ex-ante and validated fixed value of grid emission factor i.e. Carbon dioxide emission factor of the Northern Region electricity grid, (0.8401 tCO_{2e}/MWh, registered PDD /04/) is taken into account for the calculation of baseline emissions.</p> <p>The verification team has checked all the monthly JMRs/08/ and invoices/09/ applicable for the monitoring period and found the monitoring parameters are monitored and recorded as per the monitoring plan in the registered PDD/04/. The verification team has crosschecked the CER sheet/03/ and monitoring report data with the monthly JMRs/08/ and invoices/09/ and found all the input values are matching.</p> <p>As per registered PDD/4/, the baseline emissions (BE_y) by the project activity during the monitoring period is:</p> $BE_y = EF_y * EG_y$ <p> $EG_y = 99,632.55 \text{ MWh}$ $EF_y = 0.8401 \text{ tCO}_2\text{e/MWh}$ $BE_y = 83,701 \text{ tCO}_2\text{e (Rounded down)}$ </p> <p>Hence baseline emission for this monitoring period is 83,701 tCO_{2e} (Rounded down)</p>
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Findings	No findings raised.
Conclusion	As per para 372 and 373 of CDM VVS for project activity version 02.0 /15/, Verification team concludes that the calculation provided in the monitoring report/2/, and emission reduction spread sheet/3/ are complete and reflect all the requirements of the monitoring plan/4/ and: a) All the monitored data pertaining to baseline calculation as required by the registered monitoring plan was available to PP, the same has been verified by the verification team. b) All the formula used for the baseline, was in line to the registered monitored plan/4/. c) The ex-post emission factors correctly sourced from the registered PDD/4/ and was found to be appropriate and justified.

E.8.2. Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks

Means of verification	No project emissions are associated with project activity.
Findings	Nil.
Conclusion	Not Applicable

E.8.3. Calculation of leakage GHG emissions

Means of verification	Not applicable in accordance with applied methodology and registered PDD.
Findings	Nil.
Conclusion	Not Applicable

E.8.4. Summary calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

Means of verification	<p>As per registered PDD/4/, the emission reductions ER_y by the project activity during the monitoring period is equal to the baseline emission less project emission and leakage emission.</p> <p>Emission Reduction (ER) = Baseline emission – Project emission – Leakage emission</p> $ER_y = BE_y - PE_y - LE_y$ $ER_y = 83,701 \text{ tCO}_2\text{e} - 0 - 0$ $ER_y = 83,701 \text{ tCO}_2\text{e}$ <p>The calculation provided in the ER sheet and MR was assessed appropriate by the verification team.</p> <p>The verification team confirms that a complete set of data for this monitoring period is available to verify the emission reduction calculation, and the same was found in accordance with the registered PDD/4/.</p> <p>The net electricity supplied to the grid has been sourced from the joint meter readings, the same forms the basis of emission reduction calculation. The verification team has verified the net electricity generation for respective months by the project activity and found the values used are consistent between the JMR/08/ and ER sheet/03/. The gross generation recorded at the turbine was also crosschecked by the assessment team as an alternative check to ensure the correctness of reported value of net electricity supplied to grid.</p> <p>No lack of evidence and missing data were detected during this monitoring period. The verification team confirms that the emission reductions are real and measurable.</p> <p>No reporting risks have been identified for the data reported.</p> <p>All the monitored data are archived in electronic form. The data will be kept for the whole crediting period and 2 years after the last crediting period thereby meeting the requirement of the PDD. The verification team has checked and confirms that all the meters are calibrated. Thus, concludes no material risks in the claimed emission reduction for the applied period.</p>
Findings	No finding has been raised.
Conclusion	As per para 372 and 373 of CDM VVS for project activity version 02.0/15/,

	<p>Verification team concludes that the calculation provided in the monitoring report/2/, and emission reduction spread sheet/3/ are complete and reflect all the requirements of the monitoring plan/4/ and:</p> <ul style="list-style-type: none"> a) All the monitored data as required by the registered monitoring plan was available to PP, the same has been verified by the verification team. b) All the formula used for the baseline, leakage and project emissions were in line to the registered monitored plan/4/. <p>The ex-ante emission factors correctly sourced from the registered PDD/4/ and was found to be appropriate and justified.</p>
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E.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Means of verification	<p>The MR includes a comparison of the calculated actual emission reductions with the ex-ante calculated values in the registered PDD /04/.</p> <table border="1"> <tr> <td>Estimated Reduction as per Registered/Approved PDD:</td><td>83,915 tCO₂e /04/</td></tr> <tr> <td>Actual Reduction for the Monitoring Period</td><td>83,701 tCO₂e/02/</td></tr> </table> <p>In summary, verification team confirms that the actual emission reduction is lower than the estimate of the registered PDD /04/ for the current monitoring period.</p>	Estimated Reduction as per Registered/Approved PDD:	83,915 tCO ₂ e /04/	Actual Reduction for the Monitoring Period	83,701 tCO ₂ e/02/
Estimated Reduction as per Registered/Approved PDD:	83,915 tCO ₂ e /04/				
Actual Reduction for the Monitoring Period	83,701 tCO ₂ e/02/				
Findings	Nil.				
Conclusion	Verification team confirms that the comparison for the estimated and actual emission reduction for the 1 st monitoring period is correctly calculated and reported.				

E.8.6. Remarks on difference from estimated value in registered PDD

Means of verification	Not applicable as the actual ERs are less than the estimated ERs.
Findings	Nil.
Conclusion	The actual ERs are less than the estimated ERs.

E.8.7. Actual GHG emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Means of verification	The monitoring period starts from 31 January 2014 and therefore falls after 01 January 2013, So the total ERs during the period pertains to the 2nd commitment period. The 83,701 t CO ₂ e CERs verified during current monitoring period.
Findings	Nil.
Conclusion	The 83,701 tCO ₂ e CERs verified pertains to the 2nd commitment period.

E.9. Assessment of reported sustainable development co-benefits

Means of verification	Not reported by PP.
Findings	Refer above.
Conclusion	Refer above.

E.10. Global stakeholder consultation

Means of verification	The monitoring report was webhosted for the global stakeholder consultation and no comments were received as verified from the UNFCCC webpage/13/.
Findings	Refer above.
Conclusion	Refer above.

SECTION F. Internal quality control

>> The draft verification report prepared by team leader is reviewed by an independent technical reviewer (having competence of relevant technical area himself/herself or through an independent technical area expert) to confirm the internal procedures established by KBS are duly followed and the verification report/opinion is reached in an objective manner and complies with the applicable CDM requirements.

The independent technical reviewer may approve or reject the draft verification report. The findings may be identified even at this stage, which needs to be satisfactorily resolved, before the request for issuance is submitted to UNFCCC. The final decision is taken by the Manager Technical and Certification. The technical reviewer and Manager T&C can be same person.

The final decision is authorized by Managing Director, KBS once the report is approved by the Manager T&C.

SECTION G. Verification opinion

>> The verification team confirms that the the evidence is of sufficient quantity, appropriate quality and reliable. The reported values, notation, units and sources in the monitoring report for all the monitoring parameters have been cross checked with the emission reduction sheet and monitoring report. During the course of verification and remote audit, the data submitted by PP was cross verified with the values mentioned in the emission reduction sheet and monitoring report. The procedure for data monitoring, recording, transfer and compilation was also verified and found in compliance with the monitoring plan as mentioned in the registered PDD/04/.

Evidences (Documents/interview/remote audit) referred for verification of individual monitoring parameter and fixed parameters are defined in section E.6 above. It is confirmed by the assessment team that the reported emission reductions have been conservatively calculated. A list of referred documents for verification is also included in Appendix 3 of this report.

Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 83,701 tCO₂e emission reductions during period from 31/01/2014⁵-30/06/2019.

SECTION H. Certification statement

>> KBS Certification Services Pvt. Ltd. has been contracted by Aleo Manali Hydropower Pvt. Ltd. to undertake independent verification and certification for the greenhouse gas (GHG) emission reductions reported from the 4.80 MW renewable energy project by Aleo Manali Hydropower Pvt. Ltd., UNFCCC Ref. No. 9212 for the monitoring period 31/01/2014-30/06/2019 in the Monitoring Report Version 1 (first submission) dated 22/07/2019.

The verification is based on the validated and registered PDD and the monitoring report for this project. Our verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakech accord, as well as those defined by the CDM Executive Board.

The management of the Aleo Manali Hydropower Pvt. Ltd. is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project Final Monitoring Report, version 4 dated 25/08/2020. The calculation and determination of GHG emission reductions from the project is the responsibility of the management of the Aleo Manali Hydropower Pvt. Ltd. The development and maintenance of records and reporting procedures are in accordance with the Monitoring Report Version 4 dated 25/08/2020.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the period 31/01/2014-30/06/2019 based on the reported emission reductions in the Final Monitoring Report Version 4 dated 25/08/2020 for the same period.

Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, KBS planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that this reported amount of GHG emission reductions for the period is fairly stated.

KBS confirms the following;

Reporting period: From 31/01/2014-30/06/2019

Verified and certified emission in the above reporting period:

	Amount	Unit
Baseline emissions (BE)	83,701	tCO ₂ e
Project emissions (PE)	0	tCO ₂ e
Leakage emissions (LE)	0	tCO ₂ e
Total CERs (31/01/2014-30/06/2019)	83,701	tCO ₂ e

⁵ The crediting period starts from 31/01/2014, however as project was commissioned later i.e. 26/09/2014, hence for CER calculation the generation prior to commissioning is taken as zero.

Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CERs	Certified Emission Reductions
CL	Clarification Request
CO ₂ e	Carbon dioxide equivalent
COP	Conference of Parties
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
ERs	Emission Reductions
FAR	Forward Action Request
GHGs	Greenhouse Gas(es)
HPSEB	Himachal Pradesh State Electricity Board
JMR	Joint Meter Reading
KP	Kyoto Protocol
kWh	Kilo Watt Hour
LE	Leakage Emissions
MR	Monitoring Report
MP	Monitoring Plan
MWh	Mega Watt Hour
PE	Project Emissions
PDD	Project Design Document
PLF	Plant Load Factor
PS	Project Standard
PCP	Project Cycle Procedure
PP	Project Participant
QA/QC	Quality Assurance/Quality Control
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation & Verification Standard

Appendix 2. Competence of team members and technical reviewers

Personnel Name:		Sanjay Kandari	
Qualified to work as:			
Team Leader	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>
Validator/Verifier	<input checked="" type="checkbox"/>	Financial Expert	<input checked="" type="checkbox"/>
Technical Reviewer	<input checked="" type="checkbox"/>	Local Expert (India)	<input checked="" type="checkbox"/>
Area(s) of Technical Expertise			
Sectoral Scope		Technical Area	
Energy Industries (renewable/non-renewable)		TA 1.1: Thermal energy generation from fossil fuels and	

CDM-VCR-FORM

sources)	biomass including thermal electricity from solar
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources
Energy demand	TA 3.1. Energy Demand
Waste Handling and Disposal	TA 13.1 Waste Handling and Disposal TA 13.2 Manure
Approved by (Manager C & T)	Akhilesh Joshi
Approval date:	11/12/2015

Personnel Name:		Ms. Deboshmita Dey	
Qualified to work as:			
Team Leader	<input type="checkbox"/>	Technical Expert	<input type="checkbox"/>
Validator/Verifier	<input checked="" type="checkbox"/>	Financial Expert	<input type="checkbox"/>
Technical Reviewer	<input type="checkbox"/>	Local Expert	<input type="checkbox"/>
Area(s) of Technical Expertise			
Sectoral Scope	Technical Area		
-	-		
Approved by (Manager C & T)	Sanjay Kandari		
Approval date:	26/11/2019		

Personnel Name:		Rohit Badaya	
Qualified to work as:			
Team Leader	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>
Validator/Verifier	<input checked="" type="checkbox"/>	Financial Expert	<input checked="" type="checkbox"/>
Technical Reviewer	<input checked="" type="checkbox"/>	Local Expert (India)	<input checked="" type="checkbox"/>
Area(s) of Technical Expertise			
Sectoral Scope	Technical Area		
Energy industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar		
	TA 1.2: Energy generation from renewable energy sources		
Energy distribution	TA 2.1: Energy distribution		
Energy demand	TA 3.1. Energy Demand		
Waste Handling and Disposal	TA 13.1 Solid waste and wastewater TA 13.2 Manure		
Approved By	Manager Competency & Training		
Approval date:	29/12/2018		

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	PP	MR (Webhosted)	Version-1 dated 22/07/2019	PP
2.	PP	Final MR	Version-4 dated 25/08/2020	PP
3.	PP	ER Spread sheet ER spread sheet	corresponding to MR Version-1 and Version-4	PP
4.	PP	Registered PDD, Version 05	Dated 24/12/2012	UNFCCC website
5.	Bureau Veritas	Validation Report (Report No. INDIA-VAL/332.49/2012)	Dated 24/12/2012	UNFCCC website
6.	PP and HPSEB	Power Purchase Agreement	Dated 25/08/2018	PP
7.	PP	Commissioning certificate	dated 26/09/2014	PP
8.	PP	Joint Meter readings provided by NHPC covering the monitoring period (31/01/2014-30/06/2019)	-	PP
9.	PP and HPSEB	Invoices raised for the sale of electricity during the monitoring period (31/01/2014-30/06/2019)	-	PP
10.	Electronics regional Test Laboratory and Electrical research and development association	Calibration/testing Certificates of energy meters covering the monitoring period (31/01/2014-30/06/2019)	Dated 09/01/2014, 23/09/2015, 14/05/2016, 11/07/2017, 06/06/2019	PP
11.	Manufacturing agency	Technical specifications of the meters, name plates of the equipments	-	PP
12.	CEA	CO ₂ baseline database for Indian Power Sector http://cea.nic.in/tpeandce.html	Version 05	Web link
13.	UNFCCC	Project webpage	https://cdm.unfccc.int/Projects/DB/DNV-CUK1218186379.41/view	Web link
14.	UNFCCC	/14.1/ AMS I.D-Grid connected renewable electricity generation, Version-17 /14.2/ Tool to calculate the emission factor for an electricity system" (Ver. 2.2.1)	-	UNFCCC
15.	UNFCCC	CDM Validation and Verification Standard for PA	version 02	UNFCCC

16.	UNFCCC	Clean development mechanism project standard for PA	version 02	UNFCCC
17.	UNFCCC	Guidelines for Application of materiality in verifications version 2.0	-	Publicly Available
18.	UNFCCC	CDM-MR-FORM - Monitoring report form for CDM project activity, Version 07.0: https://cdm.unfccc.int/Reference/PDDs_Forms/index.html	-	UNFCCC
19.	IPCC	IPCC, 2006 guidelines Table 1.2 and 1.4 of Chapter 1, Volume 2 http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf	-	Publicly Available
20.	Indian Oil Corporation Limited	Indian Oil Corporation Limited, https://iocl.com/Products/HSD-BS-IVand-BS-VI.pdf		Publicly Available
21.	KBS	Verification contract	Dated 22/04/2019	KBS

Appendix 3. Clarification requests, corrective action requests and forward action requests

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

No FARs raised from validation and previous verification

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

Table 2. CL from this verification

CL ID	01	Section no.	-	Date: 15/07/2020
Description of CL				
The following documents are to be furnished by PP for the verification purpose:				
1. Power Purchase Agreement (To verify the applicability of methodology and monitoring)				
2. Invoices raised for the sale of electricity during the monitoring period (To crosscheck net electricity supplied to grid)				
3. Joint meter readings (To crosscheck net electricity supplied to grid)				
4. Calibration/testing Certificates covering the monitoring period (To verify the monitoring requirements of methodology/PDD)				
5. Photographic evidences of meters, turbines etc. (To verify project implementation/operation)				
6. Plant log book for diesel consumption records (To verify project emissions)				
7. Commissioning certificate (To verify the start date of the PA)				
Project participant response				Date: 13/08/2020

The relevant supporting documents like line diagram, JMR, commissioning documents have been provided.	
Documentation provided by project participant	
-	
DOE assessment	Date: 19/08/2020
<ol style="list-style-type: none"> 1. PPA has not been provided. Open 2. Invoices have not been provided. Open 3. JMR has been provided by PP and was found to be consistent with the ER sheet. 4. Calibration/testing Certificates covering the monitoring period has been provided by PP and was found to be consistent with the ER sheet. 5. Photographic evidences of meters, turbines etc. has been provided by PP and was checked as part of remote audit. 6. No diesel consumption was done during the monitoring period as verified during the remote audit and plant logs where zero consumption was recorded. Also there were no major shutdown during the current monitoring period, hence, DG set was not used and therefore no diesel consumption took place. Also, during any minor shutdown cases, electricity was imported from the grid as verified by the verification team through remote audit (Skype interviews) and also evident in the joint meter readings 7. The commissioning certificate has been provided and was found to be consistent with the mentioned date in the MR. 	
Project participant response	Date: 21/08/2020
The remaining documents has been provided along with this response.	
Documentation provided by project participant	
PPA, JMR etc	
DOE assessment	Date: 21/08/2020
<ol style="list-style-type: none"> 1. The PPA signed between Aleo Manali Hydropower Pvt. Ltd. and Himachal Pradesh State Electricity Board dated 25/08/2018 has been provided by PP and hence the finding is closed. 2. Sample invoices has been provided by PP and was found to be consistent with the ER sheet and revised MR during the cross-check process. Hence, the finding is closed. 	
Hence, the finding is closed.	

CL ID	02	Section no.	E.6.2	Date: 15/07/2020
Description of CL				
In ER sheet, PP needs to clarify the low value of the "Net electricity exported to the grid by the project" for November, 2018.				
Project participant response				Date: 13/08/2020
The project activity uses tail race of other hydro project and the generation varies depending on availability of water discharge. The plant was operational and the low generation was due to lower volume of water discharge available from other hydro project.				
Documentation provided by project participant				
-				
DOE assessment				Date: 19/08/2020
The justification provided by PP was found to be acceptable and the same was validated during the remote audit interviews. Hence, CL 02 is closed.				

Table 3. CAR from this verification

CAR ID	01	Section no.	E.6.1	Date: 15/07/2020
Description of CAR				
Under section D.1 of the webhosted MR, the source links of the CEA database, version 05 and the Indian Oil Corporation Limited to verify the ex-ante parameters " $EF_{grid,OM,y}$ ", " $EF_{grid,BM,y}$ " and " D_{DG} " is not functional.				
Project participant response				Date: 13/08/2020

The link is been replaced with a new valid link in the revised MR.	
Documentation provided by project participant	
MR V02	
DOE assessment	Date: 19/08/2020
The source links of the CEA database, version 05 and the Indian Oil Corporation Limited to verify the ex-ante parameters “ $EF_{grid,OM,y}$ ”, “ $EF_{grid,BM,y}$ ” and “ D_{DG} ” is now functional in the revised MR. Hence, CAR 01 is closed.	

CAR ID	02	Section no.	E.6.2	Date: 15/07/2020
Description of CAR				
Under section D.2 of the webhosted MR, PP has used futuristic language under QA/QC procedures for the monitoring parameter “ $FC_{i,j,y}$ ” which is not representation of monitoring period.				
Project participant response				Date: 13/08/2020
There was a typo error which has been corrected in the revised MR				
Documentation provided by project participant				
MR V02				
DOE assessment				Date: 19/08/2020
The correction has been done in the revised MR. Hence, CAR 02 is closed.				

CAR ID	03	Section no.	E.6.2	Date: 15/07/2020
Description of CAR				
In ER sheet, the monitoring period number mentioned as “sixth” is inconsistent with the webhosted MR i.e. “first”.				
Project participant response				Date: 13/08/2020
There was a typo error in the ER sheet which has been corrected.				
Documentation provided by project participant				
ER Sheet V02				
DOE assessment				Date: 19/08/2020
The ER sheet has not been provided with appropriate correction. Hence, the finding is open.				
Project participant response				Date: 21/08/2020
The same has been corrected.				
Documentation provided by project participant				
ER V03				
DOE assessment				Date: 21/08/2020
The revised ER sheet has been provided by PP and was found to be correct. Hence, the finding is now closed.				

CAR ID	04	Section no.	E.3	Date: 13/08/2020
Description of CAR				
Under section C of the webhosted MR, PP needs to include line diagrams showing all relevant monitoring points (As per the MR Form filling guidelines).				
Project participant response				Date: 13/08/2020
The line diagram has been provided.				
Documentation provided by project participant				
Line diagram				
DOE assessment				Date: 19/08/2020
The line diagrams showing all relevant monitoring points has not been included in the revised MR. Hence, the finding is open.				
Project participant response				Date: 21/08/2020
The line diagram is incorporated in revised MR				
Documentation provided by project participant				

MR V03	
DOE assessment	Date: 21/08/2020
The line diagram showing all relevant monitoring points have been incorporated in the revised MR. Hence, the finding is now closed.	

CAR ID	05	Section no.	E.7	Date: 15/07/2020
Description of CAR				
It is also not clear from the MR whether the energy meters remains operational from the commissioning or there was a change. Also, under Appendix B of the webhosted MR, PP needs to mention which is the main meter and the check meter. The calibration dates of the meter (Type- E3M024) is not covering the monitoring period.				
Project participant response				Date: 13/08/2020
The meter details mentioned in MR V01 were internal meters used by PP for crosscheck purpose only, the same has been replaced with main and check meters used by DISCOM for meter readings and are the basis for JMR.				
Documentation provided by project participant				
<i>Revised MR V02</i>				
DOE assessment				Date: 19/08/2020
It is now clear in the revised MR regarding the main meter and check meter. However there is delay reported in MR and no justification provided.				
Project participant response				Date: 21/08/2020
There was error in reported frequency for calibration, as the frequency defined in registered PDD is 3 years and the meters calibrated more frequently, which is conservative. The same has been corrected in revised MR.				
Documentation provided by project participant				
MR V03				
DOE assessment				Date: 21/08/2020
The justification provided by PP has been found acceptable. Hence, the finding is now closed.				

Table 4. FAR from this verification

No FAR raised from this verification

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

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none">• Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN);• Make structural and editorial improvements.
02.1	11 January 2018	Editorial revision to correct the numbering of appendices in the instructions.
02.0	31 October 2017	Revision to align with the requirements of the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.

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