VALIDATION REPORT

ALEO MANALI HYDROPOWER PRIVATE LIMITED

VALIDATION OF THE

4.80 MW RENEWABLE ENERGY PROJECT BY ALEO MANALI HYDROPOWER PVT. LTD.

REPORT NO. INDIA-VAL/332.49/2012

REVISION NO. 1.0

BUREAU VERITAS CERTIFICATION

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VALIDATION REPORT

Date of first issue:	Organizational unit:
15/11/2012	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
Aleo Manali Hydropower Private Limited	Mr. A.K. Goel

Summary:

Bureau Veritas Certification has made the validation of the "4.80 MW renewable energy project by Aleo Manali Hydropower Pvt. Ltd." located in Aleo Village. Manali Tehsil, Kullu District of Himachal Pradesh, India on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final validation report and opinion. The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the validation process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Appendix A. Taking into account this output, the project proponent revised its project design document.

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies the baseline and monitoring methodology AMS ID, version 17 and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

Report No.:	Subject Group:
INDIA-val/332.49/2012	CDM
Project title:	
4.80 MW renewable energy project by Aleo Manali Hydropower Pvt. Ltd.	
Work carried out by:	
Anupam Badola– Team Leader Rakesh Tripathi – Team Member Karthikeyan & Jayaram – Financial expert	
Internal Technical Review carried our by:	
H.B Muralidhar	

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Work approved by:

Flavio Gomes, Global Product Manager

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1 INTRODUCTION

Aleo Manali Hydropower Private Limited has commissioned Bureau Veritas Certification to validate its CDM project 4.80 MW renewable energy project by Aleo Manali Hydropower Pvt. Ltd. (hereafter called "the project") at Village: Aleo. Tehsil: Manali, District: Kullu of Himachal Pradesh, India

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The validation serves as project design verification and is a requirement of all projects. The validation is an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design, as documented, is sound and reasonable, and meets the stated requirements and identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations.

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

1.3 Validation team

The validation team consists of the following personnel:

FUNCTION	NAME	CODE HOLDER*	TASK PERFORMED
Lead Verifier	Anupam Badola	☒ Yes ☐ No	☒ DR ☒ SV ☐ RI
Verifier	Rakesh Tripathi	☒ Yes ☐ No	☒ DR ☒ SV ☐ RI
Technical	N.A.	☐ Yes ☐ No	☐ DR ☐ SV ☐ RI

Specialist			
Financial Specialist	Karthikeyan & Jayaram	☐**Yes** ☒ **No**	☒**DR** ☐**SV** ☐**RI**
Internal Technical Reviewer (ITR)	H.B. Muralidhar	☒**Yes** ☐ **No**	☐**DR** ☐**SV** ☐**RI**
Specialist supporting ITR	N.A.	☐**Yes** ☐ **No**	☐**DR** ☐**SV** ☐**RI**

*DR = Document Review; SV = Site Visit; RI = Report issuance

2 METHODOLOGY

The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a validation protocol was customized for the project, according to the version 01.2 of the Clean Development Mechanism Validation and Verification Manual, issued by the Executive Board at its 55th meeting on 30/07/2010. The protocol shows, in a transparent manner, criteria (requirements), means of validation and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organizes, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The completed validation protocol is enclosed in Appendix A to this report.

2.1 Review of Documents

The Project Design Document (PDD) submitted by Aleo Manali Hydropower Private Limited and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for Completing the Project Design Document (CDM-PDD), Approved methodology, Kyoto Protocol, Clarifications on Validation Requirements to be Checked by a Designated Operational Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests, Aleo Manali Hydropower Private Limited revised the PDD and resubmitted it on December 2012.

The validation findings presented in this report relate to the project as described in the PDD version 5.0.

2.2 Follow-up Interviews

On 20/03/2012 Bureau Veritas Certification performed physical site visit and interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Aleo Manali Hydropower Private Limited were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Aleo Manali Hydropower Private Limited	➢ Project Design and implementation ➢ Technical Equipment and operation ➢ Compliance with National Laws and regulations. ➢ CDM consideration ➢ Additionality ➢ Local stakeholder consultation and resolution of their concerns ➢ Supporting data, evidences and documentation ➢ Monitoring Plan ➢ Environmental Impacts
LOCAL Stakeholder	➢ Views and concerns about the Project Activity ➢ Confirmation of the local stakeholder meeting conducted by Project participant
Price Waterhouse Coopers	➢ Methodology applicability ➢ Baseline determination & Emission factor ➢ Additionality ➢ Benchmark Analysis ➢ GHG Calculations

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the project design.

Corrective Action Requests (CAR) is issued, where:

(a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
(b) The CDM requirements have not been met;
(c) There is a risk that emission reductions cannot be monitored or calculated.

The validation team may also use the term Clarification Request (CL), if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the verification protocol in Appendix A.

2.4 Internal Technical Review

The validation report underwent a Internal Technical Review (ITR) before requesting registration of the project activity.

The ITR is an independent process performed to examine thoroughly that the process of validation has been carried out in conformance with the requirements of the validation scheme as well as internal Bureau Veritas Certification procedures.

The Lead Verifier provides a copy of the validation report to the reviewer, including any necessary validation documentation. The reviewer reviews the submitted documentation for conformance with the validation scheme. This will be a comprehensive review of all documentation generated during the validation process.

When performing an Internal Technical Review, the reviewer ensures that:

The validation activity has been performed by the team by exercising utmost diligence and complete adherence to the CDM rules and requirements.

The review encompasses all aspects related to the project which includes project design, baseline, additionality, monitoring plans and emission reduction calculations, internal quality assurance systems of the project participant as well as the project activity, review of the stakeholder comments and responses, closure of CARs, CLs and FARs during the validation exercise, review of sample documents.

The reviewer compiles clarification questions for the Lead Verifier and Validation Team and discusses these matters with Lead Verifier.

After the agreement of the responses on the 'Clarification Request' from the Lead Verifier as well as the PP(s) the finalized validation report is accepted for further processing such as uploading on the UNFCCC webpage.

3 VALIDATION CONCLUSIONS

In the following sections, the conclusions of the validation are stated.

The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are described in the Validation Protocol in Appendix A.

The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in Appendix A. The validation of the Project resulted in 16 Corrective Action Requests (CARs) and 11 Clarification Requests (CLs).

The CARs and CLs were closed based on adequate responses from the Project Participant(s) which meet the applicable requirements. They have been reassessed before their formal acceptance and closure.

The number between brackets at the end of each section corresponds to the VVM paragraph.

3.1 Approval (49-50)

India is the only party involved in the proposed CDM project activity at this stage and is the host party. Project participant, M/s. Aleo Manali Hydropower Private Limited, has obtained letter of approval (Ref P/3/) from DNA of India, which is Ministry of Environment and Forest. The validation team does not doubt the authenticity of the letter of approval as the same has been issued on the official letterhead of the Government of India; Ministry of Environment and Forest, signed by Deputy Secretary Climate Change (Letter Ref. No. 4/6/2012-CCC; dated 06/11/2012). The letter of approval clearly states that Government of India has ratified the Kyoto Protocol in August 2002 and the approval is for voluntary participation in the proposed CDM project activity. The project title stated in the letter of approval refers to the precise proposed CDM project activity title in the PDD being submitted for registration. Also, the letter of approval mentions that project contributes to the sustainable development in India. The letter is unconditional with respect to the party to the Kyoto Protocol, voluntary participation, contribution to sustainable development and title of project activity. The validation team confirms that the host country approval letter is in accordance with paragraphs 45 – 48 of VVM version 1.2.

However, at the time of the starting of the validation, the letter of approval was not submitted to the validation team and hence, the validation team raised a clarification request CL-1. In the response to CL-1, the project participant provided a copy of the host country approval letter issued by Ministry of Environment and Forests, Government of India. The validation team has verified the letter of approval and confirms that the letter of approval vides reference no. 4/6/2012-CCC dated 06/11/2012 has been accorded to the project participant. Based on this assessment, the validation team closed CL-1.

3.2 Participation (54)

The host party for this project is India. India has ratified the Kyoto Protocol on 26th Aug 2002. This was checked from UNFCCC website http://maindb.unfccc.int/public/country.pl?country=IN.

The project design document has mentioned M/s Aleo Manali Hydropower Private Limited as project participant and this participation is approved by DNA approval letter (Letter No: 4/6/2012-CCC dated 06/11/2012- (Ref P/3/) is accepted. The participation for project participant has been approved by a Party of the Kyoto Protocol. The validation team confirmed the authenticity of the approval by cross-checking it with the original HCA. The letter of approval clearly states that India has ratified the Kyoto Protocol and the approval is for voluntary participation in CDM project activity. Also, the letter of approval mentions that project contributes to sustainable development.

3.3 Project design document (57)

The project activity was web-hosted on the UNFCCC website from 5/12/2010 to 3/01/2011 with version 1.0 of the PDD (Ref P/1/) applying the small scale CDM modalities and procedures. In line with the requirement of Para 56 of VVM, Version 1.2 (Ref B/1/), the validation team reviewed the web hosted PDD (Ref P/1/) against the CDM-EB guidance document for completion of small scale CDM PDD. The validation team confirms that the Project Design Document is based on the valid CDM-SSC-PDD template.

The validation team reviewed the web-hosted PDD and observed erroneous details with respect to the Guidelines to complete the small-scale CDM PDD. The validation team raised corrective action requests as tabulated below.

The project participant did not provide the project category in accordance with the Appendix B of the simplified modalities and procedures for small-scale CDM project activities and hence CAR 1 was raised by the validation team. The project participant revised the PDD and correctly mentioned the project category as “Grid Connected Renewable electricity generation” in section A.4.2 of the PDD, which is in accordance with the latest list of categories of Appendix B of the simplified modalities and procedures for small-scale CDM project activities. Hence, the validation team closed CAR-1.

The project participant applied AMS I D, version 16 in the web-hosted PDD. However, during the course of the validation, the applied methodology was revised by the CDM Executive Board. CAR 2 was raised with respect to the same. The project participant revised the PDD and correctly applied the valid baseline and monitoring methodology i.e. AMS ID, version 17 currently applicable. Hence, the validation team closed the CAR 2

It was also observed by the validation team that national policies and circumstances relevant to the baseline of the proposed CDM project activity were not provided in the web-hosted PDD. The validation team raised CAR 4 on the same. The project participant provided the details of the national policies and circumstances in the revised PDD. Hence, CAR 4 was closed by the validation team.

It was observed that the project participant did not provide the project start date in the web-hosted PDD. Hence, CAR 5 was raised by the validation team. The project participant in response to CAR 5, clarified that project activity, at the time of the web-hosting, was in a very initial stage and no real action related to the project implementation was taken at that point of time. The validation team also reviewed the civil work orders (Ref P/10/) and electro-mechanical work orders (Ref P/10/) placed by the project participant and confirm that the earliest date of the real action towards project implementation was 17/10/2011 which is based on Letter of Intent (Ref P/11/) for the civil work of the power house and the forebay tank. The project participant provided the same as start date of the project activity in the revised PDD. Hence, the same was accepted by the validation team and closed CAR 5.

It was observed that project participant did not provide any information in section C.2 of the web-hosted PDD. Hence, CAR 6 and CAR 8 were raised. The validation team closed CAR-6 and CAR 8 after review of the corrections in section C.2 of the revised PDD, wherein the details of the opted crediting period (renewable) and renewal frequency (to be renewed upto a maximum of two times) has been mentioned.

A Corrective Action Request (CAR 9) was raised by the validation team as clear description of the project activity and technical specification/description of the equipments involved in the project activity was not provided in section A.4.2 of the web-hosted PDD. In the response to CAR 9, the project participant provided the description of technical specification of the equipments related to the project activity in section A.4.2 of the PDD. The validation team cross-checked the same with techno-economic clearance issued to the project activity by the Government of Himachal Pradesh, dated 09/06/2010 (Ref P/13/) and confirms that the technical description presented in section A.4.2 of the

revised PDD is consistent with the TEC issued by the government. Hence, CAR 9 is closed by the validation team.

The validation team also raised a Clarification Request (CL) 2 as the project description provided under section A.2 of the web-hosted PDD was not clear with respect to the pre-project scenario, project scenario and baseline scenario. The project participant, in response to the CL 2 revised the project description under section A.2 of the revised PDD. The validation team reviewed the revised PDD and confirms that pre-project scenario, baseline scenario and project scenario are clearly stated in the revised PDD and the information was also validated at the time of the physical site visit conducted on 20/03/2012 by a two member validation team. Hence, CL 2 was closed by the validation team.

The validation team hereby confirms that revised PDD, version 5.0 dated 24/12/2012 (Ref P/2/) complies with the latest forms of the guidance documents for completion of PDD and the information therein in accordance with the applicable guidance document (Ref B/1/), and thus complying with para 57 of VVM, version 1.2.

3.4 Changes in the Project Activity

There are no changes in the capacity of the project as observed from the Implementation Agreement for Aleo-II Hydroelectric Project, dated 5/08/2010 (Ref P/14/). The total capacity of the hydro project activity is 4.8 MW.

However, during the course of validation the web hosted PDD did undergo changes and the final PDD version 5.0 have the following changes as compared to the web hosted PDD:

1. Project boundary diagram has been corrected in line with the applied methodology AMS-ID, version 17.
2. Information in section A.2 has been updated to bring more clarity on the pre project scenario and project activity.
3. Description on national policies and circumstances relevant to baseline has been included in section B.5 of the PDD.
4. The applicable baseline and monitoring methodology AMS-I.D. has been changed to its latest version applicable (Version 17)
5. The details on the explanation and justification of baseline, project and leakage emissions are corrected and revised by the project participant
6. The benchmark value has decreased from 20.1% mentioned in the webhosted PDD to 18.36% in the revised PDD, version 5.0
7. The equity IRR calculations have been revised in line with latest guidance on Investment analysis and equity IRR value has increased

from 10.38% in the webhosted PDD to 16.64% in the revised PDD, version 5.0.

8. Monitoring plan and description of monitoring parameters have been revised to transparently describe the process of monitoring at site.

The validation team hereby confirms that revised PDD, version 5.0 dated 24/12/2012 (Ref P/2/) complies with the latest forms of the guidance documents for completion of PDD and the information therein in accordance with the applicable guidance document (Ref B/1/), and thus complying with para 57 of VVM, version 1.2.

3.5 Project description (64)

The proposed project activity involves setting up of 2 x 2.4 MW run-of-the-river power project to produce total 4.8 MW power. The project activity is small hydro power project (SHP) installed on tail race of upper stream Allain Duhangan Hydro Electric Project which is on Allian Nala. The project activity is located in the Aleo Village, Manali Tehsil of state Himachal Pradesh, India. The power generated from the small hydro power project activity will be exported to the Himachal Pradesh State Electricity Board (HPSEB) grid, which is a part of the NEWNE Regional Grid of India.

The project activity is a tail race project of the 192 MW AD hydro project situated upstream of the project activity. The AD Hydro project is also a registered project activity with UNFCCC reference no. 0862 registered on 17/05/2007[1]. The project activity will supply electricity from clean energy source i.e. hydro power to the NEWNE regional grid of India. The proposed small hydro power project is expected to result in annual average gross electricity generation of 20.9678 GWh and the total reduction in Greenhouse Gas (GHG) emissions is expected to be 17,613 tonnes of CO_{2e} per annum.

The validation team carried out the physical site visit of the project activity on 20/03/2012, wherein it was observed that the Aleo II hydro-power project was in initial construction phase and the project activity is proposed to export power to NEWNE grid from the day of commissioning. Validation team noted that the project activity is run of the river hydro power plant and it is operated on the tail race of the upstream project i.e. Allain Duhangan The power generation from project activity is fed to 33/11kV at nearby Prini substation of HPSEB.

The validation team has reviewed the technical specifications of the hydro power project as provided in Detailed Project Report (Ref P/12/) submitted to the H.P Govt. Energy Development Agency (HIMURJA) and

[1] http://cdm.unfccc.int/Projects/DB/DNV-CUK1169040011.34

the same is approved by HPSEB. Therefore validation team confirms that the project equipments are capable of generating 4.8 MW of power based on the review of technical specifications including type, model, capacity, etc. From review of agreement for supply and services of project activity equipments with M/s Flovel Energy Private Limited dated 22/03/2012 (Ref P/10/), it is further confirm that power plant can operate upto 30% overload capacity during higher level of flows. Therefore validation team confirms that the technical specifications provided in the PDD are same as mentioned in agreement for supply and services of project activity equipments with M/s Flovel Energy Private Limited dated 22/03/2012 (Ref P/10/) and Techno economic clearance issued by HPSEB, dated 09/06/2010.

DE-BUNDELING:

The proposed project activity is not a de-bundled component of a large scale project activity. There is a registered project activity with following details in the same category and the same project particiapnt:-

1. The project is registered (UNFCCC Ref 0244) on 14/04/2006.
2. The registered project is with the name of same project developer.
3. The capacity of registered project is 3 MW.
4. The registered project is within 1 Km of the proposed project boundary.

Based on the site visit on 20/03/2012 and UNFCCC website, the validation team is able to conclude that the project was registered (UNFCCC Ref 0244) before 2 years i.e. on 14/04/2006 and total capacity of both the projects is 7.8 MW, which is less than 15 MW. Hence, in accordance with “Guidelines on Assessment of De-bundling for SSC Project Activities” (Annex 13, EB 54), the proposed 4.8 MW project is therefore, not a de-bundled component of a large scale project activity.

The validation team checked the list of project activities registered and under validation in the state of Himachal Pradesh, as displayed on the UNFCCC CDM web site ‘http://cdm.unfccc.int/Projects/projsearch.html and confirmed that there was only one CDM project registered in the name of the project participant as already referred above and there is no other project of the project participant in the region.

The DOE hereby confirms that the project description in the revised PDD (Ref P/2/) is accurate and complete in all respects and that there are no changes to the project activity/design or boundary as compared to the webhosted PDD.

3.6 Baseline and monitoring methodology

3.6.1 General requirement (76-77)

The steps taken to assess the relevant information contained in the PDD against each applicability condition are described below.

Applicability Condition-1 (Sr. No. 1 of methodology): *This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass:*
(a) Supplying electricity to a national or a regional grid; or
(b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.

The project activity is a hydro-electric project. The same was verified through the Implementation agreement, dated 05/08/2010 (Ref P/14/) with Government of Himachal Pradesh and physical site visit conducted by the validation team. The project activity will be connected to HPSEB Prini substation, which is a part of NEWNE Grid. Hence, the validation team could ascertain that the proposed CDM project activity involves electricity generation using only hydro power generation technology and generated power is supplied to regional grid. Hence, this applicability condition is fulfilled.

Applicability Condition-2 (Sr. No. 2 of methodology): *Illustration of respective situations under which each of the methodology (i.e. AMS-I.D, AMS-I.F and AMS-I.A) applies is included in Table 2.*

According to applicability conditions provided in Table 2 of AMS ID, version 17 methodology, the project activity fulfills the first condition of supply of electricity to national or regional grid. The grid connectivity of the project activity was confirmed through the Implementation agreement, dated 05/08/2010 (Ref P/14/) and the physical site visit conducted by the validation team.

Hence project activity fulfills the applicability condition at type 1 of table 2 given under the Methodology. Therefore validation team confirms that use of AMS I.D methodology is correct and it is applicable for project activity.

Applicability Condition-3 (Sr. No. 3 of methodology): *This methodology is applicable to project activities that: (a) Install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant); (b) Involve a capacity addition; (c) Involve a retrofit of (an) existing plant(s); or (d) Involve a replacement of (an) existing plant(s).*

The project activity involves installation of hydro power plant on tailrace water release of upstream project i.e. Allian Duhangan project. This has been confirmed from the Detail Project Report (Ref P/12/) submitted to the H.P. Govt. Energy Development Agency (HIMURJA) and the same is approved by HPSEB on 09/06/2010 (Ref P/13/). Also during site visit on 20/03/2012 validation team observed that there were no previous installations at the site, the project activity can be regarded as a "Greenfield" project of the project participant. The project activity therefore meets condition (a) above and since it is a new Greenfield facility, the rest of the conditions, viz., (b), (c) & (d) do not apply.

Applicability Condition-4 (Sr. No. 4 of methodology): *Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology:*

- *The project activity is implemented in an existing reservoir with no change in the volume of reservoir;*
- *The project activity is implemented in an existing reservoir,7 where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is greater than 4 W/m2;*
- *The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m2.*

The validation team confirmed from site observations and verified through Detail Project Report (DPR) prepared by third party i.e Small Hydro Engineers Consultant Pvt. Ltd. (Ref P/12/) that the project activity has been planned as a "run-of-the-river" hydro-power project and will not result in the creation of any reservoir. The same was also confirmed during the physical site visit conducted by the validation team. Hence, this condition is not applicable to the project activity as there is no reservoir.

Applicability Condition-5 (Sr. No. 5 of methodology): *If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.*

The project activity consists of installation of new hydro power turbine-generators. The same was noted from the Supply/Service agreement copies placed on the equipment supplier i.e M/s Flovel Energy Private Limited, dated 22/03/2012 (Ref P/10/), which indicate that new equipment have been ordered for the project activity. The project activity involves installation of renewable power generation equipment only. Hence, this condition is not applicable. Further as explained above, the project

activity is a Greenfield run of river small hydro power plant having total installed capacity of 4.8 MW and the same is well below the 15 MW small-scale thresholds.

Applicability Condition-6 (Sr. No. 6 of methodology): *Combined heat and power (co-generation) systems are not eligible under this category.*

The proposed project activity is a Run-of-River small hydro power generation plant, hence this applicability condition is not relevant.

Applicability Condition-7 (Sr. No. 7 of methodology): *In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct9 from the existing units.*

As stated above, the project activity involves installation of new hydro power plant which is confirmed from Supply/Service agreements (Ref placed on equipment supplier i.e M/s Flovel Energy Private Limited, dated 22/03/2012 (Ref P/10/). The power generation facility is also a "greenfield" installation, as it is a new site and there was no other facility already existing at the site.

Hence, this condition which essentially relates to the addition of renewable energy generation units at an already existing renewable power generation facility does not apply as this is Greenfield project activity.

Applicability Condition-8 (Sr. No. 8 of methodology): *In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.*

The project activity is a Greenfield project involving the procurement and installation of totally new equipments. There is no other equipment already existing at the sites. Hence, this condition is not applicable. Further the rated capacity of each turbine-generator (TG) set in the project activity is 2.4 MW. The number of TG sets in the project activity is 2; hence the aggregate rated capacity of the project activity is 4.8 MW.

The output capacity of the proposed project activity is 4.8 MW, which is less than the limit of 15 MW as specified for small scale project activities, in the General Guidance to SSC CDM methodologies (Ref B/11/). The rated capacity of equipment would remain under the limits of 15 MW over the entire length of the crediting period. Hence, the project activity is eligible to qualify as a small scale project activity, as per the General Guidance to SSC CDM methodologies.

The Validation team, based on above assessment, hereby confirms that the selected baseline and monitoring methodology AMS ID, version 17 (Ref B/2/), Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion Version 2.0 (Ref B/3/) and Tool to calculate emission factor for an electricity system Version 2.2.1 (Ref B/14/) is previously approved by the CDM Executive Board, and is applicable to the proposed CDM project activity, which, complies with all the relevant applicability conditions therein.

The Validation team hereby confirms that, as a result of the implementation of the proposed CDM project activity, there are no greenhouse gas emissions occurring within the proposed CDM project activity boundary, which are expected to contribute more than 1% of the overall expected average annual emissions reductions, which are not addressed by the applied methodology.

3.6.2 Project boundary (80)

The DOE validated the project boundary by:

a) The spatial extent of the project boundary is assessed based on the description provided in the PDD and as per the official data available from the Central Electricity Authority (CEA) about the regional grid in India (Ref B/4/). The power generated by the project activity would be exported to the Himachal Pradesh State Electricity Board grid, which is a part of the NEWNE (Northern, Eastern, Western, and North-Eastern) regional electricity grid of India. The project activity boundary therefore includes the project power plant (hydro) and all other power plants connected physically to the NEWNE grid.

b) The validation team confirmed from Detail Project Report (DPR) and interview of representatives of the project participant that the project activity is run-of-river and the water from the tail race of upstream project Allian Duhangan is diverted and channelized through the intake structure and penstocks to the power house. The generated power will be stepped up and then transmitted to the Prini substation. The project activity will also consist of Diesel Generator (DG) set installed at the sites. All these elements are a part of the project activity. The geographical boundary of the project activity therefore encompasses these elements and is also correctly described as such in the project boundary diagram.

The project participant had not provided the description of the project boundary in accordance with the applied baseline and monitoring methodology. Hence, validation team raised CAR 10. In response, project participant revised the project boundary description and diagram in accordance with latest baseline and monitoring methodology i.e. AMS ID, version 17. As the proposed project activity is on tail race of up-stream

Allian Duhangan Hydro project of 192 MW capacity, the project participant has also included the upstream Allian Duhangan project in the project boundary and the same is accepted by the validation team. The revised description and the project boundary diagram presented in the PDD Version 5.0 was accepted by the validation team as it meets the methodological requirements and correctly represents the project activity. Hence, CAR 10 was closed by the validation team.

Based on the above assessment, the DOE hereby confirms that the identified boundary and the selected sources and gases are justified for the project activity.

3.6.3 Baseline identification (87-88)

The steps taken to assess the requirement given in paragraph 81 and 82 of the VVM are described below:

The project activity includes installation of new renewable (hydro) energy generating units, which deliver power to the NEWNE grid of India. The baseline scenario identified by the project participant is *"the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system"*. This is in accordance with the paragraph 10 of the applied baseline and monitoring methodology AMS I D, Version 17 (Ref B/2/).

The baseline for the project activity is prescribed in the methodology. As per the AMS I.D methodology, the baseline for hydro power project is the electricity produced by the generating unit (measured in MWh) multiplied by an emission factor (measured in tCO_2e/MWh).

$$BE_y = EG_{BL,y} * EF_{CO2,grid,y}$$

Where:

BE_y	=	Baseline Emissions in year y (t CO_2)
$EG_{BL,y}$	=	Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh)
$EF_{CO2,grid,y}$	=	CO_2 Emission Factor of the grid in year y (t CO_2/MWh)

Project participant has used the official published data from the Central Electricity Authority on operating and build margin emission factors (Ref B/4/). The version of the CEA database used is Version 5, which was

available on the start date of validation viz; webhosting date of the PDD. This data is published by Central Electricity Authority (CEA), which is the sole authority for the publication of such data in India. The project participant has applied weight factors for the OM and BM (50% & 50% respectively) as specified in the tool to arrive at the emission factor for the combined margin. The years considered for OM are 2006-07, 2007-08 and 2008-09 and for the BM it is 2008-09. Accordingly, the combined margin emission factor is calculated as 0.8401 tCO_2/MWh.

The Version 5.0 of CEA database follows the "Tool to calculate the emission factor for an electricity system", Version 01.1.0 (Ref B/15/). The validation team compared the latest version 2.2.1 of "Tool to calculate the emission factor for an electricity system" (Ref B/14/) with version 01.1.0

The validation team has the following observations:

1. Version 2.2.1 of the tool has extended the procedure for the identification of sample groups of power units relevant to build margin calculation. However this does not change the calculation method of build margin emission factor.

2. The paragraph 2 under Step-1 of the Tool states: "If a connected electricity system is located partially or totally in Annex-I countries, then the emission factor of that connected electricity system should be considered zero".
   The project activity is connected to the NEWNE Grid which is part of the Indian Regional Grid (electricity system) and this electricity /grid system is not located partially / totally in any Annex I country.

Hence, the approach to determine the OM, BM and CM remains similar to that in the previous versions of the tool. Besides, the project participant has chosen to exclude the off-grid power plants in the project electricity system in the calculation of the grid emission factor. Hence, the CEA database version 5.0, though based on a previous version of the tool, can still be regarded as appropriate for the purpose of computation of the grid emission factor. Besides, this was not officially published and available at the time of the start of the validation i.e. web-hosting of the project activity for global stakeholder comments.

Validation team agrees to the emission factor computed by the project participant as it is based on the official background data published by CEA. The Central Electricity Authority is a statutory Body in India, constituted under the erstwhile Electricity (Supply) Act, 1948, that was subsequently replaced by the Electricity Act 2003 and is under the Ministry of Power, Government of India. The data published by the CEA is an official publication of the Government of India and can definitely be regarded as a reliable and authentic source of data for the determination

of CDM baselines. The validation team further notes that the emission factor is not provided by the DNA of the host party, but by a credible and competent authority of the Government of India. The provisions of paragraph 64 of EB 43 in this regard therefore are not applicable.

Validation team raised CL 4 as it was not clarified as how the emission factor values i.e. OM, BM and CM considered from CEA database version 5 are valid considering the fact that CEA database version 5 is based on emission factor tool version 01.1.0 and latest version of available tool of emission factor is version 2.2.1. In response to CL 4, PP clarified that there is no essential major difference between both the versions of emission factor tool and emission factor value calculated by using both the versions of tool. Validation team has checked the OM, BM and CM values calculated using both the versions of tool and available in CEA database version 5 (based on version 01.1.0) and CEA database Version 7 (based on version 2.2.1) for the same data vintage available at the time of the web-hosting of the project activity i.e. year 2006-07, 2007-08 and 2008-09. It is confirmed that the emission factor OM, BM and CM are same up to the 4th digit. Hence Validation team accepted the use of CEA database version 5 which is based on most recent generation data of power plants available at the time of submission of CDM-PDD to DOE for validation. Hence, validation team closed CL 4.

It is noted that the selected baseline scenario is in line with the selected approved methodology. Validation team therefore confirms that the selected baseline scenario reasonably represents what would happen in the absence of the project activity.

Based on the above assessment, the DOE hereby confirms that:
(a) All the assumptions and data used by the project participants are listed in the PDD, including their references and sources;
(b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD;
(c) Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;
(d) Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD;
(e) The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity.

3.6.4 Algorithms and/or formulae used to determine emission reductions (92-93)

The steps taken to assess the requirement outlined in paragraph 89 the VVM are described below:

As per AMS ID, version 17, the baseline is the product of electrical energy baseline $EG_{BL,y}$ expressed in MWh of electricity produced by the renewable generating unit multiplied by an emission factor

The project participant has calculated the baseline emissions by multiplication of the net electricity supplied by the project activity to the grid and the grid emission factor. The detailed algorithms are transparently described under sections B.6.1 and B.6.3 of the revised PDD, version 5.0 (Ref P/2/).

As required under AMS ID, Para 11, the baseline emissions are calculated by the algorithm $BEy = EG_{BLy} * EF_{CO2grid\ y}$

Where,

BE_y = baseline emissions in year y (tCO_2)
$EG_{BL,y}$ = Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh)
$EF_{grid,CM,y}$ = combined margin CO_2 emission factor of the grid

The algorithm to calculate the emission reductions from the project activity are described as;

ERy = BEy-PEy-LEy

Where
ERy is Emission reductions in year y (t CO_2/y)
BEy is Baseline Emissions in year y (t CO_2/y)
PEy is Project Emissions in year y (t CO_2/y)
LEy is Leakage Emissions in year y (t CO_2/y)

The project activity is Greenfield project which involves the installation of new equipments and does not involve any transfer of equipments from any other activity. Hence leakage emissions are considered as zero.

Parameter, Value	Source of information	Validation justification
Project Capacity, 4.8 MW	Detail project report prepared by third party i.e. Small Hydro Engineers Consultants Pvt. Ltd (Ref P/12/)	The project capacity was cross checked with the Supply contract Agreement Copy, dated 22/03/2012 (Ref P/10/) and also checked with the techno-

		economic clearance issued to the project activity from Government of Himachal Pradesh (Ref P/13/).
Two Number of turbines of 2400 kW each.	Detail project report prepared by third party i.e. Small Hydro Engineers Consultants Pvt. Ltd (Ref P/12/)	The number of turbines is cross checked with the Supply contract Agreement Copy, dated 22/03/2012 (Ref P/10/) also checked with the techno-economic clearance issued to the project activity from Government of Himachal Pradesh (Ref P/13/).
Plant Load Factor (PLF) in the project activity = 50.37%	The PLF has been sourced from DPR prepared by third party i.e. Small Hydro Engineers consultants Pvt. Ltd (Ref P/12/).	The PLF reported in the DPR is based on detailed power potential studies and the 75% dependable year flow calculations have been considered for the PLF estimation from the project activity and meets the EB 48 Annex 11 guidance on PLF determination for renewable energy projects. The validation team also cross-checked the PLF from the Tariff order published by the Central Electricity Regulatory Commission dated 26/04/2010 (available at the time of the investment decision)[2]. The tariff order refers 45% capacity utilization factor for small hydro projects in Himachal Pradesh (where the project activity is located). Hence, the validation team confirms that the PLF determined in the DPR is conservative from the additionality point of view and accepted by the validation team.
Auxiliary consumption and transformation lossess = 1%	HPERC Commission's order on Small Hydro Power Project Tariff and Other Issues dated December 18, 2007, applicable during investment decision[3].	The auxiliary consumption and transformation losses reported are based on HPERC Tariff order. The validation team also cross-checked the auxiliary consumption value from the Tariff

[2] http://www.cercind.gov.in/2010/ORDER/April10/Final_RE_Tariff_Order_FY2010-11(53-2010_Suo-motu).pdf
[3] http://www.hperc.org/orders/shpp.doc

		order published by the Central Electricity Regulatory Commission dated 26/04/2010 (available at the time of the investment decision)[4]. The tariff order refers 1% value of auxiliary consumption for small hydro projects. Hence, the validation team accepted 1% value for the auxiliary consumption and transformation losses considered by the project participant.
Net electricity supplied to the grid = 20.9678 million units	This is calculated value based on 50.37% PLF and after accounting the 1% auxiliary consumption and transformation losses as reported above.	This is calculated value based on 50.37% PLF and after accounting the 1% auxiliary consumption and transformation losses as reported above.
Baseline EF, 0.8401 tCO2/MWh for NEWNE grid	CEA database version 5. (Ref B/4/)	CEA database is an official source of data and CEA database Version 5 was the version available at the start of validation viz; webhosting of the PDD for global stakeholder comments and hence accepted. The detailed explanation on the same is provided in section 3.6.3 of the validation report.

The project participant though provided the ex ante calculations of the baseline emissions and emission reduction in section B.6.3 of the PDD, the source of equations used and the value of the parameters were not clear with respect to the applied methodology. Hence, CL 3 was raised. The project participant, in response to CL 3, provided the revised PDD wherein the references and sources of the applied methodology AMS-I.D. Version 17 were provided under B.6.3 of the revised PDD. In, addition, the computation of the baseline emissions was further elaborated for the clarity to enable the reader to reproduce the calculations. Hence, CL 3 was closed by the validation team.

CAR 16 was raised, as the value of the CO_2 emission factor of the diesel was not considered as per the "Tool to calculate project or Leakage CO2 emission from fossil fuel combustion". In response, the project participant has considered the upper limit of the default value of the parameter "CO_2 emission factor of the diesel" as prescribed by the "Tool to calculate project or Leakage CO2 emission from fossil fuel combustion", hence accepted by the validation team and CAR 16 is closed. The combined

[4] http://www.cercind.gov.in/2010/ORDER/April10/Final_RE_Tariff_Order_FY2010-11(53-2010_Suo-motu).pdf

margin, build margin and operating margin emission factor fixed ex ante by the project participant (the validation opinion on the same has already been provided in section 3.6.3 of the report in detail). In addition, the project participant has also fixed following parameters ex ante:

Net calorific value and emission factor of diesel: The project participant has considered these values based on the IPCC default guidelines 2006 (Chapter 1). The upper uncertainty range has been considered by the project participant and it is in accordance with the Tool to calculate project or leakage CO2 emissions from fossil fuel combustion (Ref B/3/). The project participant has also provided that the in case there is any revision in value from the IPCC, the revised value will be used. This is also in accordance with the Tool to calculate project or leakage CO2 emissions from fossil fuel combustion (Ref B/3/). In addition, the oxidation factor of diesel has also been considered by the project based on IPCC default guidelines 2006 (Chapter 1). The density of diesel has been considered by the project participant based on publicly available specifications of diesel from the Indian Oil Corporation Limited (IOCL) and average value (as 0.832kg/ltr) from the range of density provided by the IOCL has been considered by the project participant. Hence, the validation team also confirms that the ex ante parameters provided by the project participant under section B.6.2 of the PDD Version 5.0 are appropriate.

The estimated annual average of emission reductions of approximately 17,613 tCO_2e over the 7 year renewable crediting period of emission reductions represents a reasonable estimation using the assumptions given by the project activity. All the assumptions for this estimate either come from the assumptions used for investment analysis or grid emission factor as taken from data provided by the CEA website. The assumptions made for investment analysis are already validated in section 3.6.3 of this report. The validation team confirms that the estimates of baseline emissions can be replicated using the information provided. It also can be verified from the spreadsheet (Ref P/7/) for calculations of CERs.

Based on the above assessment, the DOE hereby confirms that:
(a) All assumptions and data used by the project participants are listed in the PDD, including their references and sources;
(b) All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD;
(c) All values used in the PDD are considered reasonable in the context of the proposed CDM project activity;
(d) The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;

(e) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.

3.7 Additionality of a project activity (97)

The proposed CDM project is a small scale project activity as per the classification of type I small scale projects provided in General Guidelines to SSC CDM methodologies (Ref B/11/) provided by CDM-EB in Annex 21 of EB 61 (As per VVM track submission). Therefore, in accordance with § 28 of the simplified modalities and procedures for small-scale CDM project activities, the additionality of the project activity has been demonstrated using "Guidelines on the demonstration of additionality of small-scale project activities" Version 09 (Ref B/9/) and the prior consideration guidance given vide Annex 13 of EB 62 (Ref B/8/). As all requirements specified vide § 28 of the simplified modalities and procedures are complied with by the project activity, this approach has been assessed to be appropriate for the additionality assessment for this project activity.

The steps taken and sources of information used to cross-check the information contained in the PDD on this matter are described in the subsequent sections from 3.7.1 to 3.7.5 of this report below.

3.7.1 Prior consideration of the clean development mechanism (104)

The start date of this project activity is 17/10/2011 (Ref P/11/). As per the CDM glossary of terms, the start date is defined as "*the earliest date at which either the implementation or construction or real action of a project activity begins"*. The project activity is a 'Greenfield hydro-power plant' at a site where no previous facility existed. The earliest "real action" taken by the project participant towards the implementation of the project activity was in the form of Letter of Intent placed for the civil work of power house and forebay tank. Therefore, it can be regarded that the start date of the project activity is after 2nd of August 2008. Hence in accordance with EB 62 Annex 13, the following condition applies:

"Project activities with a starting date on or after 2 August 2008, the project participant must inform a Host Party designated national authority (DNA) and the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status. Such notification must be made within six months of the project activity start date and shall contain the precise geographical location and a brief description of the proposed project activity, using the standardized form F-CDM-Prior Consideration."

However, in accordance with Para 2 of the EB 62 Annex 13:

Such notification is not necessary if a project design document (PDD) has been published for global stakeholder consultation or a new methodology proposed to the Executive Board for the specific project before the project activity start date.

The validation team confirms that the project activity was web-hosted for the global stakeholder comments from 5th December 2010 to 3rd January 2011 on UNFCCC website[5]. Since the start date of the project activity is 17/10/2011, it can be regarded that project activity was published for the global stakeholder comments prior to the start date and hence, following the CDM Executive Board guidance of EB 62, Annex 13: *Such notification is not necessary if a project design document (PDD) has been published for global stakeholder consultation or a new methodology proposed to the Executive Board for the specific project before the project activity start date.*

However, the project participant has also informed the UNFCCC on the prior consideration and the same was verified from the UNFCCC website. The UNFCCC prior consideration section confirms that UNFCCC secretariat received the prior consideration information on the project on 16/07/2010 i.e. even prior to the project start date.
Based on the above assessment, the validation team hereby confirms that the proposed CDM project activity complies with the requirements of the latest version of the Guidance on prior consideration of CDM as applicable under VVM (Version 1.2) requirements.

3.7.1.1 Historical information on project timeline

The project start date is 17/10/2011. Therefore, the project is a new project activity having start date after 2nd Aug. 2008 in accordance with EB 62, Annex 13. Hence, historical information on project timeline with respect to any real action prior to start date of project activity is not applicable.

The validation team reiterates that the project start date is 17/10/2011 which is in line with EB 62 Annex 13. The PP had informed UNFCCC regarding the commencement of the project activity and of their intention to seek CDM status even prior to the project activity start date (the same has been discussed in the detail under section 3.7.1 of the validation report).

3.7.2 Identification of alternatives (107)

As described above in section 3.6.1 of this report, the project participant has correctly applied baseline and monitoring methodology AMS ID, Version 17 to the project activity. The paragraph 10 of this methodology

[5] http://cdm.unfccc.int/Projects/Validation/DB/4O47PX3IPY123TXLBK0B4HETLG9YJ4/view.html

prescribes the baseline scenario for a project activity involving installation of a new grid connected renewable power plant/unit.

The baseline for such a project activity is defined as “the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid connected power plants and by the addition of new generation sources”. The validation team hereby confirms that no further identification of alternatives is required in view of the applied methodology itself prescribing the baseline scenario.

3.7.3 Investment analysis (114)

The project participant has demonstrated the additionality of the project activity using the investment analysis, in accordance with “Guidelines on the demonstration of additionality of small-scale project activities” Version 09 (Ref B/9/) of simplified modalities and procedures for SSC CDM project activities.

The proposed CDM project activity involves hydropower generation by installation of new 2x2.4 MW small hydro project. Due the proposed CDM project activity the project participant will have main cash inflow by selling the power to Himachal Pradesh state electricity grid. Also there will be potential CDM revenue in case project gets registered as CDM project with UNFCCC, hence simple cost analysis cannot be used. The project participant has selected benchmark analysis for the demonstration of additionality.

The baseline alternative to the project activity is defined by methodology AMS ID version 17 which is, equivalent power generation would take place by grid connected fossil fuel fired power plants. Hence, as per paragraph 19 of guidelines on the assessment of investment analysis, EB 62, Annex 5 (Ref B/10/), the benchmark analysis approach is correct. Validation team accepts that if alternative to project activity is the supply of power from a grid then this is not to be considered as an investment and benchmark approach is considered appropriate. Thus, investment comparison analysis is appropriate in accordance with Guidelines on the assessment of Investment Analysis.

Thereby, the validation team has concluded that the benchmark analysis selected by the project participant is the most appropriate method of demonstrating the additionality of the proposed CDM project activity and is also in conformity with the Guidance 19 of Annex 5 of EB 62 (Ref B/10/) and Para 109 of VVM, Version 1.2 (Ref B/1/).

The webhosted PDD did not explain the suitability of selection of financial indicator while using investment analysis method. In addition the financial indicator chosen was not consistently reported in the web-hosted PDD.

Hence validation team raised CL 5 and CL 6 with respect to the same. In response to CL 5 and CL 6, the project participant clarified that equity IRR have been considered as a financial indicator. The same was accepted by the validation team as equity IRR is one of the financial indicator reported in EB 62 Annex 5 and the project participant met the requirement cited under Para10 of the EB 62, Annex 5 in the investment analysis computation. Further, the project participant included the justification of selection of financial indicator and its comparison with appropriate benchmark in section B.5 of revised PDD. The validation team reviewed and found the same to be in compliance with investment analysis guidance (EB 62 Annex 5) and appropriate to the type of proposed CDM project activity. Therefore validation team closed CL 5 and CL 6.

Investment Analysis: Input Parameters

The validation team noted that the sources for most of the input parameters provided in the web hosted PDD were not appropriately mentioned and applied with respect to the timing of investment decision. Also, the objective evidences were not provided to the validation team. The validation team raised Clarification CL 9 towards inappropriateness and errors in the input values. With respect to CL 9, the project participant submitted sources for all the input parameters and corrected the sources for those parameters in revised PDD and spreadsheets. The validation team reviewed all the responses and the corresponding revisions done in the revised PDD, version 5.0 (Ref P/2/) and found them to be appropriate. Hence CL 9 was closed by the validation team.

All input data and assumptions used in Investment analysis have been cross checked by the validation team from publicly available sources to the maximum possible extent. The financial calculations have been verified by the independent financial expert engaged by the Bureau Veritas Certification to confirm them to be in order with standard accounting principles of the host country. Each of the input assumption considered by the project participant in the investment analysis is explained below:

Parameter	Value used	Source of value	Validation justification
Project capacity	4.8 MW	Detail project report prepared by third party i.e. Small Hydro Engineers Consultants Pvt. Ltd. and available at the time of the investment	The project capacity was further cross-checked with Techno-economic clearance (Ref P/13/) issued to the PP for the project activity. As per the techno-economic clearance, the project capacity is 4.8 MW. The project implementation agreement (Ref P/14/) signed

		decision (Ref P/12/)	with the state government of Himachal Pradesh also refers to the project capacity as 4.8 MW only. Hence, the same was accepted by the validation team.
Plant Load Factor (PLF) in the project activity	50.37%	Detail project report prepared by third party i.e. Small Hydro Engineers Consultants Pvt. Ltd. and available at the time of the investment decision (Ref P/12/)	The PLF reported in the DPR is based on detailed power potential studies and the 75% dependable year flow calculations have been considered for the PLF estimation from the project activity and meets the EB 48 Annex 11 guidance on PLF determination for renewable energy projects. The validation team also cross-checked the PLF from the Tariff order published by the Central Electricity Regulatory Commission dated 26/04/2010 (available at the time of the investment decision)[6]. The tariff order refers 45% capacity utilization factor for small hydro projects in Himachal Pradesh (where the project activity is located). Hence, the validation team confirms that the PLF determined in the DPR is conservative from the additionality point of view and accepted by the validation team.
Auxiliary consumption and transformation losses	1%	HPERC Commission's order on Small Hydro Power Project Tariff and Other Issues dated December 18, 2007, applicable during investment decision[7].	The auxiliary consumption and transformation losses reported are based on HPERC Tariff order. The validation team also cross-checked the auxiliary consumption value from the Tariff order published by the Central Electricity Regulatory Commission dated 26/04/2010 (available at the time of the

[6] http://www.cercind.gov.in/2010/ORDER/April10/Final_RE_Tariff_Order_FY2010-11(53-2010_Suo-motu).pdf
[7] http://www.hperc.org/orders/shpp.doc

			investment decision)[8]. The tariff order refers 1% value of auxiliary consumption for small hydro projects. Hence, the validation team accepted 1% value for the auxiliary consumption and transformation losses considered by the project participant.
Net electricity supplied to the grid	20.8697 million units (kWh)	This is calculated value based on 50.37% PLF and after accounting the 1% auxiliary consumption and transformation losses as reported above.	This is calculated value based on 50.37% PLF and after accounting the 1% auxiliary consumption and transformation losses as reported above.
Royalty on water usage in the form of free power from the 16th year onwards	9% for first 12 years of operation 18% from 13th year to 30th year of operation 27% from 31st year onwards	Letter from the principle secretary Govt. of HP to HPSEB regarding self identified stand alone hydro power project dated 17/11/2008 (Ref P/29/)	It was understood through the document review that normal free royalty charges are 6% (till 12th year), 12% (from 13th year onwards until 30th year) and 24% (from 31st year onwards). However, as per the implementation agreement signed with the Govt. Of H.P., the initially awarded capacity for the project activity was of 2.4 MW to carry out the detailed investigations (Ref P/12/. The PP submitted the project DPR of 4.8 MW capacity to the Government of Himachal Pradesh after carrying out the detailed investigations. The same was approved and the techno-economic clearance accorded to the project on 09/06/2010 (Ref P/13/) for 4.8 MW capacity. However, as per the prevailing regulations of the Government of H.P., in case there is more than 20% increase in the

[8] http://www.cercind.gov.in/2010/ORDER/April10/Final_RE_Tariff_Order_FY2010-11(53-2010_Suo-motu).pdf

			project capacity, 3% additional royalty charges are applicable[9]. Hence, the free royalty charges applicable for the project are 9% (till 12th year), 15% (from 13th year onwards until 30th year) and 27% (from 31st year onwards). The same was also cross-checked with the implementation agreement signed with the Government of Himachal Pradesh (Ref P/14/). Since, the information was available at the time of the investment decision; the validation team confirms that free royalty charges considered by the project participant are correct and applicable to the investment decision timing.
Free power to Local Area	1%	Techno-economic clearance issued to the project from the Government of Himachal Pradesh (Ref P/13/)	The free power to the local area development is over and above the free royalty payable to the Government of Himachal Pradesh. The validation team also cross-checked the same with the implementation agreement signed with the Government of Himachal Pradesh (Ref P/14/).
Local Area Development Charge (LADC)	1% of the project cost	Techno-economic clearance issued to the project from the Government of Himachal Pradesh (Ref P/13/)	The information was cross checked with the state government of Himachal Pradesh, notification dated 05/10/2011 bearing ref no:- MPP-F (10)-24/2011 (Ref /31/
Power Tariff per kWh (in INR)	3.24/kWh for first 12 years of operation 3.17/kWh from 13th	HPERC commission's order on small hydro power projects tariff and other issues dated 10th	The tariff in the project activity has been computed by the project participant from the state electricity regulatory commission tariff order dated 10th Feb. 2010. As per the tariff order the Normal levelised tariff

[9] http://himurja.nic.in/invguide.html

	year to 30th year of operation 3.31/kWh from 31st year onwards	February, 2010[10].	is Rs. 2.95/kWh. The tariff order provides formula for the tariff computation in case the free royalty is changed from the values referred in the tariff order. As discussed above, due to increase in the free royalty to the state government, the tariff rate was accordingly computed by the PP based on the guidance provided in the state electricity regulatory commission tariff order dated 10th Feb. 2010. It was understood from the project participant that Power Purchase Agreement (PPA) has not been signed yet. However, the values considered at the time of investment decision for the tariff rate are based on the tariff order published by the HP State Electricity Regulatory commission that forms the basis for the tariff for small scale hydro projects in the quoted power selling rates in Power Purchase Agreements signed on preferential tariff[11]. Hence, the same was accepted by the validation team. Hence, the validation team confirms that the tariff considered by the project participant is applicable at the time of the investment decision and based on the Government commission's tariff orders.
O&M cost and annual	2.25% of project	HPERC Commission's	The O & M cost and year on year escalation in the O&M cost

[10] http://www.hperc.org/orders/supshp.doc This was a supplementary tariff order published by the state regulatory commission for few changes in the tariff order of year 2007. The PP has referred to this tariff order for the amendments took place in tariff which is conservative and applicable to the decision timing. For the remaining input parameters, the previous tariff order dated December 2007 has been referred by the PP as the same was applicable at the time of the investment decision.

[11] At the time of the investment decision of the project activity, the Renewable Energy Certificate (REC) mechanism was available in India for renewable energy projects. However, in accordance with the clarification given by the CDM Executive Board to Bureau Veritas Certification, dated 10/02/2012 the additionality needs to be demonstrated on the policy in place as of 11/11/2001, which corresponds to fixed tariff approach. Accordingly, the project participant has demonstrated the additionality based on preferential tariff applicable at the time of investment decision.

escalation in O&M cost	cost with year on year escalation of 4%	Order on Small Hydro Power Project Tariff and Other Issues dated December 18, 2007[12]	considered by the project participant is based on the tariff order published by the state electricity regulatory commission[13] applicable at the time of the investment decision. The validation team also cross-checked the O & M cost and year on year escalation in the O&M cost considered from the Tariff order published by the Central Electricity Regulatory Commission dated 26/04/2010 (available at the time of the investment decision)[14]. The tariff order refers 2.22/MW million INR as O&M cost which arrives 10.65 million INR for 4.8 MW capacity which is higher than the O&M cost considered by the project participant. Similarly, the year on year escalation stated in the CERC Tariff order[15] is 5.72%. Hence, the validation team confirms that 2.25% of the project cost as O&M cost and 4% annual escalation in O&M considered by the PP at the time of the investment decision are conservative and the same was accepted by the validation team.
Total Project cost,	326.2 million INR	Detail project report prepared by third party i.e. Small Hydro Engineers Consultants Pvt. Ltd. and available at the time of the investment decision (Ref P/12/)	The project cost considered by the project participant has been sourced from the Government approved DPR (Ref P/12/) and the Techno-economic clearance issued to the project from the Government of Himachal Pradesh (Ref P/13/). The project cost referred in the DPR is consistent with the techno-economic clearance (Ref P/13/) issued by the Government of

[12] http://www.hperc.org/orders/shpp.doc
[13] http://www.hperc.org/orders/shpp.doc
[14] http://www.cercind.gov.in/2010/ORDER/April10/Final_RE_Tariff_Order_FY2010-11(53-2010_Suo-motu).pdf
[15] http://www.cercind.gov.in/2010/ORDER/April10/Final_RE_Tariff_Order_FY2010-11(53-2010_Suo-motu).pdf

		And Techno-economic clearance issued to the project from the Government of Himachal Pradesh (Ref P/13/)	Himachal Pradesh. The project activity has not yet commissioned and is in the very initial state of construction and likely to be commissioned by 2013. The validation team also cross-checked the project cost from the tariff order published by the Central Electricity Regulatory Commission (CERC) for financial year 2012-13[16] which specify the project cost for small hydro projects (less than 5 MW) as 77.0 million INR/MW as compared to the 67.9 million INR/MW (INR 326.2 million / 4.8MW = 67.96 million INR) considered by the project participant. Hence, the validation team accepted the project cost considered by the project participant.
MNRE capital subsidy	40.5 million INR	HPERC Commission's Order on Small Hydro Power Project Tariff and Other Issues dated December 18, 2007[17]	The project participant has considered the MNRE capital subsidy available to the small-hydro projects. The same has been computed by the project participant in accordance with the provisions provided in the HPERC tariff order[18]. Hence, the same was accepted by the validation team. The financial expert engaged in the validation of the investment analysis computation also approved the MNRE capital subsidy considered by the project participant in the investment analysis.
Debt : Equity Ration	70 : 30	HPERC Commission's Order on Small Hydro Power Project Tariff	The debt equity ratio considered by the project participant is based on the tariff order published by the state electricity regulatory

[16] http://www.cercind.gov.in/2012/orders/RE_35_2012.pdf
[17] http://www.hperc.org/orders/shpp.doc
[18] http://www.hperc.org/orders/shpp.doc

		and Other Issues dated December 18, 2007[19]	commission[20] applicable at the time of the investment decision. The validation team confirms that the debt : equity ratio of 70:30 considered by the project participant at the time of the investment decision is reasonable as this is standard scenario in the power sector and tariff orders issued by the various central and state government endorse the debt equity ratio of 70:30 only. The validation team has also cross-checked the information with the loan sanction letter and confirms that the actual debt equity ratio in the project is 40:60 (i.e. 60% from equity and 40% from debt). The validation team subjected the investment analysis sheet to the actual debt equity ratio also and confirm that after applying the actual debt equity ratio, the equity IRR goes down to 13.92% from 16.64%. Hence, the validation team confirms that debt equity ratio considered by the PP at the time of the investment decision is conservative.
Interest Rate on term loan Interest rate on working capital	12% 12%	Reserve Bank of India Prime Lending rate applicable at the time of the investment decision (Ref P/30/)	The interest rate on term loan and working capital has been considered 12% by the project participant based on Reserve Bank of India Prime Lending Rate (PLR) applicable at the time of the investment decision. Validation team accepted the same as the RBI PLR is an average PLR value of 5 major banks of India and published by the Reserve Bank of India. The validation team observed that

[19] http://www.hperc.org/orders/shpp.doc
[20] http://www.hperc.org/orders/shpp.doc

			there is range of PLR of 11-12% referred by the RBI applicable at the time of the investment decision[21]. The validation team subjected the investment analysis to 11% lower PLR value also and confirms that equity IRR does not cross the benchmark. The validation team has also reviewed the loan sanction letter. The loan to the project has been sanctioned from Rural Electrification Corporation Limited. As per the loan sanction letter interest to be paid on the disbursed loan at the rate prevailing on the date of disbursement. The present rate of interest for private sector borrowing (renewable energy) ranges from 12.75% to 14%[22]. Hence, the interest rate on term loan and working capital as 12% was accepted by the validation team.
Assumptions related to working capital a) One month of O&M expenses b) Two months of receivables c) 1% of project cost as Maintenance spares d) 6% Escalation on Maintenance spares for working capital		HPERC Commission's Order on Small Hydro Power Project Tariff and Other Issues dated December 18, 2007[23]	The project participant has considered the working capital assumptions in accordance with the tariff order published by the state electricity regulatory commission applicable at the time of the investment decision[24]. The validation team has also checked the assumptions related to the working capital with CERC tariff order published on 26/04/2010[25] and available at the time of the investment decision and confirm that CERC tariff order also specify the similar

[21] http://www.rbi.org.in/scripts/WSSView.aspx?Id=14919
[22] http://recindia.nic.in/download/interloan.pdf
[23] http://www.hperc.org/orders/shpp.doc
[24] http://www.hperc.org/orders/shpp.doc
[25] http://www.cercind.gov.in/2010/ORDER/April10/Final_RE_Tariff_Order_FY2010-11(53-2010_Suo-motu).pdf

			assumptions (one month of O&M, two months of receivables). However, the maintenance spares are considered as 0.52% of the project cost in CERC tariff order and it does not talk about 6% escalation on maintenance spares. The validation team subjected both the conditions (0.52% and no escalation in maintenance spares) to the investment analysis and confirms that it has very little impact on the equity IRR. Hence, the input assumptions related to the working capital were accepted by the validation team.
1) Loan Tenure (years), 2) Moratorium Period, (years)	12 years of loan tenure And Moratorium period of 2 years.	HPERC Commission's Order on Small Hydro Power Project Tariff and Other Issues dated December 18, 2007[26]	The loan tenure and moratorium considered by the project participant is based on the tariff order published by the state electricity regulatory commission[27] applicable at the time of the investment decision. The validation team has also reviewed the loan sanction letter. The loan to the project has been sanctioned from Rural Electrification Corporation Limited. As per the loan sanction letter the loan repayment period is 12 years only. The moratorium period as per the loan sanction letter is Commercial Operation Date (COD) + 6 months, subject to maximum of 6 years from the date of 1st disbursement. Hence, the validation team accepted the loan repayment period and moratorium period considered by the project participant.

[26] http://www.hperc.org/orders/shpp.doc
[27] http://www.hperc.org/orders/shpp.doc

Period of assessment considered for the investment analysis	40 years	HPERC Commission's Order on Small Hydro Power Project Tariff and Other Issues dated December 18, 2007[28]	The period of assessment considered for the investment analysis by the project participant is 40 years. This is conservative as the whole project lifetime has been considered by the project participant for the investment analysis. The tariff orders issued by the CERC[29][30] refer only 35 years as project lifetime. Hence, the same was accepted by the validation team.
Proposed implementation period for the project activity	3 years	Detail project report prepared by third party i.e. Small Hydro Engineers Consultants Pvt. Ltd. and available at the time of the investment decision (Ref P/12/)	The project participant has considered 3 years as period of implementation for the project activity in the investment analysis which is sourced from the project DPR. The validation team accepted the same as the investment decision taken in year 2010 and at the time of physical site visit of the project conduced on 20/03/2012 by two member validation team, the project was in a very initial stages of construction.

The validation team confirms that the input assumptions considered by the project participant are applicable to the investment decision. It was observed by the validation team that equity IRR calculations included salvage value of the project activity assets after 40 years (technical lifetime) which was 10% of the total project cost. However, the cost of land was not included at the end of the assessment period in the salvage value. Further, consideration of the salvage value in accordance with the local accounting procedures was not clear. Hence, CL 7 and CL 8 were raised by the validation team for further clarification. The project participant, with respect to CL 7 and CL 8, resubmitted the revised investment analysis spreadsheets and included the cost of land in the salvage value and clarified that 10% salvage value considered in accordance with the HPERC Tariff order 2007[31]. The financial expert

[28] http://www.hperc.org/orders/shpp.doc
[29] http://www.cercind.gov.in/2010/ORDER/April10/Final_RE_Tariff_Order_FY2010-11(53-2010_Suo-motu).pdf
[30] http://www.cercind.gov.in/2012/orders/RE_35_2012.pdf
[31] http://www.hperc.org/orders/shpp.doc

engaged in the validation of the equity IRR computation approved the salvage value consideration in the investment analysis. Hence, CL 7 and CL 8 were closed by the validation team.

The project participant has considered 2.25% book depreciation rate upto 90% of the asset value; considered 33.99% corporate tax rate, 80% IT depreciation rate and 19.93% as MAT tax rate. The investment analysis has been approved by an independent financial expert and the equity IRR computed by the project participant is 16.64%.

The equity IRR mentioned in the web-hosted PDD was 10.38%. However, as a result of the CAR/CLs raised by the validation team and queries of the financial expert engaged the revised equity IRR works out 16.64%. This change is mainly due to revision in the tariff as compared to web-hosted PDD and MNRE capital subsidy available for small-hydro projects (the same was not considered in the web-hosted PDD).

Benchmark analysis

It was observed by the validation team that the web-hosted PDD was silent on the type of the benchmark applied and the computation approach adopted for the benchmark including the suitability of the all input assumptions considered in the benchmark selection. Hence, CAR 12 was raised by the validation team. The project participant, with respect to CAR 12, provided Appendix 2 to the PDD wherein detailed explanation was provided on the selection of the benchmark and the computation approach followed by the project participant including the input values considered for the benchmark computation. Hence, CAR 12 was closed by the validation team.

As reported in the above sections of the validation report, the financial indicator chosen was inconsistently reported in the web-hosted PDD. Hence, the suitability of the benchmark expected return on equity (cost of equity) was not clear. Hence, CL 10 was raised by the validation team. The project participant, with respect to CL 10, provided a response that equity IRR were considered as a financial indicator and accordingly the cost of equity benchmark was derived through the Capital Asset Pricing Model (CAPM) based on publicly available data sources. The validation team reviewed the benchmark analysis and closed CL 10 after finding the same appropriate. The detailed explanation on the same has been provided below:

Capital Asset Pricing Model (CAPM):

The project participant has computed the cost of equity with the help of the Capital Asset Pricing Model (CAPM), using publicly available financial data at the time of investment decision. The CAPM is a widely accepted model by investors to estimate the expected rate of return on equity (Cost of Equity). The project participant has used the following equation to calculate the cost of equity.

[32]Return on Equity = Risk free return + Market risk premium * Beta

Validation of the value of each component of the above-mentioned equation considered by the project participant is presented below:

Risk free rate: The risk free rate considered by the project participant is based on long term Month-end Yield to Maturity of SGL Transaction in Central Government Dated Securities for Various Residual Maturities published by the Reserve Bank of India. The data is publicly available and published on monthly basis as RBI Bulletin. The project participant has considered 8.40% risk free rate for the month of Apr. 2010 from the RBI Bulletin report published on 11th June 2010[33]. The same is available and applicable with respect to the investment decision timing. The risk free rate considered fairly long term (for 22 years). Hence, the risk free rate considered was accepted by the validation team as it meets the Para 6 requirement of EB 62 Annex 5 and is based on publicly available data.

Market return and market risk premium: The project participant has considered the historical data of the BSE SENSEX to arrive at the market return and the market risk premium. The BSE SENSEX being the oldest index provides fairly long term data on the market return (31 years) and the data is publicly available on the website of the Bombay Stock Exchange (www.bseindia.com). The project participant has considered monthly market return values from the inception of the SENSEX until the date of the investment decision. Hence, it meets the Para 6 requirement of EB 62 Annex 5 and is based on publicly available data. The market return so obtained through BSE SENSEX is 18.02% based on 31 year long term data vintage. The market risk premium calculated by the project participant is based on above-referred risk free rate (i.e. 8.40%) and market return (i.e. 18.02%) is 9.61% (i.e. 18.02% - 8.40%).

Beta computation: The beta value reflects the sensitivity of a particular listed stock to market fluctuations. Following companies were considered by the project participant for Beta computation:

Company Name	**Beta**
CESC	1.062
BF UT	1.170
GUJARAT INDS	0.960
NEYVELI LIGNITE	1.139
TATA POWER CO	1.017
JPVL	1.204
IHPML	1.048
NTPC	0.856

[32] http://en.wikipedia.org/wiki/Capital_asset_pricing_model
[33] http://www.rbi.org.in/scripts/BS_ViewBulletin.aspx?Id=11317

NHPC	0.866
Average Beta	**1.036**

The validation team confirms that the companies selected by the project participant for the beta computation are into power generation business and total nine companies considered by the project participant. The beta values used by the project participant are taken from the Bloomberg screenshots (adjusted beta). The Bloomberg adjusted beta approach is widely accepted and the project participant has considered the same for the each company with respect to the corresponding market index (SENSEX). The beta values are based on five year weekly average. The average beta value of 1.036 has been applied by the project participant for the cost of equity computation. The validation team confirms that the companies chosen for computing the beta value are listed companies on the Bombay Stock Exchange and data used is publicly available for access on the BSE web site. Thus, based on above-specified computation, the cost of equity arrives as 18.36%. Thus based on the above, assessment, the validation team confirms that the expected return on equity benchmark considered by the project participant is based on the publicly available information and applicable at the time of the investment decision. The benchmark computation spreadsheet has also been verified by the independent financial expert engaged by the DOE.

The DOE, based on the assessment result by the financial expert engaged, hereby confirms that the underlying assumptions are appropriate and the financial calculations are correct.

Sensitivity analysis:
The project participant has presented the sensitivity analysis in the PDD for +/-10% range of the sensitivity as provided under EB 62 Annex 5. It was noted during the review of the web-hosted PDD that sensitivity analysis was not performed on the O&M cost. Hence, the validation team raised CAR 13. With respect to CAR 13, the project participant provided a response that variables, those constitute more than 20% of either total project costs or total project revenues are subjected to the sensitivity analysis and the project participant also included sensitivity on O&M cost in the revised investment analysis sheet and the revised PDD. The validation team reviewed the revised documentations submitted by the project participant and confirmed that O&M cost is also subjected to the +/-10% sensitivity analysis. Hence, CAR 13 was closed by the validation team.

A CAR 14 was raised to demonstrate the scenario, when the project activity will cross the benchmark and probability of occurrence of such scenario in accordance with Annex 5 of EB 62.

The project participant with respect to CAR 14, demonstrated the scenario when the equity IRR will cross the benchmark for the variables considered for the sensitivity analysis which is as follows:

Parameter	**Base equity IRR value**	**% increase in the value of the parameter at which the equity IRR will cross benchmark (benchmark is 18.36%)**
PLF	16.64%	5% increase in base PLF
Tariff		5.7% increase in tariff
Project Cost		4.3% decrease in project cost
O&M		32% decrease in the O&M cost

The project participant further provided that though the equity IRR crosses the benchmark within +/-10% of the sensitivity analysis, the equity IRR crossing the benchmark in +/10% sensitivity analysis is not feasible in the actual scenario considering the fact that project activity has been financed by 60% equity and only 40% debt in the actual case scenario (Ref P/26/) as compared to 70% debt and 30% equity scenario considered at the time of the investment decision. The validation team referred to the loan sanction letter (Ref P/26/) of the project activity and confirms that actual debt equity ratio of the project is 60% equity and 40% debt. And, considering this actual scenario of the debt equity ratio in the investment analysis following result appears for the +/-10% sensitivity range:

Parameter	**-10% (lower rage of sensitivity)**	**Base equity IRR value (at actual debt equity ratio i.e. 60% equity and 40% debt)**	**+10% (upper range of sensitivity)**
PLF	11.77%	13.92%	16.01%
Project Cost	16.52%		11.75%
Tariff	12.22%		15.70%
O&M	14.28%		13.56%

The validation team accepted the response of the project participant as in accordance with EB 62 Annex 5 (Para 21) *the ultimate objective of the sensitivity analysis is to determine the likelihood of the occurrence of a scenario other than the scenario presented, in order to provide a cross-check on the suitability of the assumptions used in the development of the investment analysis.*

Further, the base case (70% debt and 30% equity) equity IRR at the time of the investment decision is below the benchmark. Thus, based on the input parameters considered at the investment decision, the project activity is additional.

It only crosses the benchmark when the sensitivity analysis is performed. However, actual debt equity ratio in the project is available at the time of validation and confirmed from the government sector bank sanction letter (Ref P/26/) and another certificate provided (Ref P/27/) by the bank which is 60% equity and 40% debt. Hence, the likelihood of the above-scenarios presented in above table based on 70:30 debt equity ratio considered at the time of the investment decision is no longer applicable.

Therefore, the validation team assessed the probability of occurrence of the scenario (equity IRR crossing the benchmark) at actual 60% equity: 40% debt ratio as presented below:

Parameter	**Base equity IRR value (at actual debt equity ratio i.e. 60% equity and 40% debt)**	**% increase in the value of the parameter at which the equity IRR will cross benchmark (benchmark is 18.36%)**
PLF	13.92%	21.5% increase in base PLF
Project Cost		16.1% decrease in the project cost
Tariff		24.4% increase in the tariff
O&M		137% decrease in the O&M cost

It was observed by the validation team that project PLF considered by the project participant is 50.37% based on the project DPR submitted to the government authorities. This 50.37% PLF is computed in the DPR based on power potential studies at 75% dependable year. The validation team has referred to the tariff orders published by the Central Electricity Regulatory Commission (CERC) tariff order published in year 2012[34]. It was noted that CERC refers 45% PLF for small-hydro projects in Himachal Pradesh. Thus, the validation team is of opinion that PLF considered by the project participant as 50.37% is conservative and further increase in the PLF by 21.5% on continuous basis for entire 40 years of the period of assessment of the investment analysis is very unlikely scenario.

The project cost considered by the project participant is INR 326.2 million INR (i.e. 67.96 million INR/MW). This project cost is also approved by the Government of Himachal Pradesh in the Techno-Economic clearance (Ref P/13/) to the project activity.

The validation team has referred to the tariff orders published by the Central Electricity Regulatory Commission (CERC) published in year 2012[35].

[34] http://www.cercind.gov.in/2012/orders/RE_35_2012.pdf
[35] http://www.cercind.gov.in/2012/orders/RE_35_2012.pdf

It was noted that CERC tariff order published in year 2012 refers small-hydro project capital cost as 77 million INR/MW for Himachal Pradesh which is higher than the project cost considered by the project participant. The project activity is in initial stage of construction and expected to be commissioned by the year 2013. Hence, the validation team confirms that it is very unlikely that project cost will come down considering high gestation period of hydro projects.

The project participant has demonstrated additionality based on the preferential tariff for renewable energy projects approved by the commission of the state (Himachal Pradesh State Electricity Regulatory Commission) which remains applicable for the entire lifetime of the project activity. Hence, preferential tariff[36] for renewable energy increasing by 24.4% is unlikely scenario. Similarly, the O&M cost increasing by 137% is highly unlikely scenario.

3.7.4 Barrier analysis (118)

The steps taken to assess the relevant information contained in the PDD against each barrier are described below.
Being a small scale project activity, project participant has demonstrated additionality using investment barrier only as per "Guidelines on the demonstration of additionality of small-scale project activities" Version 09. As per "Guidelines on the demonstration of additionality of small-scale project activities" Version 09 (Ref B/9/) of Simplified modalities and procedures for small scale CDM project activities, additionality can be demonstrated by any one of the four barriers listed. The project participant has demonstrated the additionality through investment barrier only. The detailed validation of the investment barrier has been present under section 3.7.3 of the validation report.

3.7.5 Common practice analysis (121)

Being a small scale project activity, it is not a requirement for the project participant to demonstrate common practice analysis to support the claim for additionality. As per "Guidelines on the demonstration of additionality of small-scale project activities" Version 09 (Ref B/9/) of Simplified modalities and procedures for small scale CDM project activities, additionality can be demonstrated by any one of the four barriers listed.

Being a small scale project activity, project participant has demonstrated additionality using investment barrier only as per "Guidelines on the demonstration of additionality of small-scale project activities" Version 09 (Ref B/9/).

[36] At the time of the investment decision of the project activity, the Renewable Energy Certificate (REC) mechanism was available in India for renewable energy projects. However, in accordance with the clarification given by the CDM Executive Board to Bureau Veritas Certification, dated 10/02/2012 the additionality needs to be demonstrated on the policy in place as of 11/11/2001, which corresponds to fixed tariff approach. Accordingly, the project participant has demonstrated the additionality based on preferential tariff applicable at the time of investment decision.

3.8 Monitoring plan (124)

The project uses the approved monitoring methodology AMS ID Version 17. The applicability of the methodology to this project activity has been discussed in section 3.5.1 above.

The steps taken to assess whether the monitoring arrangements described in the monitoring plan are feasible within the project design are described below:

The project activity uses the approved baseline and monitoring methodology AMS I D, Version 17. Validation team considers the monitoring plan to be in line with the requirements of the methodology based on the following assessment.

According to the Paragraph 24 (Table 1: Parameters for monitoring during the crediting period) of applied baseline and monitoring methodology AMS ID, version 17, monitoring shall consist of following parameters (with respect to proposed CDM project activity).

Requirement as per the monitoring methodology	**Included in the monitoring plan appropriate to type of project activity**
Net electricity exported to the grid by the project activity	This parameter has been included by the project participant in section B.7.1 of revised PDD as "$EG_{BL,y}$". It is calculated by deducting the electricity imported by the project activity from the electricity exported by the project activity. The measurement methods and procedure described are in accordance with applied methodology i.e. quantity of net electricity supplied to grid will be continuously measured by the energy meters and recorded monthly (i.e. Net export is calculated by deducting the electricity imported by the project activity from the electricity exported by the project activity). All net export energy values for emission reduction calculations will be sourced from Joint Meter readings (JMRs) taken jointly by the representative of AMHPL and HPSEB i.e. state electricity board. The monitoring plan includes

	requirements and procedures for meter testing and calibration. The meters used for monthly joint meter recording i.e. main and check meters at Prini sub-station are calibrated once in three years by the Himachal Pradesh State Electricity Board (HPSEB) which is in accordance with the General guidelines to SSC CDM methodologies, Version 17 (Ref B/11/).
Quantity of diesel used in a year	The project participant has included quantity of fossil fuel (diesel) that may be consumed in emergency situation by the DG set will be installed at project site. This parameter is included as $FC_{i,j,y}$. The project participant will measure the quantity of diesel by ruler gauge and recorded in plant log book. The ruler gauge is calibrated annually through an external Agency. The quantity of diesel consumption will be recorded in litres and AMHPL also maintains the record of DG set running hours. This parameter is used for project emission calculation and hence its inclusion in section B.7.1 is justified.

Project participant has provided for archiving in paper as well as electronic form of all the monitored data. This is stated transparently in section B.7.1 of the revised PDD (Ref P/2/). Project participant has provided for keeping the data for 2 years after the end of the last crediting period.

While reviewing the web hosted PDD, validation team observed that monitoring section of the PDD is silent about the calibration frequency, responsible entity for calibration and data recording and also the information about the emergency preparedness was not appropriate in respect to the proposed project activity. Hence, the validation team raised CAR 15 and CL 11. In response to both the CAR 15 and CL 11, project participant has revised the emergency preparedness in the PDD and mentioned that the meters will be calibrated once in three years by HPSEB, which is a state government authority. Hence, validation team has accepted and closes the CAR 15 and CL 11.

In addition to above corrections, PP has incorporated following changes in the revised PDD version 3.0,

1. The notation of the parameter “Net Electricity exported to the grid by the project” is changed from EG_y to $EG_{BL,Y}$.
2. Details of the measuring instrument for “Quantity of diesel used in a Year” are included in the revised PDD.

In revised PDD, it is mentioned that the electricity exported by the project activity and imported by the project activity will be measured with the help of meters installed at the HPSEB substation. The net export is calculated by deducting the power imported by the project activity from the power exported by the project activity and a monthly generation statement is prepared jointly by HPSEB and AMHPL. The Net electricity exported by the project activity to the grid can be cross-checked from the invoices raised by the PP to HPSEB.

The Validation team hereby confirms that the project participant is able to implement the monitoring plan in accordance with the applied monitoring methodology and therefore is of the opinion that the project participant is capable of implementing the monitoring plan in the context of the project activity.

3.9 Sustainable development (127)

The DNA of India confirmed the contribution of the project activity to the sustainable development of the host Party. The validation team has confirmed that the host country approval granted by the DNA of India can be treated as valid. A description of the same is provided in section 3.1 of this report.

The PDD describes the project activity’s contribution to sustainable development in terms of the four indicators stipulated by Ministry of Environment & Forests in India. The host country legislation does not require any environmental impact assessment to be carried out for hydro projects of the scale of the project activity.

Project participant has obtained approval (Ref P/3/) from DNA of India. The letter of approval from the DNA confirms that the project activity contributes to sustainable development in India. The project activity is in compliance with all currently applicable legislations. As the project activity does not lead to generation of liquid or gaseous effluents and will partly displace fossil fuel based electricity generation, there are only benefits derived out of the project and no adverse effects are envisaged.

3.10 Local stakeholder consultation (130)

The steps taken to assess the adequacy of the local stakeholder consultation are described below.

Project proponent informed about project activity to local stakeholders by giving advertisement two times in newspapers “Dainik Jagran” and “Amar Ujala” on 28/08/2010 and 01/09/2010 respectively. Project proponent also maintained a attendance sheet to make the entries for local stakeholders attended the meeting.

In addition to this as per CDM requirement, the local stakeholders’ meeting was carried out on 21/09/2010. Also the representatives from local villages, village panchayat and project participant’s were invited and attended for the stakeholder’s meeting. The name of the person who raised the query during the meeting is provided in PDD. Validation team reviewed the minutes of meeting (Ref P/22/) as well as the attendance list with signatures of attendees in a meeting (Ref P/23/) and confirmed that local stakeholder’s meeting was carried out on 21/09/2010. Also validation team confirms that the local stakeholders were informed about the meeting prior to meeting date hence they were provided with sufficient time to understand the project activity and provide their comments. Validation team also interacted with the stakeholders who attended the meeting and confirm that the meeting was conducted at the proposed site by project participants. Therefore after review of these events validation team confirms that the process of invitation of comments from local stakeholders was carried out as per requirements of CDM procedure and hence complete.

The summary of stakeholder’s comments and response provided by project participant is provided in section E.2 of the PDD. Validation team noticed that there were no negative comments raised by stakeholders and the queries raised by stakeholders were sufficiently answered by project proponent to the satisfaction of stakeholders.

On the basis of the justification provided by the PP in the PDD, together with documentary evidence provided as well as the team’s personal interaction with the stakeholders, the DOE confirms that the process of local stakeholder consultation was adequately conducted.

3.11 Environmental impacts (133)

As per the Schedule 1 of Ministry of Environment and Forests (Government of India) notification dated January 27, 1994 and EIA Notification (S.O 1533) dated 14th September 2006, a list of activities that require undertaking environmental impact assessment studies has been provided. EIA is not a regulatory requirement in India for small hydro energy projects and the PP does not expect any adverse impacts of the proposed CDM project activity on the environment.

Validation team has reviewed the notification pertaining to Environment Impact Assessment (EIA) was published on DNA of India’s (i.e. Ministry of

Environment & Forests) web site http://envfor.nic.in/legis/eia/so1533.doc (Ref B/13/). The Schedule list, section 1 (c) of this EIA notification clearly states that projects above 25 MW capacity or projects with 10,000 hectares of culturable command area need to perform Environmental Impact Assessment studies. Since the project activity is below 25 MW limit and does not cover 10,000 hectares of culturable command area, it is not necessary for the project participant to conduct an EIA study.

However, the validation team has assessed that project activity does not involve any negative environmental impacts, as the equipment used for the project activity generates electricity using hydro power which is one of the cleanest sources of energy.

The project participant has also complied with the statutory requirements in respect of obtaining the necessary clearances from the State Pollution Control authorities. The same were verified by the validation team.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PDD using methodology AMS ID Version 16 was webhosted on the UNFCCC CDM web site for global stakeholder comments as per CDM requirements. The project design document was webhosted from 05/12/2010 to 03/01/2011. Project activity did not receive any comments from Global Stakeholders during the commenting period.

5 VALIDATION OPINION

Bureau Veritas Certification has performed validation of the “4.80 MW renewable energy project by Aleo Manali Hydropower Pvt. Ltd.” Project in Village: Aleo. Tehsil: Manali, District: Kullu of Himachal Pradesh, India. The validation was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The validation consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) the resolution of outstanding issues and the issuance of the final validation report and opinion.

Project participant/s used the latest tool for demonstration of the additionality. In line with this tool, the PDD provides analysis of investment, technological and other barriers to determine that the project activity itself is not the baseline scenario.

By synthetic description of the project, the project is likely to result in reductions of GHG emissions partially. An analysis of the investment barriers demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are

hence additional to any that would occur in the absence of the project activity. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions of 17,613 tCO_{2e} per annum.

The review of the Project Design Document version 5.0 and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria. Bureau Veritas Certification thus requests registration of '4.80 MW renewable energy project by Aleo Manali Hydropower Pvt. Ltd.' as CDM project activity.

6 REFERENCES

Category 1 Documents:
Documents provided by Type the name of the company that relate directly to the GHG components of the project.

P/1/ Web hosted PDD, version 1.0 dated 21/10/2010
P/2/ Revised PDD, version 5.0 dated 24/12/2012
P/3/ Host Country Approval from Ministry of Environment and Forest, Government of India, Letter of Approval no. 4/6/2012-CCC dated 06/11/2012
P/4/ Email Invitation from NCDMA for next HCA meeting on 29/02/2012 mentioning project ID as 913/11/2011 of the proposed CDM project activity
P/5/ Modalities of Communication
P/6/ Certified true copy of the Minutes of meeting of Board of directors of AMHPL held on 26/06/2010.
P/7/ Spread sheet of emission reduction calculations
P/8/ Revised Spreadsheet for Equity IRR calculation – Financial Indicator for project activity
P/9/ Revised Spreadsheets for CAPM calculation – Benchmark for project activity
P/10/ Supply contract agreement issued by AMHPL to M/s Flovel Energy Private Limited for design, manufacture, supply of electromechanical equipment for 2 x 2.4 MW + 30% Continuous over load hydropower plant dated 22/03/2012.
P/11/ Letter of Intent issued by Aleo Manali Hydropower Private Limited to Him Hydro Constructions, dated 17/10/2011 for Civil Work of forebay tank and pen stock.
P/12/ Detailed Project Report of project activity prepared by Small Hydro Consultants Private Limited.
P/13/ Techno-Economic Clearance issued by Himachal Pradesh State Electricity Board (HPSEB), dated 09/06/2010
P/14/ Implementation Agreement between the Governor Of Himachal Pradesh (GoHP) and Aleo Manali Hydro Power Private Limited, dated 05/08/2010
P/15/ Letter of Intent issued by Aleo Manali Hydropower Private Limited to Him Hydro Constructions, dated 17/10/2011 for power house and associated works.
P/16/ No Objection Certificate issued by I&PH Department, Himachal Pradesh, dated 02/11/2010
P/17/ No Objection certificate from Public Work Department, Himachal Pradesh, dated 29/07/2010.
P/18/ No Objection certificate from Department of Fisheries, Himachal Pradesh dated 15/09/2010.
P/19/ HPERC Commission's Order on Small Hydro Power Project Tariff, dated 18/12/2007

P/20/ HPERC Supplementary tariff Order published in February 2010.
P/21/ Letter of submission of revised DPR for 4.8 MW hydro project activity to AMHPL i.e. Aleo Manali Hydropower Private Limited dated 04/08/2009.
P/22/ Minutes of meeting for the local stakeholder meeting held for proposed project activity dated 21/09/2010.
P/23/ Attendance sheet for local stakeholder meeting held for proposed project activity dated 21/09/2010.
P/24/ HPERC Commission's Tariff Order on Small Hydro Power Project Tariff and Other Issues dated December 18, 2007
P/25/ Letter for diversion of Land in favour of M/s Aleo Manali Hydro Power Limited from Environment and forest department, dated 11/10/2011
P/26/ Loan Sanction letter for rupee term loan from Rural Electrification Corporation Limited, dated 22/06/2012 bearing ref No:- REC/CO/Ren./SHP/Aleo-II/95/5720
P/27/ Letter from Rural Electrification Corporation Limited, dated 12/12/2012 bearing ref no: REC/CO/Ren./Hydro/AMHPL/144 regarding clarification on loan sanctioned for setting up 4.8 MW Aleo-II project
P/28/ Intimation sent by the project participant to UNFCCC and NCDMA
P/29/ Letter from the principle secretary Govt. of HP to HPSEB regarding self identified stand alone hydro power project dated 17/11/2008
P/30/ Reserve Bank of India Prime Lending rate applicable at the time of the investment decision (http://www.rbi.org.in/scripts/WSSView.aspx?Id=14942)
P/31/ Notification from state government of Himachal Pradesh, dated 05/10/2011 bearing ref no:- MPP-F (10)-24/2011

Category 2 Documents:
Background documents related to the design and/or methodologies employed in the design or other reference documents.

B/1/ CDM Validation and Verification Manual, Version 1.2
B/2/ Approved Baseline and Monitoring methodology AMS ID, version 17
B/3/ Tool to calculate project or leakage CO2 emissions from fossil fuel combustion, version 2
B/4/ CO2 database for power sector-version 5.0 produced by CEA
B/5/ UNFCCC Guideline for completing the Project Design Document (CDM-SSC-PDD), version 5
B/6/ Simplified Modalities and Procedures for small scale CDM project activities
B/7/ UNFCCC CDM-SSC-CDM Project Design Document form for small scale project activities, version 3
B/8/ Guidance on the demonstration and assessment of prior consideration of

the CDM, Annex 13, EB 62.

B/9/ Guidelines on the demonstration of additionality of small-scale project activities, Version 09

B/10/ Guidance on the assessment of Investment Analysis, Annex 21 of EB-61

B/11/ General guidelines to SSC CDM methodologies, version 17 (as per VVM track submission)

B/12/ Guidelines on the assessment of de-bundling for SSC project activities, version 03, Annex 13 of EB-54

B/13/ EIA notification dated 14th September 2006

B/14/ Tool to calculate emission factor for an electricity system, version 1.1

B/15/ Tool to calculate emission factor for an electricity system, version 2.2.1

Persons interviewed:
List persons interviewed during the validation or persons that contributed with other information that are not included in the documents listed above.

/1/ Mr. A.K Goel – Managing Director - Aleo Manali Hydropower Private Limited

/2/ Mr. Suhail Pathak – Sr. Manager – Aleo Manali Hydropower Private Limited

/3/ Mr. Yashwant Singh – Asst. Manager - Aleo Manali Hydropower Private Limited

/4/ Mr. Ankit Gupta – Consultant – Power Waterhouse Cooper

/5/ Mr. Dole Ram Rana – Stakeholder – Village: Aleo

/6/ Mr. Baldev Raj - Stakeholder – Village: Aleo

/7/ Mr. Dhanman - Stakeholder – Village: Aleo

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7 CURRICULA VITAE OF THE DOE'S VALIDATION TEAM MEMBERS

Mr. Anupam Badola– Team Leader, Lead Verifier – Climate Change
Post Graduate in Environmental Science with five years of work experience in climate change services. He has previously worked with a manufacturing organisation and a carbon advisory firm in India on CDM project development, CDM project due diligence, stack, ambient air pollution monitoring, water pollution monitoring, etc. He is the Lead Auditor for Environment Management System and involved in the validation and verification of the CDM/VCS projects.

Rakesh Tripathi - Team member, Verifier- Climate change
Mr. Rakesh Tripathi is graduate (B.Tech) in Electronics and communication and Post-graduate (MBA) in Power management with around 2.5 years of experience in the field of climate change services. He is working with Bureau Veritas Certification (India) Pvt. Ltd. as Verifier-Climate Change. Prior to joining Bureau Veritas, he worked on CDM/VCS projects as a consultant. He has received extensive training in CDM validation and verification processes and participated in assessment of CDM projects.

H.B. Muralidhar, Bureau Veritas Certification, Internal Technical Reviewer
Lead auditor in Bureau Veritas Certification for Environment Management System, Quality Management System and Occupational Health and Safety Management System. Graduate in Electrical Engineering with 25 years of experience power generation and distribution related fields as well as in management system auditing. He is the Lead auditor for Environmental Management System, Quality Management system and Occupational Health and Safety Management System. He has undergone intensive training on Clean Development Mechanism. He is the technical expert & conducted Validation / Verification for more than 50 CDM Projects.

VALIDATION PROTOCOL

Table 1 Validation requirements based on the Clean Development Mechanism Validation and Verification Manual (Version 01.2) and methodology AMS I.D (version 17) - "Grid connected renewable electricity generation"

CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
1. Approval			*COUNTRY A (India)*	*COUNTRY B (Not applicable)*		
a. Have all Parties involved approved the project activity?	VVM	44	The project participant has not submitted the Host Country Approval of the party involved in the project activity.		CL-1	OK
b. Has the DNA of each Party indicated as being involved in the proposed CDM project activity in section A.3 of the PDD provided a written letter of approval? (If yes, provide the reference of the letter of approval, any supporting documentation, and specify if the letter was received from the project participatn or directly from the DNA)	VVM	45	The project participant has not submitted the Host Country Approval of the party involved in the project activity.		(CL-1)	OK
c. Does the letter of approval from DNA of each Party involved:	VVM	45				
i. confirm that the Party is a Party of the Kyoto	VVM	45.a	The project participant has not submitted		(CL-1)	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS		Draft Concl	Final Concl
Protocol?			the Host Country Approval of the party involved in the project activity.			
ii. confirm that participation is voluntary?	VVM	45.b	The project participant has not submitted the Host Country Approval of the party involved in the project activity.		(CL-1)	OK
iii. confirm that, in the case of the host Party, the proposed CDM project activity contributes to the sustainable development of the country?	VVM	45.c	The project participant has not submitted the Host Country Approval of the party involved in the project activity.		(CL-1)	OK
iv. Refers to the precise proposed CDM project activity title in the PDD being submitted for registration?	VVM	45.d	The project participant has not submitted the Host Country Approval of the party involved in the project activity.		(CL-1)	OK
d. Is(are) the letter(s) of approval unconditional with respect to (i) to (iv) above?	VVM	46	The project participant has not submitted the Host Country Approval of the party involved in the project activity.		(CL-1)	OK
e. Has(ve) the letter(s) of approval been issued by the respective Party's designated national authority (DNA) and is valid for the CDM project activity under validation?	VVM	47	The project participant has not submitted the Host Country Approval of the party involved in the project activity.		(CL-1)	OK
f. Is there doubt with respect to the authenticity of the letter of approval?	VVM	48	The project participant has not submitted the Host Country Approval of the party involved in the project activity.		(CL-1)	OK
g. If yes, was verified with the DNA that the letter of approval is authentic?	VVM	48	The project participant has not submitted the Host Country Approval of the party involved in the project activity.		(CL-1)	OK
2. Participation			*PP1 (Aleo Manali Hydropower Pvt. Ltd.)*	*PP2 (Not Applic*		

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			able)		
a. Have all project participants been listed in a consistent manner in the project documentation?	VVM	51	The project participant is listed as “Aleo Manali Hydropower Private Limited” in the web hosted PDD.	OK	OK
b. Has the participation of the project participants in the project activity been approved by a Party to the Kyoto Protocol?	VVM	51	The project participant has not submitted the Host Country Approval of the party involved in the project activity.	(CL-1)	OK
c. Are the project participants listed in tabular form in section A.3 of the PDD?	VVM	52	The project participant is “Aleo Manali Hydropower Private Limited” which is listed in tabular form in section A.3 of the web hosted PDD.	OK	OK
d. Is the information in section A.3 consistent with the contact details provided in annex 1 of the PDD?	VVM	52	The project participant is “Aleo Manali Hydropower Private Limited” which is listed in tabular form in section A.3 of the PDD and consistent with contact details provided in annex 1 of the PDD.	OK	OK
e. Has the participation of each of the project participants been approved by at least one Party involved, either in a letter of approval or in a separate letter specifically to approve participation? (Provide reference of the approval document for each of the project participants)	VVM	52	The only party involved in the proposed CDM project activity is India. The project participant has not submitted the Host Country Approval of the party involved (India) in the project activity.	(CL-1)	OK
f. Are any entities other than those approved as project participants included in these sections of the PDD?	VVM	52	The project participant has not submitted the Host Country Approval of the party involved in the project activity.	(CL-1)	OK
g. Has the approval of participation issued from the relevant DNA?	VVM	53	The project participant has not submitted the Host Country Approval of the party	(CL-1)	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			involved in the project activity.		
h. Is there doubt with respect to (g) above?	VVM	53	The project participant has not submitted the Host Country Approval of the party involved in the project activity.	(CL-1)	OK
i. If yes, was verified with the DNA that the approval of participation is valid for the proposed project participant?	VVM	53	The project participant has not submitted the Host Country Approval of the party involved in the project activity.	(CL-1)	OK
3. Project desing document					
a. Is the PDD used as a basis for validation prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website?	VVM	55	The DOE has used the web hosted PDD as a basis of for the validation. The web hosted PDD prepared is in accordance with the latest template and guidance i.e. CLEAN DEVELOPMENT MECHANISM PROJECT DESIGN DOCUMENT FORM (CDM-SSC-PDD) Version 03 - in effect as of : 22 December 2006).	OK	OK
b. Is the PDD in accordance with the applicable CDM requirements for completing the PDD?	VVM	56	The web hosted PDD is prepared as per the applicable CDM requirements for completing the PDD i.e. GUIDELINES FOR COMPLETING THE SIMPLIFIED PROJECT DESIGN DOCUMENT (CDM-SSC-PDD) AND THE FORM FOR PROPOSED NEW SMALL SCALE METHODOLOGIES (CDM-SSC-NM), version 5.	OK	OK
c. In CDM-SSC-PDD section A.1 are following provided?	EB 34	Ann 09			
i. Title of project	EB 34	Ann 09	The title of the project activity is provided as “4.8 MW renewable energy project by Aleo Manali Hydropower Pvt. Ltd.” in section A.1 of the PDD.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
ii. Current version number and date of document	EB 34	Ann 09	Current version of the web hosted PDD is mentioned as "1.0" and date of the PDD as "21/10/2010".	OK	OK
d. In CDM-SSC-PDD section A.2 are following provided (max. one page)?	EB 34	Ann 09			
i. A brief description of the project activity covering purpose which includes the scenario existing prior to the start of project, present scenario and baseline.	EB 34	Ann 09	A brief description of the project activity including scenario existing prior to the start of the project activity, baseline scenario and present scenario is not provided explicitly in section A.2 of the web hosted PDD.	CL 2	OK
ii. Explanation how the GHG emission reductions are effected.	EB 34	Ann 09	Description of how the GHG emission reduction of the NEWNE grid is effected due to the project activity is provided.	OK	OK
iii. The PP's view on the contribution of project activity to sustainable development.	EB 34	Ann 09	The project participant has provided its views on the contribution of the project activity to sustainable development of the host country in accordance with the host country's NCDMA criteria.	OK	OK
iv. Are there any changes/modifications compared to the webhosted PDD?	EB 34	Ann 09	There are no changes/modifications compared to the webhosted PDD	OK	OK
e. In CDM-SSC-PDD section A.3 are following provided in the tabular format?	EB 34	Ann 09			
i. List of project participants and Party(ies)	EB 34	Ann 09	PDD indicates the name of "Aleo Manali Hydropower Private Limited (Private entity)" as project participant and "India" as (host) party in section A.3 of the PDD.	OK	OK
ii. Identification of host party	EB 34	Ann 09	India has been identified as host party in section A.3 of the PDD.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
iii. Indication whether the Party wishes to be considered as project participant	EB 34	Ann 09	It has been indicated that the party does not wish to be considered as project participant.	OK	OK
f. In CDM-SSC-PDD section A.4.1 are following provided?	EB 34	Ann 09			
i. Technical description, location, host party(ies) and address as required?	EB 34	Ann 09	The following details have been provided in section A.4.1 of the webhosted PDD related to Location of the project activity Village:- Aleo, Tehsil:- Manali and District:- Kullu Latitude:- 32° 13' 00.0" N and Longitude:- 77° 11' 00" E The same has been cross checked with the TEC approval by HPSEB dated 09/06/2010.	OK	OK
ii. Detailed physical location with unique identification of the project activity (eg. Longitude/latitude) – not to exceed one page	EB 34	Ann 09	Please refer 3.f.i (above)		
g. In CDM-SSC-PDD section A.4.2 are following provided	EB 34	Ann 09			
i. the list of categoreis of project activities as per the latest categorization of Appendix B to to the simplified modalities and procedures for small-scale CDM project activities, hereafter referred to as Appendix B. (refer http://cdm.unfccc.int/methodologies/SSCmethodologies	EB 34	Ann 09	The project participant has not provided the project category in accordance with the latest list of categories of Appendix B of the simplified modalities and procedures for small-scale CDM project activities.	CAR 1	OK
ii. A description of how environmentally safe and sound technology and know how is being	EB 34	Ann 09	The project participant has provided an explicit description of how environmentally safe and sound	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
applied by the project activity interalia technology transfer to the Host Party(ies) for application in the project activity			technology and knowhow is being applied by the project activity interalia technology transfer to the Host Party(ies) for application in the project activity.		
h. In CDM-SSC-PDD section A.4.3 is the estimation of emission reductions provided, as requested, in a tabular format?	EB 34	Ann 09	The estimation of emission reductions provided in section A.4.3 of the PDD in tabular format	OK	OK
i. In CDM-SSC-PDD section A.4.4 is information regarding Public funding provided?	EB 34	Ann 09	It has been mentioned in section A.4.4 of the PDD that “there is no ODA financing involved in the Project”.	OK	OK
j. In CDM-SSC-PDD section A.4.5 are following provided?	EB 34	Ann 09			
i. Confirmation that the small-scale project activity is not a debundled component of a large scale project activity.	EB 34	Ann 09	The project participant has mentioned that the project activity is not a debundled component of a large scale project activity.	OK	OK
ii. Indication if there is a registered small-scale project activity under the CDM or an application to register another small-scale project activity under the CDM	EB 34	Ann 09	PP has indicated in the webhosted PDD that there is a registered small scale project under CDM. UNFCCC Registration Number:- 0244 and registered on 14th April 2006.	OK	OK
a. With the same project participants	EB 34	Ann 09	The registered project activity (UNFCCC No. 0244) is in the name of same project activity i.e Aleo Manali Hydropower Pvt. Ltd.	OK	OK
b. Registered within the period of 2 years	EB 34	Ann 09	The registered small-scale project activity under CDM was registered on 14th April 2006, which is more than 2 years from the current project activity and the same has been cross checked with the UNFCCC website (http://cdm.unfccc.int/Projects/projsearch.html).	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
c. Whose project boundary is within 1 km of the project boundary of the proposed small-scale activity under the CDM at the closest point.	EB 34	Ann 09	The registered small-scale project activity (under the CDM), whose project boundary is within 1 km of the project boundary of proposed CDM project activity. However, the combined capacity of the registered project activity and proposed project activity is 7.8 MW which is well below the threshold limit of small scale projects i.e 15 MW. Hence as per the annex 13 of EB 54, the project activity can use the Simplified Modalities and procedures for small scale CDM project activities.	OK	OK
iii. Are there any changes/modifications compared to the webhosted PDD?	EB 34	Ann 09	No changes observed compared to the web hosted PDD.	OK	OK
k. In CDM-SSC-PDD section B.1 is the approved baseline and monitoring methodology and version no provided?	EB 34	Ann 09	The applied baseline and monitoring methodology mentioned in section B.1 of the PDD is AMS I D, version 16. However, The applied methodology is no more valid for the project activity (http://cdm.unfccc.int/methodologies/DB/RSCTZ8SKT4F7N1CFDXCSA7BDQ7FU1X). Hence PP is requested to apply the latest available approved baseline and monitoring methodology and associated tools.	CAR 2	OK
l. In CDM-SSC-PDD section B.2 are the following provided?	EB 34	Ann 09			
i. Justification of the choice of project activity and category?	EB 34	Ann 09	The category for the project activity provided is as per the applied approved baseline and monitoring methodology.	-	-

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			However, Refer 3.k (above)		
ii. Demonstration that the project activity qualifies as a small-scale project activity and that it will remain under the limits of small-scale project activity types during every year of the crediting period as per the following:For Type I : the capacity of the proposed project activity will not exceed 15 MW (or an appropriate equivalent); For Type II: the annual energy savings on account of efficiency improvements will not exceed 60 GWh (or an appropriate equivalent) in any year of the crediting period; For Type III: the estimated emission reductions of the project activity will not exceed 60 ktCO2e in any year of the crediting period.	EB 34	Ann 09	It has been demonstrated that the project qualifies as a small-scale project activity and the capacity of the proposed project activity will not exceed 15 MW during entire crediting period. However, refer 3.k (above)	-	-
m. In CDM-SSC-PDD section B.3 is the project boundary of the project activity, based on the guidance of the applciable project category, provided?	EB 34	Ann 09	The project boundary of the project activity is based on the guidance of the applicable project category. However, refer 3.k (above)	-	-
n. In CDM-SSC-PDD Section B.4 are following provided?	EB 34	Ann 09			
i. The baseline for the proposed project activity with reference to the chosen project category.	EB 34	Ann 09	Section B.4 of the PDD indicates that the baseline of the project activity is "*the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new*	-	-

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			generation sources", which is prescribed by the applied methodology. However refer 3.k (above)		
ii. Justification of key assumptions and rationales	EB 34	Ann 09	Justification of key assumption and rationales are not provided in section B.4 of the PDD.	CAR 3	OK
iii. Transparent illustration of all data used to determine the baseline emissions (variables, parameters, data sources etc)	EB 34	Ann 09	Transparent illustration of all data used to determine the baseline emission is provided. However refer 3.k (above)	-	-
iv. Are there any changes/modifications compared to the webhosted PDD?	EB 34	Ann 09	There would be some changes with respect to the CAR's and CL's raised above.	-	-
o. In CDM-SSC-PDD section B.5 are following provided?	EB 34	Ann 09			
i. Explanation that the proposed project activity is additional as per options provided under Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities.	EB 34	Ann 09	In accordance with attachment A to appendix B of the simplified modalities and procedures for small-scale CDM project activities. PP is using option A i.e. Investment Analysis.	OK	OK
ii. National policies and circumstances relevant to the baseline of the proposed project activity	EB 34	Ann 09	National policies and circumstances relevant to the baseline of the proposed CDM project activity have not been provided in accordance with Annex 3 of EB 22.	CAR 4	OK
iii. Evidence that the incentive from the CDM was seriously considered in the decision to proceed with the project activity, if the starting date of the project activity is before the date of validation. (this is part of the large scale	EB 34	Ann 09	In section B.5, PDD states that the *"the project proponent has not made any financial commitment to the project activity in terms of expenditures related to the implementation or related to the construction of the project activity, the start date of*	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
project guidelines. It is better to be retained)			*the project activity is not known at this point* ". However, PP has sent the intimation UNFCCC and NCDMA on 16/07/2010 which is prior to the webhosting of the PDD i.e. 05/12/2010. The same has been cross checked with the UNFCCC website (http://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html). Hence, as per the description provided in section B.5 of the PDD, it can be concluded that the incentive from the CDM was seriously considered to proceed with the project activity.		
p. In CDM-SSC-PDD section B.6.1 are following provided?	EB 34	Ann 09			
(i) Explaination on how the procedures, in the approved project category to calculate project emissions, baseline emissions, leakage emissions and emission reductions are applied to the proposed project activity.	EB 34	Ann 09	The section B.6.1 of the PDD explains the procedures as per the approved project category to calculate project emissions, baseline emissions, leakage emissions and emission reductions.	OK	OK
(ii) Clearly stating of which equations will be used in calculating emission reductions.	EB 34	Ann 09	In section B.6.1 of the PDD, PP indicates the equation used in calculating emission reduction. However, refer 3.k (above)	-	-
(iii) Explaination and justification of all relevant methodological choices, including: where the category provides different options to choose from; where the category provides for different default values.	EB 34	Ann 09	The selected project category does not provide different options to choose and default values.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
q. In CDM-SSC-PDD section B.6.2 are following provided?	EB 34	Ann 09			
i. A compilation of information on the data and parameters that are not monitored but determined upfront so as to be available for validation.	EB 34	Ann 09	The information on the data and parameters that are not monitored but determined upfront are made available in section B.6.2 of the PDD.	OK	OK
ii. The actual value applied.	EB 34	Ann 09	The actual values are applied	OK	OK
iii. Explanation and justification for the choice of the source of data.	EB 34	Ann 09	The justifications of choice of data and source of data for all the parameters are provided in section B.6.2 of the PDD	OK	OK
iv. Clear and transparent references or additional documentation in Annex 3.	EB 34	Ann 09	Additional information provided in Annex 3 of the webhosted PDD.	OK	OK
v. Where values have been measured, a description of the measurement methods and procedures (e.g. which standards have been used), indicated the responsible person/entity having undertaken the measurement, the date of measurement(s) and the measurement results.	EB 34	Ann 09	All the parameters are based on the publically available data. Hence, no values are measured	OK	OK
r. In CDM-SSC-PDD section B.6.3 are following provided?	EB 34	Ann 09			
i. A transparent ex ante calculation of project emissions, baseline emissions (or, where applicable, direct calculation of emission reductions) and leakage emissions expected	EB 34	Ann 09	The project participant has provided the ex ante calculations of the baseline emissions and emission reduction in section B.6.3 of the PDD. However, the source of equations used and the	CL 3	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
during the crediting period, applying all relevant equations provided in the approved methodology.			value of the parameters (leakage emission and project emission) is not clear with respect to the latest baseline methodology.		
ii. Documentation how each equation is applied, in a manner that enables the reader to reproduce the calculation	EB 34	Ann 09	Refer 3.r.i (above)	-	-
iii. Additional background information and or data in Annex 3, including relevant electronic files (i.e. spreadsheets)	EB 34	Ann 09	Additional information has been provided for combined margin emission factor in Annex 3 of the PDD.	-	-
iv. Emission reduction calculations for each component are provided separately if more than one component activity is applied.	EB 34	Ann 09	Refer 3.r.i (above)	-	-
s. In CDM-SSC-PDD section B.6.4 are the results of the ex ante estimation of emission reductions for all years of the crediting period, in a tabular format, provided?	EB 34	Ann 09	The section B.6.4 of the PDD indicates the ex ante estimation of emission reductions for all years of the first crediting period in a tabular format.	OK	OK
t. In CDM-SSC-PDD section B.7.1 are following provided?	EB 34	Ann 09			
i. Specific information on how the data and parameters that need to be monitored would actually be collected during monitoring for the project activity.	EB 34	Ann 09	The information on how the data and parameters, which are required to be monitored, would actually be collected during monitoring of the project activity is provided.	OK	OK
ii. For each below parameter the following information, using the table provided:	EB 34	Ann 09			
a. The source(s) of data that will be actually	EB	Ann	The project participant has mentioned the source	OK	OK

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used for the proposed project activity (e.g. which exact national statistics). Where several sources may be used, explain and justify which data sources should be preferred	34	09	of data used for the monitoring of required parameters.		
b. Where data or parameters are supposed to be measured, specify the measurement methods and procedures, including a specification which accepted industry standards or national or international standards will be applied, which measurement equipment is used, how the measurement is undertaken, which calibration procedures are applied, what is the accuracy of the measurement method, who is the responsible person/entity that should undertake the measurements and what is the measurement interval; (i) A description of the QA/QC procedures (if any) that should be applied; (ii) Where relevant: any further comment. Provide any relevant further background documentation in Annex 4.	EB 34	Ann 09	The measurement and calculation procedures are defined and provided in section B.7.1 of the PDD. However, Refer section 7 of this protocol	-	-
iii. A detailed description of the monitoring plan.	EB 34	Ann 09			
a. The operational and management structure that the project operator will	EB 34	Ann 09	The operational and management structure to monitor the emission reductions has been provided	OK	OK

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implement in order to monitor emission reductions and any leakage effects generated by the project activity			in section B.7.2 of the PDD.		
b. The responsibilities for and institutional arrangements for data collection and archiving	EB 34	Ann 09	The responsibilities for data collection and achieving have been stated in section B.7.2 of the PDD.	OK	OK
c. Does the monitoring plan reflect good monitoring practice appropriate to the type of project activity	EB 34	Ann 09	The monitoring plan is such that it reflects a good monitoring practice. However, refer to the CAR/CL raised in section 7 of this protocol.	OK	OK
d. Relevant further background information in Annex 4	EB 34	Ann 09	There is no information provided in Annex 4 of the PDD. The Annex 4 refers to section B.7 of the PDD only for any information related to the monitoring emission reduction of the proposed CDM project activity.	OK	OK
u. In CDM-SSC-PDD section B.8 are following provided	EB 34	Ann 09			
i. Date of completion of the application of the methodology to the project activity study in DD/MM/YYYY.	EB 34	Ann 09	The date of the application of the baseline and monitoring methodology has been provided in DD/MM/YYYY as 21/10/2010.	OK	OK
ii. Contact information of the person(s)/entity(ies) responsible for the application of the baseline and monitoring methodology to the project activity	EB 34	Ann 09	The contact information of the person/entity responsible for the application of the baseline and monitoring methodology has been provided in Annex 1, which is referred in Section B.8 of the PDD.	OK	OK
iii. Indicated if the person/entity is also a project participant listed in Annex 1	EB 34	Ann 09	It has been indicated in the PDD that the person/entity responsible for application of baseline and monitoring methodology is also a project	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			participant and the contact information is provided in Annex 1 of the PDD.		
v. In CDM-SSC-PDD section C.1.1 are following provided?	EB 34	Ann 09			
i. The starting date of a CDM project activity is the earliest of the date(s) on which the implementation or construction or real action of a project activity begins/has begun (EB33, Para 76/CDM Glossary of terms/EB41, Para 67)	EB 34	Ann 09	The starting date of the proposed CDM project activity is not provided as per the Glossary of terms (EB 41, para 67).	CAR 5	OK
ii. A description of how this start date has been determined, and a description of the evidence available to support this start date	EB 34	Ann 09	Refer 3.v.i (above)	-	-
iii. If this starting date is earlier than the date of publication of the CDM-SSC-PDD for global stakeholder consultation by a DOE, does Section B.5 above contain a description of how the benefits of the CDM were seriously considered prior to the starting date?	EB 34	Ann 09	Refer 3.v.i (above)	-	-
w. In CDM-SSC-PDD section C.1.2 is the expected operational lifetime of the project activity in years and months provided?	EB 34	Ann 09	The expected lifetime of the project activity has been provided as 40 years and 0 months in section C.1.2 of the PDD.	OK	OK
x. In CDM-SSC-PDD section C.2 is it stated whether the project activity will use a renewable or a fixed crediting period and completed C.2.1 or C.2.2 accordingly?	EB 34	Ann 09	There is no information has been provided in section C.2 of the PDD.	CAR 6	OK
y. In CDM-SSC-PDD section C.2.1 is it indicated	EB	Ann	The PP has not provided the information in section	CAR 7	OK

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that each crediting period shall be at most 7 years and may be renewed at most two times, provided that, for each renewal, a designated operational entity determines and informs the Executive Board that the original project baseline is still valid or has been updated taking account of new data where applicable?	34	09	C.2.1 of the web hosted PDD in accordance with the guidance to complete the small scale CDM PDD.		
z. In CDM-SSC-PDD section C.2.1.1 are the dates in the following format: (DD/MM/YYYY) provided?	EB 34	Ann 09	The choice of the crediting period is not clear from section C of the PDD. The starting date of the crediting period has not been provided in accordance with the latest approved guidance from the CDM Executive Board.	CAR 8	OK
aa. In CDM-SSC-PDD section C.2.1.2 is the length of the first crediting period in years and months?	EB 34	Ann 09	The length of the first crediting period is mentioned as 7 years and 0 month.	OK	OK
bb. In CDM-SSC-PDD section C.2.2 is it indicated fixed crediting period at most ten (10) years	EB 34	Ann 09	Not applicable as the project activity uses renewable crediting period.	OK	OK
cc. In CDM-SSC-PDD section C.2.2.1 are the dates in the format (DD/MM/YYYY) provided?	EB 34	Ann 09	Not applicable as the project activity uses renewable crediting period.	OK	OK
dd. In CDM-SSC-PDD section C.2.2.2 is the length of the crediting period in years and months provided?	EB 34	Ann 09	Not applicable as the project activity uses renewable crediting period.	OK	OK
ee. In CDM-SSC-PDD section D.1 is the documentation on the analysis of the environmental impacts, if required by Host Party, provided?	EB 34	Ann 09	It is explained in the section D.1 of the PDD that the proposed CDM project activity does not require Environment Impact Assessment as per the notification of the Ministry of Environment and Forests (MoEF), Government of India vide	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			notification no. S.O. 1533 (E) dated September 14, 2006.		
ff. In CDM-SSC-PDD section E.1 are following provided?	EB 34	Ann 09			
i. The process by which comments by local stakeholders have been invited and compiled. An invitation for comments by local stakeholders shall be made in an open and transparent manner, in a way that facilities comments to be received from local stakeholders and allows for a reasonable time for comments to be submitted	EB 34	Ann 09	In Section E.1 of the PDD, PP has mentioned that the local stakeholders were intimated regarding meeting through two news paper advertisement on 28/08/2010 and 1/09/2010. The same has been cross checked with the newspaper during site visit on 20/03/2012.	OK	OK
ii. The project activity is described in a manner, which allows the local stakeholders to understand the project activity, taking into account confidentiality provisions of the CDM modalities and procedures.	EB 34	Ann 09	The local stakeholders were informed about the project activity, taking provisions of the CDM modalities and procedures in to account. The same has been checked while interviewing the local stakeholders, during site visit on 20/03/2012.	OK	OK
iii. The local stakeholder process has been completed before submitting the proposed project activity to the DOE for validation	EB 34	Ann 09	The local stakeholder process has been completed on 21/09/2010, which is prior to the submission of the PDD to DOE for validation.	OK	OK
gg. In CDM-SSC-PDD section E.2 are following provided?	EB 34	Ann 09			
i. Local stakeholders that have made comments identified.	EB 34	Ann 09	Stakeholders were identified with the details/names of the local stakeholders, who made comments during consultation meeting.	OK	OK
ii. A summary of these comments	EB	Ann	The summary of the comments are provided in	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
	34	09	section E.2 of the PDD.		
hh. In CDM-SSC-PDD section E.3 is and explanation of how due account have been taken of comments received from local stakeholders provided?	EB 34	Ann 09	It has been stated that "there were no negative comments received from stakeholders".	OK	OK
ii. In CDM-SSC-PDD Annex 1 are following provided?	EB 34	Ann 09			
i. Contact information of project participants	EB 34	Ann 09	The contact information of the project participant has been provided in Annex 1 of the PDD.	OK	OK
ii. For each organisation listed in section A.3 the following mandatory fields: Organization, Name of contact person, Street, City, Postfix/ZIP, Country, Telephone and Fax or e-mail	EB 34	Ann 09	All the mandatory fields are provided in Annex 1 of the PDD.	OK	OK
jj. In CDM-SSC-PDD Annex 2 is information from Parties included in Annex I on sources of public funding for the project activity which shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of those Parties provided?	EB 34	Ann 09	It has been stated in Annex 2 that there is no public funding involved in the project.	OK	OK
kk. In CDM-SSC-PDD Annex 3 is the background information used in the application of the baseline methodology provided?	EB 34	Ann 09	Additional information has been provided in Annex 3 of the PDD. However, refer 3.q.i (above)	OK	OK
ll. In CDM-SSC-PDD Annex 4 is the background information used in the application of the	EB 34	Ann 09	The Annex 4 refers to the section B.7 of the PDD and there is no additional information in Annex 4.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
monitoring methodology provided?					
4. Project description					
a. Does the PDD contain a clear description of the project activity that provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation?	VVM	58	A clear description of the project activity and technical specification/description of the equipments involved in the project activity has not been provided in section A.4.2 of the PDD	CAR 9	OK
b. Is the description of the proposed CDM project activity as contained in the PDD:	VVM	59			
i. sufficiently covering all relevant elements?	VVM	59	Refer 4.a (above)	-	-
ii. acurate?	VVM	59	Refer 4.a (above)	-	-
iii. providing the reader with a clear understanding of the nature of the proposed CDM project activity?	VVM	59	Refer 4.a (above)	-	-
iv. Are there any changes/modifications compared to the webhosted PDD?	VVM	59	Refer 4.a (above)	-	-
c. Is the proposed CDM project activity in existing facilities or utilizing existing equipments?	VVM	60	The project activity is a Greenfield project and does not utilise any existing facility or equipment.	OK	OK
d. Is the CDM project activity one of the following types:	VVM	60			
i. Large scale?	VVM	60	The project activity is not a large scale project.	OK	OK
ii. Non-bundled small scale projects with emission reductions exceeding 15,000 tonnes per year?	VVM	60	The proposed CDM project activity is a non-bundled small scale CDM project with emission reduction exceeding 15000 tonnes per year i.e. 17,259 tonnes per year.	OK	OK
iii. Bundled small scale projects, each with emission reductions not exceeding 15,000	VVM	60	The project activity is not a bundled CDM project.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
tonnes?					
e. If yes to (c) and (d) above, was a physical site inspection conducted to confirm that the description in the PDD reflects the proposed CDM project activity, unless other means are specified in the methodology?	VVM	60	Not applicable	OK	OK
f. If yes to (d.iii) above, was the number of physical site visits based on samping?	VVM	60	Not applicable	OK	OK
g. If yes is the sampling size appropriately justified through statistical analysis?	VVM	60	Not applicable	OK	OK
h. For other individual proposed small scale CDM project activities with emission reductions not exceeding 15,000 tonnes per year, was a physical site inspection conducted?	VVM	61	The project activity is an individual proposed small scale CDM project with emission reductions exceeding 15000 tonnes per year i.e. 17,259 tonnes per year. A two member validation team of BVC conducted a physical site inspection on 20/03/2012.	OK	OK
i. For all other proposed CDM project activities not referred to in paragraphs 59 – 61, was a physical site inspection conducted?	VVM	62	As mentioned above, the validation team conducted a physical site inspection on 20/03/2012.	OK	OK
j. If no, was it appropriately justified?	VVM	62	Not applicable	OK	OK
k. Does the proposed CDM project activity involve the alteration of an existing installation or process?	VVM	63	The proposed CDM project activity is a Greenfield project with purchase of new equipments and does not involve any alteration of an existing installation or process.	OK	OK
l. If yes, does the project description clearly state the differences resulting from the project activity compared to the pre-project situation?	VVM	63	Not applicable	OK	OK

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5. Baseline and monitoring methodology					
a. General requirement					
a. Do the baseline and monitoring methodologies selected by the project participants comply with the methodologies previously approved by the CDM Executive Board?	VVM	65	The baseline and monitoring methodologies selected by the project participants However, The applied methodology is no more valid for the project activity (http://cdm.unfccc.int/methodologies/DB/RSCTZ8SKT4F7N1CFDXCSA7BDQ7FU1X). Hence PP is requested to apply the latest available approved baseline and monitoring methodology and associated tools.	(CAR 3)	OK
b. Is the selected methodology applicable to the project activity?	VVM	66	Refer 5.a.a (above)	-	-
c. Had the PP correctly applied the selected methodology?	VVM	66	Refer to (5.b) below	-	-
d. Had the selected methodology been correctly applied with respect to project boundary?	VVM	67	Refer to (5.c) below	-	-
e. Had the selected methodology been correctly applied with respect to baseline identification?	VVM	67	Refer to (5.d) below	-	-
f. Had the selected methodology been correctly applied with respect to Algorithms and/or formulae used to determine emission reductions?	VVM	67	Refer to (5.e) below	-	-
g. Had the selected methodology been correctly applied with respect to additionality?	VVM	67	Refer to section (6) below	-	-
1. Has the general guidance to the small scale	AMS	I D	In accordance with attachment A to appendix B of	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
CDM methodologies, information on additionality (attachment A to appendix B) been applied correctly?			the simplified modalities and procedures for small-scale CDM project activities. PP is using option A i.e. Investment Analysis.		
h. Had the selected methodology been correctly applied with respect to monitoring methodology?	VVM	67	Refer to section (7) below	-	-
b. Applicability of the selected methodology to the project activity					
a. Is the selected baseline and monitoring methodology, previously approved by the CDM Executive Board, applicable to the project activity including that the used version is valid?	VVM	68	The selected baseline and monitoring methodology i.e AMS ID version 16 is previously approved by the CDM executive board However, The applied methodology is no more valid for the project activity (http://cdm.unfccc.int/methodologies/DB/RSCTZ8SKT4F7N1CFDXCSA7BDQ7FU1X). Refer 3.k (above)	-	-
b. Has the DOE applied specific guidance provided by the CDM Executive Board in respect to the applicable approved methodology?	VVM	69	The DOE has applied the general guidance to SSC CDM methodologies provided by CDM EB.	OK	OK
c. Is the methodology correctly quoted?	VVM	70	Refer 5.b.a (above)	-	-
d. Are the applicability conditions of the methodology met?	VVM	71		-	-
i. Does the project activity comprises renewable energy generation units, such as photovoltic, hydro, tidal/wave, wind, geothermal and renewable biomass that supply electricity to a national or a regional	AMS	I D	Refer 5.b.a (above)	-	-

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
grid? **2.** Note: Project activities that displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit shall apply AMS-I.F.					
ii. Has the project participant provided justification in line with the applicabiltiy of methodology with respect to Table 2 of approved methodology ?	AMS	I D	Refer 5.b.a (above)	-	-
iii. Does the project activity a) install a new power plant at site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant); b) involve a capacity addition c) involve a retrofit of (an) existing plant(s) or d) involve a replacement of (an) existing plant(s)	AMS	I D	Refer 5.b.a (above)	-	-
iv. For Hydro power plants with reservoirs, does it satisfy at least one of the following conditions **3.** (a) the project activity is implemented in an exisitng reservoir with no change in the volume of reservoir	AMS	I D	Refer 5.b.a (above)	-	-

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4. (b) the project activity is implemented in an exisitng reservoir, where the volume of reservoir is increased and the power density of the project activity, is greater than 4 W/m2 **5.** (c) the project activity results in new reservoirs and the power density of the power plant is greater than 4 W/m2.					
v. Is the following guideline followed: **6.** (a) If the new unit has both renewable and non-renewable components (eg., a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. **7.** (b) If the new unit co-fires fossil fuels, the capacity of the entrie unit shall not exceed the limit of 15 MW.	AMS	I D	Refer 5.b.a (above)	-	-
vi. Is the following guideline followed: **8.** Combined heat and power (co-generation) systems are not eligible under this category	AMS	I D	Refer 5.b.a (above)	-	-
vii. Is the following guideline followed: **9.** In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct6 from the existing	AMS	I D	Refer 5.b.a (above)	-	-

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
viii. Is the following guideline followed: **10.** In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.	AMS	I D	Refer 5.b.a (above)	-	-
e. Is the proeject activity expected to result in emissions other than those allowed by the methodology?	VVM	71	There are no other emissions other than those allowed by the methodology.	OK	OK
f. Is the choice of the methodology justified?	VVM	71	Choice of methodology is justified. However, refer 5.b.a (above)	-	-
g. Have the project participants shown that the project activity meets each of the applicability conditions or the approved methodology?	VVM	71	The pp shown that the project activity meets each of the applicability condition of the methodology. However, refer 5.b.a (above)	-	-
h. Have the project participants shown that the project activity meets each of the applicability conditions of any tool or other methodology component referred to the methodology?	VVM	71	PP has shown that the project activity meets all the applicability criteria of the applied Methodology.	OK	OK
i. Is the DOE, based on local and sectoral knowledge, aware that comparable information is available from sources other than that used in the PDD?	VVM	71	There are no such sources available than used in the PDD.	OK	OK
j. If yes, was the PDD cross checked agains the other sources to confirm that the project activity meets the applicability conditions of the methodology? (provide the reference to these	VVM	71	Not applicable	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
choices)					
k. Can a determination regarding the applicability of the selected methodology to the proposed CDM project activity be made?	VVM	72	The selected methodology is no more applicable to the project activity. Refer 3.k (above)	-	-
l. If no, clarification of the methodoloy was requested, in accordance with the guidance provided by the CDM Executive Board?	VVM	72	Not applicable	OK	OK
m. If answer to (5.b.c) above is “no”, revision or deviation from the methodology was requested, in accordance with the guidance provided by the CDM Executive Board?	VVM	73	Not applicable	OK	OK
n. If yes to (5.b.k) and (5.b.l) above, a request for revision was submited before the CDM Executive Board has approved the proposed deviation or revision?	VVM	74	Not applicable	OK	OK
c. Project boundary					
a. Does the PDD correctly describe the project boundary, including the physical delineation of the proposed CDM project activity included within the project boundary for the purpose of calculating project and baseline emissions for the proposed CDM project activity?	VVM	78	The project participant has described the project boundary of the proposed CDM project activity in section B.3 of the web hosted PDD. However, the description of the project boundary is not in accordance with the latest available baseline and monitoring methodology.	CAR 10	OK
i. Does the physical, geographical site of the renewable generation?	AMS	I D	Refer 5.c.a (above)	-	-
b. Is the delineation in the PDD of the project boundary correct and include identification of all	VVM	79	Delineation in the section B.3 of the PDD, the project boundary includes all location, processes	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
locations, processes and equipment including secondary equipment and associated processes such as logistics etc.?			and equipment of the project activity.		
c. Does the delineation in the PDD of the project boundary meet the requirements of the selected baseline?	VVM	79	Refer 5.c.a (above)	--	
d. Have changes been made to the project boundary in comparison to the webhosted PDD. If yes please comment on the reason for the changes.	VVM	79	Refer 5.c.a (above)	-	-
e. Have all sources and GHGs required by the methodology been included within the project boundary?	VVM	79	The sources and GHGs required by the latest applicable baseline and monitoring methodology have not been included in the project boundary.	CAR 11	OK
f. Does the methodology allow project participant to choose whether a source or gas is to be included within the project boundary?	VVM	79	The methodology does not provide such options.	OK	OK
g. If yes, have the project participants justified that choice?	VVM	79	Not applicable	OK	OK
h. If yes, is the justification provided reasonable? (provide reference to the supporting documented evidence provided by the project participants)	VVM	79	Not applicable	OK	OK
d. Baseline identification					
a. Does the PDD identify the baseline for the proposed CDM project activity, defined as the scenario that reasonably represents the anthropogenic emissions by sources of GHGs	VVM	81	The web hosted PDD identifies the baseline scenario as the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected	OK	OK

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that would occur in the absence of the proposed CDM project activity?			power plants and by the addition of new generation sources into the grid.		
b. Has any procedure contained in the methodology to identify the most reasonable baseline scenario, been correctly applied?	VVM	82	The identification of the baseline scenario has been provided in the PDD. However, refer 3.k (above)	-	-
i. Is the following guideline followed: Is the project activity new grid-connected renewable power plant/unit and hence the baseline scenario is the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources.	AMS	I.D	The proposed CDM project activity involves installation of Hydro based grid connected power plant and hence the baseline scenario is the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources.	OK	OK
ii. Is the baseline emissions calculated as the product of electrical energy baseline EGBL, y expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission $BE_{Y} = EG_{BL\,Y} * EF_{CO2\,grid\,Y}$	AMS	I.D	The baseline emissions are calculated as the product of electrical energy baseline expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor. However, the equation used is not consistent with the latest applicable methodology. Refer 3.k (above)	-	-
iii. Is the Emission Factor calculated in a	AMS	I.D	The combined Margin emission factor has been		

	CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
	transparent and conservative manner as follows: (a) A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the .Tool to calculate the Emission Factor for an electricity system.. OR (b) The weighted average emissions (in t CO2/MWh) of the current generation mix. The data of the year in which project generation occurs must be used. Calculations shall be based on data from an official source (where available) and made publicly available.			calculated in the Webhosted PDD. However, the web hosted PDD uses the version 2 of the "tool to calculate emission factor for an electricity system" available at the time of validation (in accordance with general guidance to SSC CDM methodologies). However, the project participant has used version 5 of CEA database for calculation of emission factor, which uses version 1.1 of the "tool to calculate emission factor for an electricity system". Please Clarify	CL 4	
iv.	Is the following guideline followed: - In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. - If the recovered methane is used for electricity generation for supply to a grid then the baseline shall be calculated in accordance with paragraphs below else use other applicable type I methodologies such as AMS-IA or AMS-I.F. - If the recovered methane is used for heat generation or cogeneration it is eligible under	AMS	I.D	The proposed CDM project activity is a grid connected small Hydro-power plant and hence this is not applicable.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
category I.C.					
v. Is the following guideline followed for project activities that involve retrofits or replacements of an existing facility for renewable energy generation: - The baseline scenario is the continuing operation of the existing plant. - The methodology uses historical electricity generation data to determine the electricity generation of the existing plant in the baseline scenario, assuming that the historical situation observed prior to the implementation of the project activity would continue. In the absence of the CDM project activity, the existing facility would continue to provide electricity to the grid BL retrofit y EG, at historical average levels EGhistorical, y until the time at which the electrical generation facility would be likely to be replaced or retrofitted in the absence of the CDM project activity ($DATE_{BaselineRretrofit}$). From that point of time onwards, the baseline scenario is assumed to correspond to the project activity, and baseline electricity production is assumed to equal the project.s net electricity production and no emission reductions are assumed to occur.	AMS	I.D	The proposed CDM project activity is a grid connected small hydro power plant and is a Greenfield project. Hence this is not applicable.	OK	OK
vi. Is the following guideline followed for	AMS	I.D	The proposed CDM project activity is a grid	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
Retrofit/capacity addition of hydro, solar, wind, geothermal, wave and tidal plants: **11.** - Use of standard deviation for calculating baseline elecricity generation. **12.** - A minimum of 5 years (60 months) (excluding abnormal years) of historical generation data is required in the case of hydro facilities and for other facilities a minimum of 3 years (36 months) data is required. **13.** - In the case that 5 years of historical data are not available - e.g., due to recent retrofits or exceptional circumstances8 - a new methodology or methodology revision shall be proposed. **14.** - In the case of wind, solar, wave or tidal power plants, the electricity produced by the added power plant(s) or unit(s) could be directly metered and used to determine EG BL,y. provided that the electricity produced by the added power plant(s) or unit(s) addition is separately metered. **15.** - Project activities for capacity addition in hydro or geothermal shall use equation 3 replacing subscript .retrofit. with .capacity addition.			connected small hydro power plant and is a Greenfield project. Hence this is not applicable.		
vii. Is the following guideline followed for Retrofit renewable energy units other than hydro, solar, wind, geothermal, wave and tidal plants:	AMS	I.D	The proposed CDM project activity is a grid connected small hydro power plant and is a Greenfield project. Hence this is not applicable.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
Baseline emissions are calculated as: **16.** $BE_{retrofit,CO2,y} = (EG_{PJ,retrofit,y} - EG_{BL,retrofit,y}) * EF_{CO2}$ EG historical - A minimum of 3 years of data is required. In the case that 3 years of historical data are not available 9- e.g., due to recent retrofits or exceptional circumstances - a new methodology or methodology revision shall be proposed					
viii. Is the requirements concerning demonstration of the remaining lifetime of the replaced equipment met as described in the general guidelines to SSC methodologies? **17.** Note: If the remaining lifetime of the affected systems increases due to the project activity, the crediting period shall be limited to the estimated remaining lifetime, i.e., the time when the affected systems would have been replaced in the absence of the project activity.	AMS	I.D	The proposed CDM project activity is a grid connected small hydro power plant and is a Greenfield project. Hence there is no requirement of the remaining lifetime of the project activity.	OK	OK
ix. Is the following guideline followed for Capacity addition with renewable energy units other than hydro, solar, wind, geothermal, wave and tidal plants: - The baseline scenario is the existing facility that would continue to supply electricity to the grid at historical levels, until the time at which the generation facility would likely be replaced or retrofitted ($DATE_{BaselineRetrofit}$).	AMS	I.D	The proposed CDM project activity is a grid connected small hydro power plant and is a Greenfield project. Hence this is not applicable.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
- If the existing units shut down, are derated, or otherwise become limited in production, the project activity should not get credit for generating electricity from the same renewable resources that would have otherwise been used by the existing units (or their replacements).					
x. Does project activity involve co-firing ? If yes, the quantities and types of biomass and biomass to fossil fuel ratio to be used during crediting period is explained and documented transparently and presented in PDD ? Are exante estimation of these values provided in the PDD ?	AMS	I D	The proposed CDM project activity is a grid connected small hydro power plant and is a Greenfield project. Hence this is not applicable.	OK	OK
c. Does the selected methodology require use of tools (such as the "Tool for the demonstration and assessment of additionality" and the "Combined tool to identify the baseline scenario and demonstrate additionality") to establish the baseline scenario?	VVM	81	The proposed project activity is a 4.8 MW hydro power plant. The project activity qualifies the criteria of small-scale project activity as per the General Guidance to SSC CDM methodologies. Hence, Tool for the demonstration and assessment of additionality" and the "Combined tool to identify the baseline scenario and demonstrate additionality is not applicable.	OK	OK
d. If yes, was the methodology consulted on the application of thes tools? (In such cases, the guidance in the methodology shall supersede the tool.)	VVM	82	Not applicable as the proposed CDM project activity is a small-scale project activity.	OK	OK
e. Does the methodology require several	VVM	83	The methodology does not require several	OK	OK

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alternative scenarios to be considered in the identification of the most reasonable baseline scenario?			scenarios to be considered to indentify baseline scenario, as baseline is prescribed by the methodology itself.		
f. If yes, are all scenarios that are considered by the project participants and are supplementary to those required by the methodology reasonable in the context of the proposed CDM project activity?	VVM	83	Not applicable as the baseline is prescribed by the applied methodology.	OK	OK
g. Has any reasonable alternative scenario been excluded?	VVM	83	There is no other alternative scenario involves in the determination of the baseline scenario of the proposed CDM project activity.	OK	OK
h. Is the baseline scenario identified reasonably supported by:	VVM	84			
i. Assumptions?	VVM	84	The baseline is prescribed by the applied methodology.	OK	OK
ii. Calculations?	VVM	84	The baseline is prescribed by the applied methodology.	OK	OK
iii. Rationales?	VVM	84	The baseline is prescribed by the applied methodology.	OK	OK
i. Are the documents and sources referred to in the PDD correctly quoted and interpreted?	VVM	84	The documents and sources are correctly quoted	OK	OK
j. Was the information provided in the PDD cross checked with other verifiable and credible sources, such as local expert opinion, if available? (idendify the sources)	VVM	84	There is no requirement of the local expert as the information provided in the web hosted PDD are sourced from the publicly available information i.e. Central Electricity Authority, which is the only body under Government of India to produce such information.	-	-

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			However, refer 5.d.b.iii		
k. Have all applicable CDM requirements been taken into account in the identification of the baseline scenario for the proposed CDM project activity?	VVM	85	All the CDM requirements are taken into consideration in the identification of baselines scenario	OK	OK
l. Have all relevant policies and circumstances been identified and correctly considered in the PDD, in accordance with the guidance by the CDM Executive Board?	VVM	85	All the relevant policies and circumstances are identified correctly in the PDD. However, refer 3.o.ii (above) CAR 4	-	-
m. Does the PDD provide a verifiable description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed CDM project activity?	VVM	86	The PDD provides the verifiable description of the identified baseline as per the applied methodology. However, refer 4.a (above)	-	-
e. Algorithms and/or formulae used to determine emission reductions					
a. Do the steps taken and equations applied to calculate project emissions, baseline emissions, leakage and emission reductions comply with the requirements of the selected baseline and monitoring?	VVM	89	The equation applied to calculate project emission, baseline emission, leakage emission and emission reductions comply with the requirement of selected baseline and monitoring methodology. However, refer 3.k (above)	-	-
b. Have the equations and parameters in the PDD been correctly applied with respect those in the select approved methodology?	VVM	90		-	-
i. Have project emissions considered as	AMS	I.D	The project activity is run of river small hydro	OK	OK

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described in recent version of ACM0002 followed for: - Emissions related to the operation of geothermal power plants; - Emissions from water reservoirs of hydro power plants.			power plant. Hence there is no project emission related to the reservoirs. However, Project emission will be calculated for the DG set used at the project site		
ii. Is leakage considered, if the energy generating equipment is transfereed from another activity	AMS	I.D	The leakage emission is considered to be zero.	OK	OK
iii. Is emission reduction calculated as per equation $ER_Y = BE_Y - PE_Y - LE_Y$	AMS	I.D	The emission reduction is calculated as per the equation $ER_Y = BE_Y - PE_Y - LE_Y$ However, refer 3.k (above)	-	-
c. Does the methodology provide for selection between different options for equations or parameters?	VVM	90	The applied methodology provides 2 options for calculating emission factor. The project participant has chosen the option of calculating emission factor based on the combined margin (CM). The CEA database has been referred for the same.	OK	OK
d. If yes, has adequate justification been provided (based on the choice of the baseline scenario, context of the proposed CDM project activity and other evidence provided)?	VVM	90	Methodology allows any one of the methods to be used. Calculations are based on data from official source. CEA database which is from an official source has been used.	OK	OK
e. If yes, have correct equations and parameters been used, in accordance with the methodology selected?	VVM	90	Refer 3.q.i and 3.q.iii (above)	-	-
f. Will data and parameters be monitored throughout the crediting period of the proposed CDM project activity?	VVM	91	The parameter “Net Electricity Supplied by the project activity” and “Quantity of Diesel used in a year” will be monitored throughout the crediting	OK	OK

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			period of the proposed project activity.		
g. If no, and these data and parameters will remain fixed throughout the crediting period, are all data sources and assumptions:	VVM	91		-	-
i. Appropriate and correct?	VVM	91	The value of emission factor for NEWNE grid is fixed throughout the crediting period and the values are taken from CEA database which is official data publicly available.	OK	OK
ii. Applicable to the proposed CDM project activity?	VVM	91	Data and parameters mentioned in section B.6.2 of the PDD are applicable to the project activity.	OK	OK
iii. Resulting in a conservative estimate of the emission reductions?	VVM	91	The values are conservative and correct based on the data available publicly, which are produced by CEA, Government of India. However, refer 5.d.b.iii	-	-
h. Will data and parameters be monitored on implementation and hence become available only after validation of the project activity?	VVM	91	The parameter "Net Electricity Supplied by the project activity" is monitored ex post.	OK	OK
i. If yes, are the estimates provided in the PDD for these data and parameters reasonable?	VVM	91	The estimates are provided for these data and parameter in the webhosted PDD.	OK	OK
6. Additionality of a project activity					
a. Does the PDD describe how a proposed CDM projet activity is additional?	VVM	94	It has been observed from the review of the section B.5 of the web-hosted PDD that project participant has selected project IRR as a financial indicator. However, the same section of the PDD specify the	CL 5	OK

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			financial indicator as equity IRR. Please clarify.		
b. Were the following steps of the tool to assess additionality used:	EB 65	Ann 21	The steps required to assess the demonstration of additionality as per the "Tool for the demonstration and assessment of additionality" are not applicable as the proposed CDM project activity is a small-scale CDM project activity.	OK	OK
i. Identification of alternatives to the project activity?	EB 65	Ann 21	Not applicable	OK	OK
ii. Investment analysis to determine that the proposed project activity is either: 1) not the most economically or financially attractive, or 2) not economically or financially feasible?	EB 65	Ann 21	Yes, the project participant has referred to Appendix A to Attachment B and performed benchmark investment analysis to demonstrate that project activity is additional. The same has been presented in section B.5 of the web-hosted PDD.	OK	OK
iii. Barriers analysis?	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
iv. Common practice analysis?	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
c. In step 1 (i) have all the sub-steps as below been followed?	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
(i) Sub-step 1a: Define alternatives to the project	EB	Ann	The project activity is a small scale project activity	OK	OK

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activity	65	21	and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable		
(ii) Sub-step 1b: Consistency with mandatory laws and regulations	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
d. Have the following alternatives been included while defining alternatives as per sub-step 1a?	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
(a) The proposed project activity undertaken without being registered as a CDM project activity;	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
(b) Other realistic and credible alternative scenario(s) to the proposed CDM project activity scenario that deliver outputs services or services with comparable quality, properties and application areas, taking into account, where relevant, examples of scenarios identified in the underlying methodology;	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
(c) If applicable, continuation of the current situation (no project activity or other alternatives undertaken).	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
e. Has the project participant included the	EB	Ann	The project activity is a small scale project activity	OK	OK

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	technologies or practices that provide outputs or services with comparable quality, properties and application areas as the proposed CDM project activity and that have been implemented previously or are currently being introduced in the relevant country/region?	65	21	and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable		
f.	Has the outcome of Step 1a: Identified realistic and credible alternative scenario(s) to the project activity done correctly? Please briefly mention the outcome.	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
g.	Is the alternative(s) in compliance with all mandatory applicable legal and regulatory requirements, even if these laws and regulations have objectives other than GHG reductions, e.g. to mitigate local air pollution.?	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
h.	If an alternative does not comply with all mandatory applicable legislation and regulations, has it been shown that, based on an examination of current practice in the country or region in which the law or regulation applies, those applicable legal or regulatory requirements are systematically not enforced and that noncompliance with those requirements is widespread in the country?	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
i.	Has the outcome of Step 1b: Identified realistic and credible alternative scenario(s) to the project activity that are in compliance with	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis	OK	OK

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mandatory legislation and regulations taking into account the enforcement in the region or country and EB decisions on national and/or sectoral policies and regulations done correctly? Please state the outcome.			Hence, Not applicable		
j. Has PP selected Step 2 (Investment analysis) or Step 3 (Barrier analysis) or both Steps 2 and 3?	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
k. In step 2, have all the sub-steps as below been followed?	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
(a) Sub-step 2a: Determine appropriate analysis method;	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
(b) Sub-step 2b: Option I. Apply simple cost analysis;	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
(c) Sub-step 2b: Option II. Apply investment comparison analysis;	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
(d) Sub-step 2b: Option III. Apply benchmark analysis;	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP	OK	OK

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			has used the Investment barrier analysis Hence, Not applicable		
(e) Sub-step 2c: Calculation and comparison of financial indicators (only applicable to Options II and III);	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
(f) Sub-step 2d: Sensitivity analysis (only applicable to Options II and III).	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
l. In sub-step 2a has the determination of appropraite method of analysis done as per the guidance as below?	EB 65	Ann 21			
(a) Simple cost analysis if the CDM project activity and the alternatives identified in Step 1 generate no financial or economic benefits other than CDM related income (Option I).	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
(b) Otherwise, use the investment comparison analysis (Option II) or the benchmark analysis (Option III). Specify option used with justification.	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
m. Has the below guideline followed for sub-step 2b Option I. Apply simple cost analysis? Document the costs associated with the CDM project activity and the alternatives identified in Step1 and demonstrate that there is at least one	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK

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alternative which is less costly than the project activity.					
n. Has the below guideline followed for sub-step 2b Option II. Apply investment comparison analysis? Identify the financial indicator, such as IRR, NPV, cost benefit ratio, or unit cost of service most suitable for the project type and decision-making context. Please specify	EB 65	Ann 21	In section B.5 of the PDD, it is indicated that as per the attachment A to Appendix B, PP uses option (a) Investment Barrier and post tax project IRR as a financial Indicator. However, it is not clear how the selected financial indicator is suitable for the project activity and also the financial indicator (i.e project IRR) is not mentioned consistently in the PDD.	CL 6	OK
o. Has the below guideline followed for Sub-step 2b: Option III. Apply benchmark analysis?	EB 65	Ann 21			
(a) Identify the financial/economic indicator, such as IRR, most suitable for the project type and decision context.	EB 65	Ann 21	The financial indicator has been identified as Project IRR. However, Refer 6.n(above)	OK	OK
(b) When applying Option II or Option III, the financial/economic analysis shall be based on parameters that are standard in the market, considering the specific characteristics of the project type, but not linked to the subjective profitability expectation or risk profile of a particular project developer. Only in the particular case where the project activity can be implemented by the project participant, the specific financial/economic situation of the company undertaking the project activity can	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK

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be considered.					
(c) Discount rates and benchmarks shall be derived from: (a) Government bond rates, increased by a suitable risk premium to reflect private investment and/or the project type, as substantiated by an independent (financial) expert or documented by official publicly available financial data; (b) Estimates of the cost of financing and required return on capital (e.g. commercial lending rates and guarantees required for the country and the type of project activity concerned), based on bankers views and private equity investors/funds' required return on comparable projects; (c) A company internal benchmark (weighted average capital cost of the company), only in the particular case referred to above in 2. The project developers shall demonstrate that this benchmark has been consistently used in the past, i.e. that project activities under similar conditions developed by the same company used the same benchmark; (d) Government/official approved benchmark where such benchmarks are used for investment decisions; (e) Any other indicators, if the project participants can demonstrate that the above Options are not applicable and their	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK

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indicator is appropriately justified. Please specify benchmark and justify.					
p. Has the below guideline followed for Sub-step 2c: Calculation and comparison of financial indicators (only applicable to Options II and III)?	EB 65	Ann 21			
(a) Calculate the suitable financial indicator for the proposed CDM project activity and, in the case of Option II above, for the other alternatives. Include all relevant costs (including, for example, the investment cost, the operations and maintenance costs), and revenues (excluding CER revenues, but possibly including inter alia subsidies/fiscal incentives, ODA, etc, where applicable), and, as appropriate, non-market cost and benefits in the case of public investors if this is standard practice for the selection of public investments in the host country.	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
(b) Present the investment analysis in a transparent manner and provide all the relevant assumptions, preferably in the CDM-PDD, or in separate annexes to the CDM-PDD.	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
(c) Justify and/or cite assumptions.	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK

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(d) In calculating the financial/economic indicator, the project's risks can be included through the cash flow pattern, subject to project-specific expectations and assumptions.	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
(e) Assumptions and input data for the investment analysis shall not differ across the project activity and its alternatives, unless differences can be well substantiated.	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
(f) Present in the CDM-PDD a clear comparison of the financial indicator for the proposed CDM activity.Please specify details for above.	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
q. Has the below guideline followed for Sub-step 2d: Sensitivity analysis (only applicable to Options II and III)? Include a sensitivity analysis that shows whether the conclusion regarding the financial/economic attractiveness is robust to reasonable variations in the critical assumptions.	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
r. Has the outcome of Step 2 clearly mentioned with justification?	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
s. In step 3: Barrier analysis have all the sub-steps as below been followed?	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
18. Sub-step 3a: Identify barriers that would	EB	Ann	The project activity is a small scale project activity	OK	OK

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prevent the implementation of the proposed CDM project activity;	65	21	and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable		
19. Sub-step 3b: Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the proposed project activity).	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
t. Has the below guideline followed for Sub-step 3a: Identify barriers that would prevent the implementation of the proposed CDM project?	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
I. (a) Investment barriers: For alternatives undertaken and operated by private entities: Similar activities have only been implemented with grants or other non-commercial finance terms. No private capital is available from domestic or international capital markets due to real or perceived risks associated with investment in the country where the proposed CDM project activity is to be implemented, as demonstrated by the credit rating of the country or other country investments reports of reputed origin.	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
II. (b) Technological barriers: Skilled and/or properly trained labour to operate and maintain the technology is not available in the relevant country/region, which leads to an	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK

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unacceptably high risk of equipment disrepair and malfunctioning or other underperformance; Lack of infrastructure for implementation and logistics for maintenance of the technology, Risk of technological failure: the process/technology failure risk in the local circumstances is significantly greater than for other technologies that provide services or outputs comparable to those of the proposed CDM project activity, as demonstrated by relevant scientific literature or technology manufacturer information, The particular technology used in the proposed project activity is not available in the relevant region.					
III. (c) Barriers due to prevailing practice: The project activity is the "first of its kind".	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
IV. (d) Other barriers, preferably specified in the underlying methodology as examples.	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
u. Has the outcome from Step 3a clearly mentioned in PDD?	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
v. Has the below guideline followed for Sub-step 3	EB	Ann	The project activity is a small scale project activity	OK	OK

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b: Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the proposed project activity)?	65	21	and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable		
(a) If the identified barriers also affect other alternatives, explain how they are affected less strongly than they affect the proposed CDM project activity. In other words, demonstrate that the identified barriers do not prevent the implementation of at least one of the alternatives. Any alternative that would be prevented by the barriers identified in Sub-step 3a is not a viable alternative, and shall be eliminated from consideration.	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
(b) Provide transparent and documented evidence, and offer conservative interpretations of this documented evidence, as to how it demonstrates the existence and significance of the identified barriers and whether alternatives are prevented by these barriers.	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
(c) The type of evidence to be provided should include at least one of the following: (a) Relevant legislation, regulatory information or industry norms; (b) Relevant (sectoral) studies or surveys (e.g. market surveys,	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK

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technology studies, etc) undertaken by universities, research institutions, industry associations, companies, bilateral/multilateral institutions, etc; (c) Relevant statistical data from national or international statistics; (d) Documentation of relevant market data (e.g. market prices, tariffs, rules); (e) Written documentation of independent expert judgments from industry, educational institutions (e.g. universities, technical schools, training centres), industry associations and others. Please specify.					
w. Has the outcome from Step 3 clearly mentioned in PDD?	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
x. In step 4: Common practise analysis have all the sub-steps as below followed?	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
(a) Sub-step 4a: Analyze other activities similar to the proposed project activity;	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
(b) Sub-step 4b: Discuss any similar Options that are occurring.	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP	OK	OK

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			has used the Investment barrier analysis Hence, Not applicable		
y. Has the below guideline followed for Sub-step 4a: Analyze other activities similar to the proposed project activity? Provide an analysis of any other activities that are operational and that are similar to the proposed project activity. Other CDM project activities are not to be included in this analysis. Provide documented evidence and, where relevant, quantitative information. On the basis of that analysis, describe whether and to which extent similar activities have already diffused in the relevant region.	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
z. Has the below guideline followed for Sub-step 4b: Discuss any similar Options that are occurring? If similar activities are identified, then it is necessary to demonstrate why the existence of these activities does not contradict the claim that the proposed project activity is financially/economically unattractive or subject to barriers. This can be done by comparing the proposed project activity to the other similar activities, and pointing out and explaining essential distinctions between them that explain why the similar activities enjoyed certain benefits that rendered it financially/economically attractive (e.g., subsidies or other financial	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK

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flows) and which the proposed project activity cannot use or did not face the barriers to which the proposed project activity is subject. In case similar projects are not accessible, the PDD should include justification about non-accessibility of data/information.					
aa. Has the outcome from Step 4 clearly mentioned in PDD?	EB 65	Ann 21	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
bb. Has it been proved that the project is additional?	EB 65	Ann 21	The project participant has proven that the proposed CDM project activity is additional with respect to the attachment A to appendix B of simplified modalities and procedures for small-scale CDM project activities (SSC M&P).	OK	OK
cc. Has the PP demonstrated additionality by explaining Attachment A to Appendix B including Investment barrier, Technological barrier, Barrier due to prevailing practice or other barriers?	EB 63	Ann 24	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis	OK	OK
dd. If Investment barrier has been explained, is it demonstraed that financilly more viable alternative to the project activity would have led to higher emissions? Please explain.	EB 63	Ann 24	The project activity is a grid connected hydro-electric project. The baseline is prescribed by the approved methodology AMS-I.D. Version 17. The project participant has carried out the investment analysis and demonstrated the viability of the project through the benchmark analysis.	OK	OK
ee. If Technological barrier has been explained, is it demonstraed that a less technologically	EB 63	Ann 24	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP	OK	OK

	CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
	advanced alternative to the project activity involves lower risks due to the performance uncertinity or low market share of the new technology adopted for the project activity and so would have led to higher emissions? Please explain.			has used the Investment barrier analysis Hence, Not applicable		
ff.	If prevailing practise barrier has been explained, is it demonstrated that the prevailing practice or existing regulatory or policy requirements would have led to implementation of a technology with higher emissions? Please explain.	EB 63	Ann 24	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
gg.	If other barrier has been explained, is it demonstrated that Other barriers such as institutional barriers or limited information, managerial resources, organizational capacity, or capacity to absorb new technologies would prevent the project activity any way?	EB 63	Ann 24	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
hh.	Have the project participants identifed the most relevant barrier?	EB 63	Ann 24	Project participants has identified Investment barrier for the proposed project activity.	OK	OK
ii.	Does a proposed CDM project activity falls in a positive list of grid-connected renewable electricity generation technologies that are automatically defined as additional, without further documentation of barriers, consists of the following grid-connected renewable electricity generation technologies of installed capacity up to 15 MW including:	EB 63	Ann 24	The proposed project activity is a small scale hydro power project. Hence, the project activity does not fall in positive list of grid connected renewable electricity generation technologies.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
I. Solar technologies (photovoltaic and solar thermal electricity generation) II. Off-shore wind technologies III. Marine technologies (wave, tidal)					
jj. Have the project participants provided transparent and documented third party evidence such as national/international statistics, national/provincial policy and legislation, studies/surveys by independent agencies etc. to demonstrate the most relevant barrier? Please explain.	EB 63	Ann 24	The project activity is a small scale project activity and as per the attachment A to Appendix B, PP has used the Investment barrier analysis Hence, Not applicable	OK	OK
a. Prior consideration of the clean development mechanism					
a. Is the project activity start date prior to the date of publication of the PDD for stakeholder comments?	VVM	98	The project activity was webhosted on UNFCCC website starting from 5/12/2010 to 3/01/2011. At the time of webhosting PP have not made any financial commitment to the project activity. Hence the start date of the project activity will be the date after the publication of PDD for stakeholders comment.	OK	OK
b. If yes, were the CDM benefits considered necessary in the decision to undertake the project as a proposed CDM project activity?	VVM	98	Refer 6.a.a (above)	OK	OK
➢ Is the start date of the project activity, reported in the PDD, in accordance with the "Glossary of CDM terms", which states that "The starting date of a CDM project	VVM	c.	The start date of the project activity is not mentioned in the PDD in accordance with the "Glossary of CDM terms".	-	-

	CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
	activity is the earliest date at which either the implementation or construction or real action of a project activity begins"?			Refer 3.v.1 (above)		
d.	Does the project activity require construction, retrofit or other modifications?	VVM	99	The proposed CDM project activity is a Greenfield project and hence does not require construction, retrofit or other modifications.	OK	OK
e.	If yes, is it ensured that the date of commissioning cannot be considered as the project activity start date?	VVM	99	Not applicable	OK	OK
f.	Is it a new project activity (project activities with staring date on or after 02 August 2008) or an existing project activity (project activities with a start date before 02 August 2008)?	VVM	100	The start date of the project activity is the date after the publication of PDD for stakeholder comments on 05/12/2010, which is after 02 August 2008 and hence, it is a new project activity.	OK	OK
g.	For a new project, for which PDD has not been published for global stakeholder consultation or a new methodology proposed to the Executive Board before the project activity start date, had the PP informed the Host Party DNA and the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status? (Provide reference to such confirmation from Host Party DNA and/or UNFCCC secretariat).	VVM	101	PDD for the proposed project activity has been published for Global stakeholder comments well before the start date of the project activity. However, the project participant has informed the Host Party DNA and the UNFCCC secretariat of their intention to seek CDM status on 16/07/2010. The same has been cross checked with UNFCCC website (http://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html).	OK	OK
h.	For an existing project activity, for which the start date is prior to the date of publication of the	VVM	102	The project activity is a new project activity having start date after the date of publication of the PDD	OK	OK

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PDD for global stakeholder consultation, are the following evidences provided:			for global stakeholder consultation Hence this is not applicable. However the chronology of the events are presented in the section B.5 of the PDD		
(i) Evidence that must indicate that awareness of the CDM prior to the project activity start date, and that the benefits of the CDM were a decisive factor in the decision to proceed with the project, including, inter alia:	VVM	102	Not applicable	OK	OK
(a) Minutes and/or notes related to the consideration of the decision by the Board of Directors, or equivalent, of the project participant, to undertake the project as a proposed CDM project activity?			Not applicable	OK	OK
(ii) Reliable evidence from project participants that must indicate that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation, including, inter alia:	VVM	102	Not applicable	OK	OK
(iii) contract with consultants for CDM/PDD/methodology services?	VVM	102	Not applicable	OK	OK
(iv) Emission Reduction Purchase Agreements or other documentation related to the sale of the potential CERs (including correspondence with multilateral financial institutions or carbon funds)?	VVM	102	Not applicable	OK	OK
(v) evidence of agreements or negotiations with	VVM	102	Not applicable	OK	OK

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a DOE for validation services?					
(vi) submission of a new methodology to the CDM Executive Board?	VVM	102	Not applicable	OK	OK
(vii) Publication in newspaper?	VVM	102	Not applicable	OK	OK
(viii) interviews with DNA?	VVM	102	Interview with DNA has been conducted on 6/03/2012 . The same has been cross checked with the e-mail sent by NCDMA (Indian DNA)	OK	OK
(ix) earlier correspondence on the project with the DNA or the UNFCCC secretariat?	VVM	102	The project participants has informed the DNA and UNFCCC on 16/07/2010	OK	OK
b. Identification of alternatives					
a. Does the approved methodology that is selected by the proposed CDM project activity prescribe the baseline scenario and hence no further analysis is required?	VVM	105	The approved baseline and monitoring methodology applied by the proposed CDM project activity prescribe the baseline scenario. However, refer 3.k (above)	-	-
b. If no, does the PDD identify credible alternatives to the project activity in order to determine the most realistic baseline scenario?	VVM	105	Not applicable as the baseline scenario is prescribed by the applied methodology.	OK	OK
c. Does the list of alternatives given in the PDD esure that:	VVM	106			
i. the list of alternatives includes as one of the options that the project activity is undertaken without being registered as a proposed CDM project activity?	VVM	106	Not applicable	OK	OK
ii. the list contains all plausible alternatives that the DOE, on the basis of its local and sectoral knowledge, considers to be viable	VVM	106	Not applicable	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
means of supplying the outputs or services that are to be supplied by the proposed CDM project activity?					
iii. the alternatives comply with all applicable and enforced legislation?	VVM	106	Not applicable	OK	OK
c. Investment analysis					
a. Has investment analysis been used to demonstrate the additionality of the proposed CDM project activity?	VVM	108	The Project participant uses Attachment A to Appendix B to demonstrate additionality of the project activity.	OK	OK
b. If yes, does the PDD provide evidence that the proposed CDM project activity would not be:	VVM	108	The project activity uses the investment analysis to demonstrate the additionality of the proposed CDM project activity.	OK	OK
i. the most economically or financially attractive alternative?	VVM	108	No alternatives are compared as the methodoloy presribes baseline.	OK	OK
ii. economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs)?	VVM	108	PDD indicates that the project activity is not finacially feasible with out the revenue from the sale of certified emission reduction	OK	OK
c. Was this shown by one of the following approaches?	VVM	109			
i. Demonstrate that the proposed CDM project activity would produce no financial or economic benefits other than CDM-related income. Document the costs associated with the proposed CDM project activity and the alternatives identified and demonstrate that there is at least one	VVM	109	Not applicable as the proposed CDM activity would produce revenue by sale of power to grid apart from CDM related income. Also no alternatives are there as the methodology prescribes baseline.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
alternative which is less costly than the proposed CDM project activity.					
ii. The proposed CDM project activity is less economically or financially attractive than at least one other credible and realistic alternative.	VVM	109	No alternatives were compared. However, please refer to 6.a. above.	OK	OK
iii. The financial returns of the proposed CDM project activity would be insufficient to justify the required investment.	VVM	109	The project IRR has been computed and it has been shown to be below benchmark. However, please refer to 6.a. above.	OK	OK
d. Is the period of assessment limited to the proposed crediting period of the CDM project activity?	EB 62	Ann 5	The period of assessment is not limited to the proposed crediting period, instead assessment is carried out for Expected operational lifetime of the project activity i.e., for 40 years.	OK	OK
e. Does the project IRR and equity IRR calculations reflect the period of expected operation of the underlying project activity (technical lifetime), or - if a shorter period is chosen - include the fair value of the project activity assets at the end of the assessment period?	EB 62	Ann 5	IRR has been calculated for period of 40 years which is lifetime of the project activity and a salvage value of 10% of the total project cost has been considered.	OK	OK
f. Does the IRR calculation include the cost of major maintenance and/or rehabilitation if these are expected to be incurred during the period of assessment?	EB 62	Ann 5	The project activity is a small-run of river hydroelectric project. The PP has not included any major maintenance and/or rehabilitation cost in the investment analysis.	OK	OK
g. Do the project participants justify the appropriateness of the period of assessment in the context of the underlying project activity,	EB 62	Ann 5	IRR calculations have been carried out for period of 40 years which is the lifetime of the project activity whereas the CDM crediting period, the	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
without reference to the proposed CDM crediting period?			project participant has opted for is renewable crediting period , i.e. for 7 years.		
h. Does the cash flow in the final year include a fair value of the project activity assets at the end of the assessment period?	EB 62	Ann 5	The IRR calcluations include a fair value of the project activity assets after 40 years (technical lifetime) i.e 10% of the total project cost. However, the cost of land is not included at the end of the assessment period. Please Clarify	CL 7	OK
i. Has the fair value been calculated in accordance with local accounting regulations where available, or international best practice?	EB 62	Ann 5	PP requested to clarify that the fair value considered is as per the local accounting regulations with reference of source	CL 8	OK
j. Does the fair value calculations include both the book value of the asset and the reasonable expectation of the potential profit or loss on the realization of the assets?	EB 62	Ann 5	Refer 6.c.h (above)	-	-
k. Was depreciation, and other non-cash items related to the project activity, which have been deducted in estimating gross profits on which tax is calculated, added back to net profits for the purpose of calculating the financial indicator (e.g. IRR, NPV)?	EB 62	Ann 5	Depreciation have been deducted in estimating gross profits on which tax is calculated and is again added back to net profits for the purpose of calculating the financial IRR.	OK	OK
l. Has taxation been included as an expense in the IRR/NPV calculation in cases where the benchmark or other comparator is intended for post-tax comparisons?	EB 62	Ann 5	It has been observed from the review of the section B.5 of the web-hosted PDD that project participant has selected post tax project IRR as a financial indicator. However, the same section of the PDD specify the financial indicator as equity IRR. Please clarify.	(CL 5)	OK
m. Are the input values used in all investment	EB	Ann	All the input values used in the investment analysis	CL 9	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
analysis valid and applicable at the time of the investment decision taken by the project participant?	62	5	are valid and applicable at the time of the investment decision. However, following inadequacy found a) The value for tariff, Interest on term loan, debt equity ratio and Expected Commissioning of project is not consistent with the source provided. Please Clarify b) Please justify the appropriateness of the period of assessment in context of the project activity with reference of source. c) Justification of transmission loss considered with reference of sources d) PP is to provide MOU signed with HPSEB dated 15th Nov 2008		
n. Is the timing of the investment decision consistent and appropriate with the input values?	EB 62	Ann 5	Investment decision (board resolution) was taken on 26/06/2010 and all the input values were available at the time of investment decision.	OK	OK
o. Are all the listed input values been consistently applied in all calculations?	EB 62	Ann 5	All the listed inputs values been applied consistently in calculation. However, refer 6.c.m (above)	OK	OK
p. Does the investment analysis reflect the	EB	Ann	The project activity is a new project activity not a	OK	OK

	CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
	economic decision making context at point of the decision to recomence the project in the case of project activities for which implementation ceases after the commencement and where implementation is recommenced due to consideration of the CDM?	62	5	recommenced project. Hence not applicable.		
q.	Have project participants supplied the spreadsheet versions of all investment analysis?	EB 62	Ann 5	Investment analysis has been provided in Excel spreadsheet.	OK	OK
r.	Are all formulas used in this analysis readable and all relevant cells be viewable and unprotected?	EB 62	Ann 5	All the formulas used in the analysis are readable and all relevant cells are viewable and unprotected.	OK	OK
s.	In cases where the project participant does not wish to make such a spreadsheet available to the public has the PP provided an exact read-only or PDF copy for general publication?	EB 62	Ann 5	Not applicable	OK	OK
t.	In case the PP wishes to black-out certain elements of the publicly available version, is it justifiable?	EB 62	Ann 5	Not applicable	OK	OK
u.	Was the cost of financing expenditures (i.e. loan repayments and interest) included in the calculation of project IRR?	EB 62	Ann 5	The cost of financing expenditure (loans repayment, interest, etc) is included in the calculation of project IRR.	OK	OK
v.	In the calculation of equity IRR, has only the portion of investment costs which is financed by equity been considered as the net cash outflow?	EB 62	Ann 5	The PDD adopts Project IRR which includes both debt and equity. Hence not applicable.	OK	OK
w.	Has the portion of the investment costs which is financed by debt been considered a cash outflow in the calcualtion of equity IRR? (this is	EB 62	Ann 5	The PDD adopts Project IRR which includes both debt and equity. Hence not applicable.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
not allowed)					
x. Was a pre-tax benchmark be applied?	EB 62	Ann 5	The web-hosted PDD is silent on the computation approach adopted for the benchmark including the suitability of the all input assumptions considered in the benchmark selction.	CAR 12	OK
y. In cases where a post-tax benchmark is applied, is actual interest payable taken into account in the calculation of income tax?	EB 62	Ann 5	Refer 6.c.x. above	-	-
z. In such situations, was interest calculated according to the prevailing commercial interest rates in the region, preferably by assessing the cost of other debt recently acquired by the project developer and by applying a debt-equity ratio used by the project developer for investments taken in the previous three years?	EB 62	Ann 5	Refer 6.c.x. above	-	-
aa. In cases where a benchmark approach is used is the applied benchmark appropriate to the type of IRR calculated?	EB 62	Ann 5	The web-hosted PDD is not consitent on the reporting of the financial indicator chosen. Please clarify the suitability of the benchmark with respect to the chosen financial indicator at the time of investment deicison with supporting evidences.	CL 10	OK
bb. Has local commercial lending rates or weighted average costs of capital (WACC) selected as appropriate benchmarks for a project IRR?	EB 62	Ann 5	Refer 6.c aa above	-	-
cc. Has required/expected returns on equity selected as appropriate benchmark for an equity IRR?	EB 62	Ann 5	Refer 6.c aa above	-	-
dd. In case benchmarks supplied by relevant	EB	Ann	Not applicable	OK	OK

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national authorities selected is it applicable to the project activity and the type of IRR calculation presented?	62	5			
ee. In the cases of projects which could be developed by an entity other than the project participant is the benchmark applied based on publicly available data sources which can be clearly validated?	EB 62	Ann 5	Refer 6.c aa (above)	-	-
ff. Have internal company benchmarks/ expected returns (including those used as the expected return on equity in the calculation of a weighted average cost of capital - WACC) been applied in cases where there is only one possible project developer?	EB 62	Ann 5	Not applicable	OK	OK
gg. In such cases, have these values been used for similar projects with similar risks, developed by the same company or, if the company is brand new, would have been used for similar projects in the same sector in the country/region?	EB 62	Ann 5	Not applicable	OK	OK
hh. Has a minimum clear evidence of the resolution by the company's Board and/or shareholders been provided to the effect as above?	EB 62	Ann 5	Not applicable	OK	OK
ii. Has a thorough assessment of the financial statements of the project developer - including the proposed WACC - to assess the past financial behavior of the entity during at least the last 3 years in relation to similar projects been	EB 62	Ann 5	Not applicable	OK	OK

	CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
	conduted?					
jj.	Does the risk premiums applied in the determination of required returns on equity reflect the risk profile of the project activity being assessed, established according to national/international accounting principles? (It is not considered reasonable to apply the rate general stock market returns as a risk premium for project activities that face a different risk profile than an investment in such indices.)	EB 62	Ann 5	Refer 6.c aa above	-	-
kk.	Has an investment comparison analysis and not a benchmark analysis used when the proposed baseline scenario leaves the project participant no other choice than to make an investment to supply the same (or substitute) products or services?	EB 62	Ann 5	Not applicable	OK	OK
ll.	Have variables, including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues been subjected to reasonable variation (positive and negative) and the results of this variation been presented in the PDD and be reproducible in the associated spreadsheets?	EB 62	Ann 5	Sensitivity analysis has been performed with variation of +10% and -10% in section B.5 of the PDD on the following parameters:- a) Project cost b) Tariff c) Plant load factor However, PP is requested to provide justification for not including O&M cost for sensitivity.	CAR 13	OK

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mm. Have a corrective action been raised for a variable to be included in the sensitivity analysis which constitute less than 20% and have a material impact on the analysis ?	EB 62	Ann 5	Refer 6.c aa above	-	-
nn. Is the range of variations selected is reasonable in the project context?	EB 62	Ann 5	The range of variations selected is reasonable in the project context.	OK	OK
oo. Does the variations in the sensitivity analysis at least cover a range of +10% and -10%, unless this is not deemed appropriate in the context of the specific project circumstances?	EB 62	Ann 5	The variation in the sensitivity analysis covers the range of +10% and -10% in section B.5 of the PDD. However, refer 6.c.II (above)	-	-
pp. In cases where a scenario will result in the project activity passing the benchmark or becoming the most financially attractive alternative, is an assessment done of the probability of the occurrence of this scenario in comparison to the likelihood of the assumptions in the presented investment analysis, taking into consideration correlations between the variables as well as the specific socio-economic and policy context of the project activity?	EB 62	Ann 5	PP is requested to demonstarte the scenario, when the project activity will cross the benchmark and probability of occurance of such scenario in accordance with Annex 5 of EB 62	CAR 14	OK
qq. Was the plant load factor defined ex-ante in the CDM-PDD according to one of the following options:	EB 62	Ann 5			
i. The plant load factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project	EB 62	Ann 5	Not Applicable	OK	OK

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activity for implementation approval?					
ii. The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company)?	EB 62	Ann 5	The plant load factor is determined by the Third party (i.e. Small Hydro Engineers Consultants Pvt. Ltd.) while preparing Detail project Report (DPR) and the same has been approved by HPSEB on 09/06/2010.	OK	OK
rr. Was a thorough assessment of all parameters and assumptions used in calculating the relevant financial indicator, and determine the accuracy and suitability of these parameters using the available evidence and expertise in relevant accounting practices conducted?	VVM	111	A thorough assessment of all the data and parameters is done. Further deviation obsered were reported as CAR/CL above.	-	-
ss. Were the parameters cross-checked agains third-party or publicly available sources, such as invoices or price indices?	VVM	111	Refer 6.c.m (above)	-	-
tt. Were feasibility reports, public announcements and annual financial reports related to the proposed CDM project activity and the project participants reviewed?	VVM	111	Yes, the project participant has provieded the feasibility study report of the project activity.	OK	OK
uu. Was the correctness of computations carried out and documented by the project participants assessed?	VVM	111	The computations carried out and documentated by project participant were assessed. Some findings were reported in the CARs/CLs in above sections	-	-
vv. Was the sensitivity analysis by the project participants to determine under what conditions variations in the result would occur, and the likelihood of these conditions assessed?	VVM	111	Refer 6.c.pp (above)	-	-

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ww. Is the type of benchmark applied is suitable for the type of financial indicator presented?	VVM	112	Refer 6.c.aa	OK	OK
xx. Do any risk premiums applied determining the benchmark reflect the risks associated with the project type or activity?	VVM	112	Refer 6.c aa above	-	-
yy. To determine this, was it assessed whether it is reasonable to assume that no investment would be made at a rate of return lower than the benchmark by:			Refer 6.c aa above	-	-
iii. assessing previous investment decisions by the project participants involved?	VVM	112	Refer 6.c aa above	-	-
iv. determining whether the same benchmark has been applied?	VVM	112	Refer 6.c aa above	-	-
v. determining if there are verifiable circumstances that have led to a change in the benchmark?	VVM	112	Refer 6.c aa above	-	-
zz. Did the project participants rely on values from Feasibility Study Reports (FSR) that are approved by national authorities for proposed project activities?	VVM	113	The project participants rely on the values from DPR (Detail project report) which is approved by HPSEB.	OK	OK
xx. If yes:	VVM	113			
i. has the FSR been the basis of the decision to proceed with the investment in the project, i.e. that the period of time between the finalization of the FSR and the investment decision is sufficiently short for	VVM	113	The DPR (detail project report) is approved by HPSEB on 09/06/2010 and PP has made the decision on 26/06/2010. Hence validation team confirms that the time period between DPR approval and decision making is sufficiemtly short	OK	OK

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the DOE to confirm that it is unlikely in the context of the underlying project activity that the input values would have materially changed?			to consider the input values from DPR		
ii. Are the values used in the PDD and associated annexes fully consistent with the FSR?	VVM	113	The values considered in the PDD and associated annexes is consistent with DPR. However, refer 6.c.m (above)	-	-
iii. If not, was the appropriateness of the values validated?	VVM	113	Not applicable	OK	OK
iv. On the basis of its specific local and sectoral expertise, is confirmation provided, by cross-checking or other appropriate manner, that the input values from the FSR are valid and applicable at the time of the investment decision?	VVM	113	Not applicable	OK	OK
d. Barrier analysis					
a. Has barrier analysis been used to demonstrated the additionality of the proposed CDM project activity?	VVM	115	The project participant has not demonstrated the additionality using barrier analysis,	OK	OK
b. If yes, does the PDD demonstrate that the proposed CDM project activity faces barriers that:	VVM	115	Not applicable	OK	OK
i. prevent the implementation of this type of proposed CMD project activity?	VVM	115			
ii. do not prevent the implementation of at least one of the alternatives?	VVM	115			
c. Are there any issues that have a clear direct	VVM	116	Not applicable	OK	OK

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impact on the financial returns of the project activity, other than: risk related barriers, for example risk of technical failure, that could have negative effects on the financial performance; or barriers related to the unavailability of sources of finance for the project activity? {If yes, these issues cannot be considered barriers and shall be assessed by investment analysis. [Refer to (6.c) above]}					
d. Were the barriers determined as real by:	VVM	117	Not applicable	OK	OK
i. asssing the available evidence and/or undertaking interviews with relevant individuals (including members of industry associations, government officials or local experts if necessary) to determine whether the barriers listed in the PDD exist?	VVM	117			
ii. ensuring that existence of barriers is substantiated by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics?	VVM	117			
iii. Is existence of a barrier substantiated only by the opinions of the project participants? (If yes, this barrier cannot be considered as adequately substantiated)	VVM	117			
e. Were the barriers determined as preventing the implementation of the project activity but not the	VVM	117	Not applicable	OK	OK

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implementation of at least one of the possible alternatives by applying local and sectoral expertise to judge whether a barrier or set of barriers would prevent the implementation of the proposed CDM project activity and would not equally prevent implementation of *at least one of* the possible alternatives, in particular the identified baseline scenario?					
e. Common practice analysis					
a. Is this a large-scale, or first-of-its kind small-scale project activity?	VVM	118	The proposed CDM project activity is a small-scale project and it's not a first-of-its-kind and hence, common practice analysis is not applicable.	OK	OK
b. If yes, was common practice analysis carried out as a credibility check of the other available evidence used by the project participants to demonstrate additionality?	VVM	118	Not applicable	OK	OK
c. Was it assessed whether the geograpphical scope (e.g. defined region) of the common practice analysis is appropriate for the assessment of common practice related to the project activity's technology or industry type? (For certain technologis the relevatn region for assessment will be local and for others it may be transnational/global.	VVM	118	Not applicable	OK	OK
d. Was a region other than the entire host country chosen?	VVM	120	Not applicable	OK	OK
e. If yes, was the explanation why this region is	VVM	120	Not applicable	OK	OK

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more appropriate assessed?					
f. Using official sources and local and industry expertise, was it determined to what extent similar and operational projects (e.g., using similar technology or practice), other than CDM project activities, have been undertaken in the defined region?	VVM	120	Not applicable	OK	OK
g. Are similar and operational projects, other than CDM project activities, already ”widely observed and commonly carried out” in the defined region?	VVM	120	Not applicable	OK	OK
h. If yes, was it assessed whether there are essential distinctions between the proposed CDM project activity and the other similar activities?	VVM	120	Not applicable	OK	OK
7. Monotoring plan					
a. Does the PDD include a monitoring plan?	VVM	122	The web hosted PDD includes the description of monitoring parameters and monitoring plan in its section B.7.	OK	OK
b. Is this monitoring plan based on the approved monitoring methodology applied to the proposed CDM project activity?	VVM	122	The project participant has provided the monitoring plan in accordance with applied baseline and monitoring methodology. However, Refer 3.k (above)	-	-
c. Were the list of parameters required by the the selected methodology identified?	VVM	123	The parameter required to be monitored as per the applied methodology is net electricity supplied by the project activity to grid and quantity of diesel consumed in a year, which is identified and	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			included in the PDD.		
d. Does the monitoring plan contains all necessary parameters?	VVM	123	The parameter required to be monitored as per the applied methodology is net electricity supplied by the project activity to grid, which is identified and included in the PDD.	OK	OK
e. Are the parameters clearly described?	VVM	123	Though the required parameter has been included in section B.7.1 of the PDD, However: a) The calibration frequency and responsible entity for calibration of measuring instruments is not provided. b) Responsible entity for the data recording for the parameter FF_{DG} is not provided.	CAR 15	OK
f. Does the means of monitoring described in the plan comply with the requirements of the methodology?	VVM	123	a) The description provided for emergency preparedness in section B.7.2 of the PDD is not in with respect to the monitored parameter of the project activity. Please Clarify b) PP is requested to clarify how the measured data will be recorded and Archived c) In the description of monitoring plan, it is not clear that who is responsible for the calibration of measuring instruments and its frequency.	CL 11	OK
g. Have all relevant parameters been monitored as indicated in the table of the methodology? Pl state any deviations/omissions.	AMS	I.D	The parameter required to be monitored as per the applied methodology is net electricity supplied by the project activity to grid, which is identified and included in the PDD.	OK	OK
h. Has the CO2 emission factor of the grid	AMS	I.D	The CO2 emission factor of the grid electricity is	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
electircity measured either by Combined Margin or by the Weighted Average emission?			determined by the combined margin emission factor calculations based on the CEA database. This value has been fixed ex ante for the entire crediting period and hence will not be monitored ex post.		
i. Has the CO2 emission factor of fossil fuel type i measured as per the .Tool to calculate project or leakage CO2 emissions from fossil fuel combustion."	AMS	I.D	The CO2 emission factor of the Fossil Fuel i.e Diesel used is not measured as per the "Tool to calculate project or Leakage CO2 emission from fossil fuel combustion"	CAR 16	OK
j. Has the Net calorific value of fossil fuel type i measured as per the .Tool to calculate project or a leakage CO2 emissions from fossil fuel combustion.	AMS	I.D	Refer 7.i (above)	-	-
k. Has the Quantity of fossil fuel consumed in year y measured as per the .Tool to calculate project or a leakage CO2 emissions from fossil fuel combustion.	AMS	I.D	Refer 7.i (above)	-	-
l. Has the Quantity of net electricity supplied to the grid in year y measured using energy meters.	AMS	I.D	The project activity has not been commissioned yet. However, the monitoring plan of the web-hosted PDD reports the monitoring of the electricity through energy meters.	OK	OK
m. Is the quantity of net electricity supplied to the grid in year y monitored/recorded - Continuous monitoring, hourly measurement and at least monthly recording? Notes on measurement method: - Calibration should be undertaken as prescribed	AMS	I.D	Refer 7.e and 7.f (above)	-	-

	CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
	in the relevant paragraph of General Guidelines to SSC Methodologies. - If applicable, measurement results shall be cross checked with records for sold/purchased electricity (e.g., invoices/receipts) - The net electricity export/supplied to a grid is the difference between the measured quantities of the grid electricity export and the import. If applicable, cross check net electricity supplied to a grid as gross energy generation in the project activity power plant minus the auxiliary/station electricity consumption, technical losses and electricity import from the grid to the project power plant measured at the grid interface/connection used for billing purposes					
n.	Is the Quantity of biomass consumed in year y monitored/recorded Continuously or estimate using annual energy/mass balance? Notes on measurement method: - Use mass or volume based measurements. - Adjust for the moisture content in order to determine the quantity of dry biomass. - And/or perform an annual energy/mass balance that is based on purchased quantities and stock. - For projects consuming biomass and fossil fuel to produce electricity, a specific energy	AMS	I.D	There is no use of biomass fuel as the proposed project activity involves grid connected Hydro power plant. Hence, this is not applicable.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
consumption11 of each type of fuel (biomass or fossil) to be used should be specified ex ante. The consumption of each type of fuel (biomass or fossil)shall be monitored. If fossil fuel is used, the electricity generation metered should be adjusted by deducting the electricity generation from fossil fuels using the specific energy consumption and the quantity of fossil fuel consumed The amount of electricity generated using biomass fuels calculated then shall be compared with the amount of electricity generated calculated using specific energy consumption and amount of each type of biomass fuel used. The lower of the two values should be used to calculate emission reductions					
o. Is the Moisture content of the biomass residues monitored atleast on a monthly basis?	AMS	I.D	There is no use of biomass fuel as the proposed project activity involves grid connected Hydro power plant. Hence, this is not applicable.	OK	OK
p. Is the weighted average of the moisture content calculated for each monitoring period and used in the calculations? Notes on measurement method: On-site measurements In case of dry biomass, monitoring of this parameter is not necessary	AMS	I.D	There is no use of biomass fuel as the proposed project activity involves grid connected Hydro power plant. Hence, this is not applicable.	OK	OK
q. Is Net calorific value of biomass residue type k monitored annually?	AMS	I.D	There is no use of biomass fuel as the proposed project activity involves grid connected Hydro	OK	OK

	CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
	Notes on measurement method: Measurement in laboratories according to relevant national/international standards. Measure the NCV based on dry biomass. Check the consistency of the measurements by comparing the measurement results with measurements from previous years, relevant data sources (e.g. values in the literature, values used in the national GHG inventory) and default values by the IPCC. If the measurement results differ significantly from previous measurements or other relevant data sources, conduct additional measurements			power plant. Hence, this is not applicable.		
r.	Is the Standard deviation of the annual average historical net electricity generation delivered to the grid by the existing renewable energy plant that was operated at the project site prior to the implementation of the project activity calculated from data used to establish $EG_{historical}$?	AMS	I.D	There was not any exiting renewable plant prior to the project activity. The proposed project activity is green field grid connected Hydro power plant. Hence, this is not applicable.	OK	OK
s.	Is the parameters relevant to reservoir based hydro and geothermal plants monitored following the most recent version of ACM0002?	AMS	I.D	The proposed project activity is grid connected Hydro power plant. Hence, this is not applicable.	OK	OK
t.	Are the monitoring arrangements described in the monitoring plan feasible within the project design?	VVM	123	Refer 7.e and 7.f (above)	-	-
u.	Does the monitoring plan provide details regarding calibration of monitoring equipments/	EB 24	37	Refer 7.e and 7.f (above)	-	-

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
instruments or does it include zero check as a substitute for calibration? (zero check can not be considered as a substitute for calibration)					
v. Are the following means of implementation of the monitoring plan sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified:	VVM	123			
i. data management procedures?	VVM	123	Refer 7.e and 7.f (above)	-	-
ii. quality assurance procedures?	VVM	123	Refer 7.e and 7.f (above)	-	-
iii. quality control procedures?	VVM	123	Refer 7.e and 7.f (above)	-	-
8. Sustainable development					
a. Does the CDM project activity assists Parties not included in Annex I to the Convention in achieving sustainable development?	VVM	125	The project participant has not submitted the Host country approval of the party involved in the project activity.	(CL-1)	OK
b. Does the letter of approval by the DNA of the host Party confirm the contribution of the proposed CDM project activity to the sustainable development of the host Party?	VVM	126	The project participant has not submitted the Host country approval of the party involved in the project activity.	(CL-1)	OK
9. Local stakeholder consultation					
a. Were local stakeholders (public, including individuals, groups or communities affected, of likely to be affected, by the proposed CDM project activity or actions leading to the implementation of such an activity) invited by the PPs to comment on the proposed CDM project	VVM	128	The project participant conducted a local stakeholders' consultation meeting on 21/09/2010 at Aleo village, which was prior to the publication of the PDD on the UNFCCC website for global stakeholders' consultation from 05/12/2010 to 03/01/2011. The project participant invited	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
activity prior to the publication of the PDD on the UNFCCC website?			residents of nearby village of Aleo, Panchayat and PP representatives. The same has been verified during site visit conducted on 20/03/2012 and cross checked with attendance sheet provided by project participants.		
b. Have comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity been invited?	VVM	129	The comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity been invited during local stakeholders' consultation meeting.	OK	OK
c. Is the summary of the comments received as provided in the PDD complete?	VVM	129	The summary of the comments are provided in section E.2 of the PDD.	OK	OK
d. Have the project participants taken due account of any comments received and described this process in the PDD?	VVM	129	There was no negative comment received from the local stakeholders.	OK	OK
10. Environmental impacts					
a. Have the project participants submitted documentation on the analysis of the environmental impacts of the project activity?	VVM	131	The project activity being electricity generation using renewable source of energy, it does not require EIA to be conducted as per Ministry of Environment and Forests (MoEF), Government of India notification S.O. 1533 (E) dated 14/09/2006.	OK	OK
b. Have the project participants undertaken an analysis of environmental impacts?	VVM	132	Not applicable as commented above.	OK	OK
c. Does the host Party require an environmental impact assessment?	VVM	132	Ministry of Environment and Forests (MoEF), Government of India notification S.O. 1533 (E) dated 14/09/2006 does not require environment impact assessment of the proposed CDM project activity.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
d. If yes, have the project participants undertaken an environmental impact assessment?	VVM	132	Not applicable	OK	OK

Table 2 Specific validation activities

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
a) Project design of small-scale clean development mechanism project activities					
a. Does the proposed small-scale project activity meet the requirements of the simplified modalities and procedures for small-scale CDM project activities?	VVM	133	The proposed CDM project activity involves run of river based Hydro power plant with capacity of 4.8 MW, which is the defined limit of the small scale project activity. Hence it meets the requirement of the simplified M & P of the SSC project activities.	OK	OK
b. Does the project activity qualify within the thresholds of the three possible types of small scale project activities? [Type (i) project activities: renewable energy project activities with a maximum output capacity equivalent to up to 15 megawatts; Type (ii) project activities: energy efficiency improvement project activities which reduce energy consumption, on the supply and/or demand side, by up to the equivalent of 15 gigawatt hours per year; Type (iii) project activities: other project activities that both reduce anthropogenic emissions by sources and directly emit less than 15 kilotonnesof carbon dixide equivalent annually.]	VVM	134	The project activity qualifies the thresholds of the 15 $MW_{electrical}$, as the proposed CDM project activity is Type I project involving implementation and operation of the 4.8 MW Hydro power plant.	OK	OK
c. Does the project activity conform to one of the approved small-scale categories?	VVM	134	The project activity conforms to the approved small-scale category of “Grid connected	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			renewable electricity generation".		
d. Does the project activity apply the relevant tool and methodology?	VVM	134	The project activity applies relevant methodology AMS I D, version 16. However Refer 3.k (above)	-	-
e. Are the small-scale methodologies applied in conjunction with the general guidance to the methodologies, which provides guidance on equipment capactiy, equipment performance, sampling and other monitoring-related issues?	VVM	134	The SSC methodology applied is found to be in conjunction with General Guidance to the SSC methodologies.	OK	OK
f. Is the project activity a debundled component of a large-scale project, i.e., is there a registered small-scael CDM project activity or an application to register another CDM project actifity: (a) with the same project participants; (b) in the same project category and technology/measure; and (c) registered within the previous 2 years; and (d) whose project boundary is within 1 km of the proposed boudary of the proposed small-scale activity at the closest point?	VVM	134	The project activity is not debundled project activity of a large-scale project as there is one registered project with the same project participants and within 1 KM of the proposed project activity. However, the project was registered on 14/04/2006(http://cdm.unfccc.int/Projects/projsearch.html) which is more than 2 years from the date of the publishing of current project activity on UNFCCC website.	OK	OK
g. Is and assessment of the environmental impacts of the proposed CDM project activity required by the host Party?	VVM	134	The host party does not require assessment of environment impact of the proposed CDM project activity.	OK	OK
h. Is the project additional?	VVM	135	The project is additional in accordance with Attachment A to Appendix B.	-	-

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			However, Refer CAR's and CL's raised in section 6 (above) of the protocol.		

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response	Validation team conclusion
CAR 1 The project participant has not provided the project category in accordance with the latest list of categories of Appendix B of the simplified modalities and procedures for small-scale CDM project activities.	Table 1 3.g.i	The same has been changed in the revised PDD to "Grid connected renewable electricity generation".	The project category "Grid Connected Renewable electricity generation" mentioned in section A.4.2 of the PDD is now in accordance with applied methodology AMS I D, version 17. **CAR 1 is Closed**
CAR 2 The applied baseline and monitoring methodology mentioned in section B.1 of the PDD is AMS I D, version 16. However, The applied methodology is no more valid for the project activity (http://cdm.unfccc.int/methodologies/DB/RSCTZ8SKT4F7N1CFDXCSA7BDQ7FU1X). Hence PP is requested to apply the latest available approved baseline and monitoring methodology and associated tools.	Table 1 3.k	The applied baseline and monitoring methodology has been changed to AMS I D, version 17 and the PDD has been updated to incorporate this version. The latest versions of the relevant tools have been included in Section B.1. for the tool to calculate the emission factor for an electricity system version 2.2.1, requests for registration can be submitted upto 23 July 2013. Hence, the same has been used.	The project participant has mentioned the valid version of the applied methodology and tool in section B.1 of the revised PDD as: 1. Grid Connected Renewable electricity generation, AMS ID, version 17. 2. Tool to calculate emission factor for an electricity system version 2.2.1. In accordance with Para 60 of the CDM Executive Board 70th Meeting report, the version 2.2.1 of the tool can be

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response	Validation team conclusion
			applied upto eight months from the publication date of the EB 70 report. Hence, the same was accepted by the validation team. **CAR 2 is Closed.**
CAR 3 Justification of key assumption and rationales are not provided in section B.4 of the PDD.	Table 1 3.n.ii	Justification of key assumptions and rationales has been included in section B.4 of the PDD.	Justification of key assumption and rationales is included in section B.4 of the revised PDD. **CAR 3 is Closed**
CAR 4 National policies and circumstances relevant to the baseline of the proposed CDM project activity have not been provided in accordance with Annex 3 of EB 22.	Table 1 3.o.ii	The National policies and circumstances relevant to the baseline of the proposed CDM project activity have been provided in the updated PDD in section B.5.	The project participant has explained in section B.5 of the PDD, that there is no national or local laws or regulations that mandate this investment i.e setting up of small hydro power plants. As per national electricity Policy (NEP) in February 2005, there are some benefits given to promote the investment and the same project participant has applied in calculation of financial benchmark i.e. equity IRR. **Hence, CAR 4 is Closed**

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response	Validation team conclusion
CAR 5 The starting date of the proposed CDM project activity is not provided as per the Glossary of terms (EB 41, para 67).	Table 1 3.v.i	The starting date of the project activity has been revised to 17/10/2011 (date of Letter of Intent for Civil Works for Powerhouse and Forebay Tank). This is the earliest action taken by the project proponent towards implementation of the project.	The start date of the project activity is provided as 17/10/2011 section C of the revised PDD, which is the date of Letter of intent for Civil Works for Power House and Forebay Tank) Hence, the start date is in accordance with Glossary of terms (EB 41, para 67). **CAR 5 is Closed**
CAR 6 There is no information has been provided in section C.2 of the PDD.	Table 1 3.x	The section has been updated. Renewable crediting period is chosen.	The project participant has indicated that the project activity has opted for Renewable crediting period, which can be renewed two times in section C.2 of the revised PDD. **CAR 6 is Closed**
CAR 7 The PP has not provided the information in section C.2.1 of the web hosted PDD in accordance with the guidance to complete the small scale CDM PDD.	Table 1 3.y	The information in section C.2.1 has been updated in accordance with the guidance to complete the small scale CDM PDD. Renewable crediting period is chosen. The starting date of the crediting period shall be 01/02/2013 or the effective date of	The project participant has revised the PDD and the information indicated in section C.2.1 of the revised PDD is in accordance with the guidance to complete the small scale CDM PDD.

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response	Validation team conclusion
		registration for the project activity, whichever is later. Effective date of registration for the project activity will be the date that the DOE submits a complete request for registration. The length of the first crediting period will be 7 years and 0 months.	**CAR 7 is Closed**
CAR 8 The choice of the crediting period is not clear from section C of the PDD. The starting date of the crediting period has not been provided in accordance with the latest approved guidance from the CDM Executive Board.	Table 1 3.z	The section has been updated. Renewable crediting period is chosen. The starting date of the crediting period shall be 01/02/2013 or the effective date of registration for the project activity, whichever is later. Effective date of registration for the project activity will be the date that the DOE submits a complete request for registration.	The renewable crediting period is chosen for the project activity and the same is mentioned in section C of the revised PDD, which is in accordance with CDM Executive Board. **CAR 8 is Closed**
CAR 9 A clear description of the project activity and technical specification/description of the equipments involved in the project activity has not been provided in section A.4.2 of the PDD	Table 1 4.a	The technical specification/description of the equipment, as per the Techno-economic Clearance dated 09/06/2010, has been provided in section A.4.2 of the updated PDD.	Technical specification and description of the equipments related to the project activity is provided in section A.4.2 of the PDD. The validation team has referred to the techno-economic clearance issued to the project activity by the Government of Himachal Pradesh, dated 09/06/2010 and the technical description presented in section A.4.2 of the PDD is consistent with the TEC issued by the government.

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response	Validation team conclusion
			Hence, CAR 9 is Closed
CAR 10 The project participant has described the project boundary of the proposed CDM project activity in section B.3 of the web hosted PDD. However, the description of the project boundary is not in accordance with the latest available baseline and monitoring methodology.	Table 1 5.c.a	The description of the project boundary in section B.3 has been updated as per AMS ID Ver 17. As per AMS-ID, the spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project Accordingly, the project boundary encompasses project's electrical and mechanical equipments, project site, feeders leading up to the substation and the physical extent of the NEWNE regional electricity grid which includes all power plants connected physically to the electricity system. As the intake of the project activity is situated in the tail race section of the 192 MW AD hydro, the same has been included in the project boundary as any stoppages in the AD hydro project would impact the operations of the project activity as well.	The project participant has revised the project boundary in accordance with the applied methodology AMS ID, version 17. As the project activity is a tail race project of up-stream AD Hydro project of 192 MW capacity, the same has also been included in the project boundary by the project participant. Hence, the validation team confirms that the project boundary identified by the project participant correctly refers to the project scenario and is in accordance with the methodology. **Hence, CAR 10 has been closed.**
CAR 11 The sources and GHGs required by the latest applicable baseline and monitoring methodology have not	Table 1 5.c.e	The sources and GHGs required by the latest applicable baseline and monitoring methodology have been included in the project boundary in the revised PDD.	The sources and GHGs have been included in the project boundary in the revised PDD. In accordance with the latest applicable baseline and

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response	Validation team conclusion
been included in the project boundary.			monitoring methodology. **CAR 11 is Closed**
CAR 12 The web-hosted PDD is silent on the type of the bechmark applied and the computation approach adopted for the benchmark including the suitability of the all input assumptions considered in the benchmark selction.	Table 1 6.c.x.	The type of the benchmark applied and the computation approach adopted for the benchmark has been provided in Appendix 2 of the web-hosted PDD. The guidance to investment analysis issued in EB 62, Annex 5 (Para 11) states that in cases where a benchmark approach is used the applied benchmark shall be appropriate to the type of IRR calculated. Required/expected returns on equity are appropriate benchmarks for equity IRR. The benchmark has been derived based on the data of power generating companies having renewable-energy based power installations at the time of investment decision in the project activity. The expected / required rate of return on equity has been determined using the Capital Asset Pricing Model (CAPM) considering Beta values of power generating companies in India that were listed at the time of investment decision of the project activity	The project participant has selected the equity IRR as a financial indicator and return on equity (cost of equity) has been selected as a benchmark. This confirms that financial indicator chosen and the benchmark are consistent. The cost of equity computed by the project participant is based on widely accepted CAPM model. The market return considered is based on BSE Sensex index which is provides the market return data for the longest period of time. The PP has selected ~30 year data for the market return calculation based on publicly available data. The PP has considered long term risk free rate (more than 20 years) published by the Reserve Bank of India. The beta value applied by the project participant are based on average value of 5 year weekly

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response	Validation team conclusion
		and which also had renewable energy based installations. The applicable Beta value has been determined on the basis of the Beta values of power generating companies in India which were listed on the stock exchange at the time of investment decision. Hydro power producing companies were also included in the analysis. The benchmark has been calculated using the BSE Sensex. BSE Sensex is the oldest index in the Indian Stock Market* and thus and thus has the largest quantum of data. The Sensex represents 30 component stocks representing large, well-established and financially sound companies across key sectors. It also features the most frequently traded stocks. The entire data range of BSE Sensex, since its inception, has been considered.	average Bloomberg adjusted beta values for 9 companies in India involved in power generation (including hydro). The validation team confirms that all the data used by the project participant is available at the time of investment decision. The return on equity benchmark value thus appropriate for the type of financial indicator selected i.e. equity IRR **Hence, CAR 12 is Closed**
CAR 13 Sensitivity analysis has been performed with variation of +10% and -10% in section B.5 of the PDD on the following parameters:-	Table 1 6.c.ll	Para 20 of the Investment guidance (Annex 5, EB 62) states that only variables, including the initial investment cost, that constitute more than 20% of either total	The O&M cost is not considered for sensitivity analysis, as O&M cost of the project activity do not constitutes more than 20% of either total project

* http://www.bseindia.com/about/abindices/preface.asp

<table>
<tr><th>Draft report clarifications and corrective action requests by validation team</th><th>Ref. To checklist question in Table 1 and 2</th><th>Summary of project owner response</th><th>Validation team conclusion</th></tr>
<tr><td>a) Project cost

b) Tariff

c) Plant load factor

However, PP is requested to provide justification for not including O&M cost for sensitivity.</td><td></td><td>project costs or total project revenues should be subjected to reasonable variation. As tariff, plant load factor and capital cost contribute more than 20% to the project revenues, they have been subjected to sensitivity analysis. O&M expenses have been included in sensitivity.</td><td>costs or total project revenues and the same is in accordance with Para 20 of the Investment guidance Annex 5, EB 62. However, the project participant has provided the sensitivity analysis on O&M cost in financial calculation sheet.

Hence, validation team closed the CAR 13.</td></tr>
<tr><td>CAR 14
PP is requested to demonstarte the scenario, when the project activity will cross the benchmark and probability of occurance of such scenario in accordance with Annex 5 of EB 62</td><td>Table 1

6.c.pp</td><td>The scenarios under which the IRR crosses the benchmark is as follows:

<table><tr><th>Parameter</th><th>Base IRR</th><th>IRR crosses benchmark at</th></tr><tr><td>PLF</td><td rowspan="4">16.64%</td><td>5% increase in base PLF</td></tr><tr><td>Tariff</td><td>5.7% increase in tariff</td></tr><tr><td>Project Cost</td><td>4.3% decrease in project cost</td></tr><tr><td>O&M</td><td>32% decrease in the O&M cost</td></tr></table>
The probability of occurrence in increase of PLF increase by the percentages detailed above is practically negligible as the PLF value is based on Technical Feasibility Analysis.</td><td>The project participant with respect to CAR 14, demonstrated the scenario when the equity IRR will cross the benchmark for the variables considered for the sensitivity analysis.

The project participant further provided that though the equity IRR crosses the benchmark within +/-10% of the sensitivity analysis, the equity IRR crossing the benchmark in +/10% sensitivity analysis is not feasible in the actual scenario as the project activity has been financed by 60% equity and only 40% debt in the actual case scenario as compared to 70% debt and 30% equity scenario</td></tr>
</table>

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response	Validation team conclusion
		The tariff is as per HPERC COMMISSION'S ORDER ON SMALL HYDRO POWER PROJECTS. There is limited probability of revision. Moreover, in case of a new tariff order, the revised tariff is applicable the upcoming projects and not on the existing projects. The project cost is fixed as per the TEC approval and thus there is no possibility of the same decreasing. Moreover, with time, due to inflation, the cost may increase to some extent. Also, the project is dependent on the tail race discharge of the 192 MW AD hydro project. In case of a stoppage in the AD hydro project, the project activity will face a loss of generation due to unavailability of water in the tail race of AD hydro. Thus, achieving a consistently high generation is unlikely for the project activity. **Actual Scenario:** The actual debt equity ratio of the project activity is 40:60. The lender specifically asked the project proponent to increase his equity participation in the project due to various uncertainties associated with the project activity. This can be evidenced through the clarification letter issued by	considered at the time of the investment decision. The validation team also referred to the loan sanction letter of the project activity and confirms that actual debt equity ratio of the project is 60% equity and 40% debt. The validation team accepted the same considering the fact that in accordance with EB 62 Annex 5 (Para 21) the ultimate objective of the sensitivity analysis is to determine the likelihood of the occurrence of a scenario other than the scenario presented, in order to provide a cross-check on the suitability of the assumptions used in the development of the investment analysis. The base case (70% debt and 30% equity) equity IRR at the time of the investment decision is below the benchmark and it only crosses the benchmark when the sensitivity analysis is performed. As actual debt equity ratio in the project is confirmed from the government sector bank sanction letter and another certificate

<table>
<tr><th>Draft report clarifications and corrective action requests by validation team</th><th>Ref. To checklist question in Table 1 and 2</th><th>Summary of project owner response</th><th>Validation team conclusion</th></tr>
<tr><td></td><td></td><td>Rural Electrification Corporation, the lender for the project activity and the loan sanction letter. The IRR and the sensitivity results at the actual debt equity ratio are as follows:

<table><tr><td>Parameter</td><td>-10%</td><td>Base Case</td><td>+10%</td></tr><tr><td>PLF</td><td>11.77%</td><td rowspan="4">13.92%</td><td>16.01%</td></tr><tr><td>Project Cost</td><td>16.52%</td><td>11.75%</td></tr><tr><td>Tariff</td><td>12.22%</td><td>15.70%</td></tr><tr><td>O&M</td><td>14.28%</td><td>13.56%</td></tr></table>
It can b seen that the actual debt equity ratio, the IRR does not cross the benchmark of 18.36% for a 10% variation in any of the parameters.</td><td>provided by the bank (a government sector bank) which is 60% equity and 40% debt, the likelihood of the above-scenario is no longer applicable and considering the actual debt equity ratio, the equity IRR do not cross the benchmark at the +/-10% range of sensitivity. Hence, CAR 14 closed.</td></tr>
<tr><td>CAR 15
Though the required parameter has been included in section B.7.1 of the PDD,
However:
a) The calibration frequency and responsible entity for calibration of measuring instruments is not provided.</td><td>Table 1

7.e</td><td>a) The calibration frequency and the entity responsible for the calibration have been provided in the revised PDD.

b) The entity responsible for data recording of $FC_{i,j,y}$ has been provided</td><td>a) The calibration frequency (Once in three years) and responsible entity (State Utility, HPSEB) is mentioned in section B.7.1. of the revised PDD.

b) Responsible entity for the measurement and recording of the parameter “quantity of diesel used in</td></tr>
</table>

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response	Validation team conclusion
b) Responsible entity for the data recording for the parameter FF_{DG} is not provided.		in the revised PDD.	year y" is now provided in section B.7.1 of the revised PDD. **CAR 15 is Closed**
CAR 16 The CO2 emission factor of the Fossil Fuel i.e Diesel used is not measured as per the "Tool to calculate project or Leakage CO2 emission from fossil fuel combustion"	Table 1 7.i	The CO2 emission factor of the Fossil Fuel has been updated as per the "Tool to calculate project or Leakage CO2 emission from fossil fuel combustion". The upper limit as per the IPCC 2006 default value has been considered.	The project participant has now considered the value of CO_2 emission factor of fossil fuel as 74.8 tCO_2/TJ, which is default value at upper limit of confidence level and the same is in accordance with "Tool to calculate project or Leakage CO2 emission from fossil fuel combustion". **CAR 16 is Closed**
CL 1 The project participant has not submitted the Host Country Approval of the party involved in the project activity.	Table 1 1.a	The Host Country Approval has been submitted	The project participant has submitted the Host Country Approval with reference number 4/6/2012-CCC, dated 06/11/2012 **CL 1 is Closed**
CL 2 A brief description of the project activity including scenario existing prior to the start of the project activity, baseline scenario and present scenario is not provided explicitly in section A.2 of the web hosted PDD.	Table 1 3.d.i	The description of the pre-project scenario, baseline scenario and present scenario has been updated in section A.2 of the revised PDD.	Project participant has provided the description of pre-project scenario, present scenario and baseline scenario in section A.2 of the PDD. **CL 2 is Closed**

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response	Validation team conclusion
CL 3 The project participant has provided the ex ante calculations of the baseline emissions and emission reduction in section B.6.3 of the PDD. However, the source of equations used and the value of the parameters (leakage emission and project emission) is not clear with respect to the latest baseline methodology.	Table 1 3.r.i	The source of equations used and the value of the parameters for project emissions has been updated as per the "Tool to calculate project or Leakage CO2 emission from fossil fuel combustion", which is also referred to in the approved baseline methodology (AMS I.D. Version 17). The source of equations used and the value of the parameters for leakage emissions has been updated in the revised PDD as per the approved baseline methodology (AMS I.D. Version 17).	The project participant has provided the ex ante calculations of the baseline emissions and the emission reductions in section B.6.3 of the revised PDD with specific reference to the methodology Paragraphs. The sources of equations used and value of the parameters considered is now clear in the revised PDD section B.6.3. Hence, **CL 3 has been closed.**
CL 4 The combined Margin emission factor has been calculated in the Webhosted PDD. However, the web hosted PDD uses the version 2 of the "tool to calculate emission factor for an electricity system" available at the time of validation (in accordance with general guidance to SSC CDM methodologies). However, the project participant has used version 5 of CEA database for calculation of emission factor, which	Table 1 5.d.b.iii	The project participant has used version 5 of CEA database for calculation of emission factor which was available at the time of web-hosting the PDD. The database uses Version 1.1 "Tool to Calculate the Emission Factor for an Electricity System". However, the PDD has been updated as per version 2.2.1 of the "Tool to Calculate the Emission Factor for an Electricity System" while retaining the CEA database version 5. This does not impact the value of the Emission Factor for the electricity system.	Project participant has provided the comparison between version 1.1 and version 2.1.1 of the "tool to calculate emission factor for an electricity system". Hence, the validation team accepts the fact that version 1.1 and version 2.1.1 of the "tool to calculate emission factor for an electricity system" will not affect the calculated value of the combined margin emission factor. The validation team also checked

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response	Validation team conclusion
uses version 1.1 of the "tool to calculate emission factor for an electricity system". Please Clarify		The key modifications to Version 1.1 of the Tool to calculate emission factor for an electricity system as per latest version 02.2.1 are as follows: Version | Nature of Revision | Steps to ensure conservativeness	both the versions of "tool to calculate emission factor for an electricity system" and observed that the latest version will not affect the calculation of the combined margin emission factor. Hence, the validation team **closed the CL 4**.

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response			Validation team conclusion
		02.	The tool was amended to allow for the inclusion of off-grid power plants in the calculation of the electricity system emission factor; and deletion of the previous Option A in the operating margin emission factor calculation, as this option is covered by the previous Option B1 (A1 after revision)	This modification does not impact the emission factor for the project as the sample of units base on which the emission factor is calculated remains the same.	
		02.1.0	The tool was amended to allow the use of an operating margin emission factor	This modification does not impact the emission factor for the project as the project activity as it located in the same country as the project host country.	

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response			Validation team conclusion
			different form zero in case of connected electricity systems located in countries other than the project host country.		
		02.2.0	Amendment to provide flexibility for LDCs and countries where less then ten CDM projects have been registered, when calculating the grid emission factor; and	This is not applicable in the case of India as more than 10 CDM projects have been registered.	
		02.2.0	Extend the procedure for the identification of sample groups of power units relevant to build margin	The revised procedure for the identification of sample groups of power units relevant to build margin calculation has been performed. As per the revised procedure, the resulting sample of power units relevant to build	

<table>
<tr><th>Draft report clarifications and corrective action requests by validation team</th><th>Ref. To checklist question in Table 1 and 2</th><th>Summary of project owner response</th><th>Validation team conclusion</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td></td><td>calculation.</td><td>margin calculation remain same as per the sample used by CEA Database Ver05, and therefore, there is no impact on the emission factor. Hence, emission factor as per CEA database ver 05 has been used.</td></tr>
<tr><td>02.2 .1</td><td>Editorial amendment to:
• Fix unit errors in equations (4) and (6);
• Provide clarity throughout the text.</td><td>These are editorial amendments and not changes in the calculations of grid emission factor. Therefore, this does not impact the emission factor calculations</td></tr>
</table>
As can be seen from the above table, the modifications to version 1.1 do not impact the calculation of the emission factor which is based on version 2.2.1, and hence conservativeness is retained.
</td><td></td></tr>
<tr><td>CL 5
It has been observed from the review of the section B.5 of the web-hosted PDD that project participant has</td><td>Table 1
6.a</td><td>The PDD has been updated. The financial indicator chosen is the equity IRR which is compared to the benchmark cost of equity.</td><td>Project participant has revised the PDD and consistently mentioned the financial indicator as equity IRR.</td></tr>
</table>

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response	Validation team conclusion
selected post tax project IRR as a financial indicator. However, the same section of the PDD specify the financial indicator as equity IRR. Please clarify.			**CL 5 is Closed**
CL 6 In section B.5 of the PDD, it is indicated that as per the attachment A to Appendix B, PP uses option (a) Investment Barrier and post tax project IRR as a financial Indicator. However, it is not clear how the selected financial indicator is suitable for the project activity and also the financial indicator (i.e project IRR) is not mentioned consistently in the PDD.	Table 1 6.n	The PDD has been updated. The financial indicator chosen is the equity IRR which is compared to the benchmark cost of equity. In choosing an appropriate benchmark we have based our approach on the principles of financing and investment decision making that are well found in theory and practice of corporate financing world wide. We have derived from text book on "Corporate Finance Theory and Practice" by Dr. Aswath Damodaran of Stern School of Business, New York University. The guidance to investment analysis states that in cases where a benchmark approach is used the applied benchmark shall be appropriate to the type of IRR calculated. Required/expected returns on equity are appropriate benchmarks for equity IRR. It is also worthwhile to note that the captioned project is a Greenfield hydro power generation project that generates	Project participant has revised the PDD and mentioned the financial indicator as equity IRR. The selected indicator i.e. Equity IRR is appropriate for the project activity, as the proposed project activity involves both debt and equity component and to estimate the returns on the investment by the project participant equity IRR is suitable indicator. **CL 6 is Closed**

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response	Validation team conclusion
		and supplies electricity to the state grid, therefore the project can not have only one possible project developer. The guidance to investment analysis issued in EB 62, Annex 5 (Para 13) states that in such cases (where the project has more than one potential developer) the benchmark shall be based on parameters that are standard in the market, considering the specific characteristics of the project type. Hence, we have not used company or project specific parameters for the calculation of the benchmark (such as company WACC, project and company specific interest rates, etc.). Accordingly, the cost of equity applicable to the project type has been considered.	
CL 7 The IRR calcluations include a fair value of the project activity assets after 40 years (technical lifetime) i.e 10% of the total project cost. However, the cost of land is not included at the end of the assessment period. Please Clarify	Table 1 6.c.h	The cost of land has been included at the end of the assessment period as salvage value in the revised financial model. This is conservative.	The project participant has considered 10% salvage value of the project after considering the 40 years of the lifetime. The cost of land has been included at the end of the assessment period. An independent financial expert has approved the financial computation. Hence. **CL 7 has been closed.**
CL 8	Table 1	The fair value of 10% has been taken as	The project participant has considered

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response	Validation team conclusion
PP requested to clarify that the fair value considered is as per the local accounting regulations with reference of source	6.c.i	per standard practices. The HPSEB tariff order dated 18 December 2007 mentions a depreciation of 90% on assets. Accordingly, a fair value of 10% has been considered.	the fair value of 10% which is consistent with the tariff order approved by the Himachal Pradesh Electricity Regulatory Commission dated 18/12/2007. Hence, the same was accepted by the validation team. **CL 8 is Closed**
CL 9 All the input values used in the investment analysis are valid and applicable at the time of the investment decision. However, following inadequacy found a) The value for tariff, Interest on term loan, debt equity ratio and Expected Commissioning of project is not consistent with the source provided. Please Clarify b) Please justify the appropriateness of the period of assessment in context of	Table 1 6.c.m	a) **Value of Tariff:** As per HPERC commission's order on small hydro power projects tariff and other issues December 18, 2007 available at http://www.hperc.org/orders/shpp.doc , the tariff for small hydro projects is taken as INR 2.50/kwh. As per MOU, HPSEB shall purchase energy @ Rs. 2.87 per KWH (Unit). Subsequently, as per HPERC commission's order on small hydro power projects tariff and other issues 10 February, 2010 available at http://www.hperc.org/orders/supshp.doc , the royalty has been	a) The tariff computed by the project participant has been sourced from the state electricity regulatory commission tariff order dated 10th Feb. 2010. As per the tariff order the Normal levelised tariff is Rs. 2.95/kWh. The tariff order provides formula for the tariff computation in case the free royalty is changed from the values referred in the tariff order. Due to increase in the free royalty to the state government, the tariff rate was accordingly computed by the PP based on the guidance provided in the state electricity regulatory commission tariff order dated 10th Feb. 2010. The tariff applicable is Rs. 3.24/kWh for first 12 years, Rs. 3.17/kWh from 13th year to 30th year of operation and Rs. 3.31/kWh from 31st Year onwards.

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response	Validation team conclusion
the project activity with reference of source. c) Justification of transmission loss considered with reference of sources		calculated based on a tariff of INR 2.95/kwh. Therefore, on the principle of conservatism, the tariff value of INR 2.95/kwh has been considered, which is the highest of the three. The royalty charge (9% in the first 12 years, 18% in the next 18 years and 27% for the last 10 years) accordingly based on the supplemental tariff order published in Feb 2010, tariff was calculated (Rs. 3.24/kWh for first 12 years, Rs. 3.17/kWh from 13th year to 30th year of operation and Rs. 3.31/kWh from 31st Year onwards) and also the expected commissioning has now been taken as per the DPR. **Interest on term loan:** The RBI PLR applicable at the time of decision making has been considered as the interest on term loan. **Debt-Equity Ratio:** The project is proposed to be financed by	This is in accordance with the approved tariff order of the electricity regulatory commission of HP and hence, the same was accepted. This Point is closed b) The project participant has considered the assessment period for investment analysis as 40 years. The validation team has reviewed the tariff orders issued by the CERC which refers only 35 years as project lifetime. However, the project participant has considered the whole project lifetime, which is more conservative. Hence, accepted by as the validation team. This Point is closed c) The auxiliary consumption and transformation losses reported are based on HPERC Tariff order. The validation team also cross-checked the auxiliary consumption value from the Tariff order published by the Central Electricity Regulatory

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response	Validation team conclusion
		IREDA. IREDA provides loan for SHP projects on 70:30 Debt- Equity ratio for total project cost. Also, the debt equity ratio provided in the HPERC tariff order. **Expected Commissioning of project:** The expected commissioning date as per DPR was 31 March 2012. The same had been postponed in the investment analysis to 31 March 2013 due to delay in implementation of the project. However, the financial analysis has been done based on an expected commissioning date of 31 March 2012, as the same was available during the decision making phase of the project activity. b) The period of 40 years is chosen as this is referred to in the source of HPERC commission's order on small hydro power projects tariff and other ISSUES December 18, 2007 available at http://www.hperc.org/orders/shpp.do	Commission dated 26/04/2010 (available at the time of the investment decision)*. The tariff order refers 1% value of auxiliary consumption for small hydro projects. Hence, the validation team accepted 1% value for the auxiliary consumption and transformation losses considered by the project participant. Hence, the same was accepted by the validation team. This Point is closed CL 9 is Closed.

* http://www.cercind.gov.in/2010/ORDER/April10/Final_RE_Tariff_Order_FY2010-11(53-2010_Suo-motu).pdf

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response	Validation team conclusion
		c (refer paragraph number 1.22 f, 4.73, 4.87) c) Transmission losses have been removed from calculations.	
CL 10 The web-hosted PDD is not consitent on the reporting of the financial indicator chosen. Please clarify the suitability of the benchmark with respect to the chosen financial indicator at the time of investment deicison with supporting evidences.	Table 1 6.c.aa	In choosing an appropriate benchmark we have based our approach on the principles of financing and investment decision making that are well found in theory and practice of corporate financing world wide. We have derived from text book on "Corporate Finance Theory and Practice" by Dr. Aswath Damodaran of Stern School of Business, New York University. The guidance to investment analysis issued in EB 62, Annex 5 (Para 11) states that in cases where a benchmark approach is used the applied benchmark shall be appropriate to the type of IRR calculated. Required/expected returns on equity are appropriate benchmarks for equity IRR. It is also worthwhile to note that the captioned project is a Greenfield hydro	The project participant has chosen the Investment barrier for the project activity. In accordance with "the tool for demonstration and assessment of additionality" (para-5, sub step 2(b)) and guidance to investment analysis issued in EB 41, Annex 45 (Para 13), if there is more than one potential developer of the proposed project activity then benchmark should be used which are standard in the market. Project participant has calculated benchmark using CAPM model, based on the market available data. Also, in accordance to "the guidance to investment analysis issued in EB

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response	Validation team conclusion
		power generation project that generates and supplies electricity to the state grid, therefore the project cannot have only one possible project developer. The tool for demonstration and assessment of additionality [para-5, sub step 2(b)] and guidance to investment analysis issued in EB 62, Annex 5 (Para 13) states that in such cases (where the project has more than one potential developer) the benchmark cannot be based on internal cost of equity or WACC and shall be based on parameters that are standard in the market, considering the specific characteristics of the project type. Hence, we have not used company or project specific parameters for the calculation of the benchmark (such as company WACC, project and company specific interest rates, etc.). Accordingly, the cost of equity applicable to the project type has been considered. The suitability of the benchmark at the time of investment deicison with supporting evidences has been provided in Appendix 2 of the PDD.	41, Annex 45 (Para 11), the benchmark approach used i.e. return on equity is appropriate for the equity IRR and the same is used by the project participant as financial Indicator. **CL 10 is Closed**
CL 11	Table 1		a) The project participant has revised

Draft report clarifications and corrective action requests by validation team	Ref. To checklist question in Table 1 and 2	Summary of project owner response	Validation team conclusion
a) The description provided for emergency preparedness in section B.7.2 of the PDD is not in with respect to the monitored parameter of the project activity. Please Clarify b) PP is requested to clarify how the measured data will be recorded and Archived c) In the description of monitoring plan, it is not clear that who is responsible for the calibration of measuring instruments and its frequency.	7.f	a) The description in Section B.7.2 has been revised and made in line with the project activity. b) Information on recording and archiving of data has been included in section B.7.2 of the revised PDD. c) The entity responsible for calibration has been included in Section B.7.1 of the revised PDD.	the PDD and provided the emergency preparedness procedure in section B.7.2 of the PDD. b) Project participant has mentioned that the date will be archived in electronic format for a period of 2 years after the crediting period. c) The project participant has mentioned that the responsible entity for calibration is HPSEB in section B.7.1 of the PDD. **CL 11 is Closed**