VALIDATION REPORT

ASCENT HYDRO PROJECTS LIMITED

SMALL HYDRO POWER PROJECT IN PANWI, HIMACHAL PRADESH

REPORT NO.

CDM.13.VAL.015

Date of this issue: 20/07/2015	**KBS Ref. No.:** CDM.13.VAL.015
Organisational Unit:	**Client:**
Climate Change Division, KBS	Ascent Hydro Projects Limited
Project Design Document	
First PDD:	**Final PDD:**
Version: 01	Version: 03
Date: 30/11/2013	Date: 23/06/2015

Summary of validation:

Ascent Hydro Projects Limited has commissioned KBS to perform the validation of the proposed CDM project activity:

Project Title:	Small Hydro Power Project in Panwi, Himachal Pradesh
Methodology Applied:	AMS-I.D.: Grid connected renewable electricity generation - Version 18.0
Standardized Baseline Applied:	Not Applicable
Sectoral Scopes:	Sectoral Scope 1: Energy industries (renewable - / non-renewable sources)
Validity of methodology/ies (for RfR):	Valid from 28/11/2014 onwards

The scope of the validation 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 the CDM Validation and Verification Standard (version 07), Project Cycle Procedure (version 07) and Project Standard (version 07), Kyoto Protocol requirements and UNFCCC rules.

The report is based on the assessment of the project design document undertaken through stakeholder consultations, application of standard auditing techniques including but not limited to desk review, follow up actions (e.g., on site visit, electronic (telephone or e-mail) interviews) and also the review of the applicable approved methodological and relevant tools, guidances and CDM decisions.

The review of the project design documentation and the subsequent follow-up interviews have provided KBS with sufficient evidence to determine the project's fulfillment of all the stated criteria. In our opinion, the project meets all applicable UNFCCC requirements for the CDM.

- ☒ Will be recommended to the CDM Executive Board with a request for registration
- ☐ Is not recommended for registration

	Validation Status:	☐ Findings not closed
Project type:	Small scale	☐ Draft validation report
Subject: CDM Validation		☒ Final validation report
Validation Team:		**Document Distribution**
Team Leader: Kaushik Pal Validator: Akhilesh Joshi Local Expert: Akhilesh Joshi Technical Expert (TA 01.2): Akhilesh Joshi		☒ No Distribution without permission from the Client
Technical Review Team:	**Manager T&C**	
Technical Reviewer: Sanjay Kandari Date: 27/07/2015 Technical Expert: Sanjay Kandari	Name: Gagandeep Kakkar Date: 13/08/2015	☐ Limited Distribution
Authorized by:		
Name: Kaushal Goyal, Managing Director Date: 13/08/2015		☐ Unrestricted Distribution
Rev Number:	**Date:**	

0	27/02/2015	
1	20/07/2015	

Abbreviations

AHPL	Ascent Hydro Projects Limited
AMS	Approved Methodology for Small-scale
APR	Addendum Project Report
BE	Baseline Emissions
BM	Build Margin
CA	Chartered Accountant
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CM	Combined Margin
CER	Certified Emission Reduction
CERC	Central Electricity Regulatory Commission
CL	Clarification request
COP	Conference of Parties
DOE	Designated Operational Entity
DNA	Designated National Authority
DPR	Detailed Project Report
DR	Document Review
EB	Executive Board
EF	Emission Factor
ERs	Emission Reductions
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GSC	Global Stakeholder Consultation
HCA	Host Country Approval
HPSEB	Himachal Pradesh State Electricity Board
IPCC	Intergovernmental Panel on Climate Change
KBS	KBS Certification Services Pvt. Ltd.
KP	Kyoto Protocol
LSC	Local Stakeholder Consultation
LE	Leakage Emissions
LoA	Letter of Approval/Authorization
MOP	Meeting of Parties
MoC	Modalities of Communication
MoV	Means of Verification
MP	Monitoring Plan
OM	Operating Margin
PA	Project Activity
PDD	Project Design Document
PE	Project Emissions
PLF	Plant Load Factor
PP	Project Participant
PPA	Power Purchase Agreement
PS	Project Standard
PO	Purchase Order
PCP	Project Cycle Procedure
QA/QC	Quality Assurance/Quality Control
RfR	Request for Registration
SD	Sustainable Development
T&C	Technical & Certification
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation & Verification Standard

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1. Validation Opinion

KBS Certification Services Pvt. Ltd. has been contracted by Ascent Hydro Projects Limited to perform a validation of the project:

Project title: Small Hydro Power Project in Panwi, Himachal Pradesh

Host Party: India

The validation was performed in accordance with the UNFCCC criteria for the Clean Development Mechanism, latest version of Validation and Verification Standard and related Standards/Guidance and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

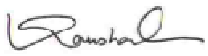
The proposed CDM project activity will result in reductions of greenhouse gas (GHG) emissions that are real, measurable and give long-term benefits to the mitigation of climate change. In our opinion, the project meets all relevant UNFCCC, CDM criteria and all relevant host country criteria.

The project correctly applies methodology AMS-I.D. version 18. It is demonstrated that the project is not a likely baseline scenario. The emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project are estimated to be 145,684 tCO2e over a 7 year crediting period during 15/08/2015 to 14/08/2022, averaging 20,812 tCO2e annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achievable given the underlying assumptions do not change.

The project will hence be recommended by KBS for request for registration with the UNFCCC.

Authorized Signatory



Signature:

Name: Kaushal Goyal

Place: Faridabad, India

Date: 13/08/2015

2. Introduction

2.1 Objective

Ascent Hydro Projects Limited has commissioned KBS to perform the validation of the project: Small Hydro Power Project in Panwi, Himachal Pradesh with regard to the relevant requirements for Clean Development Mechanism (CDM) project activities.

The purpose of validation is to ensure a thorough, independent assessment of proposed CDM project activities submitted for registration as a proposed CDM project activity against the applicable CDM requirements.

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. The validation is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reduction (CER).

UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities and related decisions by the COP/MOP and the CDM Executive Board.

2.2 Scope

The scope of the validation 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. KBS has employed a rule-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

3. Methodology

3.1 Review of CDM-PDD and Additional Documentation

The validation is performed primarily as a document review of the publicly available project document version 01 dated 30/11/2013 and the subsequent versions 02 & 03 (final version) dated 23/06/2015. The assessment is performed by a validation team using a validation protocol attached as Annex 1. The cross checks between information provided in the PDD and information from sources other than those used, if available, the validation team's sectoral or local expertise and, if necessary, independent background investigations.

3.2 Site Visit

The site visit was undertaken by Kaushik Pal (Team Leader) and Akhilesh Joshi (Validator, Technical Expert and Local Expert) and details are mentioned below;

Location:	Panwi Village in Kinnaur district, Himachal Pradesh	
Dates:	21/01/2014	
Key points discussed:	**Name of person, interviewed**	**Designation, Organization**
Project Design and Implementation, Project boundary , Sustainable Development	Parvesh Sharma Vineet Thakur Parveen Kashyap Aniket Bose Dharam Pal Gayasuddin Khan	Plant Manager, AHPL Senior Engineer, AHPL Shift Engineer (G), AHPL Shift Engineer, AHPL Shift Technician, AHPL Fitter, AHPL
Baseline and Additionality including project emission and emission reduction calculations	Deepak Kumar Joshi Parvesh Sharma	Consultant, Bunge Plant Manager, AHPL
Monitoring Arrangement , data management and QA –QC procedures	Deepak Kumar Joshi Parvesh Sharma En. Shiv Chand	Consultant, Bunge Plant Manager, AHPL Jr, Engineer, HPSEBL
Local Stakeholders Consultation Process and concerns of the local stakeholders	Hansraj Negi Shamsher Negi	Farmer, Panwi Village Farmer, Panwi Village
Project O & M and Statutory Clearances	Deepak Kumar Joshi Parvesh Sharma En. Shiv Chand	Consultant, Bunge Plant Manager, AHPL Jr, Engineer, HPSEBL

3.3 Major Milestones in validation

Validation Contract	07/11/2013
Publication of PDD	10/12/2013
On site Validation	21/01/2014
Draft Validation Report	27/02/2015
Final Validation Report	20/07/2015

3.4 Use of the Validation Protocol

The validation protocol used for the assessment is designed in accordance with the latest version of Validation and Verification Standard. It serves the following purposes:

- Reference to available information relating to projects or technologies similar to the proposed project activity under validation;
- Review, based on the approved methodology and where applicable standardized baseline being applied, of the appropriateness of formulae and accuracy of calculations.

- Organises, details and clarifies the requirements the project is expected to meet; and
- Documents both how a particular requirement has been validated and the result of the validation (reporting).

The validation protocol consists of several tables. The different columns in these tables are described below.

Checklist Question	Ref ID	Means of Verification (MoV)	Validation Assessment	Draft and/or Final Conclusion
The various requirements are linked to checklist questions the project should meet.	Lists any references and sources used in the validation process. Full details are provided in the table at the bottom of the checklist.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (Y), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). Clarification Request (CL) is used when the validation team has identified a need for further clarification.

The completed validation protocol for this project is attached as Annex 1 to this report

3.5 Findings

As an outcome of the validation process, the validation team can raise different types of findings

A Clarification Request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met

Where a non-conformance arises the validator shall raise a **Corrective Action Request (CAR).** A CAR is issued, where:

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

A Forward Action Request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

Corrective Action Requests and Clarification Requests are raised in the draft validation protocol and detailed in a separate finding document (Annex 2). In this document, the project participant is given the opportunity to “resolve” the outstanding CARs and respond to CLs and FARs.

3.6 Internal Quality Control

Following the completion of the assessment process and a recommendation by the assessment team, the validation opinion prepared by Team Leader is independently reviewed by internal Technical Reviewer. TR reviews if all the KBS procedures have been followed and all conclusions are justified in accordance with applicable standards, procedures, guidance and CDM decisions. The TR either is qualified for the technical area within the CDM sectoral scope(s) applicable to project activity or is supported by qualified independent technical expert at this stage.

The Technical Reviewer will either accept or reject the recommendation made by the assessment team. The findings can be raised at this stage and PP must resolve them within agreed timeline.

The opinion recommended by Technical Reviewer will be confirmed by Manager Technical & Certification and finally authorized by the Managing Director on behalf of KBS as final validation opinion. The Technical Reviewer and Manager T&C maybe be same person.

4. Validation Findings

4.1 Approval

Discussion:

India is the host country and main party involved in the project activity and same is included in section A.3 and Annex-1 of revised PDD. Project participant M/s Ascent Hydro Projects Limited (AHPL) has obtained approval from DNA of India i.e. Ministry of Environment and Forest. The project participant provided a copy of the Letter of Approval (vide letter No: 4/17/2014 -CCC dated 09/07/2014)[/7/] to the validation team.

The validation team confirmed the authenticity of the approval by reviewing the original letter of approval as submitted by PP during validation process. The validation team does not doubt the authenticity of the LoA as the same has been issued on the official letterhead of the Ministry of Environment and Forest, Government of India (which is also DNA of the host country, India) and signed by the Mr. A Duraisamy (Director and Member Secretary, National CDM Authority). The Letter of Approval clearly states that India has ratified the Kyoto Protocol and the approval is for voluntary participation in CDM project activity. The title and contents of the letter of approval refer to the precise proposed CDM project activity title in the PDD being submitted for registration. Also, the Letter of Approval confirms that proposed CDM project activity contributes to the sustainable development in host country India.

The information of the DNA has been confirmed by the validation team against the relevant information on the UNFCCC CDM website (http://cdm.unfccc.int/DNA/index.html). The table given below summarizes the project participant(s) and Party (ies) involved –

Project participant	M/s Ascent Hydro Projects Limited (AHPL)
Parties Involved	India (host)
Project activity title	Small Hydro Power Project in Panwi, Himachal Pradesh
Approval	Yes
LoA received	Yes
Date of LoA	09/07/2014
Reference of document	reference no 4/17/2014 -CCC
LoA received from	Project Participant
Validation of authenticity	Validation team does not doubt the authenticity of LoA. So, no further cross check has been performed.
Validity of LoA	Yes

As per the procedures for obtaining the approval from DNA of India, the PP of India need to obtain statutory clearances from local / state / national authorities for this type of project activity and the same[/09//29//38/] was verified by the validation team.

Validation of ODA:

The validation team did not find any evidence that this project activity can be seen as a diversion of ODA funds. The project activity is partly funded by owners equity and partly from long term loan which was verified from the CA certificate on Debt arrangement for the project activity[/32/] and found acceptable. Moreover, PP declared the non-involvement of any ODA letter[/36/] into this project activity, which is also verified by the validation team. Hence, the validation team concludes that there is no ODA funding or diversion of ODA is involved in the project activity.

Findings:

CAR-01 has been raised and closed successfully. Please refer Annex 2 of this report, where same is discussed in detail.

Opinion:

The LoA was reviewed and validation team confirms the following:

- India is a party to the Kyoto protocol;
- CDM is a voluntary participation;
- the project under validation will contribute to the sustainable development of India;
- the project title is in line with the title mentioned under the title page of PDD.

LoA has been verified to be unconditional with respect to all the above confirmed aspects.

The validation of approval has been done on the basis of § 40-43 of VVS V7 and validation team confirms that the proposed project activity meets the requirement of § 44 of VVS V7.

4.2 Authorization

Discussion:

The host Party for the proposed project activity is India, fulfils the participation requirements, having ratified the Kyoto Protocol on the 26/08/2002 and established National Clean development Mechanism Authority, Ministry of Environment and Forests (MoEF), as its DNA. This has been confirmed from the link (http://maindb.unfccc.int/public/country.pl?country=IN)

The project participant listed in the section A.3 of the PDD[/02/] is AHPL is the project participants in the proposed CDM project activity.

The participation of AHPL in the project activity has been approved by Indian DNA (MoEF) through a letter of approval (or HCA) dated 09/07/2014[/07/]. Details on HCA are mentioned in section 4.1 of the validation report above. Name of project participants in HCA are consistent with details in section A.4. of PDD[/02/].

Opinion:

The validation team confirms that, the LoA was reviewed and the participation of AHPL in the project activity has been approved by Indian DNA (MoEF), who is Party to the Kyoto Protocol. The validation team confirms that the proposed project activity meets the requirement of §50 of VVS V7.

4.3 Sustainable Development

Opinion:

The validation team confirms that;

The host Party's DNA has confirmed the contribution of the project to the sustainable development of the host Party. The LoA from the host party's DNA has confirmed the contribution of the project to the sustainable development and the validity of the LoA has been cross checked by the validation team (refer section 4.1 of this validation report). The validation team confirms that the proposed project activity meets the requirement of §53 of VVS V7.

4.4 Modalities of Communication

Discussion:

The Modalities of Communication (MoC)/5/, signed on 06/05/2014 was received from the PP. The Validation Team has directly checked the legal/corporate identity of the PP by verifying the Certificate of Incorporation/5/. The PP has authorized Mr. Shyam Vaidya (Managing Director) and Mr. Aniket Samant (Director) as the focal point in the MoC. The personal identity, specimen signature, contact details and employment status of the focal point have been checked by the corresponding evidence/6//7/ which can be considered as authentic and are found consistent with the MoC/5/. Moreover, the name of the PP mentioned in the LoA/7/ is also same in the MoC/5/.

The PP has correctly completed the latest version of form F-CDM-MOC including its Annex 1 with the details consistent with PDD and the evidence provided for identity check.

The modalities of communication (MoC) for the given project activity, signed on 06/05/2014/5/ was received from the host PP.

As required in procedures for Modalities of Communication between project participants and the Executive Board, the validation team has verified that the name of Mr. Shyam Vaidya (Managing Director) and Mr. Aniket Samant (Director) from AHPL is the authorized signatory for future communications related to corresponding scope of authority with UNFCCC/5/.

The corporate identity of all project participants and focal points included in the Modalities of Communication (MoC) statement, as well as the personal identities, including specimen signatures and employment status, of their authorized signatories is validated by -

Validation of MoC	Remarks, if any
a. Directly checking evidence for corporate, personal identity and other relevant documentation,	Confirmed from the Board resolution of AHPL/6/ which confirms that Mr. Shyam Vaidya (Managing Director) and Mr. Aniket Samant (Director) is authorized by Board to take all necessary decision related to CDM project. AHPL has sent the signed MoC to DOE confirming Mr. Shyam Vaidya (Primary authorized signatory) and Mr. Aniket Samant (Secondary authorized signatory) as their authorized signatory.

The validation team confirms that the signatory and contact details on the MoC are authorized and credible. The information required as per the F-CDM-MOC, including its annex 1, is correctly completed.

The validation team was also able to check that MoC was prepared using latest version of MoC form available on UNFCCC website i.e. Version-02.1. The project participant's authorized signatories signing the F-CDM-MOC correspond to the project participant's authorized signatories included in F-CDM-MOC, annex 1.

Findings:

No finding has been raised.

Opinion:

The validation team confirms that -

(a) It has performed due diligence on the MoC statement in accordance with the requirements established in § 55 to § 58 VVS V7;
(b) The MoC statement complies with all relevant forms and requirements. The given MoC statement complies with all relevant forms and requirements § 59 and § 62 of VVS V7.

4.5 Project Design Document

Discussion:

The PDD applied the Project design document form for small scale CDM project activities[/45a/], version 05, which is a valid form available on UNFCCC/CDM website at the time of submission of request for registration. The validation team confirms that the PDD is completed in accordance with the latest available PDD template for small scale project activities[/45a/].

Findings:

CAR-02 has been raised and closed successfully. Please refer Annex2 of this report, where same is discussed in detail.

Opinion:

In the opinion of the validation team, the PDD[/2/] is in accordance with applicable PDD form and guidance and valid. Table below describes the key revisions between the final PDD[/2/] against the first version[/1/] published for the international stakeholder consultation. The given PDD complies with all relevant forms and requirements § 64 of VVS V7.

4.6 Assessment of variation between webhosted PDD and final PDD

Key revisions between the final PDD against the first version published for the international stakeholder consultation		
PDD Section no.	**Brief description of the changes**	**Indicate relevant finding**
PDD Template	PDD has been revised with latest available version 05.0 of PDD template.	Refer CAR-02 in Annex 2 of this report for detailed finding
Section A.3	Section A.3 of the PDD is revised to incorporate the description to demonstrate that the same types and levels of services provided by the project activity would have been provided in the baseline scenario.	Refer CAR-03 in Annex 2 of this report for detailed finding.
Section B.2	Justification of the all applicability conditions of the applied methodology AMS-I.D. Version 18[/41/] has now been included in the revised PDD.	Refer CAR-04 and CAR-10 in Annex 2 of this report for detailed finding.
Section B.5	Cost of Equity (used for calculation of WACC) is now based on UNFCCC default value. WACC value has been changed from 13.49% to 11.46%. Post tax Project IRR (without CDM) has been changed from 5.83% to 6.44%.	Refer CL-05, CAR-06 and CL-07 in Annex 2 of this report for detailed finding.
Section C.1.2	Start date of crediting period has been revised to 15/08/2015.	Refer CAR-08 in Annex 2 of this report for detailed finding.

4.7 Project Description

Discussion:

The project activity involves implementation of a new grid connected run-of-the river hydro power plant of 4.0 MW (2 * 2.0 MW) installed capacity. The project activity is located at village Panwi, tehsil Nichhar, district Kinnaur in the state of Himachal Pradesh, India[/2/]. During the process of validation, KBS has performed site visit interview and document review through which the capacity, unique identification of the project activity,

estimated power generation[/23/], arrangement for evacuation of electricity generated[/29/], technical specifications[/8//9/] and arrangements for O&M for setting the project activity were confirmed. The list of documents reviewed during the course of the validation is presented under "Section 6 – References" of this validation report.

The unique project site location is latitude (31º 32' 00" N) and longitude (78º 01' 30" E). It was checked from satsig website[/46e/] and the correctness of the location was confirmed by the validation team.

The proposed project activity is a run of river hydro power project and it will utilise the flow of water from the stream Panwi Gad which is the tributary of the River Sutlej. The proposed project activity consists of a concrete gravity overflow type trench weir of 10 meter length is proposed to be located at elevation of 1784.0 m. The water diverted from the river weirs will reach the forebay tank of 450 m^3 capacity through desilting tank. Further, the water is diverted through a penstock of 1000 mm diameter to the 2 Nos of Impulse – Pelton turbine of 2.0 MW each (2 units) located at the power house. The net head available for power generation will be 163.5 m. PP has signed an electro mechanical equipment's contract with M/s. Kirloskar Borthers Limited[/8/]. The validation team confirms that the HTGs of total capacity of 4 MW have been designed with respect to proven technology used in the host country for hydro based electricity generation. The voltage at 4.0 MW generators is 3.3 kV which is stepped up to 22 kV and transmitted through the transmission line to nearest substation[/29/].

The technical details of the Hydro Turbine Generator (HTG) mainly the number of HTGs (2 Nos), rated head (163.5 m), rated power (2.0 MW), design discharge (1.42 m^3/s), technical life time (35 years), rated power factor (0.9), rated voltage (3.3 kV), frequency (50 Hertz) mentioned in the PDD[/2/] were confirmed from the addendum report to original DPR[/23/] and physical inspection at the time of on site visit.

PP had prepared a Detailed Project Report (DPR)[/22/] and addendum report to original DPR[/23/] in which the electricity generation has been estimated by means of hydrology study. The proposed project activity will supply an estimated net electricity of 22,038 MWh[/4/] per year, which results in a PLF of 62.89%[/23/]. PP has submitted the Detailed Project Report (DPR)[/22/] and corresponding addendum report to original DPR[/23/] to "Himachal Pradesh State Electricity Board"(HPSEB), for techno economic clearance for implementation of the project activity and techno economic clearance was accorded by HPSEB dated 30/06/2006[/35/].

The project activity would generate electricity from hydro energy and export to the NEWNE grid. The project activity will thus reduce green house gas (GHG) emissions associated with the NEWNE grid, which is dominated by fossil fuel based power plants. Therefore, the project activity will generate emission reductions by avoiding CO_2 emissions that would have been generated from fossil fuel based grid connected power plants. The total emission reductions due to the project activity works out to be 20,812 tCO2e per year[/4/] based on the net annual exportable power generation. The expected total emission reductions covering the 7 years of crediting period are 145,684 tCO2e. Emission reduction calculation has been done as per the applied methodology AMS I.D., version 18[/41/].

The project has been commissioned on 09/05/2013[/17/]. The validation of the proposed project activity has been carried out by physical inspection (site visit) reviewing available documents considered for implementation of the project [/23/] and other statutory clearance[/38/].

Based on the information furnished by the project participants, no diversion of ODA contributes to the financing of the project[/36/]. The starting date of project, project duration and crediting time are presented in the table below.

Starting date of project	**Expected project operational lifetime**	**Crediting period**

26/02/2007 (Contract signed with Kirloskar Brothers Limited[/8/]). This can be treated as the start date on which the PP has committed expenditures related to project specific implementation and construction as per the Glossary of CDM Terms[/45b/] and §67 of EB 41 meeting report.	35 years[/P10f/] Expected technical lifetime of the Hydro power plant as confirmed by the CERC CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2012[/28/].	7 years renewable crediting period which is within the technical lifetime[/28/] of the Hydro power plants.

In summary, according to §70 of VVS V7[/40a/], KBS confirm the project description by means of site visit, document review and interviews with stakeholders.

Findings:

CAR-03 and CAR-08 has been raised and closed successfully. Please refer Annex 2 of this report, where same is discussed in detail.

Opinion:

The validation team conducted document review and onsite interviews/ inspection of this project activity. Based on the same the validation team confirms that the PDD contains a clear description of the project activity that provides a clear understanding of the precise nature of the project activity. This description is also found to be accurate and complete. The PDD[/02/] satisfies the requirements of §70 of VVS V7[/40a/].The details of the site visit conducted by the validation team can be referred in section 3.2 of this validation report.

4.8 Baseline and monitoring methodology

4.8.1 General requirement

Discussion:

The project applies the approved simplified baseline methodology for selected small-scale CDM project activity categories, category I.D- “Grid connected renewable electricity generation” (AMS-I.D.) version 18[/41/], which also uses the “Tool to calculate the emission factor for electricity an electricity system” version 04[/42/].

Findings:

CAR-10 has been raised in this context and closed successfully. Please refer Annex 2 of this report, where same is discussed in detail..

Opinion:

a) The validation team is of opinion that applied approved baseline and monitoring methodology is approved by UNFCCC and PDD has used the version of the applied baseline and monitoring methodology that is valid at the time of request for registration. Thus, the requirements of §79 of VVS V7[/40a/] is satisfied.

b) The PDD has mentioned and correctly applied the tool and guidance relevant as per applied methodology.

4.8.2 Applicability of selected methodology to the project activity

Discussion:

The project activity is a greenfield project and the installed rated capacity of the proposed project activity is 4 MW[/8//17/]. The selected baseline methodology, AMS-I.D., version 18[/41/], is applicable to the project activity as it generates renewable electricity by hydro power and it displaces the grid electricity.

Applicability criteria for the baseline and monitoring methodology and the tools and information/ documentation content in the PDD against these criteria are assessed by the validation team by means of document review and interviews (refer section 3.1 of this report). Thus the validation team confirms that the project participant has correctly applied the approved methodology for the proposed project activity and that the selected version of the methodology is valid at the time of submission of the proposed project activity for registration.

It is agreed in the validation team's opinion that the project activity fully met the criteria of the methodology as described below:

Applicability criteria as per Methodology AMS-I.D., version 18	**PP Response**	**Means of Validation**
1.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 involves installation of hydro power plant. The project activity is a 4 MW hydro power generation project that generates and exports renewable electricity to the NEWNE grid system.	The project activity is a renewable hydro power plant of 4 MW capacity and the electricity generated by the project activity will be supplied to the NEWNE grid of India. The validation team confirms the same based on the review of the Power Purchase Agreement signed between the PP and Himachal Pradesh State Electricity Board[/29/], Project implementation agreement[/9/] and project addendum report to DPR[/23/]. Hence, it is applicable under the option (a) of this category. Thus, this para of methodology is applicable. The footnote 1 of the applicability condition is not relevant to this project activity.
2. Illustration of respective situations under which each of the methodology (i.e. "AMS-I.D.: Grid connected renewable electricity generation", "AMS-I.F.: Renewable electricity generation for captive use and mini-grid" and "AMS-I.A.: Electricity generation by the user) applies is included in the appendix.	For the project activity, AMS-I.D. applies since it is "Grid connected renewable electricity generation"	The validation team has checked the NEWNE grid connectivity of the project activity[/17/] and sale of electricity to the grid by verifying against the Power Purchase Agreement signed between PP and Himachal Pradesh State Electricity Board[/29/]. Therefore, the validation team confirms that the project activity is eligible for the methodology AMS-I.D. as per point 1 of table 2, page 15 of the methodology. Also the methodologies AMS-I.F and AMS-I.A. are not applicable to this project activity. Hence, this para of methodology is applicable.
3.This methodology is applicable to project activities that: (a) Install a new power plant at a site where there was no renewable energy power	This project activity installs a new power plant at a site where there was no renewable energy power plant operating. The project activity is a Greenfield project.	Bullet no. (a) of the paragraph 3 of the applied methodology is applicable for the present case as project activity install a new power plant at a site where there was no renewable energy power plant operating prior to

plant operating prior to the implementation of the project activity (Greenfield plant); (b) Involve a capacity addition in (an) existing plant(s); (c) Involve a retrofit of (an) existing plant(s);(d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s).		the implementation of the project activity i.e. a Greenfield plant, the same has been checked from the document review[/38/] and from the onsite visit.
4.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, 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.*	Project activity is run-of the river project and does not have reservoir. Hence, this is not relevant for the project activity. Therefore, it is not applicable.	The proposed hydro power project is a run of river project and not a reservoir based project. Hence this applicability condition and conditions mentioned in foot note 6 and 7 of the methodology do not apply. The compliance of this applicability is confirmed through the review of[/22/ /23//33/] and physical verification during site visit.
5.If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW	This is not applicable to the project activity because there is only renewable component involved with the project.	The project activity is a renewable hydro power based 4 MW power plant. It does not involve any non-renewable component. Based on site visit and review of the documents addendum to the DPR[/23/], NOC from

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.		Statutory authority[/38/] and technical specification of key equipment's[/22/], the validation team confirms that the project is renewable hydro based power project. Thus, the validation team confirms that this applicability condition and footnote 8 is not applicable.
6.Combined heat and power (co-generation) systems are not eligible under this category.	This project activity does not involve combined heat and power generation system.	The project activity is a 4 MW hydro power plant and is not a co-generation project; hence paragraph is not applicable for the project.
7. 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 distinct from the existing units.	The project activity does not involve the addition of renewable energy generation units at an existing renewable power generation facility; hence this condition is not applicable.	The project activity is a Greenfield project being implemented at a site where no hydro power plant exists and this is not a capacity addition project. Based on site visit and review of the documents[/02/], addendum report to DPR[/23/] and NOC from Statutory authority[/38/], the validation team confirms the above and hence this paragraph is not applicable to the project. Furthermore, the capacity of the Greenfield project is 4 MW and falls under small scale project activity.
8. In the case of retrofit, rehabilitation 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 not the retrofitting or replacement of an existing facility for renewable energy generation.	The project is a green field project and the validation team has confirmed from the Contract with Kirloskar Brothers for Electro Mechanical Equipments[/8/] and addendum report to DPR[/23/]. Hence, this paragraph is not applicable. The capacity of the Greenfield project is 4 MW and falls under small scale project activity.
9. 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 for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other	This is not relevant to the project activity as the project involves only hydro power generating units.	The project activity is a 4 MW hydro power plant and is not a landfill gas, waste gas, wastewater treatment and agro-industries project; hence paragraph is not applicable for the project

applicable Type-I methodologies such as "AMS-I.C.: Thermal energy production with or without electricity" shall be explored		
10. In case biomass is sourced from dedicated plantations, the applicability criteria in the tool "Project emissions from cultivation of biomass" shall apply	This is not relevant to the project activity as the project involves only hydro power generating units.	The project activity is a 4 MW hydro power plant and is not a biomass based project; hence paragraph is not applicable for the project.

The validation team has assessed the applicability requirements and cross verified with the supporting information and interviewed the PP, in consultation with local expertise and sector expert, and confirms that the project activity meets all the applicability conditions of the methodology AMS-I.D. version 18[/41/].

Findings:

CAR-04 has been raised and closed successfully. Please refer Annex 2 of this report, where same is discussed in detail.

Opinion:

The validation team confirms the following in accordance to §75 and §78 VVS V7[/40a/] -

a) The applicability conditions of the selected approved methodology AMS-I.D., Version 18[/41/] is appropriately described in PDD.
b) The validation of each relevant applicability conditions is described above.
c) The applied methodology is applicable in the context of the proposed CDM project activity and the selected version of the methodology is valid at the time of submission for registration.

Thus, the project activity satisfies the reporting requirements of §79 of VVS V7[/40a/].

4.8.3 Project boundary

Discussion:

The project boundary includes the hydro power plant, the concrete gravity type diversion weir, penstock, powerhouse, tail race channel and the NEWNE grid. The main components and physical delineation of the project boundary has been checked from the original DPR[/22/] and addendum report to the DPR[/23/]. The details in DPR were confirmed during physical inspection at the time of on site visit. The electricity generated by project is supplied to NEWNE grid.

The validation team was able to confirm that all the identified emission sources which are impacted by the project activity are addressed by the approved methodology AMS-I.D. version 18[/41/].Details on gases included in project boundary are given below:

Title	GHGs	Description
Baseline Emission	CO_2	The major emission source. The GHG emission reductions are achieved by displacing the electricity generated by fossil fuel dominated power plants in the integrated NEWNE grid of India.
Project emissions	-	Considered zero as per applied approved methodology AMS-I.D. version 18

Leakage	-	No transfer of energy generation equipment involved in the proposed project activity, thus the leakage is considered as zero in accordance with applied approved methodology.

Findings:

No finding has been raised.

Opinion:

The validation team considers that the greenhouse gas emissions occurring within the proposed CDM project activity boundary. The GHG emissions as a result of the implementation of the proposed CDM project activity which is not addressed by the applied methodology, i.e. AMS-I.D., Version 18[/41/] is deemed to contribute less than 1% of the overall expected average annual emissions reductions. Hence the validation team confirms the project activity is validated in accordance to §85-87 and it meets the requirements of §88 and §89 of VVS V7[/40a/].

4.8.4 Baseline identification

Discussion:

The proposed project is implementation of Greenfield grid connected 4 MW run of the river hydro power generation facility and the generated power is evacuated to NEWNE grid system. In the absence of the project activity the equivalent amount of electricity would have been generated by the predominantly fossil fuel fired carbon intensive power plants of the NEWNE grid system. Thus the PP has correctly identified the baseline of the proposed Greenfield CDM project activity as per §19 of the selected methodology AMS-I.D., Version 18[/41/].

"The baseline scenario is that 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 into the grid."

<u>Determination of Baseline Emissions</u>

The baseline emissions have been calculated as per §22 of the selected methodology AMS-I.D.,Version 18[/41/]:

$BE_y = EG_{PJ,y} * EF_{grid,y}$

Where:
BE_y Baseline Emissions in year *y* (tCO_2)
$EG_{PJ,y}$ Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh)
$EF_{grid,y}$ Combined margin CO2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO_2/ MWh)

The baseline emission factor has been calculated as per §23(a) of the methodology AMS-I.D., Version 18[/41/]:
"The emission factor can be calculated in a 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"."

The PP adopts the ex-ante calculation of emission factors (OM and BM) of the grid. The combined margin emission factor for NEWNE grid of India has been calculated as 0.944 tCO_2e/MWh[/4/]. This has been calculated using the source from the Central Electricity Authority CO_2 Baseline Database[/4/]. Central

Electricity Authority (CEA) (under Ministry of Power, Government of India) have worked out baseline emission factor for various grids in India and made them publicly available. The DNA of the host party (India) has also given a reference link of the CEA on their official website. The data from CO_2 Baseline Database for the Indian Power Sector User Guide - Version 8.0(January 2013)[/44/] is the most recent data at the time of submission of CDM-PDD (published on 10/12/2013) for validation (Refer page10 of tool to calculate emission factor for an electricity system, version 04)[/42/]. Validation team has checked the calculation of the combined margin grid emission factor and confirms that the applied value of the emission factor follows the tool[/42/] and the values of OM and BM incorporated in the PDD are taken from publically available database i.e. by CEA (Government of India)[/4/].

Nevertheless, following stepwise procedures have been followed to validate the calculation of combined margin emission factor.

Step 1- In line with the requirements specified in the step of the tool[/42/], the PP has used a regional grid definition as applicable for large countries like India having layered dispatch systems. The Indian power system is divided in two grids, the Northern, Eastern, Western and North- Eastern (NEWNE) Grid and Southern Grid. The project activity is connected to NEWNE Grid and hence for the purpose of estimation of baseline emission factor the consideration of NEWNE Grid is appropriate and correct.

Step 2: This step of the tool[/42/] gives an option to include off-grid power plants in the project electricity system. PP has considered option I (i.e. only grid power plants are included in the calculation).

Step 3 : Out of the four methods provided in the tool[/42/] for calculating the operating margin ($EF_{grid,OM,y}$), simple OM method, is selected. The tool[/42/] specifies that the simple OM method can only be used if the low cost/must-run resources constitute less than 50% of total grid generation in: 1) average of the five most recent years, or 2) based on long-term averages for hydro electricity production. The Simple OM method selected is justified and found to be appropriate as the average proportion of low-cost/must run resources is less than 50% in average of 5 most recent years. The ex-ante option for determining the simple OM is opted by the PP.

Step 4– The PP has considered the national published data (CEA database, version 8.0[/44/]) for simple OM. The simple OM emission factor calculated by the CEA is the generation weighted average CO_2 emissions per unit net electricity generation (tCO_2/MWh) of all generating power plants serving the system, not including low-cost/must power plants (Refer page 06, User Guide – CO_2 Baseline Database, version 8.0 for the Indian power sector)[/44/].

The validation team confirms that the PP has rightly followed the CEA CO_2 Baseline Database version 8.0[/44/] and the $EF_{grid,OM,y}$ for the NEWNE grid is based on three year generation weighted average (for 2009-10, 2010-11 and 2011-12) which is in conformity with the tool to calculate emission factor of an electricity system, version 04[/42/] and the value of the same works out as 0.972 tCO_2/MWh[/4/].

Step 5– The set of power capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently has been considered by CEA which is in line with the option (b) of tool[/42/]. Validation team checked independently and confirms that the selection of the options is correct. This conclusion has been made based on analyzing both the options (Refer option “a” and “b” of the tool) and it was found that the set of power plants as per option (b) comprises of larger annual generation and hence confirm the requirement of the tool. In validating this step, validation team further confirms that:
(i) the identified power capacity additions comprise 20% of the system generation for the year under consideration.
(ii) none of the considered power capacity additions considered under (i) above have been built more than ten years earlier.

PP has fixed the Build Margin emission factor as ex-ante for the whole crediting period which is in conformity with the tool to calculate emission factor, version 04[/42/] and the value of the same is 0.916 tCO_2/MWh[/4/]. The PP has considered the national published data (CEA database, version 08[/44/]) for BM.

The CEA database[/44/] provides the BM value for the NEWNE grid as 0.916 tCO_2/MWh for the year 2011-12.

Step 6: The PP has rightly considered option (a) i.e. weighted average CM for the calculation of combined margin emission factor.

For Weighted average CM, tool[/B04d/] requires calculation of the combined margin emission factor as per the following equation:

$EF_{grid, CM, y} = EF_{grid,OM,y} \times W_{OM} + EF_{grid,BM,y} X W_{BM}$

The weighted average of the "operating margin" and the "build margin" emission factor for NEWNE grid of India has thus been determined to be 0.944 tCO_2e/MWh[/4/] (fixed ex-ante), using a OM:BM weight of 50:50 as recommended for hydro power projects in the "Tool to calculated the emission factor for an electricity system 04"[/42/].

The calculation of OM & BM emission factors is provided in ER spreadsheet[/4/] which can be treated as attachment of PDD[/2/]. The same sheet assessed independently by validation team was found correct and consistent with PDD[/2/] as well as CEA database[/44/].

The baseline determination is considered as transparent and reasonable.

Opinion:

The context of application of the methodology is clearly discussed in the PDD[/2/] including a clear description of how each methodological step has been applied in the calculation of baseline emissions. Validation of the documentation referred to in the PDD including verification of the content and discussion of information is critical for an independent readers understanding of the application of the requirement.

In addition to this, in accordance to § 96 of VVS V7[/40a/], there are no relevant national or sectoral policies and circumstances which have impact in the identification of the baseline scenario. The same is rightly explained in section B.4 of the PDD for this type of project sectors. Thus, the baseline determination is accepted and complies with § 98 of VVS V7[/40a/].

The validation team has checked the following in accordance with the latest version of CDM VVS and final version of PDD and the results are tabulated as follows:

The approved baseline methodology applicable to the project - explicit criteria - implicit criteria (e.g. available scenarios, applicability of formulas for BE/PE/LE calculations)	☒ Yes ☐ No	Details in Section 4.7.1
PDD includes all assumptions and data used by project participants	☒ Yes ☐ No	As per AMS-I.D., Version 18
All the references and documents used are relevant for establishing the baseline scenario	☒ Yes ☐ No	As per AMS-I.D., Version 18
All the references and documents used are correctly quoted and conservatively interpreted in the PDD	☒ Yes ☐ No	As per AMS-I.D., Version 18
All relevant policies / regulations considered are listed in the PDD	☒ Yes	As per AMS-I.D., Version

	☐ No	18
Identified potential baseline scenarios reasonably represent what would/could occur in the absence of the proposed project activity	☒ Yes ☐ No	As per AMS-I.D., Version 18
The baseline scenario selection is appropriate and determined according to the methodology	☒ Yes ☐ No	As per AMS-I.D., Version 18
The approved methodology used is applicable to the identified baseline scenario	☒ Yes ☐ No	As per AMS-I.D., Version 18

4.8.5 Algorithms and/or formulae used to determine emission reductions

Discussion:

The GHG emissions reduction calculations are transparently documented and appropriate assumptions regarding the expected amount of electricity generated have been used to forecast emission reductions. According to the applied formulae in the PDD, the emission reductions (ER_y) by the project activity during the crediting period is the difference between the baseline emissions (BE_y) and project emissions (PE_y), which is expressed as follows:

$ER_y = BE_y – PE_y – LE_y$ (Cp section B.6.3 of PDD[/P02/] and equation (9) of the methodology[/B02/])

According to the applied meth, the baseline emissions are demonstrated in Section B.6.1 of PDD and are calculated using methodology equations is as follows:

$BE_y = EG_{PJ,y} * EF_{grid,y}$

Where,

BE_y = Baseline emissions in year y (tCO_2/yr)
$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity in year *y* (MWh) = 22,038 MWh/annum[/4/] Source:Addendum Project Report[/23/], page 17
$EF_{grid,y}$ = Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO_2/MWh) = 0.944 tCO_2/MWh[/4/] .

Based on the above formula, the annual average baseline emission is estimated to be 22,038 MWh x 0.944 tCO_2e/MWh = 20,812 tCO2e[/4/].

Project emissions

The project activity has provision of a diesel generator set to provide emergency electricity requirements in case of grid failure, resulting in diesel consumption. The PP will monitor the diesel consumption ex-post and account for the project emissions while calculating emission reductions in accordance with the "tool to calculate project or leakage CO_2 emissions from fossil fuel consumption", Version 02. The below mentioned formula shall be applied for calculating the project emissions arising from diesel consumption.

$PE_{diesel,y} = FC_{diesel,y} \times COEF_{diesel,y}$

Where,

$PE_{diesel,y}$ = Project emissions due to use of Diesel in tCO_2 during the year y

$FC_{diesel,y}$ = Quantity of Diesel combusted (in volume terms) in the DG set during the year y
$COEF_{diesel,y}$ = CO_2 emission coefficient of Diesel during the year y
$COEF_{diesel,y} = NCV_{diesel,y} \times P_{diesel,y} \times EF_{CO2,\ diesel,y}$
$NCV_{diesel,y}$ = Weighted average net calorific value of Diesel during the year y.
$P_{diesel,yl}$ = Weighted average density of Diesel (in mass terms) during the year y
$EF_{CO2,\ diesel,y}$ = Weighted average CO2 emission factor of Diesel during the year y.

For ex-ante emission reduction calculations, it is assumed that the annual consumption of diesel will be 0 litres. The resultant project emissions, PE_y are 0 t CO_2/year.

Leakage emissions

As no leakage emission (LE_y) is considered for the project activity, therefore $LE_y = 0$

Emission reductions

The emission reduction from the project activity can be estimated as the difference between the baseline emissions and the project emissions as follows:

$ER_y = BE_y – PE_y – LE_y$

$ER_y = 20{,}812 – 0 – 0$

The average annual emission reduction is 20,812 tCO_2e per year over 7 years renewable crediting period[/4/].

Findings:

No findings have been raised.

Opinion:

In accordance with §102-103 VVS V7[/40a/] the validation team confirms that the project activity complies with the specified requirements of algorithms and/or formulae used to determine emission reductions and discussed above. The validation team confirms

(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 project activity;

(d) The baseline methodology and corresponding tool(s) have 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.

The validation team confirms that the project activity complies with the requirements of §104-105 of VVS V7[/40a/].

4.9 Additionality

The PP applied “Methodological tool on the demonstration of additionality of small-scale project activities” Version 10[/45c/,] to demonstrate additionality for the project activity. This is applicable since the project activity is small scale project activity.

The PP has demonstrated the financial unattractiveness of the project activity through investment barrier by applying the benchmark analysis. Since, the project activity yields income through sale of electricity which is addition to CDM income, a simple cost analysis is not appropriate. Since, the baseline for the project activity

is electricity supplied by the grid which is outside the direct control of the project developer; the choice of benchmark approach for demonstration of additionality is most relevant.

Investment barrier

The PP has presented investment barrier for the project using benchmark analysis. Post tax project Internal Rate of Return (IRR) is calculated for the project by estimating the project cash flows from the project. The assumptions/input values used for investment analysis have been validated.

Choice of benchmark

The project IRR has been evaluated against Weighted Average Cost of Capital (WACC)[/3/] which is appropriate in accordance with guidance 12 of the Guidelines on the Assessment of Investment Analysis[/45d/]. This project can be developed by any entity other than the project participant; therefore, a benchmark based on parameters that are standard in the market is considered appropriate in accordance with the Guidance 13 of the Guidelines on the Assessment of Investment Analysis[/45d/].

The cost of equity used for calculation of WACC has been taken from default values for India as mentioned in para 8 of Appendix of EB 62 Annex 5 plus applicable inflation rate at the time of decision making for the project activity. The justification of all assumption used for calculation of benchmark has been provided below. Validation team confirms that the WACC has been calculated from the data available at Appendix of EB 62 Annex 5 and Reserve Bank of India (RBI) websites and are standard.

Validation team confirmed the below formula to be appropriate for calculation of WACC:

WACC = CoE * {E/(E+D)} + (1-t) * CoD * {D/(E+D)}

Where,

CoE - Nominal rate of return on equity

E - Funds raised through equity invested in the project

D - Funds raised through loan invested in the project

CoD - Interest rate

t - Prevailing tax rate

Nominal rate of return on equity (CoE) is based on the default values for India as mentioned in para 8 of Appendix of EB 62 Annex 5 plus applicable inflation rate at the time of decision making for the project activity. The cost of equity has been calculated with the help of the following formula:

CoE = Real rate of return of equity + inflation rate

Real rate of return of equity:

The default values of 11.75% as mentioned in expected return on equity for India as mentioned in para 8 of Appendix of EB 62 Annex 5 considered for the project activity.

The validation team has cross checked the values from Guidelines on the Assessment of Investment Analysis[/45d/] and confirmed that the values used are correct.

Inflation rate:

To determine the inflation rate, world economic outlook 2005 published by International Monetary Fund has been used. As per the report inflation rate in India in 2005 was 4.0%[/46i/].

The validation team has cross checked the values using the webpage link provided by the project participant and compared this with Reserve Bank of India declared inflation rate (Wholesale price Index) for year 2004-05 (i.e. 5.2%)[/46j/], which is on higher side. The validation team confirmed that the inflation rate value used as 4.0% is conservative and acceptable.

Nominal rate of return on equity (CoE):

Based on the assumption made and justified above, the cost of equity is calculated 15.75% [/4/].

Cost of debt

The cost of debt i.e. interest rate for long term loan, the PP have taken the average prime lending rate value from the data published (Cash reserve ratio and interest rate) by Reserve Bank of India (RBI), applicable at the time of investment decision taken by PP[/6/] has been considered.

The prime lending rate is the minimum rate of interest at which the banks offer loan to other bank, hence the cost of debt considered as prime lending rate is appropriate as this is the minimum return an investor can expect from the project to service the debt. The validation team considers the value used i.e. average PLR (10.50%) is appropriate and reasonable in context of the project activity.

Validation team confirmed the interest rate from considered by the Board of AHPL during the investment decision and from the data published by the Reserve Bank of India. The reported PLR ranges from 10.25% to 10.75%. Therefore, interest rate of 10.50% considered to be reasonable.

Tax Rate

Tax rate applied by PP is based on the consideration of 15 years Tax holiday given by Government as per policy for small hydro projects. Only minimum alternate tax (MAT) is applicable for the project during the first 15 years period. Since, interest repayment period is 10 years only, PP has considered MAT rate (i.e. 8.42%) for calculation. Validation team has checked the applicable tax rates from Government of India[/46k/] budget report and from Direct Tax handbook[/24/], and confirmed that applicable MAT rate in 2005-06 was 7.5% (with 10% surcharge and 2% Educational Cess). Validation team cross checked the tax rate from the registered CDM project UNFCCC ID#9167, which belongs to the same PP and located in same region and with comparable capacity. The registered project applied the same tax rate for calculation of WACC and approach has been accepted by CDM EB. Therefore, Tax rate considered for calculation of benchmark is reasonable.

The validation team has cross checked the values using the webpage link provided by the project participant and confirmed that the values used are correct

WACC : Cost of debt * % of debt * (1 – tax) + cost of equity * % of equity
: (10.50% * 70%*(1-0.842)) + (15.75% *30%)
: 11.46%

Therefore, based on the above parameters Validation team confirmed the WACC as **11.46%** [/3/].

4.9.1 Prior consideration of the clean development mechanism

Discussion:

The start date of the project activity has been validated as per "CDM Glossary of Terms, Version 08[/45b/], which defines the starting date of the project as "the earliest date at which either the implementation or construction or real action of a project activity begins".

As mentioned in the final PDD[/2/], the start date of the project activity has been considered 26/02/2007[/8/], which is the date of contract signing with Kirloskar Brothers Limited for Electro-mechanical works. The Project Participant has not undertaken any construction or any major real action on the implementation of the project activity prior to this date. Based on document review, observations made during the site visit and interviewing the representatives of the PP the validation team confirms that this is the earliest date on which the real action towards implementation of the project activity has been taken by PP. Since, the real action of the project activity had begun before 02/08/2008 and thus, the project activity falls under the category of old project activity as per §114 of VVS V7[/40a/].

As per the §114 of VVS V7[/40a/], the project participant is required to demonstrate that CDM was seriously considered in the decision to implement the project activity. The steps taken by the validation team to validate the Prior Consideration of CDM are mentioned below:

Awareness of the CDM prior to the project activity start date:

The Project Participant, Ascent Hydro Projects Limited (AHPL) is 100% subsidiary company of Dodson Lindblom International Inc (DLI), a Columbus, Ohio based company that specializes in the engineering and development of infrastructure projects with particular emphasis on hydroelectric power generation. DLI is part of DLZ Corporation, one of the foremost engineering companies in the Midwestern United States. DLI have implemented one Hydro Power project in the states of Maharashtra, Madhya Pradesh and Himachal Pradesh, India, considering the CDM incentives, which are already registered with the UNFCCC (CDM Reference # 430, 1280 & 9167 respectively registered in year 2006, 2007 and 2012) with two more projects are under implementation in Himachal Pradesh which are also under validation stage. Validation team has checked above referenced registered projects and hence confirms that PP had prior awareness of CDM process and was already pursuing the registration of above three projects at the time of decision making on project activity.

CDM as a decisive factor in decision making:

The Board meeting of AHPL was held on 24/09/2005[/6/]. A certified true copy of the minutes of meeting of Board of Directors of AHPL was provided to the validation team. The same was also verified by the validation team. The contents of the certified true copy of minutes of meeting of the Board of directors of 24/09/2005[/6/] were observed to be an extract of the original minutes of meeting.

Continuing and real actions taken:

A complete chronology of events starting from the date of investment decision up to the submission of the PDD to the DOE for validation is presented in the PDD. The chronology illustrates the steps taken by the project participant to avail of CDM benefits for the project activity. Documentary references in respect of each event in the chronology were provided to the validation team. The documents provided were vetted against their originals and found to be correct. The following documents were the basis on which the validation team was able to conclude that the CDM was seriously considered and the PP had taken the necessary steps to avail CDM status for the project activity:

1. AHPL Board resolution for the project activity dated 24/09/2005[/6/], which is combined CDM consideration for Panwi hydro project in addition to other two hydro projects of PP at Sechi and Melan located in Himachal Pradesh, India.
2. Formal agreement with Kirloskar Brothers Limited (KBL) for Electro-mechanical Works[/8/], dated: 26/02/2007 which is also the Start date of the project activity;
3. Supplementary implementation agreement signed between Government of Himachal Pradesh and AHPL dated 18/05/2007[/9/] towards starting of construction of the project activity;
4. Proposal issued by Bureau Veritas Certification India Pvt. Ltd. dated 25/10/2007[/10/] for CDM validation of bundled hydro project by AHPL which includes, Panwi, Sechi and Melan hydro projects located in Himachal Pradesh, India. PP has signed the proposal on same date as confirmed from the review of signed contract by PP dated 25/10/2007.
5. Submission of Documents and requisition letter sent to the Host Party DNA (India) seeking appointment for HCA meeting for HCA of bundled hydro project by AHPL, dated 17/03/2008[/11/] & Webhosting of PDD for bundled projects was done on 28/03/2008, as confirmed from UNFCCC website[1]
6. Meeting with the Host Party DNA for obtaining the Letter of Approval of bundled hydro project by AHPL, dated: 26/05/2008[/12/];
7. Power Purchase Agreement signed by AHPL with Himachal Pradesh State Electricity Board dated 03/11/2008[/29/];

[1] http://cdm.unfccc.int/Projects/Validation/DB/4YX3ETDPQQJWN7B3EMAE1TWAKD63AW/view.html

8. Email correspondence from AHPL to DOE (Bureau Veritas Certification India Pvt. Ltd.) dated 09/07/2009[/13/] for disintegrating the 3 hydro project by AHPL from original contract of CDM validation of 13 MW bundle SHP project signed with BVC;
9. Letter from AHPL to DOE (Bureau Veritas Certification India Pvt. Ltd.) dated 29/10/2009[/14/], for termination of the bundled project CDM validation contract and signing of separate contracts for all 3 hydro projects CDM Validation; same date is considered as date of termination of validation contract for bundled CDM project.
10. Agreement between Rajendra Patel & Associates (CDM Consultant) and AHPL dated 19/01/2011[/15/] for conducting CDM validation of Panwi Hydro project as standalone project;
11. Draft ERPA issued by CDM Consultant to AHPL dated 14/03/2012[/16/] for buying CERs from Panwi Hydro project;
12. Commissioning Certificate dated 09/05/2013[/17/] towards the commissioning of 4.0 MW Panwi Hydro project ;
13. Submission of Documents online and requisition letter sent to the Host Party DNA (India) seeking HCA of Panwi Hydro Project by AHPL, dated 29/07/2013[/18/];
14. Proposal received from DOE (KBS) dated 30/09/2013[/19/] for conducting CDM validation of Panwi Hydro project;
15. CDM validation agreement signed between DOE (KBS) and AHPL dated 07/11/2013[/20/] for CDM validation of Panwi Hydro project;
16. Webhosting of PDD for Global stakeholder's consultation dated 10/12/2013[2]

The trail of events in the chronology, along with the supporting documentary evidence indicates that the PP had taken necessary actions and steps towards the registration of the project activity as a CDM project. Validation team reviewed all above documents mentioned in chronology of events and confirms their authenticity. It was also noted that, these actions were taken in parallel with the implementation of the project activity, with the gap between documented evidences being less than 2 years, thus meeting the requirement of §116(a) of VVS V7[/40a/], pertaining to parallel action towards securing the CDM status for the project activity.

Based on above discussion the validation team confirms that CDM was seriously considered for the proposed project activity.

Findings:

No Findings has been raised.

Opinion:

The validation team confirms that -

a) The start date of project activity is prior to the date of publication of PDD for global stakeholder comments. The start date of the project activity has been determined in accordance 'Glossary of CDM terms'[/45b/].

b) The real action of the project activity had begun before 02/08/2008 and AHPL has taken real and continuing action towards securing CDM registration along with project implementation in parallel.

c) The project activity complies with validation requirements of the § 118 of VVS V7[/40a/].

[2] http://cdm.unfccc.int/Projects/Validation/DB/H7DBOV5MLDIB4KD9Z8YFASZ9QU4YQ3/view.html

4.9.2 Identification of alternatives

Discussion:

The continuation of the current situation, with the electricity generated by the grid connected power plants and by the addition of new generation sources in the NEWNE grid of India can be considered as a realistic baseline scenario for the project activity. This is also in line with the applied approved small scale methodology AMS-I.D. version-18[/41/]. The identified baseline scenario is in compliance with applied approved methodology. Please refer section 4.8.4 of this report, wherein the detailed discussion is made on identification of alternatives.

Findings:

No finding has been raised.

Opinion:

Thus according to the requirements of §123 of VVS V7[/40a/] the validation team found the PP's identified baseline scenario is credible and in line with the applied approved small scale methodology AMS-I.D. version-18[/41/] .

4.9.3 Investment analysis

Discussion:

The project involves installation of grid connected Hydro Power Project an installed capacity of 4.0 MW at Kinnaur District, Himachal Pradesh State in India, generating 22,038 MWh[/4/] of power and supplying the entire power to NEWNE Grid of India. Major input parameters used in the additionality demonstration, basis thereof and the appropriateness of the value used (based on the evaluation of references in section 6 of this report) are given in the following table:

The Addendum Project Report[/23/] to original DPR[/22/] was prepared in August 2005, which was submitted for Board's approval. The board decision to proceed with proposed project activity was taken on 24/09/2005[/6/]. The DPR was the basis for techno economic clearance accorded by Himachal Pradesh State Electricity Board[/35/] on 24/05/2006[/35/]. The validation team was able to check the authenticity of the approval letter by interviewing officials of HPSEB during site visit.

Further, the validation team has compared the input parameters used for the investment analysis in final PDD[/02/] with the parameters stated in Addendum Project Report[/23/] and was able to confirm that values used applied are consistent with the values stated in Report.

The parameters, input values and assumptions used in the calculation of project IRR of the project activity are described below -

S.No	Input Parameter, Unit	Value	MoV	Validation Opinion (Cross Checked)
1.	No. of generating units	2 Nos.	Addendum Project Report[/23/], page 13 and Commissioning Certificate[/17/]	The validation team has crosschecked the value from the Contract with Kirloskar Brothers Limited[/8/].
2.	Capacity of each generating unit (kW)	2000	Addendum Project Report[/23/], page 13	The validation team has crosschecked the value from the Contract with Kirloskar Brothers[/8/] and Commissioning certificate[/17/].
3.	Total	4.0	Addendum Project	The validation team has crosschecked the

	generating capacity (MW)		Report[/23/], page 13 & 16	value from the Contract with Kirloskar Brothers[/8/] and Commissioning certificate[/17/].
4.	Auxiliary consumption Outages Transmission losses	1% 5% 2%	Addendum Project Report[/23/], page 15	The auxiliary consumption of power plant as 1% in DPR and addendum report. The DPR was the basis for techno economic clearance accorded by Himachal Pradesh State Electricity Board[/35/] on 24/05/2006[/35/]. Validation team checked the similar registered CDM project (UNFCCC Reference#9167) in Himachal Pradesh and confirmed the same auxiliary consumption, outages and transmission losses value assumed by these projects.
5.	Plant Load factor (PLF)/ Gross Generation (MWh)	62.89% 23,910	Calculated based on Net Generation Addendum Project Report[/23/], page 15	The value of gross generation has been checked by the validation team from the Himachal Pradesh government approved Addendum Project Report[/23/]. The PLF value mentioned in PDD (62.89%) is calculated from the net electricity generation estimated in approved DPR. Further, on cross checking with tariff determination of hydro projects in Himachal Pradesh, issued by Himachal Pradesh Electricity Regulatory Commission (HPERC) dated: 18/12/2007[3] which "determines that a normative value of 45% for CUF for the purpose of tariff determination for SHP plants". Moreover, the PLF considered is specific to local resources and site specific and in this context the local and technical expertise within the validation team confirmed the appropriateness of the value applied.
6.	Net electricity supplied to Grid (MWh)	22,038	Addendum Project Report[/23/], page 17	Calculated parameter after deducting auxiliary consumption @ 1%, outages @ 5% and transmission losses @2 % from Gross generation. The validation team confirms the same from the ER spreadsheet[/4/].
7.	Project Cost including IDC (INR millions)	454.234	Addendum Project Report[/23/], page 22	The total project cost/capital cost of the project activity has been conceptualized in the Addendum to the Detailed Project Report which was available to PP prior to investment decision (conformity to guidance 6 of Annex 5, EB 62). The detailed breakup of the capital cost have been provided in the Addendum to DPR under the following heads: **Sr. No** / **Particulars** / **Value (INR Millions)** 1. / Land and Site Development / 22.470

[3] http://www.hperc.org/orders/shp50.doc

2.	Electro mechanical equipment	123.339
3.	Civil Works	155.885
4.	Power Transmission lines	14.097
5.	Contingency & Force majeure	5.866
6.	Engineering cost + Construction management cost	25.249
7.	Initial & Other development costs	34.585
8.	Audits & Accounts+ Overhead Expense	6.433
9.	Financing Cost	15.517
10.	IDC & interest income	50.793
	Total	**454.234**

The total project cost and its breakup details was checked from Addendum to DPR and found to be consistent. Moreover, the total project cost has been approved by the Himachal Pradesh State Government[/35/].

The project cost has been further crosschecked from the CA certificate on actual project cost[/32/], dated 07/05/2014. The actual project cost as per work order for civil work and for electro-mechanical equipment is 290.49 million INR, the project cost including IDC (i.e. 57.74 million INR) comes out to be 463.788 million INR which is found to be 2.16% higher than value used for investment analysis i.e.454.234 million INR. Therefore, validation team confirms that project cost considered by PP for IRR computation is lower than the actual project cost incurred by PP.

Further, The value used for interest during construction (IDC) i.e. 50.79 million INR, which was calculated in DPR considering 70% debt and the interest rate of 10.50% on long term loan and construction period of 30 months. The validation team was able to check the appropriateness of above calculation as means of finance 70% debt is prevalent practice in host country and same financing structure is used by banks and industries for financial analysis. The interest rate 10.50%[/25/] used for IDC calculation was based on the prime lending rate prevailing at the time of investment decision i.e. 10.25%-10.75% (http://www.rbi.org.in/scripts/BS_ViewBulle

				tin.aspx?Id=6919). Hence validation team confirms that the value used for IDC is appropriate and reasonable. The validation team for cross check has also reviewed working paper on "Renewable Energy Technologies: Cost Analysis Series" /46g/, the paper mentions that per MW capital cost for small hydro power project ranges from 65 million INR to 400 million INR (Exchange rate 1 USD=60 INR). Validation team also referred one of the registered CDM Project UNFCCC Ref no. 7435 for cross checking the project cost and found to be appropriate. Considering above the validation team considers the value used for investment analysis i.e. 113.55 million INR per MW is well within range and appropriate in context of the project activity.
8.	Equity	30%	Addendum Project Report (Dated: August 2005), pg – 22	From HPERC tariff order /39/ dated 18/12/2007, Validation team confirms a debt-equity ratio of 70:30 is appropriate for hydro project financing. The same information has also been cross checked from Addendum to DPR and found to be consistent. Moreover, the DPR has been approved by the Himachal Pradesh State Government/35/. Therefore, this value was valid and applicable at the time of investment decision. Validation team also checked the actual Debt:Equity ratio which is 50:50 as per the confirmation from the independent Chartered Accountant/32/. Since, PP has considered project IRR as financial indicator, there is nominal impact on project IRR (Project IRR reduce by 0.04%) by changing the Debt :Equity ratio in IRR sheet. Hence, Validation team confirms the suitability of debt-equity ratio from its local and sectoral expertise.
9.	Debt	70%	Addendum Project Report (Dated: August 2005), pg – 22	
10.	Electricity Tariff Rate (INR/KWh)	2.50	Addendum Project Report (Dated: August 2005), pg – 22	The electricity tariff rate considered for the project activity has been conceptualized in the Addendum to the Detailed Project Report/23/ which was available to PP prior to investment decision (conformity to guidance 6 of Annex 5, EB 62). The report confirms that as per then prevailing regulations of Government of Himachal Pradesh i.e. Notification No. STE (S&T) - 4(1)/99 dated 13/08/1999 the prevailing tariff rate of 2.5 Rs/unit was considered by PP and same was assumed to be constant for operational life of power plant. Validation team checked the similar registered CDM project (UNFCCC Reference#9167) in Himachal Pradesh, which is found similar value

				used i.e. 2.50 INR/unit. Validation team checked the actual tariff rate as per signed Supplementary Power Purchase Agreement signed by AHPL with Himachal Pradesh State Electricity Board for sell of power from the project activity dated 12/01/2012[/29/], which confirms the tariff rate of INR 2.87/ kWh (remains fixed for the tenure of the project lifetime as per signed Power Purchase Agreement). The actual tariff is 14.8% higher than the considered tariff for project IRR calculation. Project IRR is well below the benchmark considering actual tariff rate (project IRR is coming as 8.54%). Since, tariff rate is fixed for entire project lifetime; there are no chances of increase in tariff rate in future. Based on above discussion the validation team considers the value used is appropriate and conservative.
11.	O & M Cost	2.0 % of capital cost	Addendum Project Report (Dated: August 2005), pg – 22	The electricity tariff rate considered for the project activity has been conceptualized in the Addendum to the Detailed Project Report[/23/] which was available to PP prior to investment decision (conformity to guidance 6 of Annex 5, EB 62). The validation team was able to check the value is from HPERC tariff order [/39/] dated 18/12/2007, which confirms O&M cost as 2.25% with annual escalation of 4%. The validation team considers the value used is appropriate and reasonable.
12.	Escalation in O & M cost	5%	Addendum Project Report (Dated: August 2005), pg – 22	
13.	Loan Repayment Period	10 years (2.5. year Moratorium Period)	Addendum Project Report (Dated: August 2005), pg – 23	The loan repayment period considered for the project activity has been conceptualized in the Addendum to the Detailed Project Report[/23/] which was available to PP prior to investment decision (conformity to guidance 6 of Annex 5, EB 62). The validation team was able to check the value is from HPERC tariff order [/39/] dated 18/12/2007, which confirms the loan tenure as 12 years with 2 year moratorium period.Also, validation team checked the actual debt arrangements for the project activity as confirmed by independent chartered accountant[/31/] and confirms that actual loan tenure is 10 years with 2 year moratorium. The validation team considers the value used is appropriate and reasonable.
14.	Salvage Value (% of capital	10	Addendum Project Report (Dated:	The salvage value considered for the project activity has been conceptualized in the

	cost)		August 2005), pg – 46 & 48	Addendum to the Detailed Project Report[/23/] which was available to PP prior to investment decision (conformity to guidance 6 of Annex 5, EB 62). Validation team confirmed the salvage value from CERC order No. L-7/25(5)/2003-CERC dated 26/03/2004. As required by Annex 5 of EB 62, the expected realisation on the sale of assets at the end of the operating life has been taken as salvage value in the terminal year. In the above background, validation team considers the salvage value as correct and appropriate.
15.	Technical Life	35 years	Addendum Project Report (Dated: August 2005)	The technical life considered for the project activity has been conceptualized in the Addendum to the Detailed Project Report[/23/] which was available to PP prior to investment decision (conformity to guidance 6 of Annex 5, EB 62). The validation team was able to confirm the life time of the project activity by cross checking it from CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2012, which mentions the life time for hydro power projects as 35 years, the validation team confirms the value used is correct and appropriate in context of the project activity.
16.	MNRE subsidy (INR Millions)	29.0	Annexure-B, Small Hydro Power Programme (upto 25 MW capacity)-Administrative Approval for the year 2009-10 & remaining period of 11th plan dated: 11/12/2009	The MNRE subsidy has confirmed from the Annexure-B, Small Hydro Power Programme (upto 25 MW capacity)-Administrative Approval for the year 2009-10 & remaining period of 11th plan dated: 11/12/2009. Subsidy is calculated as INR 20 Milllion for 1st MW and additional INR 3 Million for each additional MW). The MNRE subsidy is treated appropriately in the cash flow for the IRR calculation. The validation team has cross verified the MNRE subsidy the MNRE Sanction letter and the validation team confirms the value used is correct and appropriate in context of the project activity.
Parameters related to working capital				
17.	Maintenance spare cost	1% in first year	Addendum Project Report (Dated: August 2005) page 24	The values are considered for the project activity has been conceptualized in the Addendum to the Detailed Project Report[/23/] which was available to PP prior to investment decision (conformity to guidance 6 of Annex 5, EB 62). The validation team was able to check the value from The validation team was able to check the value is from HPERC tariff order [/39/] dated 18/12/2007. Hence, validation

				team considers the value used is appropriate.
18.	Receivables	2 months	Addendum Project Report (Dated: August 2005) page 24	The values are considered for the project activity has been conceptualized in the Addendum to the Detailed Project Report[/23/] which was available to PP prior to investment decision (conformity to guidance 6 of Annex 5, EB 62). The validation team was able to check the value from The validation team was able to check the value is from HPERC tariff order [/39/] dated 18/12/2007. Hence, validation team considers the value used is appropriate.
19.	O&M reserve required for working capital	1 Months of previous year O&M cost		
20.	Rate of Depreciation on project cost Book depreciation	3.40%	Schedule XIV of Companies Act, 1956.	The rate of book depreciation is as per the Schedule XIV (Section 205 and 350) of Companies Act, 1956. The same values are mentioned in the Addendum to the Detailed Project Report[/23/] which was available to PP prior to investment decision (conformity to guidance 6 of Annex 5, EB 62). Therefore the depreciation rate considered is accepted which is available at the time of decision making.
21.	Rate of WDV Depreciation on project cost - Plant and Machinery - Other civil works (bulidings)	15% 10%	Schedule XIV of Companies Act, 1956	The rate of WDV depreciation is as per the Schedule XIV (Section 205 and 350) of Companies Act, 1956. Validation team has further cross checked the taxation rates from link provided below. http://taxclubindia.com/simple/depreciation%20rates%202009-10.pdf The same values are mentioned in the Addendum to the Detailed Project Report[/23/] which was available to PP prior to investment decision (conformity to guidance 6 of Annex 5, EB 62). Therefore the depreciation rate considered is accepted which is available at the time of decision making.

Investment Analysis Calculation

The accounting principles adopted with respect to the calculation of depreciation and tax liability were found to be in order. Validation team confirms that the investment analysis is presented in a transparent manner, to the extent that the reader can reproduce the results.

The validation team confirms that Addendum to the Detailed Project Report[/23/] was the basis of decision-making for technical parameters/input values. Other parameters like tariff rate, taxation regulations and interest rates as available at the time of decision making. Details of the source of input values have been described in the table above. The validation team confirms from its sectoral and host country expertise that all the input values used in the investment analysis are valid and applicable at the time of investment decision.

Considering the above mentioned input values, the post tax internal rate of return from the project has been calculated. Project IRR works out to 6.44% without CDM revenue. Validation team has confirmed that the calculation procedure for IRR is appropriate and in accordance with the "Guidelines on the Assessment of Investment Analysis" (EB 62, Annex 5).

As required by Annex 05 of EB 62, only variables, including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues should be subjected to reasonable variation. PP has identified the total revenue from the project activity is dependent on the Net generation; and Project Cost, O&M Costs and electricity tariff constitute more than 20% of the project costs. These four factors have been subjected to a 10% variation on either side and the results of the sensitivity analysis so conducted are given in the following table.

FACTOR	VARIATION		
	-10%	0%	10%
Net Generation	4.82%	6.44%	7.88%
Project Cost	7.68%	6.44%	5.40%
O&M Expenses	6.89%	6.44%	5.94%

FACTOR	VARIATION		
	-10%	0%	18%
Tariff	4.82%	6.44%	8.96%

Net Generation: With 38.15% increase in the annual electricity generation, the benchmark will be breached. However, the electricity generation has been calculated on PLF (62.89%) for the project activity. Therefore, it is highly unlikely to rise the annual operational hours at the project site to induce 38.15% increase in electricity generation during the whole crediting period. The project consultant M/s SSA Consultants, has prepared Addendum to the Detailed Project Report[/23/] , confirmed that the PLF value has been determined from discharge data study over 20 years. Moreover, as per HPERC tariff order [/39/] dated 18/12/2007, the normative PLF is 45%. Thus validation team considers that the project activity already using higher than the normative PLF for IRR calculation. Also, since, project is commissioned now, the validation team has checked the actual gross electricity generation for 2 years (from April 2013 to April 2015)[/48/] period and confirms that average yearly PLF achieved by the project activity is 38%. Thus it is highly unlikely that the net generation will increase above the assumed value in PDD.

Project Cost: It has been observed that if project cost decreases by 31.67%, then it will breach the benchmark value. Where the project cost has been obtained from the Addendum to the Detailed Project Report[/23/] which was prepared on August 2005 and the investment decision of the project activity has been taken in 24/09/2005[/6/], which has been prepared in a realistic way and it has been further cross checked by the CA certificate[/37/] dated 07/05/2014 which is come around INR 463.788 million higher than the DPR cost. Therefore such scenario is highly unlikely.

O&M Expenses: The project is not sensitive to O&M cost at all as even a 100% reduction in O&M cost (which is hypothetical) does not render the project non-additional.

Tariff: Tariff increase by 38.15% - It has been verified from HPERC tariff order [/39/] dated 18/12/2007 and signed supplementary PPA between HPSEB and AHPL[/29/] that the electricity levelized tariff would be INR 2.95 per KWh and fixed for operational life of the hydro power plant, which demonstrates that the increase in actual levelized tariff is just 18%. Thus it is highly unlikely that tariff will increase by 38.15%.

Thus, team is of opinion that in realistic scenario, it is unlikely that the IRR would exceed the benchmark value without inflow of CDM revenue. The above analysis proves that varying the parameters does not lead to a Project IRR without CDM revenue which will cross the benchmark value.

Findings:

CL-05, CAR-06 and CL-07 were raised in this context, which was successfully closed, for detail please refer Annex 02.

Opinion:

The validation team confirms that

(a) The benchmark is determined based on the data published by the Reserve Bank of India on its official website, International Monetary Fund website and UNFCCC guidelines, the validation team has validated the values used from the official website of Reserve Bank of India, International Monetary Fund and found correct, and considered it to be reasonable to assume that no investment would be made at a rate of return lower than the benchmark. It may also be noted that the value used is the latest data available (at the time of investment decision i.e., 24/09/2005) to determine benchmark in India and are widely adopted by project developers in assessing the economic and financial feasibility of their investments.

(b) Based on validation team's local, sectoral and financial expertise, WACC as the (post-tax) benchmark is considered appropriate for the type of financial indicator (post-tax project IRR) of the project activity in India.

(c) The parameters used in the investment analysis have been thoroughly assessed and found appropriate. The information with regard to how the input values was validated, cross checked is included under relevant parameter.

(d) The sources used have been reviewed by the validation team found to be authentic as referenced under relevant parameter.

(e) The assumptions and calculations for investment analysis area have been checked by the financial expert and technical expert and found to be correct and reasonable.

(f) The financial returns from the project activity area insufficient to meet the required investment against the selected benchmark under reasonable variations (sensitivity) conducted on key parameters.

(g) The project activity complies with the latest version of "Methodological tool on demonstration of Additionality of Small-Scale project activities"[/45c/] and "Guidance on the assessment of investment analysis"[/45d/]. The project validation fulfils the condition stipulated vide paragraph 130 of VVS V7[/40a/].

4.9.4 Barrier analysis

Discussion:

Not applied thus not applicable.

4.9.5 Common practice analysis

Discussion:

Since the project is a small scale project activity. Common practice analysis is neither applied by PP nor required for SSC projects.

4.10 Application of Monitoring Methodology and Monitoring Plan

Discussion:

The project activity applies the monitoring methodology AMS-I.D., Version 18/41/ for monitoring of emission reduction which is valid for submission till 25/07/2015. The project activity meets the entire requirement as stated in the methodology and provided all the parameters in the current version of the PDD in terms of ex-ante and ex-post in the respective section of the PDD i.e B.6.2 and B.7.1.

A.) Data and parameters that are available at validation: Following are parameters fixed as ex-ante and would remain fixed for the entire crediting period;

- Operating Margin CO_2 emission factor for project electricity system in the year y ($EF_{grid,OM,y}$): Value taken is 0.972 tCO_2e/MWh, calculated as weighted average of the last three years of the Operating margin provided by Central Electricity Authority (CEA) Baseline Carbon Dioxide Emission database version 8.0/44/. The team has verified the value taken from ER spreadsheet/4/ and found to be acceptable and hence accepted.
- Build margin CO_2 emission factor for the project electricity system in year y ($EF_{grid,BM,y}$): Value taken is 0.916 tCO_2e/MWh, calculated as recent most Build margin provided by Central Electricity Authority (CEA) Baseline Carbon Dioxide Emission database version 8.0/44/. The team has verified the value taken from ER spreadsheet/4/ and found to be acceptable and hence accepted.
- Combined margin CO2 emission factor for the project electricity system in year y *($EF_{grid,CM,y}$):* Value taken is 0.944 tCO_2e/MWh, calculated as 0.50* $EF_{grid,OM,y}$ + 0.50* $EF_{grid,BM,y}$. The team has verified the value taken from ER spreadsheet/4/ and found to be acceptable and hence accepted.
- Net calorific value of the Diesel ($NCV_{diesel,y}$): Value taken as 42.25 (GJ/ton), from Central Electricity Authority website (Data on Petroleum Fuels used by various Gas Turbines & Diesel Engine Power Plants in the Country during 2003-04). The team has verified the value taken from sources and found to be acceptable and hence accepted.
- Density of Diesel (P): Value taken as 0.860 (Kg /liter), from publically available data source[4]. The team has verified the value taken from source with CEA Database/44/ and found to be acceptable and hence accepted.
- CO2 emission factor of Diesel in year y ($EF_{diesel,y}$): Value taken as 74.8 (tCO_2e/TJ), from IPCC default values at the upper limit of the uncertainty at a 95% confidence interval as provided in Table 1.4 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories. The team has verified the value taken from sources and found to be acceptable and hence accepted in the absence of reliable value from national sources or suppliers..

B) Data and parameters monitored:

In order to monitor the emission reduction by the project activity, the net energy exported by the project activity to the grid is multiplied with the grid emission factor. The determination of the grid EF is as described in the above section 4.4 and ex-ante method has been selected by the PP. Therefore, the monitoring plan includes monitoring of net electricity supplied to the grid ($EG_{BL,y}$) and diesel consumed ($FC_{HSD,y}$) by the project activity.

The net electricity supplied to the grid ($EG_{BL,y}$) will be calculated based on the net electricity exported(EG_{Export}) minus the net electricity imported (EG_{Import}) to the grid by the project activity and is being measured by the energy meters(main and check) installed at the HPSEB sub substation. The net electricity gives the "Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity"

Hence, the net electricity supplied to the grid ($EG_{BL,y}$) is calculated as below:

$EG_{BL,y} = EG_{Export} - EG_{Import}$

Where,

EG_{Export} : Total Electricity Export to the Grid by the Project Activity in year y (MWh)

EGimp,y: Total Electricity Import from the Grid by the Project Activity in year y (MWh)

[4] http://www.iocl.com/Products/DieselSpecifications.pdf

Through the physical inspection as well as interview with grid officials, it was confirmed that main meter and check meter of accuracy class 0.2s are installed at the interconnection point. Further, for the billing purpose, readings from the main meter will be considered. However, readings from check meter will be considered only when the main meter is not functioning or error is beyond accuracy limit. Further, all the readings will be taken jointly by HPSEB official and the PP. This satisfies the institutional arrangement of data collection and archiving. Further, PDD states that all the monitored data will be archived electronically for a period of 2 years after the crediting period or issuance.

The calibration of the meters will be done every six months by HPSEB as per the common practice by HPSEB and in compliance with the host country regulation.

Diesel consumption by the standby DG set in year y (DC_y) will be measured using level gauge provided in the diesel tanks of the D.G sets. The level gauge will be subjected to calibration once in a year. As a QA/QC measure, the Diesel consumption figure will be cross-checked with the total diesel procurement using purchase receipts. Validation team confirms that the proposed measurement method using level gauge scale ensures accuracy of monitored diesel consumption. The monitoring is considered to meet the current good practice in the industry and it is judged that the use of monitoring methodology is appropriate.

The operational and management structure that will be implemented in order to monitor ER has also been suitably addressed. The monitoring plan complies with the requirements of the methodology, monitoring arrangements described are feasible within the project design and Validation team confirms the ability of the PP to implement the monitoring plan.

Opinion:

The validation team confirms that:

(a) All the values used from official sources and the authenticity of sources has been verified by the validation team and confirms that all relevant parameters to calculate the GHG emissions reductions of the project have been sufficiently considered and the value of the ex-ante fixed parameter used for emission reduction calculation i.e. grid emission factor has been determined conservatively and the estimation of ex-post parameters are reasonable. The validation team considers that the monitoring plan has complied with the requirements in the approved methodology and thereby satisfying §140 of VVS, V7[/40a/].

(b) The monitoring plan based on the approved monitoring methodology, AMS-I.D., Version 18[/41/] is included in Section B.7 of the PDD[/2/] and is correctly applied to the CDM project activity. The monitoring plan has been found to be in compliance with the requirements of the applied methodology[/41/]. The monitoring plan will give opportunity for real measurements of achieved emission reductions.

(c) The validation team considers that monitoring arrangements described in the monitoring plan is feasible within the project design and the PP will be capable to implement the monitoring plan.

4.11 Environmental Impacts

Discussion:

The PDD has stated that the Environmental Impact Assessment (EIA) is not considered significant for this type of project activity by the Ministry of Environment and Forest, Government of India as per the notification no SO 3067 dated 01/12/2009 at http://moef.nic.in/downloads/rules-and-regulations/3067.pdf[/B05b/]. The Schedule list, section 1 (c) of the EIA notification clearly states that hydro projects above 25 MW capacity only need to perform Environmental Impact Assessment studies. Since the project activity is below 25 MW limit, it is not necessary for the project participant to conduct an EIA study. This was discussed during the validation site visit and further cross checked against the information on the website.

Opinion:

The project activity is expected to have positive impacts and no significant adverse environmental impact due to project activity is foreseen. Also, as the project activity is a small scale run-of-river type hydro project,

no adverse environmental impacts as well as trans-boundary impacts have been envisaged from this project activity. There is no mandatory legal requirement for carrying out EIA for small scale (less then 25 MW) run-of-river type hydro project, which was verified by means of EIA notification dated 01/12/2009 of MoEF[/46c/] and from notification pertaining to Environment Impact Assessment (EIA) was published on DNA of India's (i.e. Ministry of Environment & Forests) website http://envfor.nic.in/legis/eia/so1533.doc . Thus, the validation team confirms that project activity is in compliance with §144 of VVS V7[/40a/].

4.12 Local Stakeholder Comments

Discussion:

A Local Stakeholders meeting was carried out by the project proponent on 22/07/2008[/30/] which was prior to the publication of PDD on the UNFCCC website (i.e.10/12/2013). The validation team noted that all the relevant stakeholders were identified by the PP and that includes the employees, contractual workers, people from nearby villages and locally elected representative. The PP has utilized appropriate media[/30/] to invite these stakeholders; placed notices at public places and issued letters to stakeholders[/30/]. Stakeholders were apprised of the salient features of the project activity in an open meeting conducted on 22/07/2008[/30/] among local stakeholders and comments were invited on the same. A summary of the comments received and a note on how due account was taken of the concerns raised in the above public consultation are included in sections E.2. of the PDD[/2/]. Based on the interview with the stakeholders available at the time of on site visit, the validation team confirms that the general attitude of the local residents, who were likely to be affected by the project, was positive towards the project.

Findings:

CL-09 has been raised and closed successfully. Please refer Annex 2 of this report, where same is discussed in detail.

Opinion:

The validation team have verified all relevant documents of local stakeholder consultation meeting[/30/] and conducted interview with the stakeholders available at the time of on site visit. It concludes that the project participant conducted the stakeholders' consultation process in transparent and unbiased manner. The validation team confirms that the LSC meeting meets to the requirement of §147 of VVS V7[/40a/] that the process for conducting the local stakeholders meeting is adequate and credible.

4.13 Project design of small-scale CDM project activities

Discussion:

The total installed capacity of the project activity is 4 MW which is less than the limit 15 MW and thus it is eligible under the small scale category prescribed by the Methodological tool on the Demonstration of Additionality of Small-Scale Project Activities[/45c/].

It was confirmed that the PP do not have any project whose boundary is within 1 km of the proposed project boundary. Also, there are no registered small scale CDM project activities within the previous 2 years or an application to register another small scale CDM project activity in the same project category and technology/ measure by the project promoters.

This was confirmed by the validation team from publicly available sources of information such as the web site of the Himachal Pradesh Energy Development Agency (HIMURJA) "http://himurja.nic.in/ongprojects.html", is a nodal agency of the Himachal Pradesh State Government. The web site carries updates of all the small hydro-power projects allotted in the state and provides information regarding the capacities of the projects as well as the names of the project owners.

The validation team also 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 registered CDM project (http://cdm.unfccc.int/Projects/DB/BVQI1356423933.66/view) in the name of the project participant , which is in same state. However, the location of this project is not within 1 km radius of the this project activity. As stated in section A.2 of PDD, PP has registered three CDM hydro power project activities in Himachal Pradesh, Maharashtra and Madhya Pradesh states of India and other one hydro projects are in implementation stage in Himachal Pradesh. However, these projects are not within the closest distance of 1 km of proposed project activity. Therefore, validation team confirms that project activity is not a de-bundled component of large scale project activity.

Therefore, the proposed project is not deemed to be a de-bundled component of a large project activity in accordance with Methodological tool on assessment of de-bundling for Small scale project activities – Version 4.0.

Opinion:

In line with above discussions of validation team confirms that project activity is in compliance with §160 and §164 of VVS V7[/40a/]. Thus, the validation team confirms that the proposed project activity is not a de-bundled component of a large scale project activity.

5. Global Stakeholder Consultation Process

In accordance with sub-paragraphs 40 (b) and (c) of the CDM modalities and procedures, the project design document of a proposed CDM project activity shall be made publicly available and the DOE shall invite comments on the validation requirements from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available.

5.1 Description of how and when the PDD was made publicly available

The Project Design Document for this project was made available on (http://cdm.unfccc.int/Projects/Validation/DB/H7DBOV5MLDIB4KD9Z8YFASZ9QU4YQ3/view.html) and was open for comments from 10/12/2013 until 09/01/2014.

5.2 Compilation of all comments received

No comment was received during this period.

Comment Number	Date Received	Submitter	Comment
NIL	-	-	-

5.3 Explanation of how comments have been taken into account

No comment was received during this period.

6. References

S. No.	Name of document (Validation/Registration Process)
/1/	PDD Version 01 dated 30/11/2013 (made publicly available) PDD Version 02 dated 29/09/2014 (intermediate version)
/2/	PDD Version 03 dated 23/06/2015 (final version)
/3/	• IRR spreadsheet corresponding to PDD Version 01 • IRR spreadsheet corresponding to PDD Version 02 • IRR spreadsheet corresponding to PDD Version 03
/4/	ER spreadsheet corresponding to PDD Version 03
/5/	• Modalities of Communication and supporting evidence for the proof of identity of the focal point nominated by PP • Copy of the Certificate of incorporation of the AHPL
/6/	Certified true copy of the Minutes of meeting of Board of directors of AHPL – 24/09/2005
/7/	Host Country Approval Letter (vide letter No: 4/17/2014 -CCC dated 09/07/2014) issued by Ministry of Environment and Forest, Government of India (which is also DNA of the host country, India)
/8/	Copy of the Contract with Kirloskar Brothers Limited (KBL) for Electro-mechanical Works (Project start date) – 26/02/2007
/9/	• Copy of the project implementation agreement, Dated: 03/08/2001 • Copy of the Supplementary implementation agreement, Dated: 18/05/2007
/10/	Copy of the proposal issued by Bureau Veritas Certification India Private Limited (BVC) to perform CDM validation of bundle project activity dated 25/10/2007
/11/	Copy of the application to DNA for Host Country Approval for bundle project activity dated 17/03/2008
/12/	Copy of the letter issued by MoEF regarding the meeting with National CDM Authority regarding HCA for 13 MW bundle project activity.
/13/	Copy of the emails sent to DOE regarding the decision to disintegrate the bundle of 13 MW project activities into three separate project activities dated 09/07/2009.
/14/	Copy of the Letter from AHPL to BVC asking separate contract, Dated: 29/10/2009
/15/	Copy of the signed CDM Advisory Agreement with CDM Consultant after Re-consideration of CDM activity for Panwi Hydro dated 19/1/2011
/16/	Copy of the submitted proposal for ERPA for the project activity (March 2011)
/17/	Copy of the Commissioning Certificate of the project activity dated 09/05/2013 as approved by the Chief Engineer of HPSEB Ltd, Vidyut Bhavan, Shimla
/18/	Copy of the Letter issued by PP to Host country DNA(India) for creation of new login on DNA website for submission of LoA application dated 29/07/2013
/19/	Copy of the proposal received from DOE for validation of the project activity dated 30/09/2013
/20/	Copy of the CDM validation contract signed between AHPL and KBS for CDM dated 07/11/2013
/21/	CA certificate from CA confirming the correctness of calculated Project IRR and assumed

	WACC benchmark for the project activity – 10/08/2005
/22/	Copy of the Detailed Project Report of project feasibility and submitted to HIMURJA for Project Implementation Approval - 2004
/23/	Copy of the Re-assessment report to original master DPR i.e. addendum report to DPR –dated 10/08/2005
/24/	TAXMANN's Book-' Direct Taxes Ready Reckoner
/25/	Copy of the Reserve Bank of India (RBI) bulletin which published the key financial parameters monthly includes the prime lending rates
/26/	Proof of rate of depreciation applied for the project activity http://taxclubindia.com/simple/depreciation%20rates%202009-10.pdf
/27/	CERC Tariff order No. L-7/25(5)/2003-CERC dated 26/03/2004
/28/	Proof of expected lifetime of project activity
/29/	a) Copy of the Power Purchase Agreement signed by AHPL with Himachal Pradesh State Electricity Board for sell of power from the project activity dated 03/11/2008. b) Copy of the Supplementary Power Purchase Agreement signed by AHPL with Himachal Pradesh State Electricity Board for sell of power from the project activity dated 12/01/2012
/30/	• Minutes of meeting for the stakeholder meeting held for the proposed project activity dated 22/07/2008 along with attendance sheet and photographs • Copy of the newspaper advertisement and other mediums to intimate the stakeholders for the meeting
/31/	Copy of the Lease deed for Land of project activity between State Government and PP
/32/	CA certificate on debt confirmation from the financial institution dated 07/05/2014 issued by M/s Shyam C. Agrawal & Co. (Chartered Accountant)
/33/	Copy of the Environmental Review Summary (ERS) document for the project activity
/34/	Copy of the Newspaper advertisement for availability of ERS report for public scrutiny
/35/	Copy of the Techno-economic clearance accorded by Himachal Pradesh State Electricity Board dated 25/05/2006
/36/	Declaration from PP for no public funding involved in the project activity
/37/	CA certificate on actual project cost dated 07/05/2014 issued by M/s Shyam C. Agrawal & Co. (Chartered Accountant)
/38/	Statutory clearance/NOC/Approval – • Consent to Establish received from Himachal Pradesh State Pollution Control Board • Consent to Operate received from Himachal Pradesh State Pollution Control Board • NOC from Gram Panchayat of Panwi Village
/39/	• HPREC tariff order for small hydro power projects and other issues dated 18/12/2007 • Determination of generic levellised tariffs for Small Hydro Projects under Regulation13 of the Himachal Pradesh Electricity Regulatory Commission , order dated 20/05/2013
/40/	a) CDM Validation and Verification Standard (Version 07) b) CDM Project Standard (Version 07) c) CDM Project Cycle Procedure (Version 07)
/41/	AMD-I.D. “Grid connected renewable electricity generation” (Version 18)
/42/	Tool to calculate the emission factor for an electricity system, version 04

/43/	Tool to calculate project or leakage CO2 emissions from fossil fuel combustion, version 02
/44/	CO2 Baseline Database for Indian Power Sector -User Guide, Version 8 dated January 2013 (covering data vintage 2009-10, 2010-11 and 2011-12)
/45/	Relevant CDM requirements (CDM M &P and decisions by the CMP and documents released by CDM EB) published on the UNFCCC CDM website in particular the following: a) Instruction to fill the small scale PDD form version 5.0 b) Glossary of CDM Terms (Version 08.0) c) Methodological tool on Demonstration of Additionality of Small-Scale Project Activities"(Version 10) d) Guidelines on assessment of Investment Analysis - Annex 05 of EB 62 e) General Guidelines for SSC CDM Methodologies – Version 21 f) Tool to calculate project or leakage CO2 emissions from fossil fuel combustion (Version 02) g) Guidelines for the reporting and validation of Plant Load Factors – Annex 11 of EB 48. h) Methodological tool on assessment of de-bundling for Small scale project activities –Version 4.0.
/46/	Web sites and publications referred: a) http://cea.nic.in/ (for referring baseline emission factor) b) http://www.cdmindia.gov.in/approval_process.php c) http://envfor.nic.in/ (for validating the applicability of EIA notification for the project activity) d) http://cdm.unfccc.int/ (for referring to applicable latest guidelines) e) http://www.satsig.net/maps/lat-long-finder.htm (Lat-Long location finder) f) Benchmark Analysis - Damodaran (1994) in "Working Papers- Valuing Companies by Cash Flow Discounting: Ten Methods and Nine Theories", IESE Business School, University of Navarra-2011, Pablo Fernandez, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=256987 g) Renewable Energy Technologies: Cost Analysis Series, published by International Renewable Energy Agency dated June 12 (http://www.irena.org/DocumentDownloads/Publications/RE_Technologies_Cost_Analysis-HYDROPOWER.pdf) h) http://himurja.nic.in/invguide.html i) http://www.imf.org/external/pubs/ft/weo/2005/01/data/dbcoutm.cfm?SD=2002&ED=2006&R1=1&R2=1&CS=3&SS=2&OS=C&DD=0&OUT=1&C=534&S=PCPIPCH&CMP=0&x=80&y=8 j) https://rbidocs.rbi.org.in/rdocs/AnnualReport/PDFs/65532.pdf k) http://indiabudget.nic.in/ub2006-07/bh/bh1.pdf
/47/	CEA (Installation and Operation of Meters) Regulation 2006
/48/	Monthly Gross Electricity Generation form the project activity for the period from April 2013 to April 2015

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Annex 1: Validation Protocol

Table 1 – Validation Requirements for Clean Development Mechanism (CDM) Project Activities (CDM VVS 7.0 and relevant paragraphs of CDM PCP 7.0)

<table>
<tr><th rowspan="2">Requirement(s)</th><th rowspan="2">Ref</th><th rowspan="2">Validation Assessment</th><th colspan="2">Conclusion</th></tr>
<tr><th>Draft</th><th>Final</th></tr>
<tr><td>A.1 Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for a minimum of 30 days (45 days for A/R large scale projects), and PDD and comments have been made publicly available</td><td>Para 18, 26, 27 of PCP

Para 35, 36, 37 of VVS</td><td>Provide information on the global stakeholder process website: http://cdm.unfccc.int/Projects/Validation/DB/H7DBOV5MLDIB4KD9Z8YFASZ9QU4YQ3/view.html

<table>
<tr><th>Validation Criteria</th><th>Yes/No</th><th>MoV</th></tr>
<tr><td>PDD has been made publicly available from 10/12/2013 to 08/01/2014, as required for GSP comments</td><td>Yes</td><td>DR</td></tr>
<tr><td>Comments received</td><td>No</td><td>DR</td></tr>
<tr><td>Comments made publicly available</td><td>Yes</td><td>DR</td></tr>
<tr><td>Is there any doubt with regard to authenticity of comments received</td><td>No</td><td>DR</td></tr>
</table>

No comments received during GSC period.</td><td>Yes</td><td>Yes</td></tr>
<tr><td>B.1 Approval
2.1 Has the DNA of each Party involved in the proposed CDM project activity in section A.4 of the PDD provided a written letter of approval, which confirms
a) The Party is a Party to the Kyoto Protocol
b) Participation is Voluntary
c) In case of host Party, confirming that the proposed CDM project activity contributes to sustainable development of the country
d) It refers to the precise proposed CDM project activity title in the</td><td>Para 39 of VVS

Para 40 of VVS

Para 41 of VVS
Para 42 of VVS</td><td>The host party is India and it has ratified the Kyoto protocol dated 26 August 2006. The DNA of India is Ministry of Environment and Forests.

In this context, CAR-01 has been raised. Copy of the LoA from Host Country (India) has not been provided to the DOE for reference.

<table>
<tr><th>Validation Criteria</th><th>Yes/No</th><th>MoV</th></tr>
<tr><td>The Party is a Party to the Kyoto Protocol</td><td>Yes</td><td>DR</td></tr>
<tr><td>Participation is voluntary</td><td>Yes</td><td>DR</td></tr>
</table></td><td>~~CAR-01~~</td><td>Yes</td></tr>
</table>

<table>
<tr>
<td>PDD being submitted for registration
1.2. Whether the letter(s) of approval is unconditional with respect to (a)-(d) above?
1.3. The letter(s) of approval has been issued by respective Party's DNA and is valid for the project PA under validation</td>
<td></td>
<td>
<table>
<tr><td>In case of host Party, the proposed PA contributes to the sustainable development of country</td><td>Yes</td><td>DR</td></tr>
<tr><td>It refers to the precise proposed CDM project activity title in the PDD being submitted for registration</td><td>Yes</td><td>DR</td></tr>
</table>
The Name of the Party involved is India, which has a nominated DNA named
as Ministry Of Environment and Forests, the team has confirmed it from the
link given below
http://cdm.unfccc.int/DNA/index.html
http://unfccc.int/parties_and_observers/parties/items/2352.php
<table>
<tr><td>Validation Criteria</td><td>Yes/No</td><td>MoV</td></tr>
<tr><td>The letter(s) of approval has been received directly from respective DNA</td><td>No</td><td>DR</td></tr>
<tr><td>The authenticity of letter(s) of approval verified with DNA</td><td>Yes</td><td>DR</td></tr>
<tr><td>The letter(s) of approval is valid for PA under validation</td><td>Yes</td><td>DR</td></tr>
</table>
The letter of approval has been submitted by the PP during validation, based on the review the validation team has confirms that the written LoA satisfies all the validation criteria mentioned above.
</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C.1 Whether each project participant has been authorized by at least one Party involved in a letter of approval.</td>
<td>Para 46 of VVS</td>
<td>It is a unilateral participation by the Project Participant "Ascent Hydro Projects Limited" which is authorized by India as a Project Participant as per LoA.
<table>
<tr><td>Validation Criteria</td><td>Yes/No</td><td>MoV</td></tr>
<tr><td>The PPs are listed in tabular form in the PDD and information is consistent with Appendix 1 of PDD</td><td>Yes</td><td>DR</td></tr>
<tr><td>No entities other than those authorized as PPs are included in A.4 & Appendix 1 of the PDD.</td><td>Yes</td><td>DR</td></tr>
</table>
</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</table>

		The approval of participation has been issued from the relevant DNA | Yes | DR		
D.1 The DNA has considered whether the proposed CDM project activity assists the host Party in achieving sustainable development	Para 51 of VVS	The LoA states that "The project contributes to sustainable development in India". Validation Criteria | Yes/No | MoV The LoA (host Party) confirms the same | Yes | DR	Yes	Yes
E.1 Modalities of communications 5.1 Validation the corporate identity of all project participants and focal points included in the Modalities of Communication (MoC) statement, as well as the personal identities, including specimen signatures and employment status, of their authorized signatories. 5.2 Validation that the MoC statement has been correctly completed and duly authorized.	Para 54 of VVS Para 60 of VVS	The authenticity of the Project Participant and the focal point of the Project Participant as mentioned in MoC dated 06/05/2014 has been confirmed by the validation team. Validation Criteria | Yes/No | MoV Directly checked the evidence for corporate, personal identity and other relevant documentation | Yes | DR Notarized documentation; or | No | DR Written confirmation from PP/CME that submits to it the MoC statement that all corporate and personal details, including specimen signature, are valid and accurate | Yes | DR MoC is received from PP/CME (except in the case of Notarized) | Yes | DR The authorized capacity(ies) of personnel submitting the MoC or written confirmation is checked | Yes | DR The validation team has checked the MoC submitted by PP. Validation Criteria | Yes/No | MoV Latest version of the form 'F-CDM-MOC' is used | Yes | DR The information required as per F-CDM-MOC, including its Annex 1, is correctly filled | Yes | DR The signatory in F-CDM-MOC and Annex 1 are same/consistent | Yes | DR	Yes	Yes
F.1 Whether the PDD was completed using the	Para 63	In this context, CAR-02 has been raised. PDD needs to be revised	~~CAR-02~~	Yes

latest version of the PDD form appropriate to the type of project activity.	of VVS	with latest available version on CDM EB website (version 05).		
G.1 State the project participants listed in the PDD and check with which of these project participants does KBS have a contract for the projects validation.	Para 20 of PCP	KBS has signed a contract for project validation with "Ascent Hydro Projects Limited" on 07/11/2013. Name of the PPs appears in the PDD (GSP) with which KBS has validation contract — Yes/No — MoV Ascent Hydro Projects Limited — Yes — DR	Yes	Yes
1.4. If the project participant(s) listed in the PDD published at international stakeholder consultation are not included in the PDD submitted with request for registration, a letter should be obtained from the withdrawn project participant(s) confirming its voluntary withdrawal from the proposed project activity.	Para 20 of PCP	The name of the PP enlisted in the PDD published at international stakeholder consultation is the same in the PDD submitted to request for registration. KBS has contractual agreement with Ascent Hydro Projects Limited. Name of the PPs in the PDD (RFR) with which KBS has validation contract is consistent with the one in PDD (GSP) — Yes/No — MoV Is there any PP removed between PDD (GSP) and PDD (RFR) — No — DR If yes, has such voluntary withdrawal is confirmed in writing from the PP. — NA — DR	Yes	Yes
1.5. Confirm while submitting a request for registration – all of the project participants with a contractual relationship are still listed in the PDD.	Para 20 of PCP	KBS has contractual agreement with Ascent Hydro Projects Limited.The validation team confirms that Ascent Hydro Projects Limited is still listed in the PDD while submitting a request for registration.	Yes	Yes
1.6. Project participants who are listed in the PDD (submitted for global stakeholder consultation) but who do not have a contractual relationship with KBS for the purposes of the validation activity may be removed from the PDD which is submitted for registration	Para 20 of PCP	No PP was removed from the PDD submitted for registration compared to the one submitted for GSP.	Yes	Yes
1.7. KBS may restart the validation activity through the new or revised contract with a different set of project participants by; a. Indicating that the first validation contract has been terminated and; b. Republishing the PDD or revised PDD for global stakeholder consultation.	Para 21 of PCP	The project is a resubmission and was earlier webhosted as Bundled project . Weblink: http://cdm.unfccc.int/Projects/Validation/DB/4YX3ETDPQQJWN7B3EMAE1TWAKD63AW/view.html The present status of the earlier webhosted project is now showing as "Validation Contract has been terminated" on CDM EB website.	Yes	Yes

Table 2 – Validation Requirements for Clean Development Mechanism (CDM) Project Activities (CDM VVS 7.0 and relevant paragraphs of CDM PS 7.0)

Checklist Question(s)	Ref	MoV*	Validation Assessment	Conclusion	
				Draft	Final
SECTION A. Description of Project Activity					
A.0. Cover page of PDD					
A.0.1 Is the cover page of the PDD is correctly and completely filled?	PDD Page 9	DR	The front page of the PDD is filled correctly and it is in accordance with the latest version of F-CDM-SSC-PDD form. Validation Criteria – Yes/No Title of the project activity – Yes Version number of the PDD – Yes Completion date of the PDD – Yes Project participant(s) – Yes Host Party(ies) – Yes Sectoral scope and selected methodology(ies) – Yes Estimated amount of annual average GHG emission reductions – Yes The title of the project activity is "Small Hydro Power Project in Panwi, Himachal Pradesh" in the PDD (version 01) under this validation. The same has been verified from the UNFCCC website Websites referred - http://cdm.unfccc.int/Projects/Validation/index.html	Yes	Yes
A.1. Purpose and general description of the project activity					
A.1.1 Does the Section A.1 of PDD contains information as required by CDM PS?	Para 37 of PS	DR	Section A.1 of the PDD contains the applicable provisions of the Project Standard. The sectoral scope of this small scale project activity is rightly included in the cover page of the PDD. Validation Criteria – Yes/No Describe the purpose of the project activity, including a summary of the scope of activities/measures that are to be implemented within the project activity – Yes	Yes	Yes

			Explain how the project activity will reduce GHG emissions or increase GHG removals: Yes Indicate the sectoral scope(s) and type of the project activity: Yes Explain the contribution of the project activity to sustainable development: Yes		
A.1.2 Does the Section A.1 of PDD contains additional information as required and Guidance for completing the PDD Form?	PDD Page 9	DR	Section A.1 of the PDD contains the applicable provisions of the Project Standard. Validation Criteria: Yes/No Scenario existing prior to the implementation of the project activity: Yes Baseline scenario as identified in Section B.4 of PDD: Yes Estimate of annual average and total GHG emission reductions for the chosen crediting period: Yes	Yes	Yes
A.1.3 Is the description of the proposed project activity in the PDD is accurate, complete, and provides an understanding of the proposed CDM project activity?	Para 65-68 of VVS	DR,SV	Section A.1 of the PDD contains the applicable provisions of the VVS Validation Criteria: Yes/No Is the proposed CDM project activity at existing facilities or utilizing existing equipments?: No Is the physical site visit undertaken?: Yes Is the type of project activity correctly indicated, if small scale project activity (else write not applicable)?: Yes	Yes	Yes
A.1.4 If the project activity involves the alternation of an existing installation or process, does the project description clearly state the differences resulting from the project activity compared to the pre-project situation?	Para 69 of VVS	DR, SV	The project is a Greenfield field project activity; hence, the question is not applicable.***Error! Reference source not found.***	N.A.	N.A.
A.1.5 Is all information provided consistent and in compliance with the actual situation or planning?	Para 70(a) of VVS	DR, SV, I	The validation team on site visit observed that the project is under implementation and has not commissioned yet. The document review, background investigation and interview during on-site visit revealed that the description with respect to the design features, baseline and monitoring system of this project activity are found to be consistent with the PDD description.	Yes	Yes

A.1.6 Is all information with respect to project description deemed accurate and complete?	Para 70(b) of VVS	DR, SV	Refer the assessment provided in the section A.1.5 above.	Yes	Yes
A.1.7 If a physical site visit is not conducted, is it justified appropriately?	Para 70(c) of VVS	SV	Since, DOE has conducted on site visit, the question is not applicable for this project activity.	N.A.	N.A.
A.2. Location of project activity					
A.2.1 Is the host Party(ies) correctly indicated in the PDD?	A.2 of PDD	DR	Yes, it is correctly indicated in the PDD	Yes	Yes
A.2.2 Is the Region/State/Province etc., correctly indicated in the PDD?	A.2 of PDD	DR	Yes, it is correctly indicated in the PDD	Yes	Yes
A.2.3 Is the City/Town/Community etc., correctly indicated in the PDD?	A.2 of PDD	DR	Yes, it is correctly indicated in the PDD	Yes	Yes
A.2.4 Is the Physical/Geographical location correctly indicated in the PDD?	A.2 of PDD	DR, SV	Yes, it is correctly indicated in the PDD Validation Criteria — Yes/No Information allow the unique identification of the proposed project activity i.e., geographical coordinates — Yes Is map included in the PDD? — Yes Is the description of location is limited to one page? — Yes	Yes	Yes
A.3. Technologies and/or measures					
A.3.1 Does the PDD defines the technologies and measures to be employed and/or implemented by the project activity, including a list of the facilities, systems and equipment that will be installed and/or modified by the project activity?	A.3 of PDD	DR, SV	PDD does not include the monitoring equipments and their locations in the system. Also, description is not complete with regards to as how the same types and levels of services provided by the project activity would have been provided in the baseline scenario . In the context CAR03(a), CAR 03 (b)is raised Validation Criteria — Yes/No The age and average lifetime of the equipment defined based on manufacturer's specifications and industry standards — Yes Existing and forecast installed capacities, load factors and efficiencies defined — Yes Monitoring equipments and locations are defined. — CAR-03(b) Energy and mass flows and balances of system and equipments included in the project activity — Yes	~~CAR-03(a)~~ ~~CAR-03(b)~~	Yes

			Is description complete with regards to as how the same types and levels of services provided by the project activity would have been provided in the baseline scenario — CAR-03(a)		
A.3.2 Does the PDD contains list of equipments in the scenario existing prior the implementation of PA and/or the baseline scenario?	A.3 of PDD	DR, SV	PDD does not include the Facilities, systems and equipment in the baseline scenario . In this context CAR-03(c) has been raised. Validation Criteria — Yes/No Facilities, systems and equipment in operation under the existing scenario prior to the implementation of the project activity — N.A. Facilities, systems and equipment in the baseline scenario, as established in section B.4 of PDD. — CAR-03(c)	CAR-03(c)	Yes
A.3.3 Is the existing scenario prior to the implementation of the project activity same as baseline scenario identified in Section B.4 of PDD?	A.3 of PDD	DR, SV	The existing scenario prior to the implementation of the project activity same as baseline scenario identified in Section B.4 of PDD.	Yes	Yes
A.3.4 Is the scale and type of the project activity correctly identified?	Para 37 of PS	DR, SV	The assessment of this small-scale project activity under type I is carried out in this protocol under section B.1 and B.2. Validation Criteria — Yes/No Sectoral scope(s) correctly indicated — Yes Type of project activity correctly indicated — Yes Description on environmentally safe and sound technology(ies) included — Yes Description on know-how transferred to the host Party, if applicable, included. — Yes	Yes	Yes
A.4. Party(ies) and project participant(s)					

A.4.1. Is the table required for the indication of Party(ies) and project participant(s) correctly applied?	Para 39 of PS A.4 of PDD	DR, I	The table in the section A.4 of PDD is correctly filled.	Yes	Yes
A.4.2. Is all information provided in consistency with details provided by further chapters of the PDD (in particular Appendix 1)?	A.4 of PDD	DR, I	Same as the assessment provided in section A.4.1. above	Yes	Yes
A.5. Public funding of project activity					
A.5.1. Does the information on public funding provided conform to the actual situation or planning as presented by the project participant(s)?	A.5 of PDD	DR	The assessment did not reveal any evidence that this project activity will utilize funds from official development assistance from Annex I country. Based on information provided in PDD and document review, and observations made during the site visit it is clear that the project activity will be funded by the equity of AHPL and debt of various financial institutions. Validation Criteria / Yes/No Does project receives any public funding? / No Is the funding from Parties included in Annex I to Kyoto Protocol? / No If yes, information regarding public funding is provided? / N.A.	Yes	Yes
A.5.2. Is all information provided consistent with details provided by further chapters of the PDD (in particular Appendix 2)?	A.5 of PDD	DR	The project activity has no public funding and hence the question is not applicable.	N.A.	N.A.
A.5.3 In case of public funding from Annex I Parties, is it confirmed that such funding does not result in a diversion of official development assistance?	Para 40 of PS	DR	The project activity has no public funding and hence the question is not applicable.	N.A.	N.A.
A.6. Debundling of project activity (section for SSC PAs)					

A.6.1. Is it confirmed that proposed project activity is not a debundled component of large scale project activities?	A.6 of PDD	DR, SV	<table><tr><th>Validation Criteria</th><th>Yes/No</th></tr><tr><td>Is there any registered CDM, including requested for registration, project activity with the same PPs?</td><td>Yes</td></tr><tr><td>Is it in the same project category and technology/measure?</td><td>Yes</td></tr><tr><td>Is it registered, including requested for registration, within previous 2 years</td><td>Yes</td></tr><tr><td>Is the project boundary within 1 km of the project boundary of proposed small scale activity at the closest point?</td><td>No</td></tr><tr><td>If the answer to above questions is yes but it is confirmed the combined capacity of previous projects is within the SSC thresholds for that type? (else write not applicable)</td><td>N.A.</td></tr><tr><td>Is the assessment complies with the latest version of “Guidelines on assessment of de-bundling for SSC project activities”</td><td>Yes</td></tr></table>	Yes	Yes
A.6.2. Is it confirmed that requirements related to Type I projects have been assessed appropriately?	A.6 of PDD	DR, SV	<table><tr><th>Validation Criteria</th><th>Yes/No</th></tr><tr><td>It has been confirmed how Type I projects are not debundled component of large scale project activity in case two or more projects are taking place within 1 km by the same project participants</td><td>N.A.</td></tr></table>	Yes	Yes
A.6.3. Is it confirmed that requirements related to transport projects have been assessed appropriately?	A.6 of PDD	DR, SV	<table><tr><th>Validation Criteria</th><th>Yes/No</th></tr><tr><td>The assessment is done by excluding the criteria of within 1 km.</td><td>Yes</td></tr><tr><td>It is confirmed that project is not a debundled component of large scale project activity.</td><td>Yes</td></tr></table>	Yes	Yes
A.7. Bundling of project activity (section for SSC PAs)					
A.7.1. Is it confirmed that proposed project activity is a bundled project activity?	A.6 of PDD	DR, SV	This is not a bundled project activity. <table><tr><th>Validation Criteria</th><th>Yes/No</th></tr><tr><td>The project activity is a bundled project activity.</td><td>No</td></tr><tr><td>The F-CDM-SSC-BUN correctly is provided?</td><td>N.A.</td></tr><tr><td>The project confirms to the General principles of bundling</td><td>N.A.</td></tr></table>	N.A.	N.A.

SECTION B. Application of selected applied/approved baseline and monitoring methodology and standardized baseline					
B.1. Reference of methodology					
B.1.1 Is the reference to the selected methodology and where applicable standardized baseline consistent with the CDM website?	B.1 of PDD Para 41 of PS	DR	Validation Criteria: Yes/No The number of the selected methodology and standardized baseline is correct: Yes The title of the selected methodology and standardized baseline is correct: Yes The version of the selected methodology and standardized baseline is correct: Yes Website referred: http://cdm.unfccc.int/methodologies/PAmethodologies/approved http://cdm.unfccc.int/Reference/tools/index.html	Yes	Yes
B.1.2 Is the reference to any tools, standards or guidelines as required by the methodology provided?	Para 36 of PS	DR	Validation Criteria: Yes/No The title of tools/guidelines/standards is correct: Yes The version of tools/guidelines/standards is correct: Yes	Yes	Yes
B.1.3 Is the selected methodology and and where applicable standardized baseline referenced tools/standards/guidance are valid at the time of request for registration?	Para 71-72, 74 VVS	DR	The applied methodology version is 17 and is valid for submission till 25/07/2015. CAR-10 has been raised in this context. Validation Criteria: Yes/No The selected methodology is valid at request for registration: Yes The reference tools/guidelines/standards/EB decision are applied correctly: Yes	~~CAR-10~~	Yes
B.2. Applicability of methodology, standardized baseline and/or Project activity eligibility					
B.2.1 Does the PDD contains information as why the selected approved methodology and where applicable standardized baseline applicable to the project activity?	Para 43of PS B.2 of PDD	DR	The applicability conditions of the referred tools have not been included in section B.2 of PDD. Also, applicability of the footnotes 1-9 of the methodology has not been discussed in the PDD. In this context CAR-04 has been raised. Validation Criteria: Yes/No All applicability conditions of, selected methodology and where applicable Standardized baseline included: Yes Applicability conditions are consistent with the selected methodology(ies) and Standardized baseline: Yes Justification for each applicability conditions is provided: Yes All applicability conditions of referred tools/standards/guidelines: CAR-	~~CAR-04~~	Yes

			included: 04 Applicability conditions are consistent with the referred tools/standards/guidelines: Yes Justification for each applicability conditions is provided: Yes		
B.2.2 Is the justification provided in the PDD based correctly quoted and interpreted?	Para 78 of VVS B.2 of PDD	DR	Validation Criteria: Yes/No Justification against each applicability conditions is critically explained/substantiated in B.2 of PDD: Yes Is explanation of documentation used consistent with Appendix 3 of PDD, if used: Yes The information in PDD is compared/cross checked with other sources, if available, using local expertise and sectoral expert: Yes	Yes	Yes
B.2.3 Is the applicability of the selected methodology and where applicable standardized baseline satisfied/met?	Para 78 of VVS Para 80, 82 of VVS	DR	Validation Criteria: Yes/No The selected methodology and standardized baseline are applicable to project activity: Yes Is there any deviation from methodology and standardized baseline found or applied: No Is there any clarification that has been sought or applied in the project activity: No	Yes	Yes
B.2.4 Is it confirmed that the project activity meets the SSC eligibility requirements?	Para 89 of PS B.2 of PDD Para 157 of VVS	DR	Validation Criteria: Yes/No The PDD contains complete and accurate description of project type(s) i.e., Type I, II and/or III: Yes If Type I project activity, the maximum output capacity does not exceed 15 MW(e) and such capacity of generator in case turbine-generator systems are used (more electrical or mechanical systems): Yes If Type I project activity, the maximum capacity does not exceed 45 MWth for biomass, biofuels and biogas projects (for thermal systems): N.A. If case of thermal application of solar energy projects the maximum output does not exceed 64,000 m2 for flat plate or evacuated tubular collector: N.A. If Type II project activity, the maximum output capacity does not exceed 60 GWh (e) per year or an appropriate equivalent e.g. 180 GWh (th) per year: N.A. If Type III project activity, the GHG emission reductions does not exceed 60,000 tCO2e per year in any year of the crediting: N.A.	Yes	Yes

			period If project activity uses more than one component, it is confirmed that each component is within the thresholds for each type: N.A. The project activity confirms to the requirements of latest version of "General guidelines to SSC CDM methodologies": Yes		
B.3. Project boundary					
B.3.1 Does the project boundary include the physical delineation of the proposed CDM project activity?	B.3 of PDD	DR	PDD present a flow diagram of project boundary physically delineating the project activity based on section A.3., (diversion weir, forebay tank, penstock, turbine generator, power house and substation mentioned in section A.3. of PDD are included in project boundary). Validation Criteria: Yes/No The flow diagram of the project boundary included: Yes The flow diagram consistent with the information in section A.3 of PDD: Yes The flow diagram indicates the GHG sources included in the project boundary: Yes The data and parameters to be monitored are indicated: Yes The project boundary information consistent with situation observed during physical site visit, if conducted: Yes	Yes	Yes
B.3.2 Are all emission sources and gases related to the baseline scenario, project scenario clearly identified and described in project boundary in a complete and transparent manner?	Para 46 of PS B.2 of PDD	DR	Validation Criteria: Yes/No The table included for GHG sources included: Yes The inclusion/exclusion is justified for GHG sources in the PDD: Yes	Yes	Yes
B.3.3 Is the project boundary consistent with the observations made during site visit.	Para 85, 86 of VVS	DR,SV	Validation Criteria: Yes/No The project boundary is based on objective evidences: Yes The project boundary as defined in the PDD is consistent with the observation made during site visit: Yes The inclusion/exclusion of the GHG sources is based on objective evidences, wherever possible: Yes	Yes	Yes

B.3.4. Are there emission sources that will be affected by the implementation of the proposed project activity and which are expected to contribute more than 1% of the overall expected average annual emissions reductions, and are not addressed by the selected approved methodology and where applicable standardized baseline?	Para 89 of VVS	DR	The validation team considers that the greenhouse gas emissions occurring within the proposed CDM project activity boundary as a result of the implementation of the proposed CDM project activity which are not addressed by the applied methodology, is deemed to contribute less than 1% of the overall expected average annual emission reductions.	Yes	Yes
B.4. Establishment and description of baseline scenario					
B.4.1. Does the PDD discuss the identification of the most likely baseline scenario? Does the PDD follow the steps to determine the baseline scenario required by the methodology/tool and has the application of the tools as per methodology been consulted, if the Tool(s) are required by the methodology?	Para 92 of VVS	DR	Validation Criteria / Yes/No The procedure contained in the methodology to identify the most reasonable baseline scenario has been correctly applied? / Yes If the selected methodology requires the use of tools to establish the baseline scenario, the specific guidance in the methodology supersedes the corresponding requirements of the tool. / Yes	Yes	Yes
B.4.2. Are all potential realistic and credible alternative scenarios listed in the methodology considered in identification of the most reasonable baseline scenario? Are all scenarios reasonable in the con-text of the proposed CDM project and no reasonable alternative scenario has been excluded?	Para 93 of VVS	DR	Validation Criteria / Yes/No The alternative scenarios considered by the project participants and any scenarios that are supplementary to those required by the methodology, are realistic and credible in the context of the proposed project activity. / N.A. The identified alternative scenarios are appropriate based on financial expertise, local and sectoral knowledge of the assessment team. / N.A. No alternative scenario has been excluded. / N.A.	N.A.	N.A.

B.4.3 Is there a verifiable description of the baseline scenario? Does this include 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?	Para 94, 95 of VVS	DR	<table><tr><th>Validation Criteria</th><th>Yes/No</th></tr><tr><td>The information (assumptions, calculations, rationales used in the PDD) used to substantiate the most plausible baseline scenario is quoted and interpreted correctly.</td><td>Yes</td></tr><tr><td>The information (as mentioned above) has been crosschecked from other sources and/or with local expert.</td><td>Yes</td></tr><tr><td>The PDD provides a description of the identified baseline scenario, including a description of the technology that would be employed</td><td>Yes</td></tr></table>	Yes	Yes
B.4.4. Have all applicable CDM requirements been taken into account in the identification of the baseline scenario, including relevant national and/or sectoral policies and circumstances?	Para 96 of VVS	DR	<table><tr><th>Validation Criteria</th><th>Yes/No</th></tr><tr><td>All applicable CDM requirements have been taken into account in the identification of the baseline scenario.</td><td>Yes</td></tr><tr><td>The relevant national and/or sectoral policies and circumstances, such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector have been considered appropriately</td><td>Yes</td></tr><tr><td></td><td></td></tr></table>	Yes	Yes
B.5. Additionality					
B.5.1.Does the PDD clearly demonstrate the additionality using the approach as specified in the methodology where applicable, the selected standardized baseline(s) and applicable provisions for demonstration of additionality in the Project standard and by following all the required steps?	B.5 of PDD	DR	PDD demonstrates the additionality of the project using Project IRR as financial indicator, as project is funded 70% by debt. Therefore, the project IRR is considered as the most appropriate financial indicator for the project type and decision making context as per Sub-step 2b , Option III of Additionality Tool. <table><tr><th>Validation Criteria</th><th>Yes/No</th></tr><tr><td>The discussion on additionality is included in the PDD as per the applied methodology and/or tools referred therein</td><td>Yes</td></tr><tr><td>The compliance and outcome of each required step in the applied methodology and/or tool is indicated in clear and transparent manner in the PDD</td><td>Yes</td></tr><tr><td>The method selected to demonstrate additionality (e.g. investment analysis or barrier analysis) is indicated.</td><td>Yes</td></tr><tr><td>All data used (variables, parameters, data sources, etc.), how the additionality of the project activity is</td><td>Yes</td></tr></table>	Yes	Yes

			demonstrated, is transparently included in the PDD If investment analysis is used, list all relevant assumptions and parameters used in the analysis is included. Yes The benchmark applied, wherever applied, is clearly indicated. Yes The credible scenarios compared described where cost comparison is used. N.A. The barriers are substantiated for key facts, assumptions rationale and credibility in demonstrating additionality. N.A. The prior consideration of the CDM in accordance with applicable provisions related to the demonstration of prior consideration of the CDM included. Yes		
B.5.2. Is the discussion on the prior consideration of CDM consistent with the starting date of the project?	Para 112,113 of VVS	DR	PDD contains discussion on prior consideration of CDM. Validation Criteria — Yes/No The start date of the project activity as indicated in the PDD conforms to the glossary of CDM terms — Yes The date of publication of the PDD is prior to the start date of the project activity — No The start date of the project activity is on or after 2nd August 2008 — No The start date of the project activity is before 2nd August 2008 — Yes The prior consideration of CDM is demonstrated as per the requirement — Yes	Yes	Yes
B.5.3. Is the start date of the project activity before 2nd Aug 2008 (the start date is prior to the date of publication of the PDD for global stakeholder consultation and new methodology is not proposed) How is the prior consideration of CDM demonstrated?	Para 34 of PS Para 114,115 ,116 of VVS	DR	Start date of the project activity is before 2nd August 2008 (26/02/2007). Validation Criteria — Yes/No The evidence of awareness of CDM prior to the project start date is provided — Yes The evidence of benefits of CDM were decisive factor to proceed with the project provided — Yes The provided evidence confirms the requirements as per para 108(a) of VVS or the latest guidance on this matter — Yes The continuing and real actions were taken to secure the CDM status for the project activity — Yes The provided evidence confirms the requirements as per para 108(b) and 109 of VVS or the latest guidance on this matter — Yes The gap between documented evidence is less than 2 years — Yes The gap between documented evidence is between greater than 2 years but less than 3 years but is justified based on the — No	Yes	Yes

			context of evidence and information assessed The gap between documented evidence is greater than 3 years: No The timelines based on the investment decision, construction work commencement, key purchase order places, commissioning etc., with regard to implementation are included in the PDD: Yes The prior consideration of CDM is demonstrated as per the requirement: Yes		
B.5.4. For project activity with a start date on or after 2nd August 2008 (for which the start date is prior to the date of publication of the PDD for global stakeholder consultation and new meth is not proposed) How is the prior consideration of CDM demonstrated?	Para 33 of PS Para 113 of VVS	DR	Validation Criteria: Yes/No The prior consideration of CDM was notified to host Party DNA and UNFCCC as per the applicable form and guidance: N.A. The prior consideration notification has been confirmed from the UNFCCC website: N.A. The communication between PP and DNA and/or UNFCCC in this regard were found satisfactory: N.A. The prior consideration of CDM is demonstrated as per the requirement: N.A.	N.A.	N.A.
B.5.5. If the baseline scenario is not prescribed in the approved methodology, is it confirmed that the list of identified credible alternatives to the project activity in the PDD selected to determine the most realistic baseline scenario is appropriate?	Para 120, 121 of VVS	DR	The baseline scenario is prescribed in the approved methodology. Validation Criteria: Yes/No The list of alternatives includes (in PDD) as one of the options that the project activity is undertaken without being registered as a proposed project activity: N.A. The list contains all plausible alternatives based on local and sectoral knowledge of the validation team: N.A. The list contains viable means of supplying the comparable outputs or services that are to be supplied by the proposed project activity: N.A. The alternatives comply with all applicable and enforced legislation.: N.A.	N.A.	N.A.
B.5.6. If an investment analysis has been used, has it been demonstrated that the proposed project activity is not the most economically or financially attractive	Para 124, 126 of VVS	DR	PP has used investment analysis – benchmark analysis – and has demonstrated that the project is not economically or financial feasible without the revenue from the sale of CERs.	Yes	Yes

alternative, or is not economically or financially feasible, without the revenue from the sale of CERs.			Validation Criteria	Yes/No		
			The latest version of "Guidelines on the assessment of investment analysis" (EB62, Annex5) is applied	Yes		
			The proposed project activity would produce no financial or economic benefits other than CDM-related income.	Yes		
			The documented costs associated with the proposed project activity and the alternatives identified demonstrate that there is at least one alternative which is less costly than the proposed project activity (Simple Cost Analysis)	N.A.		
			The proposed project activity is less economically or financially attractive than at least one other credible and realistic alternative (Investment Comparison Analysis)	N.A.		
			The financial returns of the proposed project activity would be insufficient to justify the required investment (Benchmark Analysis)	Yes		
			The investment analysis approach is appropriate in the context of the project activity.	Yes		

B.5.7. Is the investment analysis complete and accurate?	Para 127 of VVS B.5 of PDD	DR	The investment analysis cannot be considered as complete and accurate as the PDD contains contradictions and the worksheet stands to incomplete and inaccurate. In this context CL-05, CAR-06 are raised	~~CL-05~~ ~~CAR-06~~	Yes

Validation Criteria	Yes/No
The project has applied investment analysis	Yes
The financial indicator selected by the PP is suitable in the context of the project activity	CL-05
Thorough assessment of all parameters and assumptions used in calculating the financial indicator is conducted	CL-05
The parameters have been crosschecked against the third party or publicly available sources	Yes
The FSR, public announcement and annual financial report, as appropriate, have been reviewed with regards to the project activity and participants.	Yes
The correctness of the computation carried out and documented by PP is ensured.	Yes
The sensitivity analysis has been conducted to determine under what conditions variations in result would occur and the likelihood of these conditions.	CAR-06
The financial calculations, parameters, assumptions are as per the relevant and applicable clauses/paragraphs of the latest version of 'Guidelines on the assessment of investment analysis"	CL-05 CAR-06

B.5.8. If a benchmark is used, is it confirmed that it is suitable in the context of the project activity?	Para 128 of VVS/ B.5 of PDD / EB51 Annex 59/ EB40 Para40	DR	WACC has been used as the benchmark which conforms to Annex 5, EB 62. However, few parameters used in benchmark calculation are not in conformity with Guidance 13 of Annex 5, EB 62 and hence CL-07 are raised in this context. Validation Criteria / Yes/No The project has applied benchmark analysis / Yes The type of benchmark applied is suitable for the type of financial indicator / CL-07 The risk premium, as appropriate, applied in determining the benchmark reflects the risk associated with the project type/activity / CL-07 It is reasonable to assume that no investment would be made at a rate of return lower than benchmark. / Yes The applied benchmark is determined as per the relevant and applicable clauses/paragraphs of the latest version of 'Guidelines on the assessment of investment analysis" / CL-07	~~CL-07~~	Yes
B.5.9. Does the investment analysis rely on the values from Feasibility Study Reports (FSR) that are approved by national authorities for proposed CDM project activity?	Para 128 of VVS	DR	DPR was prepared in 2005 and board decision from PP is dated 24/09/2005. DPR and project addendum report was duly approved by Himachal Pradesh state electricity board dated 30/06/2006. Validation Criteria / Yes/No The FSR has 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 to confirm that it is unlikely in the context of the underlying project activity that the input values would have materially changed / Yes The values used in the PDD and associated annexes are fully consistent with the FSR, and where inconsistencies occur the appropriateness of the values applied is validated as justified / Yes The input values from the FSR are valid and applicable at the time of investment decision / Yes The input values have been cross checked, as appropriate, and confirmed by local and sectoral expertise / Yes	Yes	Yes

B.5.10. If a barrier analysis has been used, has it been shown that the proposed project activity faces barriers that prevent the implementation of this type of proposed project activity but would not have prevented the implementation of at least one of the alternatives?	Para 131, 132, 133 of VVS	DR		N.A.	N.A.

Validation Criteria	Yes/No
Is it indicated in the PDD that which barrier (as defined in the applicable tool/methodology) is applied	N.A.
Is the barrier analysis allowed by the approved methodology(ies)	N.A.
Is it demonstrated that issues that have direct impact on the financial returns of the project activity are not considered barriers	N.A.
Is it demonstrated that barriers are real and objective as per EB50 Annex13 (as per relevant clauses specific to the type of barrier selected)	N.A.
The available evidences in this regard have been assessed and confirmed to exist, based on the interview with individuals (members of industry, government official and local experts, if necessary)	N.A.
The barriers listed in the PDD confirmed from other independent sources such as relevant national legislation, surveys of local conditions and national or international statistics.	N.A.
Is it confirmed that barriers would prevent the proposed CDM project activity but not at least one of the alternatives, in particular the identified baseline scenario	N.A.
Is it confirmed that each selected barrier is credible	N.A.

B.5.11. Is the proposed project type be justified as first-of-its kind?	EB 69 Annex 07	DR		N.A.	N.A.

Validation Criteria	Yes/No
Is project activity presented as first of its kind?	N.A.
The applicable geographical area is defined appropriately taking note of the country specific or not technology	N.A.
There is no technology existing (commercial operation) at the time of project start date that is able to deliver the same output	N.A.
A fixed crediting period is chosen with no option of renewal	N.A.
The latest guidance of first of its kind has been applied	N.A.
The first of its kind is based on objective evidence and can be confirmed independently	N.A.

B.5.12. Is the project activity not common practice, unless proposed as first of its kind?	Para 135 of VVS EB 69 Annex 08	DR		N.A.	N.A.

Validation Criteria	Yes/No
The common practice has been demonstrated as per approved methodology(ies) and applicable tool(s)	N.A.
The latest guidance on demonstration of common practice is applied including all steps	N.A.
The applicable geographical area is defined appropriately taking note of the country specific or not technology	N.A.
The compliance of Step 4a is confirmed	N.A.
The compliance of Step 4b is confirmed	N.A.
It is confirmed that Nall – Ndiff is not greater than 3	N.A.
It is confirmed that F is not greater than 0.2	N.A.
The value of Nall – Nidff is greater than 3 and the value of F is greater than 0.2	N.A.
The identification of Nall is based on objective evidences and does not include CDM registered and undergoing validation projects	N.A.
The identification of Ndiff is based on objective evidences and key distinctions have been clearly explained and substantiated	N.A.
The list of activities considered under Nall and Ndiff is complete and verifiable	N.A.
The assessment and result of common practice analysis are confirmed by local and sectoral expertise	N.A.
It is confirmed that project activity is not a common practice and therefore additional	N.A.

<table>
<tr><td>B.5.13. Is it confirmed that the proposed SSC project activity is additional in accordance with CDM requirements?</td><td>Para 165 of VVS</td><td>DR</td><td>The project activity is a small scale project and the demonstration of additionality is in accordance with the VVS.

<table><tr><th>Validation Criteria</th><th>Yes/No</th></tr><tr><td>The additionality has been demonstrated as per Attachment A to Appendix B of 4/CMP.1, Annex11</td><td>Yes</td></tr><tr><td>The type of additionality approach is clearly included in the PDD</td><td>Yes</td></tr><tr><td>The approach confirms to the Non-binding best practice exaples to demonstrate additionality for SSC project activities</td><td>Yes</td></tr><tr><td>In case of microscale project activities, it is confirmed that PDD complies with the requirements of “Guidelines for demonstrating additionality of microscale project activities”</td><td>N.A.</td></tr><tr><td>The additionality has been demonstrated in case of microscale projects as per para 160 of VVS and referenced guidance</td><td>N.A.</td></tr></table></td><td>Yes</td><td>Yes</td></tr>
<tr><td colspan="4">B.6. Emission reductions</td><td></td><td></td></tr>
<tr><td>B.6.1.Are the steps and equations (Explanation of methodological choices) applied to calculate emission reductions in compliance with the requirements of selected baseline and monitoring methodology and referred tools where applicable, the selected standardized baseline(s)?</td><td>Para 101 of VVS Section B.6.1 of PDD</td><td>DR</td><td>All the steps and equations (Explanation of methodological choices) applied to calculate emission reductions, are in compliance with the requirements of selected baseline and monitoring methodology.
<table><tr><th>Validation Criteria</th><th>Yes/No</th></tr><tr><td>The methods or methodological steps in the selected methodology(ies), and where applicable, the selected standardized baseline(s) for calculating baseline emissions are explained and justified in the PDD</td><td>Yes</td></tr><tr><td>The methods or methodological steps in the selected methodology(ies), and where applicable, the selected standardized baseline(s) for calculating project emissions are explained and justified in the PDD</td><td>Yes</td></tr><tr><td>The methods or methodological steps in the selected methodology(ies), and where applicable, the selected standardized baseline(s) for calculating leakages are explained and justified in the PDD</td><td>Yes</td></tr><tr><td>The equations that will be used in calculating emission reductions are included in the PDD</td><td>Yes</td></tr></table></td><td>Yes</td><td>Yes</td></tr>
</table>

			The methodological choices are explained and justified where methodology and where applicable, the selected standardized baseline(s) prescribes the different scenarios or cases: Yes The methodological choices are explained and justified where methodology and where applicable, the selected standardized baseline(s) provides different options: Yes The methodological choices are explained and justified where methodology and where applicable, the selected standardized baseline(s) allows different default values: Yes The referred tools by the methodology are applied, explained and choices justified, as appropriate: Yes		
B.6.2. Are the data and parameters fixed ex ante applied to calculate emission reductions in compliance with the requirements of selected baseline and monitoring methodology and referred tools and where applicable, the selected standardized baseline(s)?	Para 102, 103 of VVS Section B.6.2 of PDD	DR	Validation Criteria: Yes/No The data and parameters defined ex ante are complete in the context of the project activity: Yes The data that are calculated using equations provided in the methodology and where applicable, the selected standardized baseline(s)are not included in this section of PDD: Yes The table for each data and parameter is correctly filled as required by the guidance to fill PDD: Yes The values applied (single or multiple) of each data is included in a single table, as appropriate: Yes The choice of data applied is clearly indicated and justified with reference to the source: Yes The applied value of the data and parameters, as required in some cases e.g. PLF, is as per the applicable guidance issued by CDM EB: Yes If the data is determined based on measurements methods and procedures, if applicable, the reference to standards used, responsible person/entity that took the measurement, date of measurement and measured results are correctly indicated.: Yes The purpose of data is clearly indicated in the table: Yes If sampling is allowed by the methodology, it is confirmed that the application is as per the latest version of “Standard for sampling and surveys for CDM PA and PoA”, as appropriate: Yes The additional information is included in Appendix 4 of PDD: Yes The assumptions and sources used are appropriate, correct and would result in either accurate or otherwise conservative: Yes	Yes	Yes

			estimate of emission reductions		
B.6.3. Are the steps and equations applied to calculate ex ante calculation of emission reductions in compliance with the requirements of selected baseline and monitoring methodology and referred tools and where applicable, the selected standardized baseline(s)?	Para 102, 103 of VVS Section B.6.3 of PDD	DR	Validation Criteria: Yes/No The ex ante calculation of emission reductions (BE, PE and LE) is performed transparently in the PDD: Yes The values applied are consistent with section B.6.2 and B.7.1 for each specific data and/or parameter: Yes The equations in the applied methodology(ies) and referred tools, as appropriate are correctly applied in reproducible manner in section B.6.3 as sample calculation: Yes The ex ante calculations are explained in reproducible manner in Appendix 4 and/or electronics spreadsheet: Yes	Yes	Yes
B.6.4. Is the table to indicate the emission reductions over the crediting period included and correct?	Section B.6.4 of PDD	DR	Validation Criteria: Yes/No The table is completely and correctly filled: Yes The emission reductions (BE, PE, LE) are consistent with the other places in the PDD (B.6.3, Appendix 4 etc.): Yes The information in this section is consistent with other sections (e.g. crediting period etc.): Yes	Yes	Yes

B.6.5. Are all the steps taken and equations applied to calculate project emissions, baseline emissions and leakage and emission reductions correct and appropriate?	Para 104 of VVS	DR	<table><tr><th>Validation Criteria</th><th>Yes/No</th></tr><tr><td>All assumptions and data used by the project participants are listed in the PDD, including their references and sources</td><td>Yes</td></tr><tr><td>All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD</td><td>Yes</td></tr><tr><td>All values used in the PDD are considered reasonable in the context of the proposed CDM project activity</td><td>Yes</td></tr><tr><td>The baseline methodology and where applicable, the selected standardized baseline(s) has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions</td><td>Yes</td></tr><tr><td>All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD</td><td>Yes</td></tr><tr><td>The spreadsheet provided is transparent, unprotected and reproducible</td><td>Yes</td></tr></table>	Yes	Yes
B.7. Monitoring plan					
B.7.1.1. Does the monitoring plan of the PDD comply with the approved methodology(ies) and applicable tool(s) and where applicable, the selected standardized baseline(s)?	Para 139(a) of VVS	DR	<table><tr><th>Validation Criteria</th><th>Yes/No</th></tr><tr><td>The list of parameters included in the section B.7.1 of the PDD is complete in the context of the project activity with respect to the applied methodology(ies) and applicable tool(s)</td><td>Yes</td></tr><tr><td>Whether the applied methodology refers to the crosschecks of ex-post emission reductions. If yes, all the parameters required crosschecking the ex-post ERs are included in the section B.7.1 of PDD.</td><td>Yes</td></tr><tr><td>The description of monitoring plan for each monitored parameter is complies with the requirements of the approved methodology(ies) and applicable tool(s).</td><td>Yes</td></tr><tr><td>The description of monitoring plan for each monitored parameter used for crosschecking of the ex-post ERs is complies with the requirements of the approved methodology(ies) and applicable tool(s).</td><td>Yes</td></tr><tr><td>The table is filled correctly and completely for each parameter to be monitored specifying source and applied value</td><td>Yes</td></tr></table>	Yes	Yes

			The table specifies the measurement methods and procedures, standards to be applied, accuracy of the measurements, person/entity responsible for the measurements, and, in case of periodic measurements, the measurement intervals: Yes The QA/QC procedures (calibration procedures and frequency) and purpose of data as required by the approved methodology(ies) and applicable tool(s) are correctly indicated: Yes The information in this regard is consistent with Appendix 5 and emission reduction spreadsheet: Yes		
B.7.1.2. Is the description of the monitoring plan (implementation) feasible in the context of the project activity?	Para 139(b) of VVS	DR	Validation Criteria: Yes/No The monitoring plan described in the PDD is feasible within the project design: Yes The information in the monitoring plan, in this regard, is confirmed based on the documented procedures, interview, project plan and physical inspection during site visit, as appropriate: Yes The QA/QC procedures as included in the PDD are sufficient to determine the ex post emission reductions and be verified: Yes	Yes	Yes
B.7.2 Is there any sampling approach applied for any parameter to be monitored?	Section B.7.2 of PDD	DR	Validation Criteria: Yes/No The sampling approach is applied for some monitored parameters: N.A. The sampling approach is allowed by the applied methodology(ies) or applicable tool(s): N.A. The sampling is clearly defined in Section B.7.2 of the PDD: N.A. The sampling approach confirms to “Standard for sampling and surveys for CDM project activities and programme of activities”: N.A.	N.A.	N.A.
B.7.3. Are the other elements of the monitoring plan completely defined?	Para 64 of PS Section B.7.3 of	DR	Validation Criteria: Yes/No The operational and management structure (authority and responsibility for registration, monitoring, measurement and: Yes	Yes	Yes

	PDD		reporting) to be put in place to implement the monitoring plan is included		
			The provisions included in PDD to ensure that data monitored required for verification and issuance be kept and archived electronically for 2 years after the end of crediting period or the last issuance of CERs, whichever occur later	Yes	
			The definitions of responsibilities and institutional arrangements for data collection and archiving included in the PDD	Yes	
			QA/QC procedures are defined clearly	Yes	
			The uncertainty levels, methods and the associated accuracy level of measuring instruments to be used for various parameters and variables are included.	Yes	
			The information in this regard is consistent with the other sections of the PDD viz., Appendix 5	Yes	
			The project participant will be able to implement the described monitoring plan	Yes	
SECTION C. Duration and crediting period					
C.1.1. Is the start date of the project activity and operational lifetime clearly defined and reasonable?	Para 65, 66 of PS C.1 of PDD	DR	Validation Criteria	Yes/No	Yes	Yes
			The start date of project activity is correctly included in the PDD in DD/MM/YYYY format	Yes		
			The evidence to support start date of project activity is included in the PDD	Yes		
			The start date of project activity is as per the glossary of CDM and confirms the observations made during site visit	Yes		
			The operational lifetime of the project activity is correctly included in the PDD	Yes		
			The operational lifetime is in accordance with EB50 Annex15 or from other sources as appropriate.	Yes		
C.1.2. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	C.2 of PDD	DR	Validation Criteria	Yes/No	~~CAR-08~~	Yes
			The type of crediting period is correctly included in the PDD	Yes		
			The start date of crediting period is correctly included in the PDD in DD/MM/YYYY format based on expected commissioning of the project activity but is not earlier than the expected date of registration	CAR-08		
			The length of crediting period is correctly included in PDD as	Yes		

			per the type of credit period chosen		
SECTION D. Environmental impacts					
D.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	D.1 of PDD Para 71 of PS	DR	Validation Criteria: Yes/No An analysis of environmental impacts of the project activity carried out by project participant(s): No Analysis of such impacts is included in the PDD, including any transboundary impacts, if applicable: N.A. The reference is given to the related documentation in PDD: N.A.	Yes	Yes
D.1.2. Are there any host Party requirements for an Environmental Impact Assessment (EIA)?	D.2 of PDD Para 72 of PS Para 141, 142 of VVS	DR	Validation Criteria: Yes/No The environmental impacts are considered significant: No If environmental impacts are considered significant by PP or host Party, has an EIA been conducted: N.A. Is there any host Party requirements for EIA for project activity: No Is the EIA conducted in accordance with such procedures: N.A. The reference is given to the related documentation in PDD: N.A.	Yes	Yes
SECTION E. Local stakeholder consultation					
E.1.1. Have local stakeholders been invited by the PPs to comment on the proposed CDM project activity prior to the publication of the PDD on the UNFCCC web	Para 77 of PS	DR , SV	Validation Criteria: Yes/No The local stakeholder consultation process is done prior to webhosting of the PDD for GSP: Yes	Yes	Yes
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	Para 73, 74 of PS	DR , SV	Validation Criteria: Yes/No The local stakeholders were identified appropriately: Yes The local stakeholders were invited in reasonable time: Yes The local stakeholders were invited using appropriate medium: CL-09	~~CL-09~~	Yes
E.1.3. Is the undertaken stakeholder process described in a complete and transparent manner?	Para 75, 76 of PS 145 of VVS	DR , SV	Validation Criteria: Yes/No The local stakeholders were informed appropriately about the project activity to comment: Yes	Yes	Yes

			Summary of comments as included in the PDD is complete: Yes		
E.1.4. Has due account been taken of any stakeholder comments received?	Para 145, 146 of VVS E of PDD	DR , SV	Validation Criteria: Yes/No The comments received from local stakeholders have been considered for due account: Yes The due account taken of all comments is adequate: Yes The information contained in PDD with regard to local stakeholder consultation is adequate.: Yes	Yes	Yes
SECTION F. Approval and authorization					
F.1.1 Has the approval and authorization is indicated correctly?	Para 78, 79 of PS F of PDD	DR	In this context CAR-01 has been raised. Validation Criteria: Yes/No The letter of approval at GSP of PDD is available: CAR-01 The information in this regard is included in the PDD: Yes The letter of approval(s) at Request for Registration is available from all identified Parties in the PDD: Yes	~~CAR-01~~	Yes

Annex 2: Detailed Findings

Nature of findings:

	CARs	CLs	FARs
Total Number raised	**7**	**3**	**-**

Date	**Type & Number**	**Raised by**	**Reference**
30/06/2014	CAR-01	Assessment Team	Table 1 of CDM-D-29
Non conformities raised			
Copy of the LoA from Host Country (India) has not been provided to the DOE for reference.			
Project Participant's response		**Date:** 29/09/2014	
PP is submitting the copy of LOA received from the Host Country DNA herewith.			
Documentation Provided as Evidence by Project Participant			
Copy of LOA dated 09/07/2014			
Information Verified by Team Leader		**Date of review: 06/10/2014**	
LOA received from Host Country DNA (INDIA) dated 09/07/2014			
Reasoning for ~~not acceptance or~~ close out			
PP as a response, provided copy of the LOA from Host Country DNA (INDIA) dated 09/07/2014. Assessment team verified the same from DNA website (www.cdmindia.gov.in). Therefore, this CAR is closed.			
Date of acceptance ~~or non- acceptance~~		**Date:** 06/10/2014	**Status:** Closed

Date	**Type & Number**	**Raised by**	**Reference**
30/06/2014	CAR-02	Assessment Team	Table 1 of CDM-D-29
Non conformities raised			
Webhosted PDD is not in accordance with latest available PDD template version on CDM EB website			
Project Participant's response		**Date:** 29/09/2014	
PP has adopted the latest available SCC - PDD template version 5.			
Documentation Provided as Evidence by Project Participant			
Revised PDD, version 02			
Information Verified by Team Leader		**Date of review: 06/10/2014**	
Revised PDD, Version 02 dated 29/09/2014			
Reasoning for ~~not acceptance or~~ close out			
PP as a response, has revised the PDD in latest available template of PDD (version 05) available on UNFCCC website. Assessment team confirms that the template provided is latest template available on CDM EB website and therefore, this CAR is closed.			
Date of acceptance ~~or non- acceptance~~		**Date:** 06/10/2014	**Status:** Closed

Date	**Type & Number**	**Raised by**	**Reference**
30/06/2014	CAR-03	Assessment Team	Section A.3 of CDM-D-29
Non conformities raised			
a) The description provided in section A.3 of PDD, is not complete with regards to as how the same types and levels of services provided by the project activity would have been provided in the baseline scenario? b) Monitoring equipments and locations has not been defined under section A.3. of PDD. c) Facilities, systems and equipment in the baseline scenario, as established in section B.4 of PDD has not been mentioned in section A.3. of PDD.			
Project Participant's response		**Date:** 29/09/2014	

a. PP has revised section A.3 of the PDD to incorporate the description to demonstrate that the same types and levels of services provided by the project activity would have been provided in the baseline scenario, "by the operation of fossil fuel based grid-connected power plants and by the addition of new generation sources in the grid". b. PP has revised Section A.3 of the PDD to provide the reference of the relevant section i.e. B.3 "Project Boundary" for the monitoring equipment & their location to avoid repetition of similar information. c. PP has revised section A.3 of the PDD to incorporate that the baseline scenario & the scenario existing prior to the project activity both are same and the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of fossil fuel based grid-connected power plants and by the addition of new generation sources in the grid. Thereby, the facilities, systems and equipment in the baseline scenario has been demonstrated i.e. the fossil fuel based grid connected power plants.		
Documentation Provided as Evidence by Project Participant		
Revised PDD, version 02		
Information Verified by Team Leader	**Date of review: 06/10/2014**	
Revised PDD, Version 02 dated 29/09/2014		
Reasoning for ~~not acceptance or~~ close out		
a. PP as a response, have revised the section A.3. of the PDD with respect to the same types and levels of services provided by the project activity would have been provided in the baseline scenario. Assessment team found the description in line with the on-site observations. Therefore, this CAR is closed. b. PP as a response, have referred section B.3. of PDD for the monitoring equipment & their location under section A.3. of PDD. Assessment team checked the section B.3 of PDD and found the information correctly mentioned. Therefore, This CAR is closed. c. PP as a response have added further information about facilities, systems and equipment in the baseline scenario under section A.3 of the revised PDD. Assessment team found the description in line with the on-site observations. Therefore, this CAR is closed.		
Date of acceptance ~~or non- acceptance~~	**Date:** 06/10/2014	**Status:** Closed

Date	**Type & Number**	**Raised by**	**Reference**
30/06/2014	CAR-04	Assessment Team	Section B.2 of CDM-D-29
Non conformities raised			
The applicability conditions of the referred tools have not been included in section B.2 of PDD. Also, applicability of the footnotes 1-9 of the methodology has not been discussed in the PDD.			
Project Participant's response		**Date:** 29/09/2014	
PP has revised section B.2 of the PDD to include the applicability conditions of the referred tools and also included the footnotes 1-9 of the methodology in section B.2.			
Documentation Provided as Evidence by Project Participant			
Revised PDD, version 02			
Information Verified by Team Leader		**Date of review: 06/10/2014**	
Revised PDD, Version 02 dated 29/09/2014			
Reasoning for ~~not acceptance or~~ close out			
PP as response, have revised the section B.2 of PDD . Assessment team checked and confirms that now the applicability conditions of the referred tools and footnotes 1-9 of the applied methodology has been described under section B.2 of the PDD. Therefore, this CAR is closed.			
Date of acceptance ~~or non- acceptance~~		**Date:** 06/10/2014	**Status:** Closed

Date	**Type & Number**	**Raised by**	**Reference**
30/06/2014	CL-05	Assessment Team	Section B.5 of CDM-D-29
Non conformities raised			
a) PP to clarify how the return on equity is considered appropriate benchmark for a post tax project IRR and whether it is in conformity with guidance 12 of Annex 5, EB 62? b) PP to clarify how the project life of 35 years considered based on CERC guideline conforms to Annex			

15,EB 50 ?

c) PP to clarify how the PLF considered conforms to Annex 11, EB 48?

d) PP to clarify, why MAT has not been set off , after it being brought forward?

e) PP to clarify the basis for this phasing the Investment over 2.5 year period.

f) Tax rate is considered from AY 2007-08 and 2008-09. PP to justify, how it fulfills guidance 6 of EB 62 Annex 5, where investment decision FY 2005-06?

g) PP to clarify, why CER income has been considered for only 7 years , when the CER income will be received till 21 years.

Project Participant's response	**Date:** 29/09/2014

a) PP would like to clarify that the post-tax Weighted Average Cost of Capital (WACC) has been chosen as the benchmark of the project activity in accordance with the guidance 12 & 15 of the "GUIDELINES ON THE ASSESSMENT OF INVESTMENT ANALYSIS", version 5. PP has transparently explained in the section B.5 of the PDD in conformity with guidance 19 of Annex 5 , EB 62, that the project activity is supplying the electricity to the grid, therefore the baseline to the project activity 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 into the grid which does not require investment or is outside the direct control of the project participant. Hence a benchmark approach (WACC) is considered appropriate.

b) PP would like to clarify that "the project technical lifetime is considered as 35 years based on the CE certified Project addendum report; i.e. an expert evaluation which is also in line with the Central Electricity Regulatory Commissions order guideline (prepared by the government sectoral expert team) available at the time of decision making. Annex 15, EB 50 "Tool to determine the remaining lifetime of equipment" has not been referenced in the applicable methodology to determine the equipment lifetime.
Nevertheless, the methodology procedure adopted in this tool has the following options to determine the remaining lifetime of the equipment:
(a) Use manufacturer's information on the technical lifetime of equipment and compare to the date of first commissioning;
(b) Obtain an expert evaluation;
(c) Use default values."
Thus, it is evident that the project participant has considered the project technical lifetime based on the expert evaluation which is in conformity with the Annex 15, EB50. PP has provided a footnote in section A.3 to document the basis for considering the project life of 35 years.

c) PP would like to clarify that in hydro power projects the PLF has been considered on the basis of hydrology calculation based on 50%, 75% or 90% dependable years. The plant load factor for the project activity can be calculated from the gross generation based on the hydrology study of 75% dependable year provided in the approved DPR and the addendum project report. The DPR has been approved by the Himachal Pradesh state nodal agency based on which PP has obtained implementation approval and other statutory clearance for the commissioning of the project. Also, the state government considers the generation based on the approved DPR (i.e. based on 75% dependable year) in the power purchase agreement (PPA), please refer Article 6 of PPA (Page 20).
Hence, the Plant Load Factor considered for the project is in conformity with the para 3(a) of the EB 48 Annex 11 "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 activity for implementation approval";

d) PP has revised the financial calculation to demonstrate the MAT credit utilization.

e) PP would like to clarify that the phasing of project cost has been considered based on the project addendum report. Please refer Annex 1 on page 42.

f) PP has revised PDD section B.5 and Investment analysis worksheet to mention the appropriate source of Tax rate value available at the time of decision making in conformity with the guidance 6 of Annex 5, EB 62 "Input values used in all investment analysis should be valid and applicable at the time of the investment

decision taken by the project participant.". Furthermore, Taxmann's Direct Taxes Ready Reckoner 30th edition provides the Tax rate from the AY 1997-98 to AY 2006-07 which confirms that the input tax rate value is same and correct. g) PP has revised the financial calculation to consider the CER income till 21 years.		
Documentation Provided as Evidence by Project Participant		
• Revised PDD, version 02 • Investment Analysis spreadsheet, version 02		
Information Verified by Team Leader	**Date of review: 06/10/2014**	
• Revised PDD, version 02 • Investment Analysis spreadsheet, version 02		
Reasoning for ~~not acceptance or~~ close out		
a) PP as a response, have clarified that WACC has been used as benchmark for the project activity. Assessment team confirms that, this is in line with para 12 of EB 62, Annex5. Therefore, this CL is closed. b) PP as a response, clarified that, project lifetime assumed as 35 years has been considered based on Project Feasibility report (addendum report) prepared by technical expert . Assessment team confirms that this is in line with the option (b) of the EB 50, Annex 15. Therefore, this CL is closed. c) PP as a response, have clarified that PLF for the project activity is based on hydrology study conducted based on 75% dependable years, which is mentioned in detail under approved DPR by State government. Assessment team confirms that this is in line with para 3(a) and 3(b) of EB 48, Annex 11. Therefore, this CL is closed. d) PP as a response, has revised MAT credit utilization as per MAT section 115 JB, which is acceptable. Therefore, this CL is closed. e) PP as a response, have provided the basis of phasing of investment cost, which is based on Project addendum report. Assessment team confirmed the phasing of investment cost from Balance sheets of Project activity and confirms that phasing of investment considered is appropriate. Therefore, this CL is closed. f) PP as a response, have clarified that tax rates are considered from "Taxmann's Direct Taxes Ready Reckoner" which is publically available source and tax rates for FY 2005-06 are same as FY 2006-07 as per the referred source. Assessment team confirms that input tax rate value is same for FY 2005-06 and FY 2006-07. Therefore, this CL is closed. g) PP as a response have revised the investment analysis to consider CER revenue for 21 years based on renewable crediting period. Therefore, this CL is closed.		
Date of acceptance ~~or non- acceptance~~	**Date:** 06/10/2014	**Status:** Closed

Date	**Type & Number**	**Raised by**	**Reference**
30/06/2014	CAR-06	Assessment Team	Section B.5 of CDM-D-29
Non conformities raised			

a) Sec. B.5. of PDD, has not explained the financial indicator selected for additionality demonstration and how it is considered most suitable for the project type and decision making context ? b) PDD does not explain how the variation of ±10% selected for sensitivity analysis conforms to guidance 21 of Annex 5, EB 62? c) Assumptions worksheet does not provide the source for each of the input parameters, the date of the document and page number. d) For spares of 1%, Working Capital and Salvage value the source mentioned in PDD is CERC tariff order. However, this order is dated 13/04/2007, which is post decision-making date. e) Actual Interest payable has not been calculated by assessing the cost of other debt recently acquired by the project developer and debt-equity ratio applied by the project developer for investments is not proper. f) Moratorium period is mentioned as 2.5 years in assumptions sheet. PP to substantiate the reason for consideration of the loan repayment from first year only.	
Project Participant's response	**Date:** 20/08/2014
a. PP has revised section B.5 to provide appropriate explanation regarding the choice of financial indicator Post tax project IRR. PP would like to clarify that the Post Tax project IRR is the most suitable for the project type and decision making context, as the project activity involves a debt component whose weightage was considered higher than the equity component in the financial evaluations considered in the project DPR & project addendum report available at the time of decision making. Therefore, post tax project IRR has been considered most suitable financial indicator selected for additionality demonstration. b. PP has revised PDD section B.5 to explicitly mention that the variation of ±10% selected for sensitivity analysis is in conformity with the guidance 21 of Annex 5, EB 62. Moreover, PP has provided the more transparent and explicit detailed analysis on the scenarios at which the IRR touches or crosses the benchmark. c. PP has revised assumption worksheet to provide the source for each of the input parameters, the date of the document and page number. d. PP has revised the PDD section B.5 to provide the appropriate source document for input values of spares, Working Capital and Salvage value available at the time of decision making in conformity with the guidance 6 of Annex 5, EB 62 "Input values used in all investment analysis should be valid and applicable at the time of the investment decision taken by the project participant." e. PP would like to clarify that the interest rate has been taken from the government (RBI) source which is publically available at the time of decision making which is almost equal to the interest rate considered in the CE certified addendum project report and also equal to the actual average interest rate derived from the various debts acquired for the project activity assessed by chartered accountant. PP has submitted the CA certified details of actual debt taken for the project activity. Furthermore, PP would like to clarify that the debt/equity ratio has been considered from the government approved DPR and addendum project report available at the time of decision making which has considered the typical debt/equity finance structure i.e 70:30, observed widely with in the sector of the host country. The consideration of the same is also in line with the EB62 Annex 5, guidance 18 requirement. Hence, all the input parameters are taken from the appropriate source document available at the time of decision making in conformity with the guidance 6 of Annex 5, EB 62. f. PP would like to clarify that the moratorium period is considered as 2.5 years in accordance with the Project addendum report & government approved DPR. The moratorium period of 2.5 years has been considered during the implementation period. Therefore, loan repayment has been considered from the first year of commissioning. PP has revised investment analysis worksheet to mention the same to clarity in demonstration for better understanding.	
Documentation Provided as Evidence by Project Participant	
PDD version 2 Investment Analysis Version 2 Benchmark Sheet Version 2	
Information Verified by Team Leader	**Date of review: 06/10/2014**

PDD version 2 Investment Analysis Version 2 Benchmark Sheet Version 2		
Reasoning for ~~not acceptance or~~ close out		
a) PP as a response, have now provided explanation of the consideration of Post tax project IRR as financial indicator. As project is having higher proportion of debt component compared to equity, consideration of project IRR as financial indicator is acceptable. Therefore, this CAR is closed. b) PP as a response, have now provided explanation of the consideration of ±10% variation in sensitivity analysis and in addition have provided analysis of scenarios for each parameter at which the IRR touches or crosses the benchmark. Therefore, this CAR is closed. c) PP as a response, have now provided the source for each of the input parameters, the date of the document and page number under IRR spreadsheet. Therefore, this CAR is closed. d) PP as a response, have revised the source of input values of spares, Working Capital and Salvage value , which is based on DPR . Assessment team confirms that this is in line with the guidance 6 of Annex 5, EB 62. Therefore, this CAR is closed. e) PP as a response, have clarified that interest rate and debt –equity ratio has been considered based on available references at the time of decision making and is in line with EB 62 ,Annex 5. Assessment team confirms through checking the actual interest rate as per Ca certificate that actual interest rate paid by PP is on higher side compared with considered value in IRR analysis. This is considered reasonable and therefore, CAR is closed. f) PP as a response, have clarified that moratorium period of 2.5 years has been considered during construction period and this is considered appropriate. Therefore, this CAR is closed.		
Date of acceptance ~~or non- acceptance~~	**Date:** 06/10/2014	**Status:** Closed

Date	**Type & Number**	**Raised by**	**Reference**
30/06/2014	CL-07	Assessment Team	Section B.5 of CDM-D-29
Non conformities raised			
On the benchmark considered, following clarifications are sought: a) The basis for selecting 4 year duration for beta computation and how it is considered conservative b) Clarification is sought on what is meant by power generating companies which are listed on the BSE-Sensex and how the market risk profile is estimated by choosing power generating companies listed on the BSE-Sensex c) Clarification is sought for making the statement “As per the data availability for the companies under consideration, a beta for 2 or 3 years can be used” made in the PDD. d) PP to clarify whether the stock returns considered in beta calculation represents ‘population’ or ‘sample’? e) Reasons for choosing lowest BSE-Sensex index as on 31/08/2005 for computing market return. f) Appropriateness of choosing BSE–Sensex as proxy for market return with duration of 26.44 years in contrast to the vintage years used for estimating the technical life of the project (35 years).			
Project Participant’s response		**Date:** 29/09/2014	
a) PP would like to clarify that the Beta is the measure of the risk of a specific sector/company. Beta for similar power sector companies can be applied as proxy risk profile for the project activity for determination of expected/required return on equity. A 3 to 5 year period for beta calculation has been considered appropriate based on financial expertise and general practice adopted by most of the research houses (like Mutual Funds, equity research firms etc) as general industry practice for measuring the performance of the various stocks. Furthermore, the article “Estimating Risk Parameters, Aswath Damodaran Stern School of Business”. by Aswath Damodaran states the following: “Risk and return models are silent on how long a time period one needs to use to estimate betas. Services use periods ranging from two years to five years for beta estimates, with varying results”.			

However, in accordance with the guidance 15 of the "GUIDELINES ON THE ASSESSMENT OF INVESTMENT ANALYSIS", version 5, "If the benchmark is based on parameters that are standard in the market, the cost of equity should be determined either by: (a) selecting the values provided in Appendix A; or by (b) calculating the cost of equity using best financial practices, based on data sources which can be clearly validated by the DOE.

Therefore, PP has evaluated the benchmark considering the "option a" i.e. by selecting the default value provided in Appendix A of EB 62, Annex 5 to determine the cost of equity. However, as per paragraph 7 of the appendix to the guidelines, the default values provided in the appendix are real term values that can be converted to nominal values by adding the inflation rate. Hence, inflation rate available at the time of decision making has been added to the default value to estimate the cost of equity which has been considered in computation of WACC (i.e. benchmark).

It is observed that the benchmark estimated by choosing option A is lower than choosing option B of the above mentioned guidance 15. Hence, being conservative PP has selected option A to determine the benchmark for the project activity and revised the section B.5 appropriately to remove the irrelevant information.

b) As explained in above response PP would like to clarify that Power Generating companies » are the companies who are into the power generation & distribution sector within the host country which are also listed in the BSE (Bombay Stock Exchange) Website.

However, as explained in above response being conservative PP has selected option A i.e. default value provided in Appendix A of "GUIDELINES ON THE ASSESSMENT OF INVESTMENT ANALYSIS", version 5, to determine the benchmark for the project activity.

c) As explained in the last para of above response "a", PP has revised section B.5 to provide the appropriate description for determining the cost of equity.

d) PP would like to clarify that the stock returns considered in beta calculation represents the Sample which actually possesses the same characteristics as the population.

However, as explained in above response PP has chosen the conservative approach and followed the option "a" of guidance 15 to determine the cost of equity. Hence, the above information is not relevant anymore with the adopted approach in the revised version of the PDD.

e) PP would like to clarify that the BSE-Sensitive Index, is a "Market Capitalization-Weighted" index of 30 stocks representing a sample of large, well-established and financially sound companies. It is the oldest index in India and has acquired a unique place in the collective consciousness of investors. The index is widely used to measure the performance of the Indian stock markets. SENSEX is considered to be the pulse of the Indian stock markets as it represents the underlying universe of listed stocks at The Stock Exchange, Mumbai. Further, as the oldest index of the Indian Stock market, it provides time series data over a fairly long period of time (since 1978-79). Moreover, the base year of Index BSE 500 is 1999 i.e period of around 6 years (1999-2005) and base year of Index BSE 200 is 1991 i.e. a period of around 14 years (1991 to 2005) are available for market return estimation, which is not consistent with vintage years used for estimating the technical life of the project (i.e 35 years). Hence, choosing the BSE-Sensex index as on 31/08/2005 for computing market return is more appropriate and conservative approach.

However, as explained in above response PP has chosen the conservative approach and followed the option "a" of guidance 15 to determine the cost of equity. Hence, the above information is not relevant anymore with the adopted approach in the revised version of the PDD.

f) PP has explained in above response that « the BSE Sensex has data vintage from 1979 onwards which covers the maximum length with respect to the project technical life time (i.e. 35 years). » PP has also

considered the the risk free rate as the rate for 30 years maturity period of Govt bonds and the rate is available on Reserve Bank of India website. The Sensex market index provides the data from 1979 till the Aug-2005 (just prior to decision date). Hence the market data of 26+ years are available for market return evaluation. This is the maximum equity market data that can be available in host country India. Hence, to maintain the consistency in selection of similar vintage data and for comparing the returns from project activity, PP has chosen Sensex index and benchmark sheet is worked out with the data having the vintage period similar or equivalent in length to technical life time of project activity. http://www.rbi.org.in/scripts/BS_ViewBulletin.aspx?Id=6950 However, as explained in above response PP has chosen the conservative approach and followed the option "a" of guidance 15 to determine the cost of equity. Hence, the above information is not relevant anymore with the adopted approach in the revised version of the PDD.		
Documentation Provided as Evidence by Project Participant		
PDD Version 2 Investment Analysis Version 2 Benchmark Sheet Version 2		
Information Verified by Team Leader	**Date of review: 06/10/2014**	
PDD Version 2 Investment Analysis Version 2 Benchmark Sheet Version 2		
Reasoning for ~~not acceptance or~~ close out		
PP as a response to this clarification, have revised the Benchmark calculation and now used UNFCCC default value of cost of equity in host country as mentioned in Appendix A of EB 62, Annex 5 for the calculation of WACC. This is in line with EB 73, Annex 8, which allows use the UNFCCC default values for older projects with project start date before EB 62 meeting. Hence, CL-07(a) to CL-07(f), which is related to calculation of cost of equity, has lost its relevance and therefore, this CL is closed.		
Date of acceptance ~~or non- acceptance~~	**Date:** 06/10/2014	**Status:** Closed

Date	**Type & Number**	**Raised by**	**Reference**
30/06/2014	CAR-08	Assessment Team	Section C.1.2 of CDM-D-29
Non conformities raised			
Start date of Crediting Period as indicated in section C.2.2. of the PDD is not realistic. PP to justify with proper evidence.			
Project Participant's response		**Date:** 29/09/2014	
PP has revised PDD section C.2.2 to provide the realistic date for the project crediting period.			
Documentation Provided as Evidence by Project Participant			
PDD version 2.			
Information Verified by Team Leader		**Date of review: 06/10/2014**	
PDD version 2			
Reasoning for ~~not acceptance or~~ close out			
PP as a response, have revised the crediting period start date to 01/08/2015 , which is realistic and acceptable. Therefore, this CAR is closed.			
Date of acceptance ~~or non- acceptance~~		**Date:** 06/10/2014	**Status:** Closed

Date	**Type & Number**	**Raised by**	**Reference**
30/06/2014	CL-09	Assessment Team	Section E.1.2 of CDM-D-29
Non conformities raised			
PP to clarify the reason for not using the public media (like Newspaper advertisements etc.) for inviting the local stakeholders for Stakeholders consultation meeting.			
Project Participant's response		**Date:** 29/09/2014	
The project activity is located at Panwi Gad, a tributary of Sutlej River in Kinnaur District of Himachal Pradesh in India, thus considering the project activity remote location and as per the discussion with local people the most effective & approachable way was to invite the stakeholder through personal invitation to gram panchayat the documents for the adopted approach has been submitted to DOE.			
Documentation Provided as Evidence by Project Participant			

LSM documents already submitted to DOE		
Information Verified by Team Leader	**Date of review: 06/10/2014**	
Local Stakeholder consultation documents including invitation letters.		
Reasoning for ~~not acceptance or~~ close out		
PP as a response, have clarified that due to remote location of the project activity and location of stakeholders (villagers) , PP has adopted personal invitation mode for inviting stakeholders for the meeting. Assessment team confirms the same during on site visit and interaction with stakeholders. Therefore, this CL is closed.		
Date of acceptance ~~or non- acceptance~~	**Date:** 06/10/2014	**Status:** Closed.

Date	**Type & Number**	**Raised by**	**Reference**
01/05/2015	CAR-10	Assessment Team	Section B.1.3 of CDM-D-29
Non conformities raised			
Applied methodology version, AMS-I.D. version 17 is going to expire in July 2015. PP to apply latest applicable version of AMS-I.D. on CDM EB website.			
Project Participant's response	**Date:** 23/06/2015		
PP has now revised the PDD with latest applicable version (version 18) of AMS-I.D.			
Documentation Provided as Evidence by Project Participant			
Revised PDD version 3			
Information Verified by Team Leader	**Date of review: 29/06/2015**		
Revised PDD version 3 dated 23/06/2015			
Reasoning for ~~not acceptance or~~ close out			
PP as a response, have now revised the PDD with latest applicable version of the applied methodology (AMS-I.D. version 18). Assessment team confirms, that project activity meets all the applicability criterion of the version 18 of AMS-I.D. Therefore, this CAR is closed.			
Date of acceptance ~~or non- acceptance~~	**Date:** 29/06/2015		**Status: Closed**

Annex 3: Certificate of Competence

Personnel Name:	**Kaushik Pal**		
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☐
Technical Reviewer	☒	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope	**Technical Area**		
Energy Industries (renewable/non-renewable)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar		
	TA 1.2 Energy generation from renewable energy sources		
Energy Demand	TA 3.1 Energy Demand		
Approved by (Manager C & T)	Gagandeep Kakkar		
Approval date:	31/12/2014		

Personnel Name:	**Akhilesh Joshi**		
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☐
Technical Reviewer	☐	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope	**Technical Area**		
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources		
Energy Demand	TA 3.1: Energy Demand		
Manufacturing Industries	TA 4.1 Cement sector		
Approved by (Manager C & T)	Gagandeep Kakkar		
Approval date:	31/12/2014		

Personnel Name:	**Megha Lotankar**		
Qualified to work as:			
Team Leader	☐	Technical Expert	☐
Validator/Verifier (Trainee)	☒	Financial Expert	☒
Technical Reviewer	☐	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope	**Technical Area**		
Not applicable	Not applicable		

Approved by (Manager C & T)	Mayank Kumar Jain
Approval date:	25/06/2012

Personnel Name:		**Sanjay Kandari**	
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☒
Technical Reviewer	☒	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope		**Technical Area**	
Energy industries (renewable/non-renewable sources)		TA 1.2: Energy generation from renewable energy sources	
Approved by (Manager C & T)		Gagandeep Kakkar	
Approval date:		31/12/2014	

History of the document

Version	Date	Nature of revision	Reviewed by	Approved by
6.0	20/02/2015	Revised For VVS 7.0	Manager CDM Quality 21/02/2015	Managing Director 24/02/2015
5.0	08/10/2014	Section 4.8.4 and 4.8.5 are revised based on the corrective actions proposed during the performance assessment.	Manager CDM Quality 13/10/2014	Managing Director 14/10/2013
4.0	29/07/2013	Revised for VVS 3.0 and 4.6 section added	Manager CDM Quality 04/08/2012	Managing Director 08/08/2013
3.0	05/09/2012	Revised for VVS track	Manager CDM Quality 07/09/2012	Managing Director 10/09/2012
2.0	31/12/2011	Comprehensively revised	Manager CDM Quality 31/12/2011	Managing Director 31/12/2011