



VALIDATION REPORT

JAYPEE KARCHAM HYDRO CORPORATION
LIMITED

HYDROELECTRIC PROJECT IN KINNAUR
DISTRICT IN HIMACHAL PRADESH

Report No: 8107036042- 08/271

Date: 2012-04-12

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Validation Report:	Report No.	Rev. No.	Date of 1st issue:	Date of this rev.
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Project:	Title:	Initial PDD Version:	Final PDD Version	
	Hydroelectric Project in Kinnaur District in Himachal Pradesh	2008-09-30	2012-03-28	
Client:	Jaypee Karcham Hydro Corporation Limited	Client ref:	Mr. D. P. Goyal	
Project Participant(s):	Host Party:	Other involved parties:		
	India	-		
Applied methodology/ies:	Title:	No.:	Scope / TA:	
	Consolidated Baseline Methodology for grid connected electricity generation from renewable sources	ACM0002 ver. 12.1	1 / 1.2	
Validation team / Technical Review and Final Approval	Validation Team:	Technical review:	Final approval:	
	Mr. Abhishek Kumar Srivastava (TL) Mr. Ma Paa Puratchikkanal (TM) Mr. Archak Pattanaik (till October 2011) (TM) Mr. Vishnu Patidar (till September 2011) (TM) Mr. Srikanth Meesa (till May 2009) (TM)	Mr. Rainer Winter Mr. Alexander Richter Mr. Kunal Rami	Mr. Eric Krupp	
Expected Emission reductions: [t CO₂e]	Expected emission reductions over the first crediting period:		Expected project starting date:	
	35,419,166 t CO ₂ e		2011-10-15	
Confidential content:	<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> No	
Summary of Validation Opinion:	<input checked="" type="checkbox"/> Positive validation opinion		<input type="checkbox"/> Negative validation opinion	
<p>Jaypee Karcham Hydro Corporation Limited has commissioned the TÜV NORD JI/CDM Certification Program (CP) to validate the project: "Hydroelectric Project in Kinnaur District in Himachal Pradesh" with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords) and the relevant decisions by COP/MOP and CDM Executive Board.</p> <p>In the course of the pre-validation 30 Corrective Action Requests (CARs) and 09 Clarification Requests (CLs) were raised and successfully closed.</p> <p>The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of comments by parties, stakeholders and NGOs have provided TÜV NORD JI/CDM CP with sufficient evidence to validate the fulfilment of the stated criteria.</p> <p>In detail the conclusions can be summarised as follows:</p> <ul style="list-style-type: none"> - The project is in line with all relevant host country criteria (India) and all relevant UNFCCC requirements for CDM. Project activity approval have been obtained from DNA of India vide the Letter of Approval (HCA) dated 2008-04-09. - The project additionality is sufficiently justified in the PDD. - The monitoring plan is transparent and adequate. - The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 35,419,166 tCO₂e are most likely to be achieved within the crediting period (fixed). <p>The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.</p>				
Document	Filename:		No. of pages:	

Validation Report: Hydroelectric Project in Kinnaur District in Himachal Pradesh

TÜV NORD CERT GmbH JI/CDM Certification Program

P-No.: 8107036042- 08/271



information:	2012-04-12 JP Hydro CDM FVR .docx	193
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Abbreviations

BAU	Business as usual
BSE	Bombay Stock Exchange
CA	Corrective Action / Clarification Action
CAPM	Capital Asset Pricing Model
CAR	Corrective Action Request
CAT	Catchment Area Treatment
CDM	Clean Development Mechanism
CEA	Central Electricity Authority
CER	Certified Emission Reduction
CERC	Central Electricity Regulatory Commission
CL	Clarification Request
CO₂	Carbon dioxide
CO_{2e}	Carbon dioxide equivalent
CP	Certification Program
Cumec	Cubic meter per second
DMP	Disaster Management Plan
DNA	Designated National Authority
DOE	Designated Operational Entity
DPR	Detailed project report
EB	CDM Executive Board
EIA	Environmental Impact Assessment
EPC	Erection, Procurement and Commissioning
FAR	Forward Action Request
GHG	Greenhouse gas(es)
HCA	Host country Approval
JKHCL	Jaypee Karcham Hydro Corporation Limited
Ha-m	Hactare meter
HEPP	Hydro Electric Power Project
HPERC	Himachal Pradesh Electricity Regulatory Commissions
HPSEB	Himachal Pradesh State Electricity Board
HPSEP & PCB	Himachal Pradesh State Environment Protection & Pollution Control Board
IDC	Interest During Construction
LC	Letter of Credit
LUCE	Levelized Unit Cost Estimation

ICICI	Industrial Credit and Investment Corporation of India
IRR	Internal rate of return
Km	Kilometer
IPCC	Intergovernmental Panel on Climate Change
NEWNE	North, East, West, North East
NJHEP	Nathpa Jhakri Hydro Electric Project
NTPC	National Thermal Power Corporation
M	Meter
MOC	Modalities of Communication
MoEF	Ministry of Environment and Forest
NRPC	Northern Regional Power Committee
NEERI	National Environmental Engineering Institute
PDD	Project Design Document
PP	Project Proponent
RRP	Rehabilitation and Resettlement Plan
WPI	Wholesale Price Index
YTM	Yield to Maturity

Table of Contents	Page
1 OBJECTIVE / SCOPE	8
2 GHG PROJECT DESCRIPTION.....	9
2.1 Project Characteristics	9
2.2 Involved Parties and Project Participants	9
2.3 Project Location	10
2.4 Technical Project Description	10
3 METHODOLOGY AND VALIDATION SEQUENCE.....	13
3.1 Validation Steps	13
3.2 Contract review	14
3.3 Appointment of team members and technical reviewers	14
3.4 Consideration of Public Stakeholder Comments	15
3.5 Validation Protocol	16
3.6 Review of Documents	17
3.7 Follow-up Interviews	17
3.8 Project comparison	18
3.9 Resolution of Clarification and Corrective Action Requests	18
3.9.1 Definition	18
3.9.2 Draft Validation	19
3.9.3 Final Validation	19
3.10 Technical review	19
3.11 Final approval	19
4 VALIDATION FINDINGS	21
5 VALIDATION ASSESSMENT SUMMARY	56
5.1 General Description of the Project Activity	56
5.1.1 Participation	56
5.1.2 Contribution to Sustainable Development	57
5.1.3 PDD editorial Aspects	57
5.1.4 Technology to be employed.	58
5.1.5 Small Scale Projects	58
5.2 Project Baseline, Additionality and Monitoring Plan	58
5.2.1 Application of the Methodology	58
5.2.2 Project Boundary	59
5.2.3 Baseline Identification	59
5.2.4 Calculation of GHG Emission Reductions	60
5.2.5 Additionality Determination	61
5.2.6 Monitoring Methodology	79



5.2.7	Monitoring Plan	80
5.2.8	Project Management Planning	81
5.2.9	Crediting Period	81
5.2.10	Environmental Impacts	81
5.2.11	Comments by Local Stakeholders	82
6	VALIDATION OPINION	83
7	REFERENCES	84
	ANNEX 1: VALIDATION PROTOCOL.....	95
	ANNEX 2: ASSESSMENT OF BASELINE IDENTIFICATION.....	168
	ANNEX 3: ASSESSMENT OF FINANCIAL PARAMETERS.....	169
	ANNEX 4: ASSESSMENT OF BARRIER ANALYSIS	189
	ANNEX 5: OUTCOME OF THE GSCP	190
	ANNEX 6: STATEMENTS OF COMPETENCE OF TEAM MEMBERS	191

1 OBJECTIVE / SCOPE

The purpose of a validation is to have an independent third party assess the project design. In particular the project's baseline, the monitoring plan (MP), and the project's compliance with

- the requirements of Article 12 of the Kyoto Protocol;
- the CDM modalities and procedures as agreed in the Marrakech Accords under decision 3/CMP.1
- the annex to the decision;
- subsequent decisions made by COP/MOP & CDM Executive Board and
- other relevant rules, including the host country legislation and sustainability criteria

are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders on the quality of the project and its intended generation of certified emission reductions (CERs).

The validation scope is given as a thorough independent and objective assessment of the project design including especially: the correct application of the methodology, the project's baseline study, additionality justification, local stakeholder commenting process, environmental impacts and monitoring plan, which are included in the PDD and other relevant supporting documents, to ensure that the proposed CDM project activity meets all relevant and applicable CDM criteria.

The information included in the PDD and the supporting documents were reviewed against the requirements as set out by the UNFCCC. The validation team has, based on the requirements in the Validation and Verification Manual^{VVM}, carried out a full assessment of all evidences to assess the compliance of the project with the key areas as outlined in section V.E. and V.F. of the VVM (version 1.2, Annex 1, EB 55).

The validation is based on the information made available to TÜV NORD JI/CDM CP and on the contract conditions. TÜV NORD JI/CDM CP can not be held liable by any entity for making its validation opinion based on any false or misleading information supplied to it during the course of validation.

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

2 GHG PROJECT DESCRIPTION

2.1 Project Characteristics

Essential data of the project is presented in the following Table 2-1.

Table 2-1: Project Characteristics

Item	Data
Project title	Hydroelectric Project in Kinnaur District in Himachal Pradesh
Project size	<input checked="" type="checkbox"/> Large Scale <input type="checkbox"/> Small Scale
Project Scope (according to UNFCCC sectoral scope numbers for CDM)	<input checked="" type="checkbox"/> 1 Energy Industries (renewable- /non-renewable sources)
	<input type="checkbox"/> 2 Energy distribution
	<input type="checkbox"/> 3 Energy demand
	<input type="checkbox"/> 4 Manufacturing industries
	<input type="checkbox"/> 5 Chemical industry
	<input type="checkbox"/> 6 Construction
	<input type="checkbox"/> 7 Transport
	<input type="checkbox"/> 8 Mining/Mineral production
	<input type="checkbox"/> 9 Metal production
	<input type="checkbox"/> 10 Fugitive emissions from fuels (solid, oil and gas)
	<input type="checkbox"/> 11 Fugitive emissions from production and consumption of halocarbons and hexafluoride
	<input type="checkbox"/> 12 Solvents use
	<input type="checkbox"/> 13 Waste handling and disposal
	<input type="checkbox"/> 14 Afforestation and Reforestation
	<input type="checkbox"/> 15 Agriculture
Applied Methodology	ACM0002 / Version 11
Technical Area(s)	S: Renewable Hydro
Crediting period	<input type="checkbox"/> Renewable Crediting Period (7 y) <input checked="" type="checkbox"/> Fixed Crediting Period (10 y)
Start of crediting period	2011-10-15

2.2 Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity (Table 2-2).

Table 2-2: Project Parties and project participants

Characteristic	Party	Project Participant
Host party	India	Jaypee Karcham Hydro Corporation Limited
Other involved party/ies	NA	NA

2.3 Project Location

The details of the project location are given in table 2-3:

Table 2-3: Project Location

No.	Project Location
Host Country	India
Region:	Himachal Pradesh
Project location address:	Village: Karcham & Wangtoo District: Kinnaur
Latitude:	31°30'50"N - 31°32'10" N
Longitude:	78°11'15"E - 78°01'05" E

2.4 Technical Project Description

The Project activity is a run-of-river hydropower project at Karcham & Wangtoo village that will utilize the natural flow of Satluj to generate electricity with a total installed capacity of 1000 MW (4*250MW). The electricity so generated will be exported to the Northern Regional Grid as a part of NEWNE grid.

The technical key data are provided in table 2-4 below:

Table 2-4: Technical data of the project activity

River Diversion Works

Diversion Dam		
Parameter	Unit	Value
Type	-	Concrete Gravity
Height from deepest foundation level	m	98
Total length at top	m	177.8
Live storage capacity	m ²	5449700
Main Spillway (Sluices)		
No. of bays	Nos.	6
Size of each sluice	m	Width: 9; Height: 9
Size of each gate	m	Width: 9; Height: 9.25
Type of gates	-	Radial Gates (top sealing type)
Intake		
No. of bays	Nos.	4

Size of each bay at trash racks	m	Width: 18; Height: 7.5
Size of each gate	m	Width: 6; Height: 5.25
Sedimentation Chambers		
No. of Sedimentation chambers	Nos.	4
Size of each chamber	m	Length: 505; Width: 16; Height: 28
Particle size to be excluded	mm	0.2 mm and above
Link & Connecting Tunnels		
Size	m	Four individual link tunnels of 6.0 m diameter
Length of link tunnel	m	91
Length of each tunnel	m	Outer link tunnels – 125.5 m Inner Link tunnels – 65.5 m
Gates at start of link tunnels	Nos.	4
Size	m	Width: 6; Height: 6
Headrace Tunnel		
Size & Type	m	Circular dia.: 10.48m
Length	km	17.2
Slope	-	1:150
Design discharge	Cumecs	417
Surge Shaft		
Type	-	Restricted Orifice
Top elevation	m	1852.00 m
Pressure Shafts		
No. and type	Nos.	4 ; steel lined
Diameter	m	4.75
Length of each penstock	m	290.50
Power House / Transformer Cavity		
Type	-	Underground

Installed capacity	MW	1000 MW (4x250 MW)
Size of machine hall	m	Length: 143; Width: 21; Height: 49
Size of transformer hall	m	Length: 143; Width: 15.5; Height: 25
Average gross head	m	298.73
Net head at 417 cumecs discharge	m	275.93
D/S Surge chamber size	m	Length: 220; Width: 16; Height: 42.5
Tail Race Tunnel		
Size & Type	m	Circular dia.: 10.48
Length	m	909
Electromechanical equipments		
Turbines	-	4 Nos. of Francis Turbines
Rated capacity	MW	255
Maximum and minimum head	m	303.50 and 258.20
Design head	m	275.93
Make	-	Andritz VA Tech Hydro
Generators	-	4 Nos. semi- umbrella vertical synchronous generators
Rated output	MVA	277.70
Speed	rpm	214.30

3 METHODOLOGY AND VALIDATION SEQUENCE

3.1 Validation Steps

The validation of the project consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- Publication of the project design document (PDD)
- A desk review of the PDD^{/PDD/} submitted by the client and additional supporting documents with the use of customised validation protocol^{/CPM/} according to the Validation and Verification Manual^{/VVM/}
- Validation planning
- On-Site assessment
- Background investigation and follow-up interviews with personnel of the project developer and its contractors
- Draft validation reporting
- Resolution of corrective actions (if any)
- Final validation reporting
- Technical review
- Final approval of the validation

The sequence of the validation is given in the table 3.1 below:

Table 3.1: Validation sequence

Topic	Time
Assignment of validation	2008-05-13
Submission of PDD for global stakeholder commenting process	2008-10-21
On-site visit	2008-12-13 to 2008-12-15
Draft reporting finalised	2009-01-31
Final reporting finalised	2012-01-29
Technical review on final reporting finalised	2012-01-29

3.2 Contract review

To assure that

- the project falls within the scopes for which accreditation is held,
- the necessary competences to carry out the verification can be provided,
- Impartiality issues are clear and in line with the CDM accreditation requirements

a contract review was carried out before the contract was signed.

3.3 Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities a validation team, consistent of one team leader and 4 additional team members, were appointed. Furthermore also the personnel for observation, technical review and the final approval were determined.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the table 3-2 below.

Table 3-2: Involved Personnel

	Name	Company	Function ¹⁾	Qualification Status ²⁾	Scheme competence	Technical competence ⁴⁾	Host country Competence	Team Leading competence	On-site Visit
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Archak Pattanaik ¹	TUV India Pvt. Ltd.	TM	LA	<input checked="" type="checkbox"/>	1.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Abhishek Kumar Srivastava	TUV India Pvt. Ltd.	TL	LA	<input checked="" type="checkbox"/>	1.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Vishnu Patidar ²	TUV India Pvt. Ltd.	TM	A	<input checked="" type="checkbox"/>	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Ma Paa Puratchikkan	TUV India Pvt. Ltd.	TM	SA	<input checked="" type="checkbox"/>	1.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

¹ TL, till October 2011

² TM till September 2011

	Name	Company	Function ¹⁾	Qualification Status ²⁾	Scheme competence	Technical competence ⁴⁾	Host country Competence	Team Leading competence	On-site Visit
	al								
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Srikanth Meesa (till May 2009)	TUV India Pvt. Ltd.	TM	A	<input checked="" type="checkbox"/>	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Alexander Richter	TUV Nord Cert GmbH	TR ³⁾	LA	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Rainer Winter	TUV Nord Cert GmbH	TR ³⁾	SA	<input checked="" type="checkbox"/>	1.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Kunal Rami	TUV Nord Cert GmbH	TR ³⁾	A	<input checked="" type="checkbox"/>	1.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Eric Krupp	TUV Nord Cert GmbH	FA	SA	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>	

¹⁾ TL: Team Leader; TM: Team Member, TR: Technical review; OT: Observer-Team, OR: Observer-TR, FA: Final approval

²⁾ GHG Auditor Status: A: Assessor; E: Expert; SA: Senior Assessor; T: Trainee; TE: Technical Expert

³⁾ No team member

⁴⁾ As per S01-MU03 or S01-VA070 A2 (such as A, B, C.....)

Certificates of appointment for the above mentioned team members are enclosed in annex 6 of this report.

3.4 Consideration of Public Stakeholder Comments

Acc. to the modalities and procedures the draft PDD, as received from the project participants, has been made publicly available on the dedicated UNFCCC CDM website prior to the validation activity commenced. Stakeholders have been invited to comment on the PDD within the 30 days public commenting period.

In case comments were received, they are taken into account during the validation process. The comments and the discussion of the same are documented in annex 5 of this report.

3.5 Validation Protocol

In order to ensure consideration of all relevant assessment criteria, a validation protocol is used. The protocol shows, in a transparent manner, criteria and requirements, means of validation and the results from pre-validating the identified criteria. The validation protocol reflects the generic CDM requirements each CDM project has to meet as well as project specific issues as applicable. The validation protocol serves the following purposes:

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

The validation protocol as described in Figure 1.

Validation Protocol Table A-1: Requirement checklist				
Checklist Item	Validation Team Comment	Reference	Draft Conclusion	Final Conclusion
<i>The checklist items in Table A-1 are linked to the various requirements the project should meet. The checklist is organised in various sections. Each section is then further sub-divided as per the requirements of the topic and the individual project activity.</i>	<i>The section is used to elaborate and discuss the checklist item in detail. It includes the assessment of the validation team and how the assessment was carried out. The reporting requirements of the VVM shall be covered in this section.</i>	<i>Gives reference to the information source on which the assessment is based on</i>	<i>Assessment based on evidence provided if the criterion is fulfilled (OK), or a CAR, CL or FAR (see below) is raised. The assessment refers to the draft validation stage.</i>	<i>In case a corrective action or a clarification the final assessment at the final validation stage is given.</i>

Figure 1: Validation protocol tables

The completed validation protocol is enclosed in Annex 1 to this report.

3.6 Review of Documents

The published PDD (version 1) and supporting background documents related to the project design and baseline were reviewed.

Furthermore, the validation team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data.

3.7 Follow-up Interviews

The validation team has carried out interviews in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for CDM.

During validation the validation team has performed interviews to confirm selected information and to resolve issues identified in the document review. The main topics of the interviews are summarized in table 3-3.

Table 3-3: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
Project proponent representatives ^{/IM01/} : <ul style="list-style-type: none"> - Mr. D.P. Goyal - Mr.V. K. Verma - Mr.Kanti Prasad 	<ul style="list-style-type: none"> - Chronological description of Project with documents of key steps - Technical details of the project realisation- project feasibility, designing, engineering, operational life time - Host Government Approval - Post registration involvement of Annex-I Party - Statutory / Approval procedures and status - Quality and environmental management system - Monitoring and measurement equipment- Power Generation & Metering system for the project activity. - Financial aspects- Government Incentives if any - Crediting period - Project activity starting date - CER allocation /ownership - Sustainable development issues - Onsite local stake holder consultation - Analysis of local stake holder consultation - Roles & responsibilities of the staff members w.r.t project management, monitoring and reporting - Technical specification data that may be involved. - QC testing and calibration procedures of the project activity

Interviewed Persons / Entities	Interview topics
Consultant (E&Y) ^{/IM02/} : - Mr. Manpreet Singh - Mr. Atin Prakash	- Editorial aspects of PDD - Methodology selection aspects - Base line study, project emissions, leakage and additionality - Details of emission reduction calculation
Local Stake Holders ^{/IM03/} (NGO, Local community etc): - Mr. Sharaf Abbas	- Sustainable development - Views on this project- Social & Environmental Impact

A comprehensive list of all interviewed persons is part of section 7 'References'.

3.8 Project comparison

The validation team has compared the proposed CDM project activity with similar projects or technology that have similar or comparable characteristics and with similar projects in the host country in order to achieve additional information esp. regarding:

- Project technology
- Additionality issues
- Reasons for reviews, requests for reviews and rejections within the CDM registration process.

3.9 Resolution of Clarification and Corrective Action Requests

3.9.1 Definition

A **Corrective Action Request (CAR)** will be established where:

- mistakes have been made in assumptions, application of the methodology or the project documentation which will have a direct influence the project results,
- the requirements deemed relevant for validation of the project with certain characteristics have not been met or
- there is a risk that the project would not be registered by the UNFCCC or that emission reductions would not be able to be verified and certified.

A **Clarification Request (CL)** will be issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

A **Forward Action Request (FAR)** will be issued when certain issues related to project implementation should be reviewed during the first verification.

3.9.2 Draft Validation

After reviewing all relevant documents and taken all other relevant information into account, the validation team issues all findings in the course of a draft validation report and hands this report over to the project proponent in order to respond on the issues raised and to revise the project documentation accordingly.

3.9.3 Final Validation

The final validation starts after issuance of the proposed corrective action (CA) of the CARs CLs and FARs by the project proponent. The project proponent has to reply on those and the requests are “closed out” by the validation team in case the response is assessed as sufficient. In case of raised FARs the project proponent has to respond on this, identifying the necessary actions to ensure that the topics raised in this finding are likely to be resolved at the latest during the first verification. The validation team has to assess whether the proposed action is adequate or not.

In case the findings from CARs and CLs cannot be resolved by the project proponent or the proposed action related to the FARs raised cannot be assessed as adequate, no positive validation opinion can be issued by the validation team.

The CAR(s) / CL(s) / FAR(s) are documented in chapter 4

3.10 Technical review

Before submission of the final validation report a technical review of the whole validation procedure is carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. The technical reviewer is not considered to be part of the verification team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the validation opinion and the topic specific assessments as prepared by the validation team leader may be confirmed or revised. Furthermore reporting improvements might be achieved.

3.11 Final approval

After successful technical review of the final report an overall (esp. procedural) assessment of the complete validation will be carried out by a senior assessor located in the accredited premises of TÜV NORD.



Only after this step the request for registration can be started (in case of a positive validation opinion).

4 VALIDATION FINDINGS

In the following table the findings from the desk review of the published PDD, visits, interviews and supporting documents are summarised:

Table 4-1: Summary of CARs, CLs and FARs issued

Validation topic ¹⁾	No. of CAR	No. of CL	No. of FAR
General description of project activity (A) <ul style="list-style-type: none"> - Project specification - Technical project description - Participation - Contribution to sustainable development - PDD editorial aspects - Technology to be employed 	03	01	-
Project Baseline, Additionality and Monitoring Plan (B) <ul style="list-style-type: none"> - Application of the Methodology - Project Boundary - Baseline identification - Calculation of GHG emission reductions <ul style="list-style-type: none"> Project emissions Baseline emissions Leakage - Additionality determination - Monitoring Methodology - Monitoring Plan - Project management planning 	27	08	-
Duration of the Project / Crediting Period (C)	-	-	-
Environmental impacts (D)	-	-	-
Stakeholder Comments (E)	-	-	-
SUM	30	09	-

¹⁾ The letters in brackets refer to the validation protocol

The following tables include all raised CARs, CLs and FARs. For an in depth evaluation of all validation items it should be referred to the validation protocols (see Annex 1).

The findings of validation process are summarized in the tables below.

Finding:		A1		
Classification		<input type="checkbox"/> CAR	<input checked="" type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	It is stated “state-of-art” technology is employed in the project activity in PDD section A.4.3. Nevertheless, it needs to be justified.			
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The project activity employs conventional environmentally safe and sound technology. The statement “state-of art” has been modified in the revised PDD.			
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>The project activity does not employ <i>state-of-the-art</i> technology as it's not a unique and the most developed technology.</p> <p>However based on site visit, interviews and sectoral expertise the validation team concluded that the project activity has employed environmentally safe and sound technology. Since the project is developed as a run-of-the-river project environmental impacts are mimeses and adequate clearances were obtained from the relevant local and national authorities^{/SC/}. The design features of the project components were found to be acceptable as per the industry standards. The Francis Turbines employed in project activity are supplied by a reputed supplier i.e. Andritz VA Tech Hydro^{/andritz/}, Austria.</p> <p>Moreover the statement “state-of-art technology...” has been revised in section A.4.3 of revised PDD^{/PDD-T/}. The same has been checked in the revised PDD^{/PDD-T/} and found to be in compliance with CDM requirements and thus acceptable to the DOE. The raised CL A1 is closed.</p>			
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements			

Finding:		A2		
Classification		<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The provided design features of the project activity components stated in section A.4.3 of the PDD are not matching with the provided document ^{/TD/} . Please clarify.			

Finding:	A2
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>The design features of the project activity components have been revised as per the provided document.</p>
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>The design features of the project components are corrected in section A.4.3 of the PDD^{/PDD-T/}. Validation team has checked the design features as mentioned in section A.4.3 of the revised PDD^{/PDD-T/} from the office memorandum, approved from Central electricity authority (CEA), Govt. of India^{/TD/}. The design features in the provided document i.e. office memorandum, approved from Central electricity authority (CEA) and as described in section A.4.3 of the PDD found to be consistent. Moreover the same design features were confirmed by the PP during site visit interview carried out by validation team. Thus the CAR A2 is closed.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<p> <input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements </p>

Finding:	A3
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>The unique identification (Latitude and Longitude) including the seconds is required to be provided in section A.4.1.4 PDD Cp PDD guidelines.</p>
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>The geographical coordinates for the proposed project activity are as follows :</p> <p>Latitude - 31°30'50" - 31°32'10" N</p> <p>Longitude - 78°11'15" - 78°01'05" E</p> <p>The same have also been included in the revised PDD.</p>
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>The project activity is located in the reach between Karcham and Wangtoo in the District of Kinnaur of Himachal Pradesh. The geographical coordinates of the project area are now mentioned in section A.4.1.4 of the revised PDD^{/PDD-T/}.</p> <p>The geographical coordinates of the project are checked through the websearch and found correct. The geographical coordinates are also cross checked from the third party assessment report by Sharnam Sewa Samiti, Lucknow^{/LSC/}.</p> <p>Since PP has taken appropriate action in the revised PDD^{/PDD-T/}, the raised CAR A3 is closed.</p>

Finding:	A3
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	A4
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<ol style="list-style-type: none"> The stated contact details of the project participant in Annex -1 of the PDD are not consistent with the provided HCA^{/HCA/}. The column stating the years in section A.4.4 of the PDD needs to be revised as per the PDD guidelines. Cp PDD guidelines.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<ol style="list-style-type: none"> The contact details of the HCA are essentially the same except for the change in the address of the corporate office. The address in the HCA cannot be changed, however the contact details in the PDD represent the present address. Further MOC is provided to the DOE, which represents the most recent document for referring to the contact details of the project proponent by UNFCCC as well as DOE. The column stating years in section A.4.4. Of the PDD has been revised as per the revised PDD guidelines.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<ol style="list-style-type: none"> The present address of the PP has been verified from the MOC provided by the PP^{/MOC/} and also checked from the website^{/jatypee/}. The same found to be consistent with annex-1 of the PDD. Moreover, the address has been verified by the validation team during interviews at PP's corporate office. Section A.4.4 of the final PDD^{/PDD-T/} has been revised as per the PDD guideline. Cp Annex 12, EB 41. Thus the CAR A4 is closed out.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B1
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR

Finding:	B1
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>The project activity applies the current approved methodology ACM0002, version 07, Sectoral Scope: 01, EB 36. However, the latest version of the methodology is to be applied for the project activity. Hence relevant sections of the PDD ought to be revised. Cp EB 43 Annex 12 para 6.</p>
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>The relevant sections in the PDD have been revised and the latest methodology version - ACM0002 Version 12.1 has now been applied.</p>
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>The revised PDD^{/PDD-T/} has applied the latest version of the approved methodology ACM0002, version 12.1 and the relevant section of the PDD has been revised as per the latest version of the applied methodology i.e. ACM0002, version 12.1.</p> <p>Validation team has checked the validity of the ACM0002, version 12.1 and found the version 12.1 of the approved methodology is valid. ^{/unfccc/}</p> <p>Since PP has taken appropriate action in the revised PDD^{/PDD-T/}, the raised CAR B1 is closed.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<p> <input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements </p>

Finding:	B2
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>The power density of the current project activity is stated as 1621.93 W/m². However, the surface area of the project activity needs to be corroborated to ascertain the stated power density to the DOE.</p>
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>In accordance with ACM0002, the power density of JKHCL project activity is calculated as the ratio of the installed capacity of the hydro power plant after the implementation of the project activity divided by the area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full. According to the studies conducted during DPR preparation, at full reservoir level i.e. at an elevation of 1810.00 m, the area of the reservoir is 58.84 ha. The area capacity curve at the Karcham Dam site as contained in the DPR is attached for reference.</p>

Finding:	B2
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>The extract from DPR (Chapter A.6, Volume 3) provides a graphical relationship between elevation, storage capacity and flooded surface area.</p> <p>The power density at full reservoir level has been arrived as 1699.52 W/m². The calculation has been verified by the validation team and the same is reflected in revised PDD^{PDD-T/}. Moreover the power density is greater than 4 W/m² which is also in compliance with the applied methodology. Thus the CAR B2 is closed out.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<p><input type="checkbox"/> To be checked during the first periodic verification</p> <p><input checked="" type="checkbox"/> Appropriate action was taken</p> <p><input checked="" type="checkbox"/> Project documentation was corrected correspondingly</p> <p><input type="checkbox"/> Additional action should be taken</p> <p><input checked="" type="checkbox"/> The project complies with the requirements</p>

Finding:	B3
Classification	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>The chosen alternatives are;</p> <ol style="list-style-type: none"> 1. Continuation of the current situation or <i>status-quo</i> 2. The proposed project activity without CDM. <p>Out of the above mentioned 2 alternatives, the prior one is the chosen baseline scenario. However, these alternatives are to be transparently described in the PDD section B.4 and referred in section B.5. Cp PDD guidelines.</p>
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>Please note para 105, page 20 of VVM, the methodologies which already prescribe the baseline scenario need not do any further analysis to identify alternatives to the proposed project activity. ACM0002 already prescribes the baseline scenario being "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", hence no further analysis of alternatives is required in section B.4. or B.5. of the PDD.</p>

Finding:	B3
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>The § 105 of VVM ver. 1.2 clearly describes the procedure for baseline determination, in case the baseline scenario is clearly defined in the applied methodology.</p> <p>The proposed project activity involves new installations of 4x250 MW hydro power plant to be connected to the NEWNE Grid. The baseline identification in section B.4 of the PDD^{/PDD-T/} is found to be described as per the applied methodology ACM0002, version 11 and the baseline determination complies with the requirement of the § 105 of the VVM^{/VVM/}.</p> <p>Moreover both the alternatives are referred in section B.5 of the revised PDD^{/PDD/}.</p> <p>The CL B3 is closed out.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B4
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	All the data sources related to investment analysis referenced in section B.5 of PDD to demonstrate the additionality arguments are to be web linked or provided to DOE.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The documents referenced to demonstrate additionality of the project have been submitted to the DOE in hard copies. Those references which have active weblinks are also included in the revised PDD.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>All the referenced documents and weblinks are clearly referred as a footnote in the revised PDD^{/PDD-T/}.</p> <p>Validation team has checked all the referred documents and weblinks and found correctly and appropriately referred.. Since PP has taken appropriate corrective action in the revised PDD^{/PDD-T/}, the raised CAR is closed.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B5		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>Investment Analysis</p> <ol style="list-style-type: none"> 1. Management decision regarding the need for CDM benefits are taken before the loan is sanctioned based on the DPR. Hence, it is DPR, which forms the basis for serious consideration of CDM. The appropriate document that should form the basis for establishment of additionality is DPR and not ICICI letter. It is stated that project cost as per CEA (which, it is presumed, is DPR) is Rs.5909.59 cr., which is higher than the cost used for demonstrating additionality. But, nothing is known about assumptions forming the basis for profitability projections. A comparison sheet may be submitted, which includes major costs as per DPR and as per ICICI bank appraisal to establish conservative approach adopted for demonstrating additionality. 2. It needs to be ascertained whether CDM benefits formed part of profitability projections made by ICICI bank or not. 3. As per the commissioning schedule given in worksheet 'Assu', the three units are envisaged to commence generation in August, September and October 2011. Hence, the first year generation, revenue and costs should be accounted for 6 months (October 2011–March 2012) and not full year. The projections given are therefore inconsistent. 4. Salvage value has not been accounted for in the terminal year in IRR computation. 5. One of the requirements of CAPM is using widely diversified portfolio for computing market return. It is observed that BSE Sensex has been used as proxy for market return which seems to account for less than 50% of market capitalisation and turnover. Clarify whether the proxy selected is appropriate and is in conformity with the requirements of CAPM. Also clarify the basis for considering the period upto 18/11/2005 in the computation of market return. 6. Section B.5 of PDD states that 5 year period has been chosen to compute market return (using BSE Sensex). However the worksheet is based on 4 year return, i.e., 19.11.2001 to 18.11.2005. Moreover, the logic or the basis for choosing 5-year period to estimate the market return (and also the beta of stocks) should be explained while the project life is 35 years. 7. Computation of beta value based on only three power generating companies is not acceptable for the following reasons: <ol style="list-style-type: none"> a) as there were more than 3 power generating companies listed and traded in stock exchanges, there appears to be no logic in restricting beta estimation to three companies; b) the logic of giving weight of 48, 7, 48 to Tata Power, Jaiprakash 		

Finding:	B5
	<p>Hydro and NTPC needs to be explained; That apart a total weight of 103 appears to be somewhat intriguing, as normally total weights add upto 100;</p> <p>c) as NTPC seems to have been listed in the stock exchange only in November 2004, source of price quotation of NTPC for period prior to November 2004 needs to be explained;</p> <p>d) in the absence of either calculation or web reference, the correctness of beta calculation can not be verified.</p> <p>8. Moreover, using 14% ROE for arriving at the tariff and using 28% ROE for arriving at the benchmark does not appear to be neither consistent nor conservative.</p> <p>9. All the documents to support the stated and applied assumptions in the Investment analysis need to be submitted to the DOE.</p>

Finding:	B5
<p>Corrective Action #1</p> <p><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i></p>	<ol style="list-style-type: none"> 1. It may be noted that the initial decision to take up the project was taken up by the JKHCL management on 2nd June 2003. However, during the course, there was no significant physical progress/real action in the implementation of the project activity for more than 2 years due to inordinate delay in getting the mandatory clearances (Environmental & Forest) from the Government of India. Further there was a major change in the regulatory regime due to revision of the CERC guidelines governing the returns from the project activity. Also, the downstream Nathpa Jhakhri project faced losses due to forced shutdown of the powerhouse in turn due to extremely high silt content in the river. It was only after receiving an indication from the relevant government departments for the issuance of clearances/approvals for the proposed project that the project proponent re-evaluated the project financials and proceeded with securing the financing for the project. This is clear from the minutes of the meeting of the Board of Directors of JKHCL on 26th October 2005 wherein it was resolved to issue notice to proceed with the implementation of the project in light of the re-evaluated project financials aided by potential revenues from CER revenue stream. As required, a comparison sheet is being provided which illustrates that the major hard costs as per the CEA approval and the ICICI appraisal are same. Details of project cost forming the basis for profitability assessment are also being provided. 2. A confirmation letter from ICICI Bank that the CDM benefits were considered during appraisal of the project is being provided. 3. The investment analysis (excel sheet) has been revised. The projections have now been taken successively from the projected commissioning of the first unit on 16th August 2011. For the subsequent years, projections have been taken as per the financial year. 4. Salvage value as per the depreciation worked out in accordance with CERC guidelines has now been accounted for in the terminal year of operation 5. Revised WACC calculation sheet takes into consideration BSE 500 Index, which represents more than 90% of the market capitalisation and more than 85% of turnover. Considering the period upto 18/11/2005 was an error (as we have taken start date) and the revised calculation takes the period upto September 2005. 6. Considering the project lifetime, historical market return since the start of the well diversified BSE 500 index has now been taken. The market returns have been calculated from the inception of the index till the date of investment decision.

Finding:	B5
	<p>7 The WACC has now been estimated at the time of investment decision by JKHCL to implement the project activity. During this time, all major power generation companies that were listed in the stock exchange and had sufficient equity data have now been included.</p> <ol style="list-style-type: none"> All the listed and traded power generating companies are included in the revised WACC. The Benchmark calculation has been revised and the weighted average beta has been estimated using market capitalization of the listed power companies. The beta value of NTPC has been taken using data from the date of incorporation onwards. The equity beta values for companies used to estimate WACC has not been calculated but have been referred from Bloomberg. The screenshots from Bloomberg terminal are being submitted. Further the market data for unlevering beta values has been referred from various sources indicated in the attached excel sheet. <p>8. The benchmark calculation has been revised and the revised WACC estimation sheet is being provided. The expected return on equity has been calculated using the CAPM which is a generally accepted methodology worldwide.</p> <p>9. All the supporting documents stated in the Investment analysis worksheet are attached.</p>
<p>DOE Assessment #1</p> <p><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i></p>	<ol style="list-style-type: none"> Minutes of meeting of the board of directors held on 26th October 2005 was checked and as found the investment decision was based on revised financials with the inputs of ICICI appraisal letter. Since the same has been approved by a renowned bank (ICICI) which is a third party, costs provided in the ICICI appraisal letter has been accepted by the DOE. In this context, it is observed that the Board meeting of 26/10/2005 does not form part of the chronology of events. Explain the reasons for the same. CAR is open ICICI letter confirms that CDM benefits were considered while appraising the proposed project. The letter was checked and found authentic. The investment analysis has been amended and now the projections are consistently presented and thus correct. In the revised final sheet, salvage value has been calculated correctly which also takes potential profits into consideration and thus accepted. BSE 500 index has been used as proxy for market return. This is considered appropriate as this index represents more than 90% of market capitalisation and more than 85% of turnover and therefore

Finding:	B5
	<p>represents a widely diversified portfolio, a pre requisite of CAPM. Market return has been computed from the introduction of index till September 2005 (Investment decision was taken in October 2005). Hence, the proxy used for market return and the period is considered appropriate</p> <p>6. Market return has been considered since inception which is appropriate and thus acceptable.</p> <p>7. All the data considered were available at the time of investment decision which is appropriate and thus accepted. The calculation of beta as assessed by the DOE has been done as per prominent accounting principles and thus accepted.</p> <p>8. The revised benchmark calculation has been assessed and found complying to the accepted accounting principles in the host country and thus accepted.</p> <p>9. All the supportive documents are provided and assessed by the DOE as listed in table-7-1.of this report.</p>
Corrective Action #2	We regret the omission in the PDD. The revised PDD incorporates the Board meeting of 26/10/2005 as one of the items in the chronology of events
DOE Assessment #2	<p>1. Revised PDD includes the Board meeting dated 26/10/2005. Since the investment decision was taken based on the revised financials and the Board resolution evidences the investment decision taken, the explanation of PP is accepted. CAR is closed</p> <p>2. CAR was already closed</p> <p>3. CAR was already closed</p> <p>4. CAR was already closed</p> <p>5. CAR was already closed</p> <p>6. CAR was already closed</p> <p>7. CAR was already closed</p> <p>8. CAR was already closed</p> <p>9. CAR was already closed</p>
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B6
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<u>Investment Barrier :</u> <p>This barrier is not relevant to the requirements of the tool. Cp Sub-step</p>

Finding:	B6
	3a: Page-8 of Additonality Tool)
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The barrier listed as investment barrier has been shifted under the heading other barriers in the revised PDD.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The sub-step 3a of the barrier analysis, various barriers has been now described under the heading other barriers in the revised PDD ^{/PDD-T/} . Investment barriers as discussed in the webhosted PDD ^{/PDD1/} are now revised as per the Sub-step 3a, Annex 10 of EB 39 and the investment barrier associated with the cost over run and scheduled slippage has been removed. Thus, the CAR is closed out.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B7
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<u>Barrier due to prevailing practice:</u> Justify the statement first of its kind. As it is stated in the PDD the 1500 MW Nathpa–Jhakri project is located down stream of the project activity, which is already in operation.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<u>Barrier due to prevailing practice:</u> The prevailing practice barrier has been removed.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Since the barrier due to prevailing practice has been removed, CAR has lost its relevance. CAR is closed.

Finding:	B7
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B8
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<ol style="list-style-type: none"> 1. The risk associated due to silt content is to be described precisely. 2. The data source for the first para of the stated barrier due to silt content is required to be referenced in page 26 of the PDD.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<ol style="list-style-type: none"> 1. The barrier has now been removed in the revised PDD. 2. The same has now been removed in the revised PDD.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Since above barriers have been removed, the CAR has lost its relevance.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B9
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<ol style="list-style-type: none"> 1. Moreover, justify how the silt barrier of Nathpa Jhakri, which is located d/s of the current hydroelectric project, is relevant to the project activity. 2. Though associated risk in power generation is already addressed through the sensitivity analysis, the description under Technological barriers due to uncertainty in hydrological flow is rather reiterating. Hence the presentation made in the PDD on hydrology and floods need to be revised. Cp Para 114 of VVM Ver. 01

Finding:	B9
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. The barrier has now been removed. 2. The barrier has now been removed.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	1. Since barrier is removed, CAR has lost its relevance. 2. Since barrier is removed, CAR has lost its relevance.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B10
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	1. The provided web link in footnote 12 of pg 34 is not accessible. Hence it needs to be corrected. 2. The geological risk leads to cost and time overruns, which has clear direct impact on financial returns of the project activity. Therefore this shall be reflected in the investment analysis. Cp Para 114 of VVM Ver. 01
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. The barrier analysis has been removed and therefore the weblink has also been removed. 2. The barrier analysis has been removed
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	1. The weblink has been removed and thus CAR has lost its relevance. 2. Since barrier analysis has been removed, CAR has lost its relevance.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B11		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<ol style="list-style-type: none"> 1. The provided description sub-section 4 (a) to justify the penetration of the project type and technology in the relevant sector and region needs to be brief. 2. The source or weblink for the provided table-9 in pg 42 shall be included in the PDD. 		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<ol style="list-style-type: none"> 1. The section has been revised to make the description clearly illustrate that the project activity is not a common practice in the region/country by comparing it against similar project activities. 2. The common practice analysis has been revised and the references to the revised table have been appropriately inserted. 		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<ol style="list-style-type: none"> 1. Section B.5 (sub step 4a) of the revised PDD^{/PDD-T/} clearly described the Hydro electric potential in the host country based on the CEA reports^{/CEA/}. The CAR point is closed. 2. Necessary weblinks have been provided, however Table 9 of the webhosted PDD^{/PDD1/} is now changed to Table 10 in the revised PDD^{/PDD-T/}. The CAR point is closed. 		
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements		

Finding:	B12		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<ol style="list-style-type: none"> 1. The step 4 (common practice analysis) needs to be concluded. 2. The reasons for excluding the project 400 MW Maheshwar HEPP are to be further specified as neither differences of the regulatory regime nor the consequence, i.e. the exclusion as comparable project have been explained. Thus, the PP is requested to describe the distinguishing features of this project transparently. 		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<ol style="list-style-type: none"> 1. The outcome of step 4 has now been included in the revised PDD. 2. The PP would like to clarify that as per the Additionality Tool 'Projects are considered similar if they are in the same country/region and/or rely on a broadly similar technology, are of a similar scale, and take place in a comparable environment with 		

Finding:	B12
	respect to regulatory framework, investment climate , access to technology, access to financing, etc.'. The Maheshwar HEPP was undertaken in 1994, it was not under the regulatory regime applicable to the project i.e. Electricity Act 2003. Due to this reason, the project cannot be understood to have the same regulatory and investment climate as the proposed project activity which is regulated by Electricity Act 2003.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<ol style="list-style-type: none"> 1. The conclusion of the common practice analysis (i.e. Sub-step 4a) has been included in revised PDD^{/PDD-T/}. Thus the CAR point is closed. 2. Since the investment climate for the project is different and the project is still not operational, the exclusion of project is justified and accepted. The same has also been explained in the PDD.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B13
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The data used to estimate the baseline emissions and selection of simple OM approach is to be updated as per the latest CEA baseline data version 04 in sections B.6.1, B.6.2, B.6.3 and B.6.4 of the PDD.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The emission reduction calculations have been modified and the same have been updated in the revised PDD also. The grid emission factor used is now from the CEA database Version 4.0. Moreover the generation weighted average emission factors have now been used and the PDD is updated accordingly.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>As per the Annex 14, EB 50 "Tool to calculate the emission factor for an electricity system", baseline establishment and data related to baseline informations (i.e. operating margin and build margin) should be based on the most recent data available at the time of submission of the CDM-PDD for webhosting.</p> <p>Accordingly emission factor is corrected as per CEA database version 4.</p> <p>Moreover, operating margin (OM) calculations have now been revised based on 3-year generation-weighted average and thus complies with the applied tool "Tool to calculate the emission factor for an electricity system" version 2, Annex 14, EB 50 thus the raised CAR is closed.</p>

Finding:	B13
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B14
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>The monitoring plan contains all necessary parameters, and the means of the monitoring is described and complies with requirements of the methodology. However organogram, the link with annex-4 and measurement locations for EG_{facility, y} and TEG are found missing in section B.7 of the PDD.</p>
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>The organogram had been separately mentioned in the CDM manual. However, the organogram has now been included under section B.7.2 as well. Further, Annex-4 is clearly referred in section B.7.2. of the final PDD. The measurement for EG_{facility, y} and TEG will be done on pothead yard. The same has been specified in revised PDD.</p>
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>The O&M structure for the CDM project activity is now included in the form of organogram in section B.7.2 of the revised PDD^{/PDD-T/}. Also, for detailed description of the monitoring plan, Annex-4 is clearly referred in section B.7.2 of the revised PDD^{/PDD-T/}. Further measurement location for EG_{facility, y} and TEG is also mentioned. Since, adequate corrective actions have been taken; the raised CAR is closed out.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B15
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR

Finding:	B15
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<ol style="list-style-type: none"> PP is requested to provide the description of the TEG measurement is sufficiently detailed and complete as per the Specific guidelines for completing the Project Design Document (CDM-PDD). Precision of meter types, number of meters and statement “regular testing schedules” necessary. The entity assigned with measuring APJ should be mentioned. The source of data used for monitoring of Cap_{PJ} should be further specified.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<ol style="list-style-type: none"> The meter types, number of meters and statement “regular testing schedules” have been mentioned in the revised PDD. 4.1.1 APJ will be measured by the project proponent JKHCL and the same has been incorporated in the revised PDD. 4.1.2 The source of data for monitoring of Cap_{PJ} is the purchase order for the turbines placed
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<ol style="list-style-type: none"> Information required as per CDM-PDD guidelines is provided for TEG measurement and thus CAR is closed out. The entity assigned with measuring APJ is now mentioned correctly in the PDD hence the CAR point is closed out. Since Cap_{PJ} is to be monitored, therefore, source would be the measurement result i.e. verification of major equipment’s specification at the project site. However for ex-ante calculation, same has been taken from purchase order^{PO/} of turbines. Since the information provided is appropriate, CAR is closed out.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B16
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<ol style="list-style-type: none"> Interest on working capital has been revised at 9% and CERC guideline has been cited as reference. CERC guideline does not seem to support the argument. Assuming 2 months receivables (Cell D125) in the ‘Assu’ worksheet contradicts the assumption of 1% rebate on tariff (Cell C128).

Finding:	B16
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<ol style="list-style-type: none"> 1. The rate of interest for working capital has been changed to 11% as a conservative approach. 2. The LC provides the PP with the recourse in case the off-taker does not make the payment for the power purchased. The rebate provided for in the investment analysis assumes that the payment for sale of power would be made within 10 days of submission of invoice by PP in accordance with the PPA (See Clause 9.3.5 of the PPA attached). The rebate has been removed and interest on 2 month receivables have been retained in the revised IRR sheet.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<ol style="list-style-type: none"> 1. Rate of interest on working capital has been changed to 11% from 9%. This is conservative. CAR is closed. 2. Rebate has been removed from the projections. CAR is closed.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B17
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>The start date of the project has been given as 17.11.2005 in the PDD (p.16). This contradicts the information given in the Red Herring Prospectus, where the contract for Engineering, Procurement and Construction of Civil, Hydro-Mechanical and Electro-Mechanical Works is reported to have been signed with JAL on 9.11.2003 (p.88). Though the PDD does state that no action was taken subsequent to the signing of contract, Glossary of Terms and more particularly, the decision of the EB (paragraph 67 EB 41) does not seem to distinguish between 'dormant' order and 'active' orders. Therefore, the start date of the project activity given in Section C.1.1. is not in conformity with Glossary of terms and the guidance given by EB vide paragraph 67 in the 41st Meeting.</p>
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>The start date of the project activity is defined as the "date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity". We wish to clarify that the date of signing of the EPC contract in this specific</p>

Finding:	B17
	case, does not imply the start date of the project because as per article 3.7 of the contract real action and financial commitment only happens after issue of the 'Notice to Proceed' by the owner. Copy of EPC contract is attached alongside as Attachment.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>EPC agreement has been provided, which provides for 'Notice to Proceed'..</p> <p>In this particular case advance payment to EPC Contractor cannot be considered as committed expenditure as it was reimbursable, if NTP (notice to proceed) was not provided, under the provisions of Contract. There was provision to return this advance money back if PP found this project not feasible in future on serving a Termination Notice to the Contractor before the Starting Date. This clearly shows that PP has not committed to expenditures at that point of time when EPC agreement was signed and that is why this cannot be considered as Start Date. This is further substantiated by the corporate guarantee which was provided to PP by the contractor to whom advance had been paid. But once NTP was provided to contractor, the money paid becomes non-reimbursable and thus date of issuing NTP has been considered as start date of project as it is date on which PP has actually committed the expense towards the proposed project activity first time.</p> <p>The contention of the PP is accepted. CAR is closed</p>
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B18
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>The operational life time of the project is given as 35 years in section C.1.2. while Red herring prospectus JKHCL is reported to have entered into an Implementation Agreement with Government of Himachal Pradesh to operate and maintain the project and sell power for an initial period of 40 years from the commercial operations date (p. 89). This is also evident from the statement vide p. 139 of Red herring prospectus, wherein it is stated that JKHCL is required to supply to the Government of Himachal Pradesh or its agent 12% of the net generation for the first twelve (12) years of commercial operation and 18% of the net generation for the next twenty eight (28) years. But, in section C.1.2, the operating life is given as 35 years. This does not seem to be in conformity with Annex 45 of EB 41.</p>

Finding:	B18
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Although the implementation agreement is valid for 40 years, the plant and machinery will have to be replaced after 35 years and hence the financial projections have been carried out 35 years only-
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Projections have been given for 35 years. Explanation given by the PP on replacement of the the Electro mechanical equipment at the end of 35 years is reasonable. Cash flows beyond 35 years does not affect the additionality very much. Hence, projections for 35 years is accepted. CAR is closed
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B19
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<ol style="list-style-type: none"> 1. The phasing of investment given in 'Assu' worksheet is totally at variance with what has been given in Red Herring prospectus (p.90) 2. The phasing of capital expenditure and the draw down schedule of loan, based on which IDC has been computed, differs from the phasing given in the Red Herring Prospectus (p.90).
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<ol style="list-style-type: none"> 1. The phasing has been revised as required. 2. The phasing has been revised as required.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<ol style="list-style-type: none"> 1. Phasing has been revised. CAR is closed. 2. Phasing has been revised. CAR is closed.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:		B20		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR	
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<ol style="list-style-type: none"> 1. IT depreciation computation in respect of plant and machinery from 2026-27 does not appear to be correct. This may be checked and mistake, if any, should be corrected. 2. IT depreciation provision in the first year of operation does not seem to be in conformity with the provisions of Sec. 32 of IT Act. Since two units of the project (500 MW) are expected to commence generation prior to September 30th they should be entitled for 100% depreciation and the other two units would be entitled for 50% depreciation. 			
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<ol style="list-style-type: none"> 1. The IT depreciation computation from 2026-2027 has been corrected in the revised IRR calculation sheet. 2. Since 2 units are expected to commence generation before September 30th, these have been depreciated @ 100% and other 2 units that are expected to commission after September 30th have been depreciated @ 50%. Thus, an overall depreciation figure of 75% has been used for depreciation of all 4 units collectively. The same has been incorporated in the revised IRR calculation sheets. 			
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<ol style="list-style-type: none"> 1. IT depreciation has been corrected. CAR is closed 2. IT depreciation provision has been corrected and is now in conformity with IT Act. CAR is closed. 			
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements			

Finding:		B21		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR	
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<ol style="list-style-type: none"> 1. What is claimed as preliminary expenses and amortized over a period of 5 years (apparently u/s 35D of IT Act) does not seem to conform to Sec. 35D of the IT Act. Not only the heads of expenses considered do not seem to conform to the expenditure given in Sec. 35D, but even the amount also seem to exceed the ceiling specified in the 			

Finding:	B21
	<p>section.</p> <p>2. Depreciation in 36th year as per CERC guideline (though arithmetically correct and does not affect the computation), does not result in depreciating entire value. The last year depreciation should be 90% of the total cost less depreciation accounted for till 35th year.</p>
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>1. The relevant changes have been incorporated in the revised IRR calculation sheet.</p> <p>2. The relevant changes have been incorporated in the revised IRR calculation sheet.</p>
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>1. Entire assets have been capitalised and depreciated. Amortisation has been removed. CAR is closed</p> <p>2. Salvage value has been corrected to residual value. CAR is closed</p>
Conclusion <i>Tick the appropriate checkbox</i>	<p><input type="checkbox"/> To be checked during the first periodic verification</p> <p><input checked="" type="checkbox"/> Appropriate action was taken</p> <p><input checked="" type="checkbox"/> Project documentation was corrected correspondingly</p> <p><input type="checkbox"/> Additional action should be taken</p> <p><input checked="" type="checkbox"/> The project complies with the requirements</p>

Finding:	B22
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>1. In the 'Tariff' worksheet, escalation has been provided for full year in the second year. Since the operation of the project commenced only in August 2011, this tantamount to providing escalation within 6 months.</p> <p>2. Primary energy cost has been escalated by the average growth in WPI for the last 10 years. The base figure (Rs.0.7379/kWh) pertains to March 2004 and the project is expected to commence generation in August 2011. In the 'Tariff' worksheet, the primary energy cost for the first year has been escalated by the chosen escalation factor for 6 years. The gap between 2004 and 2011 is more than 6 years.</p>
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>1. The escalation of O&M cost escalation for the second year in the tariff worksheet has now been considered for 6 months only. The same has been incorporated in the revised IRR calculation sheet.</p>

Finding:	B22
	<p>2. The citation is referred here only for provision of primary energy charges. The primary energy rate has been taken from official release of Northern Region Power Committee and copy of same is enclosed as Annexure 4, which is pertaining to Financial Year 2005-06 not for 2004 hence escalation factor for 6 years is correct.</p>
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>1. Escalation in the O&M cost in the second year has been corrected. CAR is closed</p> <p>2. Primary energy has been computed from 2005. As official release of Northern Regional Power Committee has come in 2005, moreover the escalation factor applied is published on an annual basis and hence the escalation has been calculated for a period of 6 years, this is appropriate. CAR is closed.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<p><input type="checkbox"/> To be checked during the first periodic verification</p> <p><input checked="" type="checkbox"/> Appropriate action was taken</p> <p><input checked="" type="checkbox"/> Project documentation was corrected correspondingly</p> <p><input type="checkbox"/> Additional action should be taken</p> <p><input checked="" type="checkbox"/> The project complies with the requirements</p>

Finding:	B23
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>1. The projections have been prepared as if entire generation barring 12% in the first 12 years and 18% in the remaining 28 years will be exported to grid. This contradicts the information given in the Red Herring prospectus which states the project activity can sell 20% of the power generated in the first 12 years and 14% of power generated in the remaining 28 years at commercial rate. This has not been accounted for in the projections.</p> <p>2. Either yearly cash flows should be taken or monthly cash flows should be taken. Taking mid-year cash flows neither seems to conform to accepted financial management principles nor conforms to reality. If the objective is to avoid netting of Cash outflow of 2011-12 with cash inflow of that year, it is neither correct nor acceptable.</p>
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>1. The commercial sale of power has now been incorporated in the calculations and tariff for merchant sale has been evaluated based on trading data available at the time of investment decision for the project. The detailed calculations and references for the same have been provided in the revised IRR calculation sheet.</p>

Finding:	B23
	2. The cash flows have been revised and this has been incorporated in the revised financial calculation sheet..
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	1. Merchant power sale has been accounted for and the tariff is based on publicly available, dependable and verifiable sources. CAR is closed 2. Cash flows have been modified and takes the yearly cash flows. CAR is closed.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B24
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	1. The beta value computation (or screenshots if it has been downloaded from Bloomberg or Capitaline) has not been enclosed. 2. Additionality Tool is concerned with 'return on equity' and not 'distribution of return'. As such, defining the return as 'dividend' and accounting for the implications thereof in the computation of benchmark (WACC) is outside the scope of benchmark as per Additionality Tool. Computation of benchmark based on the entire tenure of the loan and life period of the project does not seem to conform to accepted financial management principles.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. The screenshots of the Bloomberg terminal providing beta values used for benchmark determination are attached as Annexure – 5. 2. The calculation of WACC over the period as opposed to the start of the project has been revised to consider WACC at the start of the project. The benchmark has accordingly been revised and the weightings for equity and debt have been removed to arrive at the final benchmark for the project.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	1. Screen shots of beta calculations have been submitted. CAR is closed 2. Benchmark WACC has been corrected and is in conformity with conventional method. CAR is closed

Finding:	B24
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B25
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<ol style="list-style-type: none"> Project IRR does not vary with variation in the project cost (see. P. 30 of PDD). Even in the worksheet, the link does not seem to be working properly. Cost overrun cannot be accepted as barrier in as much as it already forms a part of financial and sensitivity analyses
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<ol style="list-style-type: none"> Project IRR shows minute variation (less than 0.5%) with variation in project cost. This is because any change in project cost is admissible in tariff computation as per CERC guidelines. Hence tariff gets adjusted accordingly to cover all changes in project cost and minimizes the impact of changes in project cost on project returns (i.e. IRR). Since variation in cost has been considered as part of the financial sensitivity analysis, the argument has been excluded from the barrier analysis in the revised version of the PDD.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<ol style="list-style-type: none"> Explanation is accepted. The corresponding work sheet found to be corrected. CAR is closed Since cost overrun barrier has been excluded, the CAR has lost its relevance.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B26
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR

Finding:	B26
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<ol style="list-style-type: none"> 1. The table on P.24 of the webhosted PDD, which provides the delay and over runs in the hydropower projects a column should be added giving the ownership of the projects for better understanding the context and applicability. 2. While 'Risk associated with silt content' could be true, it should be backed by an independent study conforming to the requirements of Additionality Tool (sub-step 3b). PP's statements /apprehension do not constitute barrier as per Additionality Tool.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<ol style="list-style-type: none"> 1. The ownership of each of the projects is mentioned in the table along with the name of the project in the revised PDD. 2. The 'Risk associated with silt content' is relevant since it has already been experienced at 1500 MW Nathpa Jhakri Hydro electric project (of SJVNL), which is immediately downstream of the JKHCL project activity. Further, the damage caused due to high silt content to NJHEP is available in public domain. In this context, the historical data on silt content in the river recorded by SJVNL has also been provided in the PDD along with the reference to the publication.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<ol style="list-style-type: none"> 1. Ownership of the project has been given. CAR is closed 2. References have been cited in the PDD. CAR is closed
Conclusion <i>Tick the appropriate checkbox</i>	<div> <input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements </div>

Finding:	B27
Classification	<div> <input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR </div>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<ol style="list-style-type: none"> 1. The common practice analysis is very sketchy. No authentic source seems to have been quoted for the population of operating hydro power projects in India and classification thereof based on installed capacity, ownership, and CDM/VCS status. For a project of this size, the analysis is not quite satisfactory. 2. The capacity chosen (500 to 1500 MW) for common practice analysis does not appear to be appropriate, as the project activity consists of four 250 MW turbines. The appropriate range should be 125 MW to 375 MW <u>and</u> 500 to 1500 MW

Finding:	B27
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<ol style="list-style-type: none"> 1. The list of projects mentioned in the table in the common practice analysis section has already been defined as projects which are similar to the proposed project activity. However, all projects with an installed capacity between 125 MW to 1500 MW mentioned in the CEA list of projects, have been incorporated as Appendix – I in the revised PDD. From the list enclosed, all hydro power projects with an installed capacity of 125 MW and above implemented by private investors have been considered similar. Their reasons for exclusion also have been duly stated and the supporting documents for the same are being submitted. 2. The common practice analysis has been revised to consider all projects with an installed capacity between 125 MW to 1500 MW. From the list enclosed, all hydro power projects with an installed capacity of 125 MW and above implemented by Private investors have been considered similar.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<ol style="list-style-type: none"> 1. Common practice analysis section has been appropriately modified in section B.5 of the PDD. CAR is closed 2. Common practice analysis section has been revised to include projects with a capacity from 125 to 375 MW. CAR is closed
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B28
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The Bhira HEPP as mentioned in the PDD appears to consist of two single projects, i.e. 6*25 MW and 1*150 MW. The common practice analysis should be rectified accordingly.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The composition of Bhira HEP as 6*25 MW and 1*150 MW was clearly mentioned in the Appendix I of the PDD. However, the same has now been incorporated in the common practice analysis also.

Finding:	B28
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Appropriate correction (i.e. mentioning the unit capacity separately) has been in the common practice analysis in section B.5 of PDD for more clarity. CAR is closed.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<p> <input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements </p>

Finding:	B29
Classification	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<ol style="list-style-type: none"> 1. The repayment is stated to be 15 years vide cell D72 of 'Assu' worksheet, while in Cell D73, number of instalments is given as 75. As per the details given in 'Fin pack' worksheet, repayment is made every month between 15th June and 15th October. Clarify the basis for this repayment schedule. 2. Environmental cost and establishment charges have been excluded from the cost for the purpose of computing depreciation as per CERC guideline, While CERC guideline specifically excludes land cost, there does not appear to be any direction on exclusion of environmental cost and establishment charges. Please clarify the basis or the provisions of CERC guideline under which these costs have been excluded.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<ol style="list-style-type: none"> 1. The annual repayment is scheduled to be done in 5 installments (Jun-Oct) when generation is high due to increased river flows during monsoon season. This is in line with the loan agreements made with the lenders. The same has been confirmed in a letter from the senior lender (ICICI Bank) attached as Annexure – 7. 2. The environmental and establishment charges have now been included in the depreciation computation in the revised IRR calculation sheet.

Finding:	B29
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<ol style="list-style-type: none"> 1. The repayment schedule is in conformity with the loan sanction letter. CL is closed 2. Depreciation calculations have been corrected to include those costs. CL is closed
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B30
Classification	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<ol style="list-style-type: none"> 1. None of the consortium members seem to have sanctioned the term loan at 9% interest rate as per Red Herring prospectus (P.262-266). The basis for considering the interest at 9% in the revised PDD^{PDD2/} may be explained which is also different from web hosted PDD assumptions. 2. The conformity of PLF to Annex 11 of EB 48 should be explained and appropriate documentary evidence should be submitted.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<ol style="list-style-type: none"> 1. The rate of interest has been modified in line with the webhosted PDD of 10.5% (stated as being taken from the loan agreement) which is same as PLR published by RBI on October 7, 2005 (Refer weblink - http://rbidocs.rbi.org.in/rdocs/Bulletin/PDFs/66774.pdf and http://rbidocs.rbi.org.in/rdocs/Bulletin/DOCs/66774.xls). 2. A letter from lead banker (ICICI Bank) confirming the PLF considered is being submitted as Annexure – 8.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<ol style="list-style-type: none"> 1. Rate of interest has been corrected and is in conformity with interest considered in the web hosted PDD and also guidance 11 of Annex 58, EB 51. CL is closed 2. A letter from the bank confirming the PLF has been submitted, which is in conformity with Annex 11, EB 48. CL is closed
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken

Finding:	B30
	<input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B31
Classification	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<ol style="list-style-type: none"> Interest on working capital and term loan has been assumed at the same level, i.e., 9% in the revised PDD^{PDD2/}. Clarify whether this is in conformity with reality, banking practice and also CERC guidelines. IDC, insurance during construction, pre-operative expenses and contingencies have not been capitalized for IT depreciation calculation and consequently the tax shield provided by (enhanced) depreciation has not been accounted for. Clarify whether this is in conformity with IT Act, rulings given and the accepted accounting principles.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<ol style="list-style-type: none"> The rate of interest for working capital has been made in line with the webhosted PDD of 11% which is 0.5% higher than the interest rate for term loan. The same have now been capitalized for IT depreciation calculation in the revised IRR calculation sheet.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<ol style="list-style-type: none"> Working capital interest has been considered at 11%. CL is closed The specified costs have been capitalised and depreciated. CL is closed.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B32
Classification	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<ol style="list-style-type: none"> Moreover, in the process, IDC, insurance during construction, pre-operative expenses and contingencies have neither been depreciated, nor amortized and nor even considered in the salvage value.

Finding:	B32
	<p>2. Besides the fact that the working capital interest computation is not in agreement with accepted banking practice, assuming 100% normative bank borrowing also contradicts the project cost estimates as it contains margin for working capital</p>
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>1. The mentioned cost heads have now been included in the depreciation calculations in the revised IRR calculation sheets.</p> <p>2. As per CERC guidelines, 100% bank borrowing has been taken as normative provision for the purpose of tariff calculation. However IRR calculations have been revised considering 75% margin money only in view of 25% margin money already considered in project cost.</p>
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>1. The costs have been capitalized and depreciated. CL is closed</p> <p>2. Working capital calculations for projections have been modified. CL is closed.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<p><input type="checkbox"/> To be checked during the first periodic verification</p> <p><input checked="" type="checkbox"/> Appropriate action was taken</p> <p><input checked="" type="checkbox"/> Project documentation was corrected correspondingly</p> <p><input type="checkbox"/> Additional action should be taken</p> <p><input checked="" type="checkbox"/> The project complies with the requirements</p>

Finding:	B33
Classification	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>1. Primary energy rate of Rs.0.7379/kWh has been given in the 'Assu' worksheet, which presumably represents the lowest variable charges of the central sector thermal power generating station of the concerned region. The basis for this rate and the source should be furnished</p> <p>2. The primary energy cost has been escalated using the average of growth rates of WPI over the last 10 years. Clarify whether the basis (selecting WPI) and the method of computation of CAGR (average of growth rate) is based on any CERC guidelines.</p>
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>1. The primary energy rate has been taken from official release of Northern Region Electricity Board and copy of same is enclosed as Annexure – 4.</p> <p>2. The CERC guidelines are issued for determination of tariff for year under consideration for which primary energy charges or lowest</p>

Finding:	B33
	variable charges for thermal power station of concerned region and issued by Northern Regional Power Committee (for this project) for that year. There is no guideline for future estimation. Hence, Electricity indices of WPI (published by the Govt. Of India) has been used to arrive at the escalation factor.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	1. Basis for primary energy has been furnished. CL is closed. 2. There is no guideline in this regard. Therefore, the explanation offered by the PP for the escalation appears to be reasonable and appropriate. CL is closed.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B34
Classification	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	1. Tax rate has been taken at 33.66% and 8.415%. The Board decision was taken in 2 nd June 2003. Please clarify whether these were the tax rates prevailing at the time of decision making. 2. The YTM considered as proxy for risk free return pertains to the year 2005-06. The Board took investment decision in June 2003/ 2005. Please clarify, whether 2005-06 YTM would have been available to the Board at the time of taking decision.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. The investment decision for the project activity was taken in the board meeting held on 26th October, 2005. The tax rates used are those applicable at the time of investment decision (2005). 2. Although the contract was signed with EPC agency on 09.07.03, the real action was taken only during Nov-05 after issue of Notice to Proceed by the Owner after the Board decision on 26th October 2005. It is important to mention here that notwithstanding the signing of EPC contract in Jul-03, the project work couldn't have started unless Notice to Proceed to the agency is given by the Owner. Therefore it will be observed that, it is the Notice to Proceed which is paramount for start of the project activity. Therefore, the YTM of 2005-06 considered is appropriate.

Finding:	B34
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<ol style="list-style-type: none"> Board meeting date is accepted and accordingly the applied tax rate is found to be correct as the same was available at the time of the investment decision on 26th October 2005. CL is closed Since the investment decision took place in October 2006, consideration of YTM for the year 2005-06 is appropriate. CL is closed
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Finding:	B35
Classification	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	It may be clarified how the CDM revenues were considered essential to overcome the investment barrier to this project activity, in particular that the benchmark represents a rate below which the investment could not be made.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The CDM revenues increase the returns from the project activity and render it attractive. After considering CDM revenues, the returns from the project cross the benchmark, hence it can be justifiably concluded that the project proponent would not have invested in the project without CDM.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Since the financial indicator with CDM benefits crosses the benchmark, it can be concluded that the investment would not have taken place at a return lower than the benchmark. CL is closed
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

5 VALIDATION ASSESSMENT SUMMARY

5.1 General Description of the Project Activity

5.1.1 Participation

LOA

India as a non Annex I party meets all relevant participation requirements. In the Host Country Approval^{/HCA/} reference no. 4/5/2008-CCC dated 2008-04-09, the Indian DNA, National CDM Authority under Ministry of Environment & Forests confirmed the voluntary participation of M/s Jaypee Karcham Hydro Corporation Limited as project participant in the CDM project activity.

An Annex-I party will be identified by the project participants in due time, as per the post registration involvement by Annex I party provisions (no. 57) made in 18th EB meeting.

This type of project activity is in line with sustainable development policies^{/HCA/} of the country and national regulation and policy on Environmental Protection. A scanned copy of the original HCA was submitted by the project participant to the DOE during the validation and the same was verified stating precisely same project title as in the final PDD^{/PDD-T/} which is submitted for request for registration. Nevertheless in the Host Country Approval, it is stated that the project participant (PP) has to comply with the following conditions:

- M/s Jaypee Karcham Hydro Corporation Limited shall not sell the CERs to any agency/ company/ organization which purchase the CERs using ODA Funds.
- M/s Jaypee Karcham Hydro Corporation Limited shall inform the national CDM Authority regarding all transaction details of CERs including the name and address of the party to which CERs were sold within 30 days of transfer of the CERs
- M/s Jaypee Karcham Hydro Corporation Limited shall furnish expeditiously any information, during the lifetime of the project as requested by the National CDM Authority.
- M/s Jaypee Karcham Hydro Corporation Limited shall obtain all statutory clearances and other approvals as required from the competent authorities for setting up of the project
- All transaction shall be subject to supervision of the Executive Board of the CDM, under the authority and guidance of the COP/MOP

- This approval is not transferable. The authority reserves the right to revoke this Host Country Approval if the conditions stipulated in this approval are not complied with to the satisfaction of the National CDM Authority.

Nevertheless, CAR A4 (1) was raised and was successfully closed (ref Annex: Validation Protocol - Table A-1).

Project Participants

India as a non Annex-I party, meets all relevant participation requirements. In the Host Country Approval^{/HCA/} dated 2008-04-09, the Indian DNA, National CDM Authority under Ministry of Environment & Forests confirmed the voluntary participation of M/s Jaypee Karcham Hydro Corporation Limited as project participant in the CDM project activity. The only party involved is the Host Country (India) which confirms the participation of M/s Jaypee Karcham Hydro Corporation Limited as project participant and same is precisely consistent in the final PDD^{/PDD-T/}.

An Annex-I party will be identified by the project participants in due time, as per the post registration involvement by Annex-I party provisions. Cp. §57 EB 18 meeting report.

5.1.2 Contribution to Sustainable Development

The issued host country approval^{/HCA/} confirms the contribution to sustainable development of India from the proposed project activity.

PP has also described the other environmental and social benefits in section A.2 of the PDD^{/PDD-T/} and the same are assessed and identified through the interviews of project proponent and local stakeholders i.e. employees, local peoples and from the local stakeholder consultation report^{/LSC/}. However, TÜV NORD also identified negative impacts caused by the project, particularly concerning resettlement and rehabilitation of locals as well as disposal of spoils from construction works^{/mh//drp/}. Though there were also some minor negative comments from stakeholders in stakeholder consultation process as mentioned in the section E.2 of final PDD the PP has taken actions to address those concerns. DOE has also carried out the thorough stakeholder meeting and had positive comments from the stakeholders and thus concluded that proposed project activity contributes towards sustainable development of host country.

5.1.3 PDD editorial Aspects

The proposed project activity has used the latest PDD template (CDM PDD ver 03, Cp. EB 28 annex 34) and described according to the latest CDM-PDD guidelines (Annex 12, EB 41).

Nevertheless, CAR A1, A3 and A4 (2) raised and were successfully closed (ref Annex: Validation Protocol - Table A-1).

5.1.4 Technology to be employed.

The proposed project activity aims to develop a 4 X 250 MW of renewable, run of the river hydro power project at Karcham & Wangtoo on the river Satluj in Himachal Pradesh. The section A.2 and A.4.3 of the PDD^{/PDD-T/} contain a clear, accurate and complete project description. As the hydro power plants harness renewable sources of energy viz. kinetic energy of river water for electricity generation, the technology employed is environmentally safe and sound.

Nevertheless, CAR A2 was raised and was successfully closed (ref Annex: Validation Protocol - Table A-1).

5.1.5 Small Scale Projects

The proposed project activity is a large scale project activity and thus applied the approved and applicable large scale methodology ACM0002, Version 12.1 and the associated tools in final version of the PDD^{/PDD-T/}.

5.2 Project Baseline, Additionality and Monitoring Plan

5.2.1 Application of the Methodology

The final PDD^{/PDD-T/} of the project activity has applied the latest version of the approved methodology ACM0002, version 12.1 and latest version of the methodological tools as prescribed in the methodology. All the applicability criteria of applied methodology is appropriately justified in section B.2 of the PDD^{/PDD-T/}.

Through the web search on UNFCCC-CDM site^{/unfccc/}, the validation team confirms that the applied methodology ACM0002, version 12.1 is approved and version 12.1 of the applied methodology is valid from 2010-09-17.

Based on the requirements of the methodology and evaluation of justifications under section B.2 of the PDD^{/PDD-T/}, the validation team hereby confirms that the proposed project activity complies with all applicability conditions of the applied methodology. Moreover, as per the site visit observations/interviews^{/IM01//IM02/}, local expertise in hydro power sector and desk review of design documents^{/TD/}, the validation team

confirms that the proposed project activity does not involve other significant emissions except listed in the applied methodology.

Nevertheless, CAR B1 and B2 were raised and successfully closed (ref Annex: Validation Protocol - Table A-1).

5.2.2 Project Boundary

In section A.4.1.4 of the final PDD^{/PDD-T/}, details of physical location i.e. the latitude and longitude of the proposed project activity is mentioned. The project boundary includes project power plant connected to the substation of the regional grid. The project boundary also includes all power plants connected to the electricity system of the project activity as depicted by the applied methodology.

All the sources of GHGs are included in the project boundary as required by the applied methodology i.e. ACM0002, version 12.1. Also as per project emission section of the ACM0002, version 12.1, for most renewable energy project activities, project activity emissions are considered as negligible thus not included. Also justification of neglecting the $PE_{HP,Y}$ has been demonstrated in CAR B2 and section B.1.3 of Annex-1 of this report.

5.2.3 Baseline Identification

PP has chosen the baseline scenario in accordance to the applied methodology. As per ACM0002, Version 12.1, the baseline scenario is “Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources”, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system” and thus has not considered the possible alternative baseline scenarios.

Baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The baseline emissions are calculated by multiplying the electricity baseline emission factor which is grid emission factor ($EF_{grid,CM,y}$) in this case, and the electricity is exported to the NEWNE grid ($EG_{PJ,y}$). The grid emission factor ($EF_{grid,CM,y}$) is estimated as a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) factors. In this case the Combined Margin (weighted average of Simple Operating Margin and Build Margin) is estimated based on three years generation weighted average (2005-06, 2006-07, 2007-08) of Simple Operating Margin and Build Margin of current year (2007-08) in line with steps of tool to calculate the emission factor for an electricity system (version 02). Both the value of Simple Operating Margin and Build Margin are selected under ex-ante approach. The grid boundary w.r.t the connected state grid is northern regional grid of India,

which is now synchronised with western, eastern and northern-eastern regional grid to form NEWNE grid.

In accordance with of tool to calculate the emission factor for an electricity system (ver 02), 'Dispatch Data Analysis' is the first methodological choice out of four options of calculating OM emission factor. Nevertheless the "Dispatch data analysis operating margin" is ruled out in India due to lack of necessary dispatch data of the grids and simple OM is applied to calculate the OM emission factor. The same fact is also considered by the Central Electricity Authority ^{/cea/} {Ref the user guide for CO₂ Baseline Database for the Indian Power Sector (version 04, October 2008)}.

Out of other 3 options of calculating OM, JKHCL has rightly selected simple OM emission factor calculation as the share of low cost / must run resources of the selected grid over the three most recent years (2005-06, 2006-07, 2007-08) is < 50% of the gross grid generation ^{/cea/}.

In accordance with tool to calculate emission factor for an electricity system, version 02 weight factors of $w_{OM} = 0.50$ and $w_{BM} = 0.50$ has been used and the resultant grid emission factor ($EF_{grid,CM,y}$) works out as 0.8031 tCO₂/MWh. The calculation of $EF_{grid,CM,y}$ is publicly available and published by the Central Electricity Authority on its web-site ^{/cea/}. The validation team is convinced of the result of the emission coefficient calculation ^{/XCS/}. It is deemed to be adequate and transparent.

The net exported in 2011-12 (16/08/2011 to 31/03/2012) is estimated as 1327.51GWH and yearly net exported from 2012-13 onwards is 4410.31GWH.

Altogether the project activity reduces emissions of 35,419,166 tCO₂e over the ten year fixed crediting period.

Relevant national & sectoral policies have been considered such as decisions of the Central Electricity Regulatory Commission and the energy policy of the Government of India. The project is also in line with New Renewable Energy Policies.

Nevertheless, CAR B6 was raised and was successfully closed (ref Annex: Validation Protocol - Table A-1).

5.2.4 Calculation of GHG Emission Reductions

Methodologies for calculating emission reductions are documented. The project intends to reduce carbon dioxide (CO₂) emissions by generating electricity from a renewable hydro project, which would be exported to the Northern Regional Grid which is a part of the NEWNE grid.

There are no GHG emissions arising from the project being a hydro project as per the stipulations of the applied methodology. Hence, the project emissions are zero. As per the methodology ACM0002, Version 12.1, there are no emissions related to leakage in this project.

The calculation approach and calculation of the baseline emission and emission reduction are documented in section B.6.3 of PDD. For assessment please refer to section 5.2.3 of this report.

According to the final PDD^{/PDD-T/}, the project is expected to reduce emissions of 35,419,166 tCO_{2e} over a 10 year fixed crediting period. The DOE has assessed the emission reduction calculation sheet^{/XLS2/} and parameters used therein, and found that estimated emission reductions are according to the applied methodology and tool and thus concluded them plausible and conservative for the proposed project activity.

5.2.5 Additionality Determination

Consideration of CDM in decision making

The project developer has stated the start date of the project activity is November 18, 2005 and to substantiate the claim has submitted a copy of the 'Owner's Notice to Proceed' issued to the EPC contractor. Since the EPC contract was signed on 9th July 2003, Validation Team raised a CAR vide B.17 [conformity to paragraph 99 of VVM (ver 1.2)] seeking clarification on the start date. In response, the project developer stated that in the specific case, the date of signing of the EPC contract is not the start date as the contract has defined the 'start date' of the project as the first business day after issue of the 'Notice to Proceed' by the owner and to substantiate the point submitted copies of the EPC contract signed with and the Owner's Notice to Proceed letter issued to the EPC contractor.

The validation team verified the documents and observed that Article 3.7.4. of civil, hydro-mechanical and electro-mechanical works contract signed with M/s. Jaiprakash Associates Ltd. [JKHCL/1/2003 dated 9th July 2003] states,

"..... the Contract shall commence the work upon receipt of the Owner's Notice to Proceed which shall be substantially in the form of Annexure – 3-13. The Owner's Notice to Proceed shall not be issued until the following conditions have been fulfilled, unless waived or amended by mutual agreement of the parties:

- a) the Owner has made advance payment in accordance with Payment Terms as per Articles 3.6.1.1(a) and 3.6.2.1(a); and*
- b) the Financing Agreements have been entered into by the Owner for financing the project and conditions precedent to the disbursements have been fulfilled so as to ensure timely payments to the Contractor under the terms of the Contact*

The "Starting Date" shall be deemed the first business day after Contractor's receipt of the Owner's Notice to Proceed"

Though the advance payments were made as per the EPC contract^{/SD/2/} on 25 October 2004, 8 February 2005 and 3 May 2005, these dates can not be considered as starting date of the project activity. Because these payments were reimbursable as per Article 3.7.5 of the EPC Contract (EPC Contract NO JKHCL/1/2003, Volume-1)

which deals with Termination for Convenience. Thus prior to the issuance of notice to proceed^{/SD/1/}, the contractor, shall have no right to make any claim for any amount arising out of or related to this contract. Hence any advance payments made before the issuance of the NTP does not reflect the commitment towards expenditures.

The financing arrangement was completed only in the early 2006 and the project developer received loan syndication confirmation from the ICICI Bank, the lead banker, only on 30th March 2006 [A copy of which has been submitted to DOE]. However, confident of finalizing the financing arrangement³ before the claims are submitted by the Contractor, Project developer issued "Notice to Proceed" vide letter No. JKHCL/EPC-JAL/05 dated 17th November 2005, which states,

"The matter regarding Owner's Notice to Proceed and the Starting Date under Article 3.7.2 of the Contract Agreement was discussed with you today and it was agreed that the conditions precedent for issue of Owner's Notice to Proceed which have not yet been fulfilled, are waived by mutual agreement. In view of the above, JKHCL (Owner) hereby notifies JAL that pursuant to Article 3.7.2 of the Contract dated 9th July 2003 between the Owner and the Contractor, the Contractor is authorised and directed to proceed with all aspect of performance of the Works under and in accordance with the terms and conditions of the Contract and accordingly the 18.11.2005 shall be taken as starting date under the Article 3.7.2. of the Contract"

The project developer has not undertaken any major construction or any real action on the implementation of the project activity prior to this date. Since the *real action of the project activity* (Owner's Notice to Proceed) had begun on November 18, 2005, as per Glossary of CDM terms (Version 04), this date has been treated as the start date of the project activity. The DOE was appointed on 13th May 2008 and the PDD was web-hosted for global stakeholders' comments on 21st October 2008, i.e., after the start date of the project activity. Therefore, in terms of paragraph 102 of the VVM [ver.1.2], the project is an existing project activity.

Since the project is an 'existing project activity', the project developer was asked to demonstrate the serious consideration of CDM while taking the decision to implement the project activity as required vide paragraphs 102 (a) and (b) of VVM [ver.1.2] read with paragraphs 6 (a) & (b) and 8 of Annex 22, EB 49.

Project developer had submitted a certified copy of the Board Resolution dated 26th October 2005. The resolution states, "The Board noted that taking into account the revised financials without CDM benefits besides the associated risks, the Project is not considered viable and that the dependence on CDM funds for implementation of

³ In India, it is not uncommon for the project developers to proceed with the implementation of the project activity once the lead manager is identified and the lead manager accepts the mandate, because once the lead manager accepts the mandate, it becomes responsible for placing the syndicated loan with the other banks and ensure that the syndication is fully subscribed. They are entitled to the arrangement fee and undergo a reputation risk during this process. However, the actual sanction does take time as several banks have to be contacted and each bank has to get the proposal approved by their respective Board of Directors.

the Project is critical.” Validation team was therefore convinced that the CDM benefits were the decisive factor in going ahead with the project activity⁴.

As regards demonstration of continuing and real action were taken to secure CDM status for the project in parallel with its implementation, the project developer submitted a chronology of events [which forms part of PDD a summary of which is given below:

Activity	Date
1. Site clearance approval from the Ministry of Environment & Forests for collection of environmental data for preparation of comprehensive EIA and management plans ⁵	14/09/2001
2. In-principle approval from the Ministry of Environment & Forests for diversion of forest land	21/11/2002
3. CEA Techno Economic Clearance provided on the basis of the revised DPR	31/03/2003
4. Management decision to implement the project with CDM revenues to mitigate s risks.	02/06/2003
5. Awarding EPC contract with the condition that the contract would come into force only after the company issues a notice to proceed	09/07/2003
6. Appointment of Consultant EQMS with the initial scope of Baseline and Monitoring Methodology preparation	05/01/2004
7. JKHCL informed EQMS of pending Environmental Clearance and consequent inability to issue notice to proceed	21/01/2005
8. Management decision to proceed with the implementation of the project activity considering benefits from CDM was taken.	26/10/2005
9. Environmental clearance granted by the Ministry of Environment & Forests, Government of India	09/11/2005
10. Issue of Owner's Notice to Proceed to the EPC contractor	17/11/2005
11. Start of construction/civil works at site (Project Activity Start Date)	18/11/2005

⁴ In this context it may be stated that even as early as June 2003, when the project developer decided to implement the project, the risks associated with the project such as geological risks, hydrological uncertainties, high concentration and coarse nature of silt and remote location and their potential to cause financial loss were identified and the Board resolved to accord consent to the implementation of the project, “...with due consideration of benefits by developing the project under Clean Development Mechanism (CDM)”. A copy of this resolution was also submitted to DOE by the project developer.

⁵ Site clearance approval is not Environment Clearance. It only enables the PP to survey the site and collect necessary data for preparation of EIA and EMP.

12. Termination of CDM consultancy contract with EQMS	25/01/2006
13. Financial Closure for the project (with ICICI as the Lead Bank)	30/03/2006
14. Appointment of present CDM consultant	03/05/2007
15. Appointment of Sharnam Seva Samiti for Social Audit (Stakeholder Consultation) for the CDM project	22/09/2007
16. Letter of Host Country Approval for the project activity from NCDMA-MoEF	09/04/2008
17. Appointment of TUV NORD as DOE	13/05/2008

Although the PP had evaluated the project in 2003 and realized the need for CDM benefits, the final investment decision was taken only in October 2005, because several approvals, which were required to go ahead with the project implementation, were not received. In fact, the most important approval, viz., Environment and Forest clearances was received only in November 2005. Hence, the investment decision was taken only when the PP received an indication that Environment and Forest clearance will be accorded shortly as without that approval, the project cannot be implemented. However, considerable time has elapsed between the preparation of FSR and the investment decision. In the interregnum a number of developments had taken place, such as

- Revised tariff order was issued by Central Electricity Regulatory Commission in 2004, which brought down the Return on Equity from 16% in the earlier tariff order (March 2001)⁶ to 14% (in March 2004 order); escalation in O&M cost was brought down from 6% to 4%; maximum auxiliary consumption was prescribed etc. among others;
- PP also became aware of a previously unknown problem due to sudden increase in silt in the river Sutlej which was experienced in the monsoon season of 2005⁷. This impacted the generation of the 1500 MW Nathpa Jhakri project which was just downstream of the proposed project activity. Further, the Nathpa Jhakri project also suffered tremendous loss due to a flash flood caused by sudden burst of a lake upstream from the project activity⁸.

Therefore, the company updated the input parameters based on the new tariff order and the experience gained in other projects using internal expertise, which formed the basis for decision making. The same data was supplied to the lead bank for appraisal, which was accepted by them and the financial assistance was sanctioned.

⁶ Please see <https://cdm.unfccc.int/filestorage/H/J/Q/HJQ20RARILXDZQYA8PNDEGVXP98GTA/T%26C.pdf?t=MU98bHcydWlhfDBqviMjdrwA-H60A5yAZsCo> (p.27/53) and http://www.cercind.gov.in/28032004/finalregulations_terms&condition.pdf (p.38/61)

⁷ Please see <http://www.thehindubusinessline.com/2005/12/22/stories/2005122202810900.htm>.

⁸ Please see <http://news.outlookindia.com/item.aspx?300209>

As regards the parallel action taken for registration of the project as CDM activity, as the chronology given above reveals, the project developer had appointed a CDM consultant in January 2004, almost immediately after the Board decision to develop the methodology and also the PDD thereafter. However, due to lack of progress, the project developer terminated the contract on January 2006. The present consultant was appointed in May 2007; an agency for the local stakeholders' consultation was appointed in September 2007; HCA was obtained April 2008 and DOE was appointed in May 2008. Since the gap between any two CDM activity is less than three years, the project developer had taken expeditious steps to get the project registered as CDM activity [once the environmental clearance was obtained] in parallel with the implementation of the project and that the project activity is still under implementation, Validation Team concludes that continuing and real action were/are being taken to secure CDM status for the project in parallel with its implementation in terms of paragraphs 112 (b) of VVM [ver.1.2] read with paragraphs 6 (b) and 8 of Annex 22, EB 49.

Based on the documents submitted and discussions held, Validation Team is convinced that the

- a) PP was aware of the CDM benefits prior to the start date of the project activity;
- b) benefits of the CDM were a decisive factor in the decision to proceed with the project;
- c) continuing and real action were/are being taken to secure CDM status for the project in parallel with its implementation;

In the light of the above and the documentary evidence⁹ submitted by the PP, Since the fulfillment of both the conditions stipulated vide paragraphs 102 (a) and (b) of VVM [ver.1.2] have been demonstrated with documentary evidence, Validation Team concludes that *there was a prior consideration of CDM and the CDM benefits were considered necessary in the decision to undertake the project as a CDM project activity.*

Application of methodology / methodological tools

The proposed project is a large scale project. Project applied an approved and applicable CDM methodology i.e. ACM0002, Version 12.1, which is a valid version. As per section II of the applied methodology i.e. ACM0002, Version 12.1, the additionality of the project activity has been demonstrated and further assessed by the validation team using the "Tool for the demonstration and assessment of additionality" Version 05.2.

⁹ Documentary evidence submitted include Board Resolutions, EPC contract, Owner's Notice to Proceed, appoint of consultant, termination of contract, appointment of present consultant, HCA , appointment of agency to conduct local stakeholder meeting, and appointment of DOE

Alternatives

The project activity is governed by the methodology ACM 0002 (Ver. 12.1). The methodology states,

"If the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:

Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system"

Paragraph 105 of VVM (Ver.1.2) states,

"The PDD shall identify credible alternatives to the project activity in order to determine the most realistic baseline scenario, unless the approved methodology that is selected by the proposed CDM project activity prescribes the baseline scenario and no further analysis is required"

Since the approved methodology prescribes the baseline scenario, no further analysis on alternatives is required. However, the project developer has identified two alternatives, viz., the project activity undertaken without CDM benefits and status quo, i.e., importing electricity from the grid.

Both alternatives are in compliance with all applicable legal and regulatory requirements as

- the implementation of project activity is a voluntary initiative and is not mandatory or a legal requirement; and
- the Electricity Act 2003 does not restrict or empower any authority to restrict the fuel choice for power generation;

Since the baseline is prescribed by the chosen methodology and the project developer has taken into consideration project activity being undertaken without CDM benefits, validation team concludes that the project activity is in conformity with paragraph 105 and 106 of VVM (ver. 1.2).

Investment analysis:

The project activity is governed by methodology ACM 0002 (ver.12.1). The methodology ACM 0002 stipulates that the additionality of the project activity shall be demonstrated and assessed using the latest version of the "Tool for the demonstration and assessment of additionality".

Project developer has chosen to demonstrate the additionality through the benchmark analysis using project IRR as the financial indicator.

Project developer has demonstrated through investment analysis that the project scenario is not economically feasible without benefits from CER sales. Validation Team adopted a six-pronged strategy to assess the claim of the project developer, viz.,

- a) determining the suitability of the benchmark applied for the type of financial indicator presented;
- b) conducting an assessment of parameters and assumptions used in calculating the financial indicator and determining the accuracy and suitability of parameters;
- c) cross-checking the parameters against third-party or publicly available sources;
- d) reviewing annual financial reports related to the project participant;
- e) assessing the correctness of computations carried out and documented; and
- f) subjecting the critical assumptions of the project activity to reasonable variations to determine under what conditions variations in the result would occur, and the likelihood of these conditions.

a) **Suitability of financial indicator and benchmark**: The project developer has demonstrated the additionality of the project through benchmark analysis using Project IRR as financial indicator.

Project developer had demonstrated that the financial returns of the proposed CDM project activity would be insufficient to justify the required investment (Paragraph 108(b) of VVM). Since in this case baseline is outside the direct control of the project developer (grid connected power), the choice of the project developer is restricted to "invest or not to invest". Therefore, the benchmark approach is in conformity with Guidance 16 of Annex 58 of EB 51.

In the above background, Validation Team concludes that the additionality justification given by the project developer is in accordance with the requirements derived from the approved CDM methodology and the methodological tools referred therein as well as the guidance given by EB vide paragraphs 108-110 of VVM (ver. 1.2).

The project developer has chosen project IRR to demonstrate the additionality of the project. As stated above, considering the fact that the project is financed by a mix of debt and equity and that guidance 12 of Annex 58, EB 51 permit the use of project IRR as one of the financial indicators to demonstrate additionality,

project IRR has been considered as appropriate financial indicator for the project type and decision making context. Therefore, selection of financial indicator conforms to paragraph 4, sub-step 2b of option III of Additionality Tool.

As per guidance 12 of Annex 58, EB 51, “*Local commercial lending rates or weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR*”¹⁰. The project developer has chosen the WACC as the benchmark. Project developer had taken into consideration the prime lending rate¹¹ prevailing at the time of decision making [26th October 2005] as the cost of debt and CAPM to compute the expected return on the equity. Since the financial indicator has been computed on post tax basis, post tax cost of debt has been arrived at using the tax rate prevailing and applicable to the Greenfield project activity at the time of decision making. The post tax cost of debt works out to 9.62%. Expected return on equity, based on the CAPM has been estimated at 15.74%¹². Based on the debt equity ratio of 70:30 [which is applicable to the infrastructure projects], the WACC works out to 11.45%. Hence, the benchmark for the project activity has been considered at 11.45%¹³ by the project developer. Considering the fact that this benchmark is conservative to 15.27% given in the web hosted PDD, the computation of benchmark is based on publicly available sources (conformity to Guidance 13 of Annex 58, EB 51) and is appropriate for the financial indicator selected, (Conformity to Guidance 12 of Annex 58, EB 51), validation team accepted the benchmark.

In the above background, Validation Team concludes that the benchmark selected by the project developer is suitable for the financial indicator selected and is conservative. Considering the fact that the financial indicator exceeds the benchmark with CDM benefits, it is reasonable to assume that no investment would have taken place at a return lower than the benchmark. Therefore, the

¹⁰ Annex 58 of EB 51, Guidance on the Assessment of Investment analysis, p.3, item 12

¹¹ The prime lending rate at the time of decision making (October 26, 2005) was 10.25% to 10.75% and the mid rate of 10.5% was taken. The prevailing prime lending rate at the time of decision making can be accessed at <http://rbidocs.rbi.org.in/rdocs/Wss/PDFs/66854.pdf>. The rate remained constant till December 2005 end. The tax rate (Minimum Alternative Tax), which is applicable to greenfield projects was 8.415%.

¹² The investment decision was taken on 26th October 2005. Hence, the documents available at the time of decision making were taken into consideration in computing the expected return on equity (*Re*). Weighted average YTM of G-Sec with a maturity of 29 years, (the maximum tenor of G-sec available in India at that point of time) for the month of August 2005, the latest month for which the data was available at the time of decision making has been considered as proxy for the risk free return (*Rf*), which is in conformity with accepted practice. This data is publicly available and can be accessed at <http://rbidocs.rbi.org.in/rdocs/Bulletin/PDFs/66774.pdf>. Compounded annual growth rate of BSE 500 Index (from its introduction in February 1999 to September 2005), which is the widely diversified portfolio available in India at present as well as at the time of decision making has been considered as the proxy for market return (*Rm*). BSE 500 index can be sourced from the BSE website www.bseindia.com (go to Archives, select indices and select BSE 500 and the period). Risk of the project type has been measured by beta, by regressing the stock returns on BSE 500 index over a period of 2 years prior to the decision making month. The beta has been sourced from Bloomberg and the screenshots form part of the worksheet. The resultant equity beta (which incorporates project risk and leverage risk), had been unlevered using Hamada's equation to obtain only project risk, which is in conformity with guidance 15 of Annex 58 EB 51 and paragraph 112(b) of VVM (ver 1.2). Thus, all the input parameters have been sourced from the publicly available sources and the calculations form part of the worksheet. Therefore, the computation of WACC is in conformity with paragraph 6 (a) of Additionality Tool

¹³ Validation team observed that if BSE Sensex were to be taken into consideration, the benchmark works out to 10.93% and the project therefore continues to remain additional.

selected benchmark is appropriate and conforms to paragraph 112 (c) of VVM [ver.1.2].

- b) Parameters and assumptions used:** The three important parameters, which determine the additionality of the project are project cost, financing pattern, and profitability estimates. The cost of the project was estimated at Rs.59,096 mn. by the Central Electricity Authority (CEA is a Government body) at the time of according Techno Economic clearance. However, subsequently at the time of financial closure, the project cost was revised to Rs.56,000 mn. based on which the investment decision was taken on 26th October 2005. Validation team compared the cost with other similar large scale hydroelectric projects available in the public domain and observed that the cost varies from \$1.14 mn/MW to \$2.95 mn./ MW¹⁴ (with the exception of Allain Duhangan HEP where the cost is \$1 mn., as it is a old project). Since this cost is lower than the cost considered by CEA, compares well with other hydroelectric projects being set up in the country and the cost has been approved by the financial institutions, validation team considers the project cost of Rs.56,000 mn. as correct and appropriate.

The project is financed by a term loan of Rs.39,200 mn and equity capital of Rs.16,800 mn. The financing pattern yields a gearing of 70:30, which is normally accepted financing pattern for infrastructure projects¹⁵. Since a consortium of financial institutions and banks has sanctioned the loans, the interest rate varies. The rate varies from 9.5% to 11%. The weighted average rate of interest works out to 10.07%. However, in the PDD, the project developer has assumed an interest rate of 10.5%, the same rate has been used in the worksheet. This is conservative. Considering the actual interest rate, which is also in conformity with the then prevailing rate of interest¹⁶, validation team accepted the interest rate. This is also in conformity with guidance 11 of Annex 58, EB 51.

¹⁴ There are 13 hydroelectric projects >50 MW listed in UNEP RISOE website, of which investment information in respect of 1 project (Sorang HEP both in Himachal Pradesh) is not available. Of the remaining 12 projects, the capital investment per MW is as follows:

92 MW Allain Duhangan HEP at Himachal Pradesh	- \$1.00 mn.
100 MW Malana II HEP at Himachal Pradesh	- \$ 1.44 mn.
96 MW Jorethang Loop HEP at Sikkim	- \$ 2.95 mn.
70 MW Budhi HEP at Himachal Pradesh	- \$ 1.44 mn.
110 MW Chuzachen HEP at Sikkim	- \$ 1.37 mn.
1200 MW Teesta Stage III HEP at Sikkim	- \$ 1.14 mn.
111 MW Sawra Kuddu HEP at Himachal Pradesh	- \$ 1.41 mn.
330 MW RoR project at Uttarakhand at Alakananda	- \$ 1.21 mn.
412 MW SJVNL HEP at Himachal Pradesh	- \$ 1.20 mn.
84 MW Myntdu Leshka HEP at Meghalay	- \$ 1.92 mn.
300 MW RoR HEP on Alakananda river at Uttarakhand	- \$ 1.26 mn.
500 MW Teesta Stage VI HEP at Sikkim	- \$ 1.44 mn.
Candidate project (1000 MW at Himachal Pradesh)	- \$ 1.17 mn.

Project cost of candidate project has been converted at Rs.48/USD. The information given above are available at the website <http://uneprisoe.org/> (CDM Pipeline overview) except 92 MW Allain Duhangan where the cost has been sourced from PDD/worksheet (USD converted at Rs.48/\$)

¹⁵ The financing pattern is in conformity with financial closure achieved by the company.

¹⁶ Please see <http://rbidocs.rbi.org.in/rdocs/Wss/PDFs/66854.pdf>

The profitability estimates, which forms the basis for LUCE and project IRR calculation is based on installed capacity, PLF, power tariff, O&M cost, depreciation and taxation. The installed capacity of the project activity is determined by the techno economic clearance accorded by CEA, which is 1000 MW, a copy of which has been submitted to validation team. The PLF has been assumed at 50.96% resulting in the generation of 4463.88 GWh per annum¹⁷. Validation team compared the generation/PLF with other projects registered / under validation from Himachal Pradesh and found that the PLF assumed by them vary between 34% and 51%¹⁸. Moreover, HPERC itself has recommended PLF of only 45% for the small hydropower project coming up in the State¹⁹. In the above background, the PLF of 50.1% assumed by the project is considered reasonable. Since the PLF has been provided to the banks while applying for financial assistance, PLF conforms to Annex 11, EB 48. Auxiliary consumption and transmission losses have been provided as per CERC's tariff order²⁰.

The tariff has been computed as per CERC formula²¹. In the PDD originally submitted, project developer had assumed that the entire power generated would be sold to PTC Ltd., Government utility. Utility tariff has been computed as per the methodology prescribed by Central Electricity Regulatory Commission (CERC) (Terms and Conditions of Tariff) Regulations, 2004. This order dated 26 March 2004 was available at the time of investment decision. PP has to follow the methodology prescribed by CERC for utility power tariff determination as Article 3 (xiii) of the Techno-Economic clearance granted to the project by Central Electricity Authority on 31 March 2003 states, '*Tariff shall be decided by Central Electricity Regulatory Commission*'. Further, the use of this order is also in conformity with Schedule E of the PPA which states:

'PTC shall pay Tariff to the Company based on the Capital Cost and means of financing thereof, as approved by CEA/ CERC on completion of the Project, in proportion to the ratio of Contracted Power to the Rated Capacity, such Rated Capacity being adjusted for Free Power. The Tariff will be payable by PTC in

¹⁷ CEA in its Techno Economic Clearance to the Project during March 2003 had estimated the total generation at 4559.77 GWh based on 0.17 cumec environmental release (for aquatic life) from the dam. However, MoE&F while according environment and forest clearance in November 2005, stipulated release of 6.80 cumec instead of 0.17 cumec of water from the dam on environmental considerations. The energy generation after considering 6.80 cumec environmental release, works out to 4463.88 Gwh as per CEA guidelines keeping all other parameters of TEC unchanged. CEA will accept this modification while fixing the tariff as it is the result of compliance with Government stipulations. The ICICI Bank, the lead manager for loan syndication has considered generation of only 4463.88 Gwh in the appraisal.

¹⁸ PLF assumed by projects registered/validation in Himachal Pradesh are as follows:

92 MW Allain Duhangan HEP at Himachal Pradesh	- 40.3%
100 MW Malana II HEP at Himachal Pradesh	- 48.9%
70 MW Budhi HEP at Himachal Pradesh	- 51.1%
111 MW Sawra Kuddu HEP at Himachal Pradesh	- 33.8%
412 MW SJVNL HEP at Himachal Pradesh	- 49.0%
Candidate project (1000 MW at Himachal Pradesh)	- 50.1%.

¹⁹ The PLF has been computed from the PDDs published in the UNFCCC website
²⁰ Please see <http://www.hperc.org/orders2007.html> (Item No.15 in 2007-08 Orders)

²⁰ Please see http://www.cercind.gov.in/13042007/Terms_and_conditions_of_tariff.pdf (p.33 and 34)

²¹ Tariff has not been fixed as yet. PPA states that the Tariff determination would be subject to approval by the Appropriate Commission. A petition for approval of Tariff for sale of generated power would be filed by the company with the Appropriate Commission and the Tariff as approved by such Appropriate Commission will be applicable.

accordance with the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2004'

Further, the authority for the CERC to determine tariff in such a manner is granted by Section 79 (b) of the Indian Electricity Act, 2003 dated 26 May 2003 which states '*The Central Commission shall discharge the following functions, namely (b) to regulate the tariff of generating companies other than those owned or controlled by the Central Government specified in clause (a), if such generating companies enter into or otherwise have a composite scheme for generating and sale of electricity in more than one State;*'. Since the project is selling power to more than one state hence the tariff for the same would be determined by CERC. Thus, Utility Tariff computed is in accordance with applicable regulations available at the time of investment decision as well as the PPA for the project.

The detailed calculations are given in the "Tariff" worksheet. The 'Tariff' worksheet calculates the tariff for sale of power under PPA in line with the applicable tariff order, i.e. Central Electricity Regulatory Commission (CERC) (Terms and Conditions of Tariff) Regulations, 2004. The calculation of B1 tariff for sale through PPA (row 20 of "Tariff" worksheet) considers the Annual fixed charges, i.e., row D19 and divides the same by the total power after deduction of 12% free power to Home State (given vide row 24 of "Para" worksheet).

This has been done in line with the applicable CERC tariff order 2004, which states in Article 39, that the *"(1) Primary energy charge shall be worked out on the basis of paise per kWh rate on ex-bus energy scheduled to be sent out from the hydro electric power generating station after adjusting for free power delivered to the home state."* Hence, the total power generated less free power given to home state (i.e. Himachal Pradesh) and auxiliary consumption is considered in the formula used (D19/Para!D24) where row 24 of 'Para' worksheet reflects the generation sent out after adjusting free power delivered to the home state.

The tariff is determined on yearly basis as per the conditions in the Schedule E of the PPA which states for Tariff Computation; '*Tariff shall be computed by the Company thirty (30) days prior to each Tariff Year commencing from the COD of the first unit*'. Hence, fluctuating tariff is calculated each Tariff Year based on the operating cash flows after commissioning of the project. The process followed for tariff determination is project specific as it takes into account individual project capital costs, financing arrangements and operating cash flows.

Therefore, where the tariff is fixed by CERC, the fluctuation in tariff is inevitable. Such fluctuation in tariff can be observed in registered projects Run of the River Hydroelectric Power Project in Uttarakhand by Alakananda Hydro Power Company Ltd. (Reg. No. 4776) vide row 41 of Appendix 2 of 'Tariff' worksheet and Allain Duhangan Hydro Electric Project (Reg. No. 0862) vide row 42 and 54 of 'Tariff' worksheet. Unfortunately, the worksheet relating to Hydroelectric Power Project by SJVNL in Himachal Pradesh (Reg. No. 4568) is not available in the

UNFCCC website. However, PDD states, “Rs. 2.39/ kWh-first year and calculated as per CERC norms for rest of the years”.

DOE also confirms that the signed PPA does not indicate any estimated tariff as the tariff will be determined each Tariff Year in accordance with the provisions listed in the PPA.

However, the validation team after going through the Draft Red Herring Prospectus (L₃ information) observed that the project developer has to supply only 704 MW to the utility and after accounting for the free supply [of 12% of the generation in the first 12 years of operation and 18% thereafter] to the Govt. of Himachal Pradesh can sell the remaining power [approximately 17% of generation in the first 12 years and 11% thereafter] at market rate. Hence, the project developer was asked to incorporate the merchant power sale in the financial indicator calculation. Accordingly, PP has reckoned the merchant power sale in the financial indicator calculation. The tariff considered for sale of merchant Power is based on the sale rate of electricity traded by trading licensees as published by the CERC²². The sale price, weighted against volume, was used to arrive at the weighted average rate (2.42 Rs/KWh)²³ and escalated by Electricity Index (of Whole Sale Price Index published by the Office of the Economic Advisor, Govt. of India)²⁴ to arrive at the projected tariff in 2011-12, the year in which the project is expected to commence generation.

The transmission charges and trading margin were deducted from the projected sale rate to arrive at the Ex-bus tariff of 3.37 Rs. /KWh. Since power trading in India had begun only in 2004 with the granting of first trading license on 9th June 2004²⁵, this was the most comprehensive data available on the date of investment decision.

The merchant power sale, thus computed, has been accounted in the revised worksheet and the tariff has been computed based on the tariff prevailing at the time of decision making. The levelized (at 10% discount rate)²⁶ tariff works out to Rs.3.27/kWh in the case of merchant power sale in contrast to Rs.2.31/kWh in the case of Utility.

The worksheet takes into consideration the revenue from grid sale and merchant power sale. To facilitate a quick understanding of the fact that the financial model includes both the revenue, attention is invited to row 19 of ‘P&L’ worksheet,

²² <http://cercind.gov.in/Electric-Trading/priceanalysis.pdf>

²³ Merchant power tariff, estimation of transmission cost and trading margin calculations form part of worksheet – Please see rows 174 – 196 of ‘Assu’ worksheet

²⁴ This has been done using the wholesale price index for Electricity as published by the ‘Office of the Economic Adviser to the Government of India, Ministry of Commerce and Industry’. The average escalation over a 10 year period from 1995-96 to 2004-05, which was available at the time of investment decision was considered for the determination of escalation

²⁵ <http://tatapowertrading.com/about-us/introduction.php>

²⁶ The discount rate will not affect the conclusion as the same discount rate has been applied to both sale to Utility and the merchant power sale.

which incorporates income from merchant sale of power net of taxes; row 20 gives the gross cash accrual, which includes income from sale of power to grid and also income from merchant sale of power after accounting for free supply of 12% power to the State (Himachal Pradesh).

The finance model is slightly complicated. However, that the free power, merchant power sale and grid sale income have been duly reckoned in the calculation is illustrated here below using the first two year calculations as examples:

Details	2011-12	2012-13
1. Sales - INR in million(row 6 of 'P&L worksheet)	3401.95	10277.34
2. Add: Addl. revenue through merchant power net of taxes - INR in mn. (row 19 of 'P&L' worksheet)	76.59	442.12
3. Add: Tax deducted – INR in mn. (row 41 of 'Tax' worksheet)	7.04	40.62
4. Total income (1) + (2) + (3)	3485.58	10760.08
5. Total power generation in MWh (row 162 of 'Assu' worksheet)	1343.64	4463.88
6. Less: Auxiliary consumption at 1.2% in Mwh (row 163 of 'Assu' worksheet)	16.12	53.57
7. Net generation in MWh (1) - (2) (row 164 of 'Assu' worksheet)	1327.52	4410.31
8. Less: 12% free power to HPSEB in MWh (row 165 of 'Assu' worksheet)	159.30	529.24
9. Net saleable energy in MWh (row 166 of 'Assu' worksheet)	1168.22	3881.07
10. Sale to grid at 70.4% of net generation in MWh (row 21 of 'Para' worksheet)	934.57	3104.86
11. Merchant power sale in MWh (row 25 of 'Para' worksheet), i.e., rows	233.65	776.21
12. Power tariff for sale to grid (in INR). (row 22 of 'Tariff' worksheet)	2.91	2.65
13. Income from sale of power to grid (in INR milln.) (row 23 of 'Tariff' worksheet)	2721.56	8221.88
14. Power tariff for merchant sale (row 26 of 'Tariff' worksheet)	3.27	3.27
15. Income from merchant power sale (row 27 of 'Tariff' worksheet)	764.02	2538.21
16. Total income - rows (9) + (11) - which is the same as the figure given in row (4) above	3485.58	10760.09

A comparison of the figures given vide rows 4 and 16 given above would reveal that free power and the revenue from sale of Merchant Power are reckoned in the computation of IRR.

While the tariff for sale to grid is determined by CERC formula, which has been used in the tariff calculation, merchant power tariff has not been subjected to escalation due to uncertainty in the price trend in the Merchant Power markets. Merchant power tariff has not been subjected to escalation due to uncertainty in the price trend in the Merchant Power markets. This has been the actual case in India with average price for power transacted through trading licensees varying drastically each year as can be seen from the data below²⁷:

Year	2007	2008	2009	2010-11
Average Price (Rs/ KWh)	4.16	7.04	6.41	3.47

Moreover, the tariff may go down in future because of the shrinking gap between demand and supply of power. The combined effect of reduction in peak power demand gap and increasing power capacity addition is likely to cause a downfall in merchant power tariff. It is predicted that the demand-supply gap will reduce by half to four to five per cent in 2014-15 from 10 per cent in 2009-10²⁸. Further the launch of Ultra Mega Power Projects through competitive bidding is also expected to substantially reduce power shortage in future²⁹. The cheaper power has been secured by Ministry of Power in India through development of large size power projects using latest super critical technologies. Considering this reduction in power shortage most of the distribution licensees are planning to cut down its electricity purchase prices³⁰. As per Central Electricity Regulatory Commission (CERC), the country's power regulatory agency, the electricity prices are declining, but still it is in higher side as compared to international electricity price³¹. Therefore, CERC is proposing to cap electricity price to ensure a reasonable electricity rate. In the above background, PP pointed out that any increase in tariff unaccompanied by increase in generation cost is ruled out.

Due to the foregoing, no escalation was provided in merchant power tariff. The sensitivity analysis, in which merchant power tariff has been subjected to variation, reveals that even if the merchant power tariff is subjected to 10% escalation, i.e., Rs.3.60/kwh, the project does not lose its additionality.

²⁷ Data for 2007, 2008, 2009: Page 8, CERC Annual Report – Short term Power Market in India 2009 (http://www.cercind.gov.in/2010/MMC/MMC_Annual_Report_2009_dated_28.4.pdf). For 2010-11, page 13 of CERC Annual Report – Short term Power Market in India, 2010-11 (http://www.cercind.gov.in/2011/MMC/Report_on_power_market_2010-11_dated_28.7.2011.pdf)

²⁸ "Merchant Power Prices may fall in five years" published in "Business Standard" dated October 12, 2010. <http://www.business-standard.com/india/news/merchant-power-prices-may-fall-in-five-years/411211/>

²⁹ "Development of Ultra Mega Power Projects" Provisions of Electricity Act, 2003 and various policies pronounced under the Act. http://powermin.nic.in/whats_new/pdf/development_of_project.pdf

³⁰ "RInfra plans to cut power tariff in 5 years" published in "Hindustan Times" dated June 9, 2011. <http://epaper.hindustantimes.com/PUBLICATIONS/HT/HM/2011/06/09/ArticleHtmls/RInfra-plans-to-cut-power-tariff-in-5-09062011007003.shtml?Mode=1>

³¹ "Power utilities, exchanges against capping of electricity prices" published in "Business Standard" dated July 25, 2010. <http://www.business-standard.com/india/news/power-utilities-exchanges-against-capping-electricity-prices/402396/>

O&M cost has been provided as CERC tariff order³². Interest is based on detailed computation forming part of the worksheet. The project developer has adopted CERC recommended depreciation rate for computing book profit and Income Tax Act stipulated WDV depreciation for income tax calculation, which are accepted accounting methods. Tax liability has been calculated as per the income tax rules. In computing the income tax liability and the Tax holiday (u/s 80IA of the Income Tax Act, 1961), which the infrastructure projects (under which the project activity falls) are entitled to, has been provided³³. The tax rate assumed corresponds to the tax rate prevailing at the time of taking decision.

The assumptions supporting the workings, the basis thereof as well as their conformity with direction given by EB are given as Table A-3 in the annexure.

Since the input parameters have been sourced from the financial closure, loan sanction letters, acts and regulations, they were valid at the time of decision making, are reliable, credible and appropriate for the project activity. Thus, the validation conforms to the guidance given vide paragraphs 88, 95 and 114 of VVM (ver.1.2)

- c) **Cross checking parameters:** The investment cost, O&M cost, interest costs, depreciation and tax rate have been cross checked with sources given by the PP and independently based on the sectoral knowledge and the local expertise of the DOE, Companies Act, Income Tax Act and the PPA. Tariff has not been fixed as yet. Though the PPA has been signed, it only states that the tariff determination would be subject to approval by the Appropriate Commission. A petition for approval of Tariff for sale of generated power would be filed by the company with the Appropriate Commission (before commencement of generation) and the Tariff as approved by such Appropriate Commission will be applicable to the project. The tariff cannot be compared with other projects, as it depends on the capitalization and the interest rate applicable to the project and it differs from project to project. All the data forming part of the computation are based on published sources, which are verifiable and were valid. Each of the figures used in the projections has been checked for its correctness and validity at the time of investment decision taking and a summary of the assumptions used together with the basis thereof and Validation Team's comments on its appropriateness is enclosed as Table A-3 to this report for each alternative considered. Validation, therefore conforms to guidance given vide paragraphs 88 and 97 of VVM (ver.1.2)

³² Please see http://www.cercind.gov.in/13042007/Terms_and_conditions_of_tariff.pdf (p.39)

³³ As per the Income Tax Act, Section 80 IA benefits is available to only those projects that commence generation before March 31, 2011. This project is expected to commence generation only in August 2011. Hence, unless the period is extended by the Government, the project would not be entitled to the benefits. However, as a conservative measure, the project developer has assumed the benefits while computing the financial indicator. Should the Government fail to extend the date, the project IRR will go down and the project would become all the more additional

- d) **Financial reports of project participant:** The project is still under implementation and the annual report and financial statements forming part do not provide any information more than the capital, preliminary and pre-operative expenditure. The Annual Report seems to reveal that the project is likely to experience cost overrun. Therefore, none of the input values taken in the computation can be based on the Annual Report.
- e) **Assessment of correctness of computation:** The assessment involves checking the data input taken from documents, adoption of correct accounting principle and arithmetical accuracy. The Validation Team checked the documents and ensured that right input has been taken in the project cost and projections. The accounting principles adopted with respect to interest and tax computation have been found to be in order. The arithmetical accuracy is also found to be correct.

The principle adopted by the project developer for computing project IRR is in conformity with the Additionality Tool and Guidance on the Assessment of Investment Analysis issued by EB (Annex 58, EB 51). IRR has been computed for 35 years. Residual value has been taken as the salvage. Considering the fact that the written down value of the assets on which depreciation benefits can be claimed is only Rs.1328.55 mn., provision of Rs. 15982.24 mn. as salvage value takes into account both the residual value and potential profits. Therefore, it conforms to guidance 4 of Annex 58, EB 51. In computing the project IRR, the project developer has taken into account profit after tax, interest on term loan, depreciation and salvage value as cash inflow. The entire investment has been taken as cash outflow.

Based on the above, the project IRR works out to 9.80% in contrast to the benchmark of 11.45%. In the above background, Validation Team is convinced that the project is additional and not a business-as-usual scenario. However, this conclusion was checked by subjecting the critical assumptions to reasonable variations.

- f) **Sensitivity analysis:** The Guidance on Assessment of Investment Analysis requires the robustness of the conclusion arrived at to be tested through a sensitivity analysis by subjecting critical assumptions to reasonable variations. It requires only those 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 ($\pm 10\%$). The revenue is determined by generation, project cost and O&M cost. Besides, in this instant case there are two unique variables which could affect the additionality, viz., merchant power tariff and ROE. Since the project developer is allowed to sell surplus power after supplying 704 MW to the Utility and 12% for the first 12 years and 18% thereafter of net generation to the Himachal Pradesh Government free of cost, a variation in the merchant power tariff could impact additionality. Secondly, the ROE, which forms the basis for fixing the tariff in respect of the supply to the Utility could vary.

Recently, CERC has increased the ROE to 15.5%. Though the project developer has stated that the increased ROE is not applicable to this project activity, it is not clear as yet whether this ROE would be applicable to this project or not. Therefore, five factors have been subjected to sensitivity analysis, viz.,

- a. Generation
- b. Project cost
- c. O&M cost
- d. Merchant power tariff
- e. Return on Equity

Of the above, generation, O&M cost and merchant power tariff would vary throughout the life of the project activity. Project cost and Return on equity would get determined as soon as the project is completed. However, all the five variables were subjected 10% variation on either side, except RoE where a reduction is not realistic. The results of the sensitivity analysis are given in the following table:

Factors	-10%	Baseline	+10%
Generation	10.14%	9.80%	9.56%
Project cost	8.80%	9.80%	10.81%
O&M cost	9.98%	9.80%	9.63%
Merchant power tariff	9.54%	9.80%	10.10%
Return on equity	-	9.80%	10.11%

The sensitivity analysis results reveal that the project would remain additional despite a 10% variation in the selected input parameters.

This project is different from other projects as each and every cost goes into tariff determination. Any reduction in any of the costs will automatically result in the reduction of tariff and vice versa. Hence, the costs have to vary substantially to render the project non additional. The exercise carried out by the validation team reveals that the project cost has to go down by as much as 54.5% for the project to become *non-additional*³⁴. O&M cost constitutes less than 10% of the total cost / revenue. Hence, even if the O&M cost is reduced to zero, the project would continue to remain additional as there would be a corresponding reduction in tariff. Even a 50% increase in power tariff of merchant sale would not render the project *non-additional*. Generation does affect project's additionality and the exercise reveals that a 21% increase in generation would render the project *non-additional*. Based on an elaborate study of the flows in the upstream and downstream projects, project developer has observed the increase in average actual annual energy generation over and above design annual energy

³⁴ However, in case of over run in the project cost, the increased equity percentage of the project cost will not be accounted for in the tariff estimation.

generation, is unlikely to cross 5% level. Moreover, validation team also observed that none of the projects in HP has achieved a PLF of more than 50% on sustained basis. Therefore, validation team believes that achieving PLF of 61.2% (which is the resultant PLF when increased by 21.1%) is not practical. In view of the above, the Validation Team has concludes that the project is not a business-as-usual scenario.

Common practice analysis

This project does not qualify to be recognized as the first-of-its-kind project activity as per Annex 10 of MP 34. Hence, the project participant carried out a common practice analysis as a credibility check as required by the Additionality Tool and paragraph 119 of VVM [ver.1.2]. Accordingly, a three pronged strategy has been adopted by the Validation Team to ascertain the common practice, viz.

- (a) ascertaining the appropriateness of the geographical area chosen for the demonstration of common practice;
- (b) percolation of 'similar' hydropower projects in the chosen geographical area; and
- (c) distinguishing features of the candidate project vis-a-vis other 'similar' non CDM hydro power projects in the geographical area.

a) Appropriateness of the geographical area chosen: PP has chosen the entire country as the geographical area for the purpose of common practice analysis. This is in conformity with paragraph 120 (a) of the VVM [ver.1.2].

b) 'Similar' hydropower projects in the chosen geographical area: The project activity under consideration is a large scale run-of-the-river hydroelectric project activity with installed capacity of 1000 MW (250 x 4). Therefore, all hydropower projects with an installed capacity of 125 MW to 1500 MW have been considered for the purpose of the common practice analysis. The selection of hydropower projects with a capacity of 125 MW – 1500 MW conforms to step 4 of Additionality Tool (similar technology and similar scale) as also EB's requirement³⁵. The validation team relied upon the data published by Central Electricity Authority³⁶, which provide information on all hydropower projects in the country for evaluating common practice analysis. As per the information available therein, there were 89 hydropower projects as of 31st May 2010 within the chosen range. Of them, 68 were under operation and 21 were under various stages of implementation. Of the 68 projects which were in operation, 65 were in public sector and 3 were in private sector. Of the 21 projects under implementation, 15 were in public sector and 6 in private sector. State owned projects operate entirely in a different environment, investment climate and

³⁵ This is in conformity with the request for review question raised by EB in the case of Chutak Hydroelectric Project" (2025).

³⁶ <http://www.cea.nic.in/hydro/List%20of%20HE%20Stations%20in%20the%20country.pdf>

access to financing. Hence, they are not comparable to projects promoted in private sector. Therefore the total number of projects to be considered for the analysis is only 9 projects. Step 4 of Additionality Tool defines 'similar' projects as those which are '*operational*', located in the same country/region, rely on a broadly similar technology, of a similar scale and take place in comparable environment. If the projects under implementation are excluded, then there are only 3 'similar' projects. Therefore, relevant population for the common practice analysis study is boiled down to 3 projects, which are under operation. They are

- i) Tata Power Company Ltd. – Bhira Power project 300 MW
- ii) JP Hydropower Company – Baspa 300 MW
- iii) JP Hydropower Company – Vishnuprayag 400 MW

c) Distinguishing features of candidate project from 'similar' projects: Of the three projects, Tata Power company implemented 150 MW in 1952 and another 150 MW was added in 1997, i.e., before the Electricity Act was passed and the Kyoto Protocol was ratified by the Government of India. The other two projects are under different regulatory climate as they are governed by the state regulation while the proposed project is governed by the CERC (centre electricity regulatory committee) as it is exporting the power to more than on state. Moreover those projects are also seeking funding under VCS³⁷. Therefore, there are no '*similar*' projects in India. Hence setting up of large scale hydro power projects with an installed capacity of 1000 MW by private sector is not a common practice in India as of now. Therefore, Validation Team concludes that setting up of large scale hydropower projects, by private sector, is not a common practice in India.

Thus, the validation team had taken into consideration the directions given vide paragraphs 120 and 121 of VVM [ver 1.2].

In the above background, Validation Team concludes that the project is not a business-as-usual scenario and is additional. The CDM benefits would enable the project to become financially attractive in as much as the project IRR with CDM benefits (11.54%) would cross the benchmark (11.45%) and hence CDM benefits would enable the project developer to overcome the barrier.

Nevertheless, CARs B16-B28 to and CL B29-B35 were raised and successfully closed.

5.2.6 Monitoring Methodology

³⁷ DOE has in its possession the verification reports submitted to VCS by these two projects

The proposed CDM project activity complies with the monitoring methodology ACM0002, Version 12.1, consolidated Baseline Methodology for grid connected electricity generation from renewable sources.

5.2.7 Monitoring Plan

As per section B.7 and Annex-4 of the PDD^{/PDD-T/}, monitoring plan of the project activity comprises all relevant monitoring parameters given in the applied monitoring methodology. The methodology i.e. ACM0002, Version 12.1, stipulates that monitoring shall consist continuous monitoring and at least monthly recording of quantity of net electricity supplied by the project activity to the grid in year y ($EG_{\text{facility}, y}$) and total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y (TEG_y). In addition to the above relevant parameters, Installed capacity of the hydro power plant after the implementation of the project activity (Cap_{PJ}) and area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (A_{PJ}) needs to be monitored yearly.

The metering procedures are in accordance with the Power Purchase Agreement (Article 8)^{/PPA/}. As per onsite interviews^{/IM01//IM02/}, hourly monitoring of $EG_{\text{facility}, y}$ and TEG_y will be carried out using energy meters installed at the switchyard at project site and monthly recording of the same will be done in electronic and paper formats. The energy meters will be calibrated once in two years. Measurement results of net electricity supplied/sold by the project activity may also cross checked with records for sold/export (e.g., invoices etc.)

Installation of Meters, periodical testing and Calibration etc. are clearly described in the Annex-4 of the PDD^{/PDD-T/}.

Installed capacity of the hydro power plant (Cap_{PJ}) is an ex-ante fixed parameter however this will be monitored yearly as well as the area of the reservoir measured in the surface of the water at the full reservoir capacity (A_{PJ}) after the implementation of the project activity will be measured from topographical surveys or maps on yearly basis.

The combined margin CO_2 emission factor for NEWNE regional grid ($EF_{\text{grid,CM},y}$) have been calculated *ex-ante* as per the Annex 14, EB 50 “tool to calculate the emission factor for an electricity system” (Version 02) based simple operating margin (calculated based on 3 years vintage data (2005-06, 2006-07 and 2007-08) on net generation provided by CEA^{/CEA/}) and build margin emission factor from the CEA database version 4. As per the Annex 14, EB 50, baseline establishment and data related to baseline informations (i.e. operating margin and build margin) should be based on the most recent data available at the time of submission of the CDM-PDD to the DOE for validation commencement. Thus applied CEA data base version 4 is

applicable and hence data needed to recalculate OM and BM does not apply. All the monitored data will be archived electronically for a period of 2 years after the crediting period.

Nevertheless, CAR B7 was raised and was successfully closed (ref Annex: Validation Protocol - Table A-1).

5.2.8 Project Management Planning

PP has formed a structured project management team to ensure proper operation and continuous monitoring of proposed project activity.

Procedures for data management are described in the section B.7.2 of the PDD^{/PDD-T/}. All the monitoring data which are mentioned in the PDD^{/PDD-T/} will be recorded and archived by the CDM monitoring team and on a weekly basis, the monitoring reports will be checked and discussed by the senior CDM team members/managers. In case of any irregularity observed by any of the CDM team member, it is informed to the concerned person for necessary actions.

Energy generation data at the project site will be recorded in electronic form in hourly and monthly basis in electronic and paper formats and the same will be cross verified by the invoices. Also, the project proponent will maintain complete and accurate records of all the data as a part of monitoring for at least a period of 2 years after the end of the crediting period.

Thus, based on site visit interviews^{/IM01//IM02/} and desk review, the validation team comes to the conclusion that the project management planning is adequate and appropriate for the project monitoring.

5.2.9 Crediting Period

PP has chosen a fixed (10 years) crediting period and the start date of the crediting period is mentioned as 2011-10-15 and also it is clearly mentioned that crediting period will not commence prior to the date of registration, which is appropriate and reasonable.

Nevertheless, CAR C1 was raised and was successfully closed (ref Annex: Validation Protocol - Table A-1).

5.2.10 Environmental Impacts

As per EIA notification by the MoEF, India, S.O. 1533(E) dated 14/09/2006 and draft environment impact assessment notification vide S.O. 195(E) dated 19 January 2009^{/EIA/}, large scale hydro power projects requires environmental impact assessment and environmental clearances.

PP has carried out the detailed Environment Impact Assessment (EIA) for the project activity by environment research institute - National Environmental Engineering Research Institute (NEERI), Nagpur, India. The EIA has been approved by the H.P. State Environmental Protection & Pollution control board in terms of consent to establish the project activity (4x100 MW hydro project) through a letter wide no. HP SEP & PCB/J.P.Karcham Wangtoo HEP Kinnaur/2005-9127-34 dated 2005-08-08^{/SC/}. The same also have been approved by Ministry of Environment and forests, Govt. of India in terms of environmental clearance wide letter No. J 12011/47/2005-IA.I dated 2005-11-09^{/SC/}.

5.2.11 Comments by Local Stakeholders

A detailed local stakeholders consultation on the project activity was carried out by the project proponent through an independent third party, Sharnam Sewa Samiti (SSS), Lucknow^{/LSC/}. The study was designed in view of the World Commission on Dams guidelines. The different group of stakeholders were identified for the proposed project like local peoples, Village heads, govt. officials, NGOs etc. Thus the stakeholder Consultation process primarily dealt with socio-economic impact of the project activity and provided an opportunity for the local population to express their views and comments with respect to the project activity. Various issues like rehabilitation and compensation, Impact on livelihoods and apple production, Improvement in local infrastructure, Status of compliance of Catchment Area Treatment Plan, Disaster Management Plan and RRP etc. have been discussed during the stakeholder process.

The Stakeholders Consultation was conducted using a process providing the stakeholders with an opportunity to understand the project activity and give their comments on the impacts on the livelihood of the stakeholders and PP has provided proper responses on the issues raised during the process.

Validation team has carried out an extensive stakeholder meeting during on site assessment. Stakeholders have expressed their views^{/IM03/} and informed the validation team about social and infrastructural development carried out by JKHCL. As informed by independent stakeholders, JKHCL has undertaken various voluntary initiatives like construction of roads, bus stands, temple renovations, irrigation pipe lines, schools and medical facilities etc. along the complying with mandatory requirements i.e. various water shed development activities, environmental management plan etc. for the project and has sought to address all the concerns of the stakeholders and their minimizing the adverse impacts of the project activity on them.

6 VALIDATION OPINION

Jaypee Karcham Hydro Corporation Limited has commissioned the TÜV NORD JI/CDM Certification Program (CP) to validate the project: "Hydroelectric Project in Kinnaur District in Himachal Pradesh" with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords) and the relevant decisions by COP/MOP and CDM Executive Board

In the course of the pre-validation 30 (Eleven) Corrective Action Requests (CARs) and 09 (Three) Clarification Requests (CLs) were raised and successfully closed.

The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of comments by parties, stakeholders and NGOs have provided TÜV NORD JI/CDM CP with sufficient evidence to validate the fulfilment of the stated criteria.

In detail the conclusions can be summarised as follows:

- The project is in line with all relevant host country criteria (India) and all relevant UNFCCC requirements for CDM. Project activity approval have been obtained from DNA of India vide the Letter of Approval (HCA) dated 2008-04-09.
- The project additionality is sufficiently justified in the PDD.
- The monitoring plan is transparent and adequate.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 35,419,166 tCO₂e are most likely to be achieved within the crediting period (fixed).

The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.

New Delhi, 2012-04-12



Abhishek Kumar Srivastava
TÜV NORD JI/CDM CP
Validation Team Leader

Essen, 2012-04-12



Eric Krupp
TÜV NORD JI/CDM CP
Final Approval

7 REFERENCES

Table 7-1: Documents provided by the project participant

Reference	Document
/ADD/	<ol style="list-style-type: none"> 1. Northern Regional Power Committee Annual Report (2007-08) 2. Northern Regional Power Committee Annual Report 2006-07. 3. Central Electricity Authority, Govt. Of India, Ministry of Power annual report (2006-07), , July 2007 4. Hildyard N., 1998, High Risk - Low Return? ABB's Hydropower Strategy under Review, <i>Berne Declaration</i>, Zurich, Switzerland, 1998-02-25. 5. Environmental Assessment for <i>Rampur Hydroelectric Project (RHEP)</i> in Himachal Pradesh, E1465, Volume 3, dated September 2006 by DHI (India) water & environment. 6. Joshi, V., 1993, Living with risk in the Indian Himalaya region, <i>G.B. Pant Institute of Himalayan Environment and Development</i> 7. Sah, M.P. and Gupta V., 2007, Impact of Trans-Himalayan Landslide Lake Outburst Flood (LLOF) in the Sutlej catchment, Himachal Pradesh, India- <i>Springer Science and Business Media B.V.</i> 8. Detailed Project Report (DPR) for Karcham-Wangtoo Hydroelectric project (1000 MW) (Revised), Vol. I, prepared by International Design Engineering Associates Ltd. , December 2000. 9. Implementation Completion Report (CPL-30240, SCL-3024-A) for Nathpa Jhakri Power Project (Report no.: 24899), The World Bank, 2002-09-25. 10. Hoek, E. et. al., 1998, Geotechnical risks on large civil engineering projects, Keynote address for Theme I – International Association of Engineering Geologists Congress, Vancouver, Canada, September 21 to 25, 1998 11. Singal S.K. and Singh R., 2006, Impact of silt on hydro turbines” presented in Himalayan Hydropower summit, dated, 2006-10-12 and 2006-10-13 12. List of Hydropower stations with a capacity above 3MW in the country dated as on 2007-06-30 published by CEA. 13. Challenges in generation at Nathpa Jhakri power station (1500 smw) due to Heavy River silt in Sutluj, presentation by H.K.Sharma, CMD, SJVNL at Power Gen-India & Central Asia (International Conferences, 2006) dated 2006-10-26. 14. Details of under execution hydropower stations of 100 MW and above installed capacity (June 2005). 15. Details of Commissioned, under-construction and cleared by CEA

Reference	Document
	<p>HEPs in Private sector since 1991.</p> <p>16. Private Sector Hydro Schemes Cleared/Appraised By CEA (Under The Provisions Of Repealed E(S) Act 1948), Status as on 2007-04-09.</p>
/AGMT/	Supplementary Implementation Agreement signed with Government of HP and JKHCL dated 2007-12-20.
/CEA/	CEA Techno Economic Clearance file No. 2/HP/19/96-PAC/1409-1436, dated 2003-03-31
/CERC/	<ol style="list-style-type: none"> 1. CERC Tariff Order No. L-7/25(5)/2003-CERC, dated 2004-03-26. 2. CERC Depreciation Schedule-Appendix II
/CON/	A validation contract between Jaypee Karcham Hydro Corporation Limited (member of Jaiprakash Associate Ltd.) and TUV India Pvt. Ltd. (member of TUV Nord Cert GmbH) dated 2008-09-07 and Appointment of DOE vide letter JKHCL/MD/CDM/08 on dated 2008-05-13.
/CM/	<p><u>CDM Milestones</u></p> <ol style="list-style-type: none"> 1. Certificate of Incorporation, Form No. I.R. of JKHCL, issued by Registrar of Companies, dated 2002-04-29 2. Notification by Govt. of Himachal Pradesh Department of MPP & Power for transferring the duties, assets and liabilities to JKHCL from JIL dated 2003-02-19. 3. Offer from EQMS regarding CDM Consultance services for proposed CDM project (Karcham wangtoo Hydro electric project), dated 2003-11-24. 4. Letter of engagement for consultancy services for Karcham wangtoo Hydro electric project to EQMS, CDM Consultant dated 2004-01-05. 5. Letter from JKHCL dated 2005-01-21 to EQMS asking the consultant to wait for Environment clearance 6. Termination of contract with EQMS dated 2006-01-25 7. Proposal for 1000 MW Karcham Hydro CDM project from Emergent Ventures India Pvt. Ltd., dated 2005-02-18. 8. Minutes of Meeting of State Level Environment Impact Assessment & Monitoring Committee held on 2005-03-17 under the chairmanship of Secretary (S&T) of Govt. of H.P. 9. Formation of District level Inter-departmental Monitoring Committee by HP Govt. for implementation of provisions of Environmental Management Plan in respect of proposed project Karcham wangtoo

Reference	Document
	<p>Hydro electric project, dated 2006-02-18.</p> <p>10. Financial Closure for the project (with ICICI as the Lead Bank) dated 2006-03-30.</p> <p>11. Notification by Government of Himachal Pradesh concerning R&R scheme for the project, dated 2007-05-07</p> <p>12. Notification for formation of Local Area Development Committee (LADC) dated 2007-01-10</p> <p>13. Appointment of present consultant (E & Y) vide letter dated 2007-05-03.</p> <p>14. Appointment of Sharnam Sewa Samiti for local stakeholders' consultation dated 2007-09-22</p> <p>15. Appointment of DOE vide letter JKHCL/MD/CDM/08 dated 2008-05-13</p>
/CS/	Project site clearance – Government of India (MoEF), dated 14.09.2001
/FSR/	Revised Detailed Project Report for the JP Karcham Hydro Project prepared in December 2000
/DRHP/	Draft Red Herring Prospectus dated January 2008.
/EIA /	Environmental Impact Assessment Report by NEERI dated September 2005.
/EMP/	Environmental Management plan of the proposed project activity prepared by National Environmental Engineering Research Institute, September 2005.
/HCA/	Host Country Approval for the proposed CDM project activity “Hydroelectric Project in Kinnaur District in Himachal Pradesh” dated 2008-04-09
/IA/	Implementation Agreement between Government of Himachal Pradesh, Jaiprakash Industry Limited, dated 18.11.1999
/ICICI/	<ol style="list-style-type: none"> 1. ICICI Bank letter No. PFG/9165 dated 2006-03-30 on loan syndication 2. Extracts of the Appraisal Note containing the cost of project, explanation and means of financing 3. ICICI Bank letter dated 2009-12-31, containing major assumptions and repayment schedule 4. ICICI Bank email dated 2009-01-27 on the interest rate assumed in the appraisal
/IRR/	<ol style="list-style-type: none"> 1. Final worksheet on the financial indicator calculation

Reference	Document
	<ul style="list-style-type: none"> 2. Final worksheet on the benchmark calculation 3. Beta source : Bloomberg 4. CEA guidelines for auxiliary consumption and transmission losses 5. Letter from JP Powergrid Limited for confirmation of transmission charges dated 2011-08-02.
/IT/	<ul style="list-style-type: none"> 1. Income Tax Act, 1961 (http://law.incometaxindia.gov.in/DIT/Income-tax-acts.aspx) 2. Income Tax Rule, 1961
/LCEA/	Letter JKHCL to CEA regarding revised DPR of April 2000 with revised cost estimations, dated 15 th December 2000
/LSC/	<p>Proof of local stakeholder consultation</p> <ul style="list-style-type: none"> 1. NOC from the villagers of Sapni dated 2006-02-06 2. NOC from the villagers of Kilwa dated 2006-03-08 3. NOC from the villagers of Kafnu, Katgaon and Yaungpa dated 2006-05-08 4. Stakeholder consultation report by Sarnam Seva Samiti dated January 2008
/MD/	<ul style="list-style-type: none"> 1. Extract of the minutes of the meeting by the Board of Directors of the Company at its meeting dated, 2003-06-02 stating the seriousness of CDM and its consideration. 2. Board resolution dated 2005-10-26
/MOC/	Modalities of communications in F-CM_MOC form:Annex-1
/O& M/	Draft CDM Manual
/PPA/	Extract copy of the PPA between M/s Power Trading Corporation of India Limited and M/s Jaypee Karcham Hydro Corporation Limited dated 2006-03-21.
/PHOTO/	Photographs taken during validation site visit.
/PDD1/	Webhosted project design document (PDD) of the proposed CDM project activity "Hydroelectric Project in Kinnaur District in Himachal Pradesh", version 01, dated 2008-09-30.
/PDD2/	Project design document (PDD) of the proposed CDM project activity

Reference	Document
	"Hydroelectric Project in Kinnaur District in Himachal Pradesh", version 02, dated 2009-06-30.
/PDD-3/	Project Design Document Form (CDM PDD) - Version 03, dated 2011-08-10
/PDD-T/	Project Design Document Form (CDM PDD) - Version 03, dated 2012-03-28
/PO/	Purchase order for turbines vides agreement between Jaiprakash associates ltd. And Voith Siemens Hydro Kraftwerkstechnik GmbH & co. KG dated 2007-11-29
/RBI/	Weekly Statistical Supplement of RBI. http://rbidocs.rbi.org.in/rdocs/Wss/PDFs/66854.pdf
/R&R/	Resettlement and Rehabilitation scheme for the Project Affected Families of JP Karcham Hydroelectric power project dated 2006-05-31 approved by the Revenue Department of Himachal Pradesh Government.
/SC/	<ol style="list-style-type: none"> 1. Techno-Economic Clearance for JP Karcham Hydroelectric project from the Central Electricity Authority (CEA) dated 2003-03-31. 2. Environmental Clearance for the JP Hydroelectric project from the Ministry of Environment and Forest dated 09th November 2005 Permission Letter of Grid Connection to 40 MW wind project at village Gudepanchgani, Tal. - Shirala, Dist. Sangli dated 2006-03-24. 3. Forest Clearance for the JP Karcham Hydroelectric project from the Ministry of Environment and Forest dept of H dated 2005-11-17 4. Consent to Establish for JP Karcham Hydroelectric project from the Himachal Pradesh State Protection & Pollution Control Board Dated Consent to establish by HPSEB 2005-08-08. 5. Second supplementary agreement between Department of Multipurpose Projects and Power, Govt. of Himachal Pradesh, signed on 2007-12-20.
/SD/	<p>Proof of starting date of the project activity (2005-11-18):</p> <ol style="list-style-type: none"> 1. Owner's Notice to Proceed letter No. JKHCL/EPC-JAL/05 dated 2005-11-17 issued to M/s Jaiprakash Associates Ltd. 2. Engineering, Procurement & Construction (EPC) contract No. JKHCL/1/2003 dated 2003-07-09 for civil, hydro-mechanical and electro-mechanical works with M/s Jaiprakash Associates Ltd. 3. Second supplementary implementation agreement for Karcham between the Governor of Himachal Pradesh and JKHCL dated 2007-12-20

Reference	Document
/SLP/	Site layout plan
/TD/	<ol style="list-style-type: none"> 1. Design features of various components of the JP Karcham Hydroelectric power project as approved by CEA dated 2003-03-31 2. Depreciation schedule, (Appendix II, CERC order) showing Operational life time of hydro-electric plant and machineries as 35 years.
/XLS1/	Estimated emission reduction calculation spread sheet corresponding to PDD, Version 01.
/XLS2/	Estimated emission reduction calculation spread sheet corresponding to PDD, Version 02 And final version of PDD.

Table 7-2: Background investigation and assessment documents

Reference	Document
/ACM0002/	Consolidated methodology for grid connected electricity generation from renewable sources (Version 12.1.0, EB 58)
/CBD/	CO ₂ Baseline Database for Indian Power Sector -User Guide, Ver. 04 dated October 2008 published by CEA. The same was assessed by TÜV NORD in accordance with "Tool to calculate the emission factor for an electricity system".
/CPM/	TÜV Nord JI / CDM CP Manual (incl. CP procedures and forms)
/GCP/	UNFCCC: Guidelines for completing CDM-PDD and CDM-NM (Ver. 07)
/KP/	Kyoto Protocol (1997)
/MA/	Decision 17/CP.7 (Marrakesh – Accords)
/TOOL/	<ol style="list-style-type: none"> 1. Tool for demonstration and assessment of additionality, Version 05.2, EB 39. 2. Tool to calculate the emission factor for an electricity system, Version 02 3. Guidance on the Assessment of Investment Analysis, Version 04 (EB 62, Annex 5) 4. Combined tool to identify the baseline scenario and demonstrate additionality, Version 2.2

Reference	Document
	5. Guidance on the demonstration and assessment of prior consideration of the CDM – Annex 22, EB 49 6. Guidelines for objective demonstration and assessment of barrier (Ver. 01) – Annex 13, EB 50 7. Guidelines for the reporting and validation of plant load factors (Ver. 01)- Annex 11, EB 48 8. Tool to determine the remaining lifetime of equipment (Ver.01) – Annex 15, EB 50 9. Note on the barrier “first-of-its-kind”, Annex 10, MP 34
/MP/	Modalities and procedures for clean development mechanism project activities (Decision 17/CP.7)
/VVM/	Validation and verification manual, Ver. 1.2, EB55, Anex-1

Table 7-3: Websites used

Reference	Link	Organisation
/cea/	www.cea.nic.in	Central Electricity Authority
/cerc/	http://www.cercind.gov.in/	Central Electricity Regulatory Commission
/dna-i/	http://cdmindia.nic.in/	Indian DNA
/drp/	http://www.sandrp.in/drp/Dec_2006_Jan_2007.pdf	Dams, Rivers & People
/iep/	http://www.indiaenvironmentportal.org.in/node/37378	Indian Environmental Portal
/jaypee/	http://www.jalindia.com/	Jaypee Group
/mh/	http://himachal.us/2006/12/21/himachal-to-probe-karchham-wangtoo-firing/1113/news/myhimachal-news	My Himachal
/moef/	http://envfor.nic.in	Ministry of Environment, India
/mnre/	http://mnre.com	Ministry of new and renewable energy

Reference	Link	Organisation
		resources
/njhep/	http://sjvn.nic.in/projects/projects_nathpa.asp	Nathpa Jhakri Hydro Electric Power Station
/neeri/	http://www.neeri.res.in/	National environmental engineering research institute
/rbi/	http://rbidocs.rbi.org.in/rdocs/Bulletin/PDFs/66774.pdf	Reserve Bank of India
/andritz/	http://www.andritz.com	Andritz VA Tech Hydro, Austria (Supplier of turbines)
/tt/	http://www.tribuneindia.com/2011/20110106/himachal.htm#12	The tribune India
/unfccc/	http://cdm.unfccc.int	UNFCCC

Table 7-4: List of interviewed persons

Reference	Mol ¹		Name	Organisation / Function
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	D.P. Goyal	Managing Director, Jaypee Karcham Hydropower Corporation Limited.
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	V. K. Verma	Vice President (Co-Ordination), Jaypee Karcham Hydropower Corporation Limited.

Reference	Mol ¹		Name	Organisation / Function
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Kanti Prasad	Jt. President, Jaiprakash Hydro-power Limited
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Vinod Verma	V.P. Jaiprakash Hydro-power Limited
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Col. G.C. Agrwal	DGM, Jaiprakash Hydro-power Limited
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Brig. S.K.Uppal	GM, Jaiprakash Hydro-power Limited
/IM02/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Manpreet Singh	Senior Consultant, Ernst & Young
/IM02/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Atin Prakash	Consultant, Ernst & Young
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Sharaf Abbas	Secretary, Sarnam Sewa Samiti
/IM03/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms	Suraj Devi	Village Panchayat Reresentative, Sapni
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Dharam Sain Negi	Village Panchayat Reresentative, Sapni
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Dev Krishna	Village reresentative, Darpana
/IM03/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms	Raj Kumari	Head, Women Group, Sapni
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Parindar Singh Negi	Village Co-ordinator, Meeru
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Madan Singh Negi	Villager, Meeru
/IM03/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms	Shweta Uppal	Principal, Jay Jyoti School Tapri
/IM03/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms	Raina Khare	Associate Consultant,

Reference	Mol ¹		Name	Organisation / Function
				Sarnam Sewa Samiti
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	K.M. Khanna	Consultant, Sarnam Sewa Samiti
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Bhupendra Singh	Villager-Paunang
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Ajay Negi	Villager -Paunang
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Mangal Chand	Villager -Kilba
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Yashveer Singh	Villager Sapni
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Gian Sagar	Villager-Chagri
/IM03/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms	Ganga Devi	Villager-Sapni
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Kundan Singh	Villager-Sapni

¹⁾ Means of Interview: (Telephone, E-Mail, Visit)

ANNEX

- A1:** Validation Protocol
- A2:** Assessment of Baseline Identification
- A3:** Assessment of Financial Parameters
- A4:** Assessment of Barrier analysis
- A5:** Outcome of the GSCP
- A6:** Appointment certificates of the team members

ANNEX 1: VALIDATION PROTOCOL

Table A-1: Requirements Checklist

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
A. General Description of Project Activity				
A.1. Approval <i>The written approval of the parties involved is a mandatory requirement</i>				
<p>A.1.1. Has the project provided written approvals of all parties involved? (EB 55 Annex 1 §44)</p> <p><i>Indicate whether a letter of approval has been received, with a clear reference to the supporting documentation.</i></p> <p><i>Indicate whether this letter was provided to the DOE by the project participants or directly by the DNA</i></p>	<p><i>Description:</i> Yes, the project proponent has provided the written approval from the host party i.e India.</p> <p>Also as per section A.3 of the web-hosted PDD^{/PDD1/}, Government of India (Host Country) is the only party involved in the proposed project activity.</p> <p><i>Justification of evidences:</i></p> <p>Letter of approval vide ref. No. 4/5/2008-CCC from Ministry of Environment and forests, Government of India (i.e. Host Country DNA) dated 09 April 2008 has been received by the project proponent and the copy of the letter is submitted to the DOE by the project participant^{/HCA/}.</p> <p>The submitted copy of the HCA has been thoroughly assessed by the validation team and found to be authentic. Validation team has</p>	/HCA/ /dna-i/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	also checked the Host country approval status from the website of Indian DNA. <i>Conclusion:</i> The approval from host party India has been obtained.			
A.1.2. Are the approvals issued from organisations listed as DNAs on the UNFCCC CDM website? (EB 55 Annex 1 §§ 44, 47, 48, 49 (b), 49 (c), 53) <i>Indicate the means of validation employed to assess the authenticity, i.e. in case of doubt whether LoA has been verified with the DNA. Further describe which entity submitted the LoA for validation.</i>	<i>Description:</i> Yes, the host country approval is issued from Ministry of Environment and Forest, India which is among the listed organisations as DNAs on the UNFCCC CDM website. <i>Justification of evidences:</i> Same has been cross checked with the MOEF and UNFCCC website. <i>Conclusion:</i> The letter of approval obtained from the Indian DNA which satisfies the requirement of the VVM ^{VVM} .	/HCA/ /unfccc/ /moef/	OK	OK
A.1.3. Do the written approvals confirm that the corresponding party is a Party to the Kyoto Protocol? (EB 55 Annex 1 §45, (a))	<i>Description:</i> The HCA states that Government of India has ratified the Kyoto protocol thus the Government of India is a Party to the Kyoto Protocol. <i>Justification of evidences:</i> The same has been corroborated from UNFCCC website. Copy of the HCA has been also checked by the validation team. <i>Conclusion:</i> The written approval confirms that the corresponding party i.e. India is a party to the Kyoto Protocol.	/HCA/ /unfccc/	OK	OK
A.1.4. Do the written approvals confirm that the participation is voluntary? (EB 55 Annex 1 §45, (b))	<i>Description:</i> Yes, the written approval from the host country confirm that the participation is voluntary in the proposed project activity. <i>Justification of evidences:</i> Copy of the HCA has been checked by the validation team.	/HCA/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<i>Conclusion:</i> Project activity satisfies the requirement. of the VVM ^{/VVM/}			
A.1.5. Does the written approval from the host country confirm that the project contributes to the sustainable development in the country? (EB 55 Annex 1 §45, (c))	<i>Description:</i> Yes, the host country approval confirms that the project contributes to the sustainable development in the country. <i>Justification of evidences:</i> Same has been checked with the copy of HCA. <i>Conclusion:</i> Project activity satisfies the requirement. of the VVM ^{/VVM/}	/HCA/	OK	OK
A.1.6. Do the written approvals refer to the precise project title in the PDD submitted for registration or an additional specification of the project activity, e.g. PDD version number? (EB 55 Annex 1 §§45 (d), 50)	<i>Description:</i> Yes, the HCA refers the precise project title of the PDD ^{/PDD1//PDD2//PDD-T/} . However, CAR A4 (1) is raised: The stated contact details of the project participant in Annex -1 of the PDD are not consistent with the provided HCA ^{/HCA/} . <i>Justification of evidences:</i> The project title of the PDD ^{/PDD1//PDD-T/} have been cross checked with the copy of HCA. <i>Conclusion:</i> HCA refers the precise project title of the PDD ^{/PDD1//PDD-T/} . Project activity satisfies the requirement of the VVM ^{/VVM/} . The raised CAR A4 (1) is successfully closed.	/HCA/ /PDD1/ /PDD-T/	Not OK CAR A4	OK
A.1.7. Are the written approvals unconditional with regard to A.1.3 to A.1.6? (EB 55 Annex 1 §46)	<i>Description:</i> Yes, the HCA is unconditional with regard to A.1.3 to A.1.6, as the The Host party (India) is a Party to the Kyoto Protocol and also the issued HCA refers to the precise proposed CDM project activity title in the PDD ^{/PDD1//PDD-T/} .	/HCA/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<i>Justification of evidences:</i> Same has been cross checked with the copy of HCA. <i>Conclusion:</i> Project activity satisfies the requirement of the para 46 of VVM. ^{/VVM/}			
A.1.8. Is the information regarding the project participants listed in section A3 and in Annex 1 of the PDD internally consistent to each other? (EB 55 Annex 1, § 51)	<i>Description:</i> Yes, the information regarding project participant details written in the PDD ^{/PDD1//PDD-T/} is consistent in section A.3 and Annex 1. <i>Justification of evidences:</i> Same has been cross checked with the PDD. <i>Conclusion:</i> Project activity satisfies the requirement. of the VVM. ^{/VVM/}	/PDD1/ /PDD-T/ /HCA/	OK	OK
A.1.9. Are all project participants listed in the PDD approved at least by one Party involved? (EB 55 Annex 1 , § 51) <i>Indicate whether the participation of the project participant(s) has been approved by a Party to the Kyoto Protocol.</i> <i>Describe the means of validation employed to draw this conclusion.</i>	<i>Description:</i> Yes, project participant Jaypee Karcham Hydro Corporation Limited has been approved by host party (India). India is a party to the Kyoto Protocol as confirmed by host country approval. Moreover only one PP as mentioned above i.e. JKHCL is involved in the proposed project activity. <i>Justification of evidences:</i> This has been evidenced from the HCA dated 2008-04-09. <i>Conclusion:</i> The project participant listed in the PDD has been found to be approved by the one of the parties to the Kyoto protocol.	/PDD-T/ /HCA/	OK	OK
A.1.10. Are any other project participants approved but not listed in the PDD? (EB 55 Annex 1 , § 52)	<i>Description:</i> There is only one project participant i.e. JKHCL involved and approved by the host country ^{/HCA/} .	/PDD-T/ /HCA/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p><i>Justification of evidences:</i> The host country approval clearly states the name of the project participant involved in the proposed CDM project activity. The same has been checked from the HCA dated 2008-04-09.</p> <p><i>Conclusion:</i> There is only one PP involved in the proposed project activity and same is approved by the DNA and listed in the PDD.</p>			
<p>A.1.11.Does the DoE have a direct contractual relationship with the PP? (EB 55 Annex 1 , §51 and EB 50, Annex 48, §§ 7-9)</p> <p><i>Check whether the PPs listed in the published PDD are still listed in the PDD going to be submitted to request for registration.</i></p>	<p><i>Description:</i> Yes, the DOE (TUV Nord Cert GmbH) has the direct contractual relation with the PP i.e. Jaypee Karcham Hydro Corporation Limited which is the project participant as per Annex 1 of the PDD^{/PDD1//PDD-T/} and the HCA.</p> <p>A validation contract was signed between Jaypee Karcham Hydro Corporation Limited (member of Jaiprakash Associate Ltd.) and TUV India Pvt. Ltd. (member of TUV Nord Cert GmbH) on 2008-09-07.</p> <p>Further a service proposal (a part of validation contract) was signed between TUV Nord Cert GmbH (The DOE) and Jaypee Karcham Hydro Corporation Limited (Reff. No. 09CDMINDL080272) dated 2009-09-29.</p> <p><i>Justification of evidences:</i> Validation team has checked the validation contract (Reff. No. 09CDMINDL080272) dated 2009-09-29.</p> <p><i>Conclusion:</i> DoE has a direct contractual relationship with the PP. Thus, PP meets the requirement of the EB 50 annex 48 paragraph 7-9.</p>	<p>/PDD1/ /PDD-T/ /CON/ /HCA/</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
A.2. Contribution to Sustainable Development <i>The project's contribution to sustainable development is assessed.</i>				
A.2.1. Has the host country confirmed that the project assists it in achieving sustainable development? (EB 55 Annex 1, §§ 125 – 127) <i>Contain a statement confirming whether the letter of approval by the DNA of the host party confirmed the contribution of the project to the sustainable development of the Host Party.</i>	<i>Description:</i> The host country via host country approval confirms that proposed project activity contributes to the sustainable development of India. <i>Justification of evidences:</i> The original letter of HCA has been verified by the DOE. <i>Conclusion:</i> The proposed project activity contributes to the sustainable development of the host country. Project activity complies with the requirement of the VVM. ^{/VVM/}	/HCA/	OK	OK
A.2.2. Will the project create other environmental or social benefits than GHG emission reductions? (EB 55 Annex 1 , §§ 125 – 127) <i>Describe the other positive aspects not related to GHG emission reduction on the environment.</i>	<i>Description:</i> Yes, The project will create other environmental and social benefits as mentioned in section A.2 of the PDD i.e.- <ul style="list-style-type: none"> • Generation of employment opportunities for the people during the construction phase and later in the operation of the project leading to improvement in living standards of the local population. Further, the business opportunities are enhanced by the project activity for local stakeholders such as consultants, suppliers, manufacturers, contractors etc during the implementation phase. • Project participants also planned to operate various CSR activities i.e. construction of a 10+2 grade school, an industrial training institute, a 40 bedded hospital, up- 	/HCA/ /IM01/ /IM02/ /IM03/ /PDD1/ /PDD-T/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>gradation of existing roads and bridges in the hilly terrain which would uplift the social life of the surrounding villages.</p> <p><i>Justification of evidences:</i> The section A.2 of the PDD has been assessed by the validation team. Extensive interviews of project participants and local stakeholders i.e. employees, local villagers etc. have been carried out during the onsite assessment.</p> <p><i>Conclusion:</i> The project will result in employment opportunities to the local people and also has other social benefits apart from the GHG emission reductions benefit.</p>			
A.3. PDD editorial aspects <i>The PDD used as a basis for validation shall be prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website.</i>				
A.3.1. Has the latest version of the PDD form been applied? (EB 55 Annex 1 , § 55)	<p><i>Description:</i> Yes, the PDD^{/PDD1//PDD-T/} has been filled in the latest available CDM-PDD form. Same has been cross checked with UNFCCC³⁸.</p> <p><i>Justification of evidences:</i> Validation team has cross checked the applied form with the unfccc website.</p> <p><i>Conclusion:</i> The form has been applied for PDD^{/PDD-T/} is latest version 03 EB 28 annex 34. Thus the project activity complies with</p>	/unfccc/ /PDD-T/	OK	OK

³⁸ http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/index.html

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	the requirement of the VVM para 55. ^{/VVM/} .			
A.3.2. Has the PDD been duly filled in accordance with the latest guidance(s)? (EB 55 Annex 1 , §§ 56, 57)	<p><i>Description:</i> Yes, the PDD^{/PDD-T/} has been filled in accordance with the latest PDD guidelines.</p> <p>However, following consolidated CAR has been raised:</p> <ol style="list-style-type: none"> 1. It is stated “state-of-art “technology is employed in the project activity in PDD section A.4.3. Nevertheless, it needs to be justified. 2. The unique identification (Latitude and Longitude) including the seconds is required to be provided in section A.4.1.4 PDD Cp PDD guidelines. 3. The stated contact details of the project participant in Annex -1 of the PDD are not consistent with the provided HCA^{/HCA/}. 4. The column stating the years in section A.4.4 of the PDD needs to be revised as per the PDD guidelines. Cp PDD guidelines. <p><i>Justification of Evidences:</i> The final PDD^{/PDD-T/} is cross checked with the PDD filling guideline and all the sections were found to be consistent with the guidelines.</p> <p><i>Conclusion:</i> PDD^{/PDD-T/} is found to be filled in accordance with the latest PDD guideline. The raised CAR A1, A3 & A4 (1) are successfully closed. For details, Pls. refers to the DOE assessment of CAR A1, A3 & A4.</p>	/PDD-T/ /HCA/	Not OK CAR A1, A3 & A4	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
A.4. Technology to be employed <i>Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The DOE should ensure that environmentally safe and sound technology and know-how is used.</i>				
<p>A.4.1. Does the PDD contain a clear, accurate and complete project description?</p> <p>(EB 55 Annex 1 , §§ 58, 59)</p> <p><i>The PDD shall contain a clear description of the project activity which provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation.</i></p> <p><i>Pl. consider esp. chapters A.2, A.4.2 and A.4.3 (in case of LSC PDD) for assessment.</i></p> <p><i>Describe the process undertaken to validate the accuracy and completeness of the project description.</i></p> <p><i>Contain the DOE's opinion on the accuracy and completeness of the project description.</i></p>	<p>Description: Yes, the PDD contain a clear, accurate and complete project description. The submitted PDD is assessed against the CDM PDD Form ver.03, CDM PDD guidelines ver.07 and found to be completed accordingly.</p> <p>As per section A.2 and A.4.3 of the PDD^{/PDD1/}, The proposed project activity aims to develop a 4 X 250 MW of renewable, run of the river hydro power project at Karcham & Wangtoo on the river Satluj in Himachal Pradesh. The project activity envisages a 98 m high concrete gravity diversion dam at Karcham; power intakes and 4 underground desilting chambers to exclude all particles above 0.2 mm size; 10.48 m diameter and 17 km long head race tunnel; an underground power house complex at Wangtoo to generate 4 X 250 MW power and 1.3 km long tail race tunnel to discharge the water back into river Satluj. The project activity will generate 4463.8861 GWh per annum of renewable energy and provide 1000 MW peaking power through out the year.</p> <p>However, a CAR A2 is raised:</p> <p>The provided design features of the project activity components stated in section A.4.3 of the PDD are not matching with the provided document^{/TD/}. Please clarify.</p>	<p>/PDD-T/ /CEA/ /IM01/ /andritz/</p>	<p>Not OK CAR A2</p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p><i>Justification of Evidences;</i> The project description provided in sections A.2 and A.4.3 were verified by the validation team during the on site visit and interviews^{/IM01/}. Also, Validation team has checked the design features as mentioned in section A.4.3 of the revised PDD^{/PDD-T/} from the office memorandum, issued from Central electricity authority (CEA), Govt. of India (file No. 2/HP/19/96-PAC/1409-1436) dated 2003-03-3 and a further independent web research was carried out in order to confirm technical details of the project activity.</p> <p><i>Conclusion:</i> Based on the on-site assessment and verification of documents and interviews the validation team confirms that the project description as mentioned in the PDD section A.2, A.4.2 and A.4.3, is clear, transparent, accurate and complete. The raised CAR A2 is successfully closed. For details, Pls. refers to the DOE assessment of CAR A2.</p>			
A.4.2. Is this description in accordance with the real situation or (in case of greenfield projects) is it most likely that the project will be implemented acc to the project description?	<p><i>Description:</i> The proposed project activity is under commissioning stage and is most likely to be implemented as per the description cited in section A.2 and A.4.3 of the PDD^{/PDD-T/}.</p> <p><i>Justification of evidences:</i> During the on site visit, the proposed project activity is under construction stage, validation team has interviewed the project proponent and site incharge^{/IM01/} and assess the various documents like Detailed project report, EPC contract with M/s Jaiprakash Associates Ltd., Techno-economical clearance from CEA etc. and found that PP is going to employ the same technology as mentioned in the PDD.</p> <p><i>Conclusion:</i> The proposed project activity is most likely to be implemented as per the description in the PDD.</p>	/PDD-T/ /IM01/ /IM02/ /CEA/ /DPR/ /SD/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p>A.4.3. In case the project involves alteration of the existing installation or process, is a clear description available regarding the differences between the project and the pre-project situation? EB 55 Annex 1 , §§63, 64)</p> <p><i>Describe the steps taken to validate this issue.</i></p>	<p><i>Description:</i> The proposed project is greenfield project and does not involve alteration of the existing installation as found during site visit and explained in the section A.2 of PDD.</p> <p><i>Justification of evidences:</i> The fact has been confirmed during the validation site visit.</p> <p><i>Conclusion:</i> Project activity complies with the requirement.</p>	<p>/PDD-T/ /IM01/ /IM02/</p>	<p>OK</p>	<p>OK</p>
<p>A.4.4. Does the project design engineering reflect current good practices?</p> <p><i>Consider the equipment specifications, literature (e.g. EU BREF papers) and professional experiences. Describe the process undertaken to assess the engineering.</i></p>	<p><i>Description:</i> Yes, the design features of the project components were found to be as per the industry standards, Moreover the design features and technical details are approved by the CEA.</p> <p>However CAR A2 is raised.</p> <p><i>Justification of evidences:</i> The validation team has verified the design engineering of the project activity based on site visit, interviews, technical specifications of equipments and sectoral expertise. Adequate clearances from relevant local and national authorities^{/SC/} were also verified.</p> <p><i>Conclusion:</i> Based on the above the validation team concludes that project design engineering reflects current good practices. Moreover CAR A2 is successfully closed. PI, refer to the DOE assessment of CAR A2 in chapter 5 of the report.</p>	<p>/CEA/</p>	<p>Not OK CAR A2</p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p>A.4.5. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?</p> <p><i>Describe the process undertaken to assess the state of the art technology.</i></p>	<p><i>Description:</i> The proposed project activity does not use state of the art technology. However, since the employed project activity involves installation of 4 X 250 MW of renewable and run of the river hydro power project with comprehensive Environmental Management Plan (EMP) and catchment area treatment plan, project activity would result in a significantly better overall performance.</p> <p>However, a CAR A1 is raised.</p> <p><i>Justification of evidences:</i> The validation team has undertaken on site assesment, interviews and used sectoral expertise for evaluation of the etechnology used in the project activity, Various clearances obtained from the relevant local and national authorities^{/SC/} were evidenced during the onsite assessment. Moreover the design features of the project components were found to be acceptable as per the industry standards. Technological details, various comprehensive Environmental Management Plan (EMP) and Catchment area treatment plan have been verified with the Purchase Orders, office memorandum, issued from Central electricity authority (CEA) and third party assessment etc.</p> <p><i>Conclusion:</i> Though project activity is not a <i>state-of art</i> employed technology, it would result in significant better performance as assessed by the design features of proposed project. The raised CAR A1 is successfully closed.</p>	<p>/PDD-T/ /TD/ /CEA/ /EMP/</p>	<p>Not OK CAR A1</p>	<p>OK</p>
<p>A.4.6. Does the project make provisions for meeting training and maintenance needs?</p> <p><i>Describe the process undertaken to assess the</i></p>	<p><i>Description:</i> The project makes the provisions for meeting the maintenance procedure, training to the employed persons etc. in section B.7.2 of the PDD^{/PDD-T/}. As per this section and subsequent discussions with the project proponent^{/IM01/} and site in-charge^{/IM02/},</p>	<p>/PDD-T/ /IM01/</p>	<p>OK</p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<i>maintenance and training needs.</i>	necessary trainings will be provided to the peoples on CDM concept and monitoring plan of the project activity. <i>Justification of evidences:</i> PDD ^{/PDD-T/} as verified through the interviews with the project proponent and found to be adequately addressing maintenance and training needs. <i>Conclusion:</i> Project activity adequately addressing the training and maintenance needs.	/O&M/		
A.5. Small scale project activity <i>It is assessed whether the project qualifies as small-scale CDM project activity</i>				
A.5.1. Does the project qualify as a small scale CDM project activity as defined in decision 4 / CMP.1 annex II? (EB 55 Annex 1 , § 135, 136 (a))	<i>Description:</i> The proposed project activity is a large scale project activity. <i>Justification of evidences:</i> NA <i>Conclusion:</i> The checklist question is not applicable.	/PDD1/ /PDD-T/	NA	NA
A.5.2. Does the project apply one of the approved small scale categories and any methodology and tool referred therein? (EB 55 Annex 1, § 136 (b)) <i>Check, if applicable the expiry dates of the applied</i>	<i>Description:</i> The proposed project activity is a large scale project activity. <i>Justification of evidences:</i> NA	/PDD1/ /PDD-T/	NA	NA

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<i>methodology. Further, take into consideration the general guidance to the methodologies³⁹, which provide guidance on equipment capacity, equipment performance, sampling and other monitoring related issues.</i>	<i>Conclusion:</i> The checklist question is not applicable.			
<p>A.5.3. Is the small scale project activity not a debundled component of a larger project activity?</p> <p>(EB 55 Annex 1 , § 135 (c))</p> <p><i>Describe the steps taken to validate this issue. PI refer to the Compendium of guidance on debundling (EB 36, Annex 27).</i></p>	<p><i>Description:</i> The proposed project activity is a large scale project activity.</p> <p><i>Justification of evidences:</i> NA</p> <p><i>Conclusion:</i> The checklist question is not applicable.</p>	/PDD1/ /PDD-T/	NA	NA
<p>A.5.4. Is an assessment of the environmental impacts of the proposed SSC CDM project activity required by the host Party?</p> <p>(EB 55 Annex 1 , § 135 (d))</p>	<p><i>Description:</i> The proposed project activity is a large scale project activity.</p> <p><i>Justification of evidences:</i> NA</p> <p><i>Conclusion:</i> The checklist question is not applicable.</p>	/PDD1/ /PDD-T/	NA	NA
B. Project Baseline, Additionality and Monitoring Plan				

³⁹ <http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
B.1. Application of the Methodology				
<p>B.1.1. Does the project apply an approved and applicable CDM methodology and a valid version thereof?</p> <p>(EB 55 Annex 1 , §65)</p> <p><i>Describe the steps taken to validate this issue.</i></p>	<p><i>Description:</i></p> <p>Yes, the project applies the approved and applicable large scale methodology ACM0002, Version 12.1 and the associated tools in final version of the PDD^{/PDD-T/}.</p> <p>However, a CAR B1 was raised based on webhosted PDD^{/PDD1/}:</p> <p>The project activity applies the currently approved methodology ACM0002, version 07, Sectoral Scope: 01, EB 36. However, the latest version of the methodology is to be applied for the project activity. Hence relevant sections of the PDD ought to be revised. Cp EB 43 Annex 12 para 6.</p> <p><i>Justification of evidences:</i> Through the web search on UNFCCC-CDM site^{/unfccc/}, the validation team confirms that the applied methodology ACM0002, version 12.1 is approved and version 12.1 of the applied methodology is valid.</p> <p><i>Conclusion:</i> Based on the requirements of the methodology and evaluation of justifications under section B.2 of the PDD^{/PDD-T/}, the validation team hereby confirms that the proposed project activity complies with all the applicability conditions of the applied methodology. Moreover the applied methodology is approved and latest version of the same has been used for the proposed project activity. The raised CAR B1 is successfully closed.</p>	<p>/PDD1/ /PDD-T/ /unfccc/ /ACM0002/</p>	<p>Not OK CAR B1</p>	<p>OK</p>
<p>B.1.2. Is the applied CDM methodology identical with the version available on the UNFCCC</p>	<p><i>Description:</i> Yes, the project applies the approved and applicable large scale methodology ACM0002, Version 12.1 in final PDD^{/PDD-T/}</p>	<p>/PDD1/</p>	<p>Not</p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p>website?</p> <p>(EB 55 Annex 1 , §§65, 69, 70)</p> <p><i>Describe the steps taken to validate this issue.</i></p>	<p>and is identical as available on the UNFCCC website.</p> <p>However, a CAR B1 was raised based on webhosted PDD^{/PDD1/}, which is closed out in final PDD^{/PDD-T/}.</p> <p>For more details, pls. refer to B.1.1.</p> <p><i>Justification of evidences:</i> Through the web search on UNFCCC-CDM site^{/unfccc/}, the validation team confirms that the applied methodology ACM0002, version 12.1 is approved and the latest version. Version 12.1 of the applied methodology is valid.</p> <p><i>Conclusion:</i> Validation team confirms that the methodology used in the proposed project activity is exactly same as the methodology available on the UNFCCC website. The raised CAR B1 is successfully closed.</p>	<p>/PDD-T/ /unfccc/ /ACM0002/</p>	<p>OK CAR B1</p>	
<p>B.1.3. Are all applicability criteria in the methodology, the applied tools or any other methodology component referred to therein fulfilled?</p> <p>(EB 55 Annex 1, §§66 (a), 66 (b), 68, 71, 76)</p> <p><i>Describe for each applicability criterion listed in the selected approved methodology the steps taken to assess the information contained in the PDD.</i></p>	<p><i>Description:</i> Yes, the project activity meets all the applicability criteria as defined in part I of the applied methodology ACM0002 version 12.1 as project activity is renewable technology (hydro power) based electricity generation which exports electricity to NEWNE grid.</p> <p>Project activity has also applied the following methodological tools as prescribed in the methodology ACM0002 ver 12.1.</p> <ol style="list-style-type: none"> 1. Tool for demonstration and assessment of additionality" Version 05.2; 2. "Tool to calculate the emission factor for an electricity system" Version 01.1; <p>However, a CAR B2 was raised:</p> <p>The power density of the current project activity is stated as</p>	<p>/PDD1/ /PDD-T/ /unfccc/ /ACM0002/ /DPR/</p>	<p>Not OK CAR B2</p>	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>1621.93 W/m². However, the surface area of the project activity needs to be corroborated to ascertain the stated power density to the DOE.</p> <p>As per the PDD^{/PDD1//PDD-T/} and applied methodology (ACM0002, version11), The proposed project activity results in new reservoirs and the power density of the power plant is 1699.52 W/m² which is greater than the specific limits (4 W/m²) given by the methodology in project emission section.</p> <p><i>Justification of evidences:</i> Applicability criteria as defined in Part I of the applied methodology ACM0002, version 12.1 has been assessed by the validation team and found all with the proposed project activity. Also, Validation team has assessed the extract from DPR (Chapter A.6, Volume 3).</p> <p><i>Conclusion:</i> Project activity complies all the requirements of the applied methodology and tools referred therein. The raised CAR B2 is successfully closed. For details, Pls. Refer to the DOE assessment of CAR B2.</p>			
<p>B.1.4. In case one or more applicability criteria have not been met, has the validation team requested clarification to, revision of or deviation from the methodology in accordance with the latest guidelines?</p> <p>(EB 55 Annex 1, §§ 72 -75)</p>	<p><i>Description:</i> The project activity meets all the applicability criteria as defined in Part I of the applied methodology ACM0002 version 12.1. Moreover Pl. refer to B.1.3.</p> <p><i>Justification of evidences:</i> Applicability criteria as defined in Part I of the applied methodology ACM0002, version 12.1 has been assessed by the validation team and found all the applicable criteria justifiable with the proposed project activity.</p> <p><i>Conclusion:</i> Since, project activity complies with all the applicability</p>	<p>/PDD1/ /PDD-T/ /unfccc/ /ACM000 2/</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	criteria of the applied methodology; clarification/revision/deviation from the methodology has not been requested.			
B.1.5. Is the project in accordance with every other stipulation or requirement mentioned in all sections of the methodology? (EB 55 Annex 1 , §71) <i>Describe the steps taken to check whether the proposed project activity meets <u>all the other possible stipulations and /or limitations</u> mentioned in all sections of the approved methodology selected.</i>	<i>Description:</i> Yes, the project is in accordance to every other stipulation or requirement mentioned in all sections of the methodology. <i>Justification of evidences:</i> Whole project description has been assessed against applied methodology ACM0002 ver 12.1. <i>Conclusion:</i> Project activity complies with the all the requirements of applied methodology.	/PDD-T/ /ACM000 2/	OK	OK
B.2. Project Boundaries <i>Project Boundaries are the limits and borders defining the GHG emission reduction project</i>				
B.2.1. Are the project's spatial boundaries (geographical) clearly defined? (EB 55 Annex 1 , §§67 (a), 78 – 80) <i>Provide information on how the validation of the geographical boundary has been performed either based on reviewed documented evidence or by describing what was observed/viewed during a site visit.</i>	<i>Description:</i> Yes, In section A.4.1.4 of the web hosted PDD ^{PDD1/} , details of physical location i.e. the latitude and longitude of the proposed project activity is mentioned and found correct as checked by the web search and assessed during site visit by the validation team. The project boundary includes project power plant connected to the substation of the regional grid. The project boundary also includes all power plants connected to the electricity system of the project activity. However, a CAR A3 is raised: The unique identification (Latitude and Longitude) including the seconds is required to be provided in section A.4.1.4 PDD Cp PDD guidelines..	/PDD1/ /PDD-T/ /LSC/ /IM01/	Not OK CAR A3	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>The project activity is located in the reach between Karcham and Wangtoo in the District of Kinnaur of Himachal Pradesh. The geographic coordinates of the project area are now mentioned in section A.4.1.4 of the revised PDD^{/PDD1/}.</p> <p>Since PP has taken appropriate action in the revised PDD^{/PDD-T/}, the raised CAR is closed.</p> <p><i>Justification of evidences:</i> The geographic coordinates of the project are checked through the websearch and found correct. The geographic coordinates are also cross checked from the thorough third party assessment by Sharnam Sewa Samiti, Lucknow^{/LSC/}.</p> <p><i>Conclusion:</i> Through the assessment during site visit and desk review, validation team comes to a conclusion that spacial boundaries of the project activity are correctly defined in section A.4.1.4 of the PDD^{/PDD-T/}.</p>			
<p>B.2.2. Are all sources and GHGs included in the project boundary as required in the applied methodology?</p> <p>(EB 55 Annex 1 , §§67 (a), 77 – 79)</p> <p><i>Provide information on how the validation of the GHGs and sources has been performed either based on reviewed documented evidence or by describing what was observed/viewed during a site visit.</i></p>	<p><i>Description:</i> Yes, all the sources of GHGs are included in the project boundary as required by the applied methodology i.e. ACM0002, version 11. In the absence of the proposed project activity, the source of GHGs emissions would have been baseline CO₂ emissions for the KWh of electricity production by the renewable generating unit (Hydro Power).</p> <p>Also as per Project emission section of the ACM0002, version 12.1, For most renewable energy project activities, project activity emissions are considered as negligible thus not included. Also justification of neglecting the PE_{HP,Y} has been demonstrated in B.1.3 of this Annex. Moreover only CO₂ has been considered as GHG for the proposed project activity which is line with the applied methodology.</p>	<p>/PDD1/ /PDD-T/ /ACM000 2 /</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p><i>Justification of evidences:</i> As per the approved methodology ACM0002, version 12.1.</p> <p><i>Conclusion:</i> All sources and GHGs emission that are applicable (CO₂) have been found to be included in the project boundary.</p>			
<p>B.2.3. In case the methodology allows to choose whether a source and/or gas is to be included, is the choice sufficiently explained and justified?</p> <p>(EB 55 Annex 1 , §§67 (a), 77 – 79)</p> <p><i>Confirm if the justification provided by the PPs is reasonable, based on assessment of supporting documented evidence provided by the PPs or by onsite observations.</i></p>	<p>Description: Yes, section B.3 of PDD^{/PDD-T/} adequately explains and justifies the exclusion or inclusion of source or gas from/in the project boundary. The only GHG considered in the absence of the project activity is CO₂.</p> <p>For more details, Pls. Refer to B.2.2 & B.1.3 of this Annex.</p> <p>Justification of evidence: Same has been cross checked with the applied methodology.</p> <p>Conclusion: Project activity complies the requirement of the applied methodology and VVM.</p>	<p>/PDD-T/ /ACM000 2/</p>	<p>OK</p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
B.3. Baseline Identification <i>The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.</i>				
B.3.1. What possible baseline scenarios have been considered? (EB 55 Annex 1 , §§ 67 (b), 83) <i>Fill in all alternatives in table A-2.</i>	<p><i>Description:</i> The proposed project activity is the installation of a new grid connected renewable power plant i.e. (4x250 MW hydro power plant). As per ACM0002, Version 12.1, the baseline scenario is the following:</p> <p>Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”.</p> <p>PP has chosen the baseline scenario in accordance to the applied methodology and thus has not considered the possible baseline scenarios.</p> <p><i>Justification of evidences:</i> By means of the applied methodology and onsite assesment.</p> <p><i>Conclusion:</i> Baseline identified is appropriate and in accordance to the applied methodology ACM0002, version12.1.</p>	/PDD-T/ /ACM000 2/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p>B.3.2. Is the list of alternatives complete? (EB 55 Annex 1 , §§67 (b), 83)</p> <p><i>Describe how it was validated that all alternatives are plausible and no plausible alternative is excluded from the consideration</i></p>	<p><input checked="" type="checkbox"/> All plausible alternative scenarios listed in the approved methodology have been considered. In the course of document review and site visit, it has been validated that no other alternatives which supply comparable outputs and / or services are to be taken into consideration. Thus no plausible scenario has been omitted.</p> <p><input type="checkbox"/> The following alternative scenarios/options have been omitted. Corresponding CAR(s)/CL(s) has /have been issued</p> <p>PP has chosen the baseline scenario in accordance to the applied methodology. However following CAR B3 is raised & successfully closed during the course of validation.</p> <p>The chosen alternatives are;</p> <ol style="list-style-type: none"> 1. Continuation of the current situation or <i>status-quo</i> 2. The proposed project activity without CDM. <p>Out of the above mentioned 2 alternatives, the prior one is the chosen baseline scenario. However, these alternatives are to be transparently described in the PDD section B.4 and referred in section B.5. Cp PDD guidelines.</p>	/PDD-T/ /ACM000 2/	OK CAR B3	OK
<p>B.3.3. What has been identified as the baseline scenario? (EB 55 Annex 1 , §§81, 82, 86)</p> <p><i>Describe the chosen BL scenario, taking into consideration the technology that would be employed and / or the activities that would take place in the absence of the proposed CDM project activity.</i></p>	<p><i>Description:</i> The proposed project activity is the installation of a new grid connected renewable power plant i.e. (4x250 MW hydro power plant). As per ACM0002, Version 12.1, the baseline scenario is the following:</p> <p>Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to</p>	/PDD-T/ /ACM000 2/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>calculate the emission factor for an electricity system".</p> <p>PP has chosen the baseline scenario in accordance to the applied methodology and thus has not considered the possible baseline scenarios.</p> <p>Also refer to section B.3.1 and B.3.2</p> <p><i>Justification of evidences:</i> Baseline scenario is chosen as per the prescription of the applied methodology.</p> <p><i>Conclusion:</i> Baseline identified is appropriate and in accordance to the applied methodology ACM0002, version11.</p>			
<p>B.3.4. Has the baseline scenario been determined according to the methodology?</p> <p>(EB 55 Annex 1, §§82, 87 (e))</p> <p><i>Describe how it is validated that the identification of the most plausible baseline scenario is carried out in accordance with the applied methodology and applied methodological tools. Please refer to table A-2.</i></p>	<p>For details of the assessment regarding the evaluation of the baseline scenario pl. refer to table A-2.</p> <p><input checked="" type="checkbox"/> The determination has been carried out as per the procedure contained in the applied methodology.</p> <p><input type="checkbox"/> The following CARs / CLs have been identified with respect to the selection of the baseline scenario:</p> <p>Pls. refer to B.3.3 of the Annex of this report.</p>	<p>/PDD-T/ /ACM000 2/</p>	OK	OK
<p>B.3.5. Has any plausible alternative scenario been excluded?</p> <p>(EB 55 Annex 1 , § 83)</p> <p><i>Describe how it is validated that no plausible alternative scenario has been excluded.</i></p>	<p>For details of the assessment regarding the evaluation of the baseline scenario pl. refer to table A-2.</p> <p><input checked="" type="checkbox"/> No plausible baseline scenario has been excluded.</p> <p><input type="checkbox"/> The following plausible baseline scenarios have been excluded though no adequate justification has been provided for elimination. The following CARs / CLs have been issued:</p> <p>Pls. refer to B.3.3 of the Annex of this report.</p>	<p>/PDD-T/ /ACM000 2/</p>	OK	OK
<p>B.3.6. Is the identified baseline scenario reasonable</p>	<p><input checked="" type="checkbox"/> The baseline scenario is reasonable and has been determined using conservative assumptions where possible. Please refer</p>	/PDD-T/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p>and has the baseline scenario been determined using conservative assumptions where possible, including relevant references and sources?</p> <p>(EB 55 Annex 1 , §§ 84 - 87(a)-(c)) <i>Describe whether the choice of the identified baseline scenario is reasonable by validating the <u>key assumptions</u>, <u>calculations and rationales</u> used in the PDD. Describe whether these are listed, relevant and <u>conservatively interpreted</u> in the PDD.</i></p>	<p>to comments in table A-2 and sections B.3.2 to B.3.5 above.</p> <p><input type="checkbox"/> The following CARs / CLs have been issued because assumptions used in the baseline determination have been assessed to be not conservative</p> <p>PP has chosen the baseline scenario in accordance with the applied methodology. Also Pls. refer to B.3.3.</p>	/ACM000 2/		
<p>B.3.7. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?</p> <p>(EB 55 Annex 1 , §§ 85, 87(d)) <i>Describe whether the PP has shown that all relevant policies and circumstances have been identified and correctly considered in the PDD in accordance with the guidance by the Board. Pl. consider the guidance EB 22 annex 3 (regarding E+ and E- policies).</i></p>	<p><i>Description:</i> The validation team has assessed all the relevant national and/or sectoral policies, macro-economic trends and political aspirations taking reference of annex 3 of EB 22 & EB 54. Moreover the chosen baseline scenario is in line with the applied methodology.</p> <p><i>Justification of evidences:</i> Validation team has done the independent background research to take into account the relevant national and/or sectoral policies applicable to the renewable energy sectors and particularly to hydro energy by websearch of Ministry of Environment and Forest, Ministry of New and Renewable sources of Energy, Central Electricity Authority and Central Electricity Regulatory Commission. As found by web research, the predominant source of power in India is thermal power plants based on fossil fuel and the same is accounted in the grid emission factor. Also there is no mandate to go for renewable energy generation in the host country.</p>	/PDD-T/ /ACM000 2/ /TOOL/ /moef/ /mnre/ /cea/ /cerc/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<i>Conclusion:</i> The baseline scenario sufficiently takes into account relevant national and/or sectoral policies, macro-economic trends and political aspirations and thus project complies with the requirements.			
<p>B.3.8. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?</p> <p>(EB 55 Annex 1, § 87 (a) – (c))</p> <p><i>Describe whether the documents and sources referred to in the PDD are correctly quoted and clearly referenced.</i></p>	<p><i>Description:</i> The baseline scenario determination is assessed against the methodological requirements and with the available data and other literature available and found in line with applied methodology, appropriate for the project type and compatible with the available data. Moreover the used literature and sources e.g. CEA (central electricity authority) user guide and database are clearly referenced and correctly interpreted in Annex 3 of the PDD^{/PDD-T/}. The baseline emission is based on the data from latest CEA data base and user guide available at the time of web hosting.</p> <p><i>Justification of evidences:</i> The CEA data base and user guide are publically available documents and issued by government of India and thus considered authentic by the validation team. Moreover validation team has done the thorough desk review to check appropriateness of the referencing.</p> <p><i>Conclusion:</i> The baseline scenario determination is compatible with the available data i.e. CEA published data at the time of webhosting and the same is adequately referenced in the PDD. Thus the assessment of baseline scenario determination is fulfilling the requirements of VVM para 87 (a) - (c).</p>	/PDD-T/ /cea/ /ACM000 2/	OK	OK
B.3.9. Does the PDD contain a <i>verifiable</i> description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed CDM	<i>Description:</i> Prior to the start of the project activity, the existing demand of electricity was met through its existing fossil fuel based (coal, gas and diesel), nuclear, hydro and renewable energy based power plants in the Northern Regional Grid. Thus it is clear that in the absence of proposed project activity electricity would have otherwise been generated by the operation of grid-connected power	/PDD-T/ /cea/ /ACM000 2/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
project activity. (EB 55 Annex 1,, §86)	plants and by the addition of new generation sources and since same scenario is taken as baseline for the proposed project activity, it is verified and appropriate for the type of project activity. A clear and transparent description of baseline scenario has been described in final PDD ^{/PDD-T/} section B.4. Moreover Pl. refer to B.3.1. <i>Justification of evidences:</i> The CEA data base and user guide are publically available documents and issued by government of India and thus considered authentic by the Validation team. <i>Conclusion:</i> PDD ^{/PDD-T/} contains a verifiable description of the baseline scenario. PDD also refers to CEA data which clearly indicates that baseline chosen is appropriate.			
B.4. Additionality Determination <i>The assessment of additionality will be validated with focus on whether the project itself is not a likely baseline scenario.</i>				
B.4.1. Methodology				
B.4.1.1. Does the PDD describe how the project is additional and does the additionality justification follow the requirements of the applied methodology and/or methodological tools? (EB 55 Annex 1 , §§67 (d), 94- 96) <i>Describe how it is validated that additionality justification is</i>	<i>Description:</i> Following the section II of the applied methodology i.e. ACM0002, version 11, PP has demonstrated the additionality of the proposed project activity as per latest version of the “Tool for the demonstration and assessment of additionality” version 5.2. In section B.5 of the PDD ^{/PDD1//PDD-T/} , the step-wise approach of the additionality tool has been followed to establish additionality of the project activity.	/PDD1/ /PDD-T/ /cea/ /SC/ /ACM000 2/	CAR B4-12 CAR 16-28 CL-29 35	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p><i>carried out in accordance with the applied methodology and/or applied methodological tools. Further focus your assessment on the reliability and credibility of data, rationales and assumptions, justifications and documentations provided by the PP.</i></p>	<p>PP has demonstrated the additionality based on following:</p> <ul style="list-style-type: none"> Step 1: Identification of alternatives to the project activity consistent with current laws and regulations Step 2: Investment analysis Step 3: Barrier analysis: Other barriers Step 4: Common practice analysis <p>However, a CAR B4 has been raised:</p> <p>The data sources referenced to demonstrate the additionality arguments are to be web linked or provided to DOE.</p> <p><i>Justification of evidences:</i> Validation team has checked the methodology (ACM0002, version 12.1) requirement for the additionality demonstration and assessment. Also, validation team has performed a rigorous analysis of the additionality arguments based on various documents provided by the PP like the Techno economic clearance given by CEA, PPA, DPR, environmental clearances, ICICI Bank loan syndication letter and publically available documents i.e. CERC tariff order, Income Tax Act and various studies and research paper etc. for the barrier assessment to validate the reliability and credibility of data input and the assumptions. For details, pls. refer to Annex 3 of this report.</p> <p><i>Conclusion:</i> The PDD describes how the project is additional and the additionality justifications follow the requirements of the applied methodology.</p>	/TOOL/		

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
B.4.2. Consideration of CDM before project start				
<p>B.4.2.1. Is the project starting date reported in accordance with the CDM glossary of terms?</p> <p>(EB 51, Annex 3, §103 (a))</p> <p><i>Describe the steps taken to validate this issue.</i></p>	<p><i>Description:</i> Yes, the project starting date has been defined in section C.1.1 of the PDD^{PDD1/} as per the definition by CDM EB 47, Glossary of CDM Terms version 5, which would be represented by financial commitments in the form of owner's <i>notice to proceed</i> with the construction of the project activity. The CDM EB has defined start date of a project as "...the start date shall be considered to be the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity".</p> <p>However, a CAR C1 is raised:</p> <p>The starting date of the project activity is stated as 18 November 2005. However, the justification for the chosen start date as per CDM glossary of terms, version 05, is to be provided in section C.1.1 of the PDD. Cp PDD Guidelines.</p> <p><i>Justification of evidences:</i> The CDM EB "CDM glossary of terms (CDM-Glos-05)" has defined "The starting date of a CDM project activity is the earliest date at which either the implementation or construction or real action of a project activity begins".</p> <p>The start date of the project activity is thus accordingly been chosen as the date on which the owner's <i>notice to proceed</i> with the construction of the project activity was provided to the EPC contractor M/s Jaiprakash Associates Limited dated 2005-11-17. The letter i.e. owner's <i>notice to proceed</i> (reff. No.: JKHCL/EPC-JAL/05) clearly mentioned the starting date as 2005-11-18. The project implementation or construction activities began on 2005-11-18 from this letter.</p>	<p>/PDD1/ /PDD-T/ /SD/ /FSR/ /ICICI/ /LCEA/ /CEA/ /AGMT/</p>	<p>Not OK CAR B47</p>	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p><i>Conclusion:</i> The project starting date has been defined in section C.1.1 of the PDD^{/PDD1/} as per the definition by CDM EB 47, Glossary of CDM Terms version 5. CAR C1 is successfully closed; pls. refer the detailed assessment of the closure of the CAR C1.</p>			
<p>B.4.2.2. In case the project start date is on or after 2nd August 2008 has the PP informed the DNA and UNFCCC about the intension to seek CDM status?</p> <p>(EB 55 Annex 1, §§ 100-102) Describe whether such a notification has been provided by the project participants within six months of the project activity start date; if NOT it shall be determined that the CDM was not seriously considered.</p>	<p><i>Description:</i> The project start date is 2005-11-18 which is before 2008-08-02. Thus, this checklist question is not applicable.</p> <p><i>Justification of evidences:</i> The letter i.e. owner's <i>notice to proceed</i> (reff. No.: JKHCL/EPC-JAL/05) with the construction of the project activity to the EPC contractor M/s Jaiprakash Associates Limited clearly mentioned the starting date as 2005-11-18.</p> <p><i>Conclusion:</i> The project start date is before 2008-08-02.</p>	<p>/PDD1/ /PDD-T/ /SD/ /FSR/ /ICICI/ /LCEA/ /CEA/ /AGMT/</p>	OK	OK
<p>B.4.2.3. In case the project start date is before commencing of validation and 2nd August 2008, was the incentive from the CDM seriously considered and are details given in the PDD?</p> <p>(EB 55 Annex 1, §§ 101, 103) Describe whether the evidence to support such consideration is adequately and transparently described in the PDD.</p>	<p><i>Description:</i> Yes, The project start date is 2005-11-18 which is before 2008-08-02 and details for the prior consideration of CDM has been provided in section B.5 of the PDD. Prior seriousness consideration of CDM has been adequately and transparently described and evidences of the same are clearly referred in the PDD.</p> <p><i>Justification of evidences:</i> Validation team has checked the <i>prior consideration of CDM</i> in section B.5 of the PDD and the evidences to support the <i>prior CDM consideration</i>.</p> <p><i>Conclusion:</i> Prior seriousness consideration of CDM has been adequately and transparently described in the PDD.</p>	<p>/PDD-T/ /CM/ /FSR/ /ICICI/ /LCEA/ /CEA/ /AGMT/</p>	CAR B17	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p>B.4.2.4. How and when was the decision to proceed with the project taken? <i>Describe the steps taken to validate the starting date.</i></p>	<p><i>Description:</i> Board of directors of JKHCL has taken the decision to proceed with the Large Hydro project of capacity of 1000 MW with considering CDM revenues on 2003-06-02 and in the subsequent meeting of the board of directors of JKHCL held on 2005-10-26, it was resolved to issue the notice to proceed with the implementation of the project activity aided by the potential revenues from CDM upon receipt of Environment & Forest clearances.</p> <p>Board of directors were aware about the environmental friendly GHG emission reduction hydro project and the risks associated with it and how the additional CDM revenue can compensate/minimises the risks occurred.</p> <p><i>Justification of evidences:</i> True certified copy of the board resolution passed by the board of directors of the company was checked.</p> <p><i>Conclusion:</i> The investment decision in the proposed CDM project activity was done on 2003-06-02, taking CDM benefits into consideration. The project implementation or construction activities began on 2005-11-18 from owner's notice to proceed.</p>	<p>/MD/ /FSR/ /ICICI/ /LCEA/ /CEA/ /AGMT/</p>	OK	OK
<p>B.4.2.5. Is the project start date consistent with the available evidences? (EB 55 Annex 1 , §103) <i>Describe the evidence assessed regarding the prior consideration of the CDM (if necessary). Describe whether the evidence to support such consideration is adequately and transparently described in the PDD.</i></p>	<p><i>Description:</i> Yes, The project start date is consistent with the available evidences. Moreover ICICI bank has confirmed that CDM benefits were considered in their appraisal in order to decide whether project is eligible to get the loan. This appraisal is done before starting date and on the basis of this appraisal only, investment decision has been taken by PP to go ahead with project with CDM benefits.</p> <p><i>Justification of evidences:</i> The letter i.e. owner's notice to proceed</p>	<p>/PDD1/ /PDD-T/ /SD/ /ADD/ /ICICI/-2 /MD/ /FSR/</p>	CAR B17	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>(reff. No.: JKHCL/EPC-JAL/05) with the construction of the project activity to the EPC contractor M/s Jaiprakash Associates Limited clearly mentioned the starting date as 2005-11-18. For details, pls. refer to B.4.2.1. ICICI letter confirmation about CDM benefits consideration in appraisal done in early October is assessed and found appropriate. Moreover original board meeting has been checked to verify the authenticity of extract of board resolution dated 26th October 2005.</p> <p><i>Conclusion:</i> The project start date is consistent with the available evidences i.e. owner's notice to proceed.</p>	/ICICI/ /LCEA/ /CEA/ /AGMT/		
<p>B.4.2.6. Was the decision to proceed with the project taken by a person which has the authority to do so?</p> <p>(EB 55 Annex 1, §102 (a))</p> <p><i>Describe the steps taken to validate this issue.</i></p>	<p><i>Description:</i> Yes, the board of directors of JKHCL has decided to proceed with the project, which is the sole authority to take decision on such projects.</p> <p><i>Justification of evidences:</i> The certified true copy of the board resolution was verified.</p> <p><i>Conclusion:</i> The decision to proceed with the project was taken by a board which has the authority to do so.</p>	/MD/ /FSR/ /ICICI/ /LCEA/ /CEA/ /AGMT/	OK	OK
<p>B.4.2.7. How was the CDM involved in the decision making process?</p> <p>(EB 55 Annex 1, § 103)</p> <p><i>Describe why CDM was a decisive factor in the decision making process.</i></p>	<p><i>Description:</i> CDM revenue was involved by foreseeing the various risk and resulted energy and revenue loss by NJHEP just downstream the proposed project activity. In the meeting, Board of directors make aware about the environmental friendly GHG emission reduction hydro project and the various risks associated with it as anticipated in the NJHEP and how the additional CDM revenue can compensate/minimises the risks occurred. As assessed by the validation team CDM was critical factor in the investment decision.</p>	/MD/ /FSR/ /ICICI/ /LCEA/ /CEA/ /AGMT/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p><i>Justification of evidences:</i> True certified copy of the board resolution passed by the board of directors of the company was checked.</p> <p><i>Conclusion:</i> On the basis of true certified copy of the board resolution passed by the board of directors of the company, it is concluded that CDM revenue was involved by foreseeing the various risk and resulted energy and revenue loss by NJHEP just downstream the proposed project activity.</p>			
<p>B.4.2.8. Do the evidences provided doubtlessly prove that continuous and real actions were taken in order to secure the CDM status?</p> <p>(EB 55 Annex 1, § 103; EB 49 Annex 22, §7)</p>	<p><i>Description:</i> The chronology of project activity as described in section B.5 of the PDD suggests that the PP has taken continuing and real actions to secure CDM status for the project in parallel with its implementation.</p> <p>Investment decision with CDM consideration has been taken on 26th October 2005. Project start date is 2005-11-18. Thereafter PP has done various efforts to acquire the CDM revenues along with the actual project activity implementation.</p> <p><i>Justification of evidences:</i> Validation team has assessed various documents/evidences of the CDM milestones like Board resolution, Appointment letter to EQMS and other consultants, UNFCCC website, MoEF approval etc. were checked.</p> <p><i>Conclusion:</i> Yes, the evidences prove that continuous and real actions were taken in order to secure CDM status.</p>	<p>/CM/ /FSR/ /ICICI/ /LCEA/ /CEA/ /AGMT/</p>	OK	OK
<p>B.4.2.9. Is the gap of documented evidences to secure the CDM status less than 3 years and are the evidences relevant for substantiating the action taken, credible,</p>	<p><i>Description:</i> Yes, the gap of documented evidences to secure the CDM status is less than 3 years and PP has submitted all the relevant evidences.</p> <p><i>Justification of evidences:</i> Validation team has assessed various</p>	<p>/CM/ /FSR/ /ICICI/</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
reliable and complete? (EB 49 Annex 22, §8)	documents/evidences of the CDM milestones like Board resolution, Appointment letter to EQMS and other consultants, UNFCCC website, MoEF approval etc. were checked. <i>Conclusion:</i> Based on assessment of the supportive documents and evidences, validation team concluded that the gap between two consequent CDM activities is less than 3 years.	/LCEA/ /CEA/ /AGMT/		
B.4.2.10. Did implementation of the project ceased after its commencement and did implementation recommence after consideration of the CDM? (EB 51 Annex 58, §7) <i>Describe the reasons for ceasing the project and explain why the incentive from CDM was necessary to recommence the implementation.</i>	<i>Description:</i> Since, the proposed project activity is a greenfield project this checklist question is not applicable for this proposed project activity. <i>Justification of evidences:</i> by means of board resolution, EPC contract & onsite assesemt. <i>Conclusion:</i> The checklist question is not relevant to the proposed project activity.	/MD/ /SD/	NA	NA
B.4.2.11. Can the CDM involvement in the decision assessed as serious? <i>Describe whether or not the project would have been undertaken without the incentive of the CDM.</i> (EB 55 Annex 1 , § 104 (b) – (c))	<i>Description:</i> Yes, CDM has been a decisive factor in the decision making process to proceed with the project by foreseeing the various risks and resulted energy and revenue loss by NJHEP just downstream the proposed project activity. This is clearly evident from the chronology of events described in the section B.5 of the PDD that continuous and real actions were taken to secure CDM status for the project in parallel with its implementation. Cp para 5(b), Annex 46 EB 41. <i>Justification of evidences:</i> Investment decision document is examined and on site interviews were conducted. <i>Conclusion:</i> The CDM involvement in the decision is assessed as	/MD/ /CM/ /IM01/ /FSR/ /ICICI/ /LCEA/ /CEA/ /AGMT/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	serious.			
B.4.3. Identification of alternatives Step 1 (in case of SSC projects pl. Skip steps 1 and 2)				
<p>B.4.3.1. Does the list of alternatives contain the status-quo situation, the project not undertaken as a CDM project as well as all other viable means of supplying the outputs or services that are to be supplied by the proposed CDM project activity?</p> <p>(EB 55 Annex 1 , §§ 106 – 108) Describe the steps taken to validate this issue on the basis of your local and sectoral knowledge.</p>	<p><i>Description:</i> Yes, section B.5 of the PDD clearly and transparently describes the status-quo situation (the existing scenario) and proposed project activity undertaken without CDM.</p> <p><i>Justification of evidences:</i> Desk review of PDD has been carried out.</p> <p><i>Conclusion:</i> In the section B.5 of the PDD, list of alternative includes the status-quo situation (the existing scenario) and proposed project activity undertaken without CDM.</p>	/cea/ /PDD-T/	OK	OK
<p>B.4.3.2. Have all realistic alternatives been identified to the project?</p> <p>(EB 55 Annex 1 , §§ 106 – 108) Describe whether the list of alternatives is credible and complete. Describe how it is validated that the alternatives are realistic.</p>	<p><i>Description:</i> Section B.5 of the PDD only described the status-quo situation (the existing scenario) and proposed project activity undertaken without CDM as an alternative.</p> <p>Thus, following CAR B3 is raised: The chosen alternatives are;</p> <ol style="list-style-type: none"> 1. Continuation of the current situation or <i>status-quo</i> 2. The proposed project activity without CDM. 	/PDD1/ /PDD-T/ /ACM000 2/	CAR B3	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>Out of the above mentioned 2 alternatives, the prior one is the chosen baseline scenario. However, these alternatives are to be transparently described in the PDD section B.4 and referred in section B.5. Cp PDD guidelines.</p> <p><i>Justification of evidences:</i> As per the § 105 of VVM ver. 1.2 clearly describes the procedure for baseline determination, in case the baseline scenario is clearly defined in the applied methodology.</p> <p>Since the section II on page 4 of the applied methodology ACM0002, version 11 prescribes the baseline scenario for the project activities involving the installation of a new grid as <i>"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..."</i></p> <p><i>Conclusion:</i> The baseline identification in section B.4 of the PDD^{/PDD-T/} is found to be described as per the applied methodology ACM0002, version 11 and the baseline determination complies with the requirement of the § 105 of the VVM^{/VVM/}. The raised CAR B3 is successfully closed.</p>			
<p>B.4.3.3. Do all identified alternatives comply with enforced legislations?</p> <p>(EB 55 Annex 1, §§ 107 (c))</p> <p><i>Describe the steps taken to validate this issue. Refer to the legislations.</i></p>	<p><i>Description:</i> Yes, the described status-quo situation (the existing scenario) and proposed project activity undertaken without CDM are in compliance with all applicable legal and regulatory requirements.</p> <p><i>Justification of evidences:</i> Validation team has checked the mandatory or legal requirement of the power generation from the the Electricity Act 2003.</p>	/cea/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<i>Conclusion:</i> Described alternatives comply with enforced legislations.			
B.4.4. Investment analysis Step 2 <i>In case the investment analysis as per step 2 is chosen to justify the additionality Annex 2 "Assessment of Financial Parameters" has to be used to provide additional details of the the calculation parameters..</i>				
B.4.4.1. Does the PDD provide evidence that the project would not be the most economically or financially attractive alternative or economically / financially feasible without the revenues from the sale of CERs? (EB 55 Annex 1, §109)	<i>Description:</i> Yes, the PDD provides evidence to the effect that the project activity is not financially attractive without CER revenues. <i>Justification of evidences:</i> Excel worksheet providing the detailed computation of project IRR, Annex 58, EB 51 and Annex 1, EB 55 <i>Conclusion:</i> Evidence to the effect that the project activity is not financially attractive has been provided.	/IRR2/ /PDD-T/	OK	OK
B.4.4.2. Is an appropriate analysis method chosen for the project (simple cost analysis, investment comparison analysis or benchmark analysis)? (EB 55 Annex 1, §109, EB 39 Annex 10)	<i>Description:</i> Benchmark analysis has been chosen to demonstrate additionality of the project. <i>Justification of evidences:</i>	/IRR/ /PDD-T/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<i>Describe why the selected analysis method is appropriate under consideration of potential revenues and costs, potential project alternatives and potential available benchmark values.</i>	Excel worksheet, providing detailed computation of project IRR, Annex 58, EB 51 and Annex 1, EB 55 <i>Conclusion:</i> Since the project activity would be earning revenue from the sale of power to the grid, the baseline is outside the direct control of project developer and hence benchmark analysis considered for demonstration of additionality and thus it is appropriate			
B.4.4.3. Is a clear, viewable and unprotected Excel spreadsheet available for the investment calculation? (EB 55 Annex 1, §111, EB 51, Annex 58, §8) <i>Describe the steps taken to validate this issue.</i>	<i>Description:</i> Yes, a clear and viewable and unprotected excel spread sheet containing investment analysis calculations has been submitted. <i>Justification of evidences:</i> Excel worksheet providing detailed calculations of investment analysis, Annex 58, EB 51 and Annex 3, EB 51 <i>Conclusion:</i> A clear, viewable and unprotected excel spread sheet for investment calculations has been submitted, using the latest guidance provided in the Guidance on the Assessment of Investment Analysis.	/PDD1/ /PDD-T/ /IRR/	OK	OK
B.4.4.4. Does the period chosen for the investment analysis reflect the technical lifetime of the project activity or in case a shorter period is chosen, is the fair value of the project activity's assets at the end of the investment analysis period (as a cash	<i>Description:</i> The period chosen for investment analysis did not reflect the technical lifetime of the project activity. <i>Justification of evidences:</i> Excel worksheet providing detailed calculations of investment analysis, Annex 58, EB 51 and Annex 3, EB 51	/IRR/ /PDD-T/	CAR B18	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
inflow) included? (EB 55 Annex 1, §110; EB 51 Annex 58 § 3 – 4) <i>Describe how the technical lifetime / period chosen for calculating financial parameter(s) is reviewed and which documents were utilised in the course of review. Describe furthermore the approach used to check the inclusion of a potential fair value.</i>	<i>Conclusion:</i> Project developer has given financial projections for a 35 full operating years. In this context, finding B8 has been raised in the form of CAR and the project developer had responded by stating that assumption of 40 years of operating life would involve major refurbishing cost at the end of 35 years and that the cash inflow after 35 years will not impact additionality. Validation team checked the submission and found that the IRR remains constant. Hence, 35 years of operating life (which is also in conformity with guidance 3 of Annex 58, EB 51) has been accepted.			
B.4.4.5. Is the (remaining) technical lifetime of existing or project equipment defined in accordance with the guidance of the <i>Tool to determine the remaining lifetime of equipment?</i> (EB 50 Annex 15)	<i>Description:</i> The default operating life of hydro turbines as per Annex 15, EB 50 is 150,000 hours. The project had assumed an operating life of 35 years. <i>Justification of evidence</i> Annex 15, EB 50 and technical specification of turbine <i>Conclusion:</i> The PLF for the project has been assumed at 51%, which will yield an approximate 4500 hours of operation per year. Given the operating life of 150,000 hours, the operating life of the project should be 33 years as against which the project developer has assumed 35 years, which is considered appropriate. In this context, please see findings B8 raised in the form of CAR.	/IRR/ /PDD-T/	CAR B18	OK
B.4.4.6. Is the fair value calculated in accordance with local accounting regulations (where	<i>Description:</i> Residual value computed based on the book depreciation of the	/IRR/ /PDD-T/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p>available) or international best practice? (EB 55 Annex 1, §110; EB 51 Annex 58 §4) <i>State the accounting regulations applied for calculating the fair value and describe why these are applicable under the project specific circumstances. Describe potential mismatches between regulations and the approach applied for calculating the fair value.</i></p>	<p>assets has been taken as the salvage value in the terminal year <i>Justification of evidence:</i> Excel worksheet providing detailed calculations of investment analysis, Annex 58, EB 51 and Annex 1, EB 55 <i>Conclusion:</i> Residual value based on the book depreciation has been considered as salvage value. The salvage value takes into account the fair value of the assets and is in conformity with guidance 4 of annex 56. EB 51.</p>			
<p>B.4.4.7. Is the book value as well as the expectation of the potential profit or loss included in the fair value calculation? (EB 55 Annex 1, §110; EB 51 Annex 58 §4)</p>	<p><i>Description:</i> In the financial indicator calculations, the book value as well as the expected potential profit has been included in the fair value calculation. <i>Justification of evidence:</i> Excel worksheet providing detailed calculations of investment analysis, Annex 58, EB 51 and Annex 1, EB 55 <i>Conclusion:</i> Considering the fact that the project assets have been almost fully written off, the salvage value accounted in the financial indicator represents more than 10% of the initial investment cost as potential profit, which is much higher than the accepted international norms⁴⁰. Hence, the salvage value considered is conservative and conforms to guidance (4) of Annex 58, EB 51.</p>	<p>/IRR/ /PDD-T/</p>	<p>OK</p>	<p>OK</p>

⁴⁰ http://www.marshall-stevens.com/pdf/pub_ValueCurves.pdf



	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
n-cash et profits for nancial 10; EB 51	<p><i>Description:</i></p> <p>Depreciation and non tax items have been added back to net profits for the purpose of calculation of financial indicator</p> <p><i>Justification of evidence:</i></p> <p>Excel worksheet providing detailed calculations of investment analysis, Annex 58, EB 51 and Annex 1, EB 55</p> <p><i>Conclusion</i></p> <p>Considering the fact that the benchmark used is a post tax benchmark, the financial indicator should be on post tax basis. Since depreciation and other non cash flow costs provide tax shield, they are deducted as allowable expenditure for computing tax and then added back to net profits after stripping off the tax shield provided by them. In this context, please see findings given under CAR B8 and CL B9</p>	<p>/IRR/ /PDD-T/</p>	<p>CAR B18 & B20</p>	<p>OK</p>
vestment ntended for \$5)	<p><i>Description:</i></p> <p>Benchmark is intended for post tax comparison and hence, taxation has been excluded.</p> <p><i>Justification of evidence:</i></p> <p>Excel worksheet providing detailed calculations of investment analysis, Annex 58, EB 51 and Annex 1, EB 55</p>	<p>/IRR/ /PDD-T/</p>	<p>CL B34</p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	Benchmark used is intended for post tax comparison. Therefore, the financial indicator has also been computed on post-tax basis. Tax liability has been computed after taking into consideration all allowable expenditure and tax benefits to which the project activity is entitled to. However, after computing the post tax profit, all non cash flow items have been added back to arrive at the cash inflow. In this context, please see findings under CAR B8 and CL B9.			
<p>B.4.4.10. Were the input values used in the investment analysis valid and applicable at the time of the investment decision?</p> <p>(EB 55 Annex 1, §§110, 113; EB 51 Annex 58 §6)</p> <p><i>In case the basis for input values is a Feasibility Study Report (FSR) describe how it has been ensured that the period in time between the finalisation of the FSR and the investment decision is sufficiently short so that it is unlikely that input values would have materially changed. Further confirm the consistency of values in FSR and PDD.</i></p>	<p><i>Description:</i></p> <p>Investment decision for this project activity was taken on October 26, 2005 by which time based on the CEA approval and the DPR, the lead bank was working towards financial closure. Investment decision was taken based on the project cost and revenue streams determined by the lead bank of consortium and all other input values as per CEA/CERC norms. Hence, all the input values used in the investment analysis were valid at the time of investment decision.</p> <p><i>Justification of evidence:</i></p> <ul style="list-style-type: none"> • Excel worksheet providing detailed calculations of investment analysis, • CEA Techno Economic Clearance, • CERC tariff order dt. 26th March 2004 • CERC order on depreciation rate • Sanction letter from ICICI bank • ICICI letter on repayment schedule • PPA • Draft Red Herring Prospectus 	<p>/IRR/ /PDD-T/ /FSR/ /ICICI/ /LCEA/ /CEA/ /AGMT/</p>	<p>CAR B16-28 CL B29- 35</p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<ul style="list-style-type: none"> Income Tax Act Income Tax Rule Annex 58, EB 51 and Annex 1, EB 55 <p>All the above documents which is provided by PP are assessed and found authentic, relevant and appropriate.</p> <p><i>Conclusion:</i></p> <p>The input values are based on financial closure, CERC notifications, Income Tax Act, Rules and Prospectus. All the input values were valid at the time of investment decision.</p>			
<p>B.4.4.11. Is the plant load factor (PLF) chosen in a conservative manner, taking into account that the PLF may be different in the framework of demonstrating additionality and calculating the ex-ante ER?</p> <p>(EB 48, Annex 11)</p>	<p><i>Description:</i></p> <p>PLF is based on detailed hydrological study done forming part of DPR and approved by Central Electricity Authority and considered by the banks while sanctioning financial assistance.</p> <p><i>Justification of evidence:</i></p> <ul style="list-style-type: none"> CEA Techno Economic Clearance; ICICI Bank letter confirming the consideration of PLF in the appraisal of the project; Annex 11, EB 48 <p><i>Conclusion:</i></p> <p>The DPR and hence CEA assumed a total generation of 4559.77 GWh based on 0.17 cumec environmental release (for aquatic life) from the dam. However, MoE&F while according environment and forest clearance in November 2005, stipulated release of 6.80 cumec instead of 0.17 cumec of water from the dam on</p>	<p>/IRR/ /PDD-T/</p>	<p>CL-B30</p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	environmental considerations. The energy generation after considering 6.80 cumec environmental release works out to 4463.88 GWh as per CEA guidelines keeping all other parameters of TEC unchanged. The ICICI Bank, the lead manager for loan syndication, has considered generation of only 4463.88 Gwh in the appraisal, which has been evidenced by the letter issued by the bank. PLF assumed in the additionality demonstration conforms to the stipulations made in Annex 11, EB 48. In this context, please see findings to CL B9			
B.4.4.12. In case of project IRR: Are the costs of financing expenditures (loan repayments and interests) excluded from the calculation of project IRR? (EB 55 Annex 1, §108; EB 51 Annex 58 §9)	<p><i>Description:</i></p> <p>Loan repayments and interests have been excluded from the calculation of project IRR</p> <p><i>Justification of evidence:</i></p> <p>Excel worksheet providing detailed calculations of investment analysis, Annex 58, EB 51 and Annex 1, EB 55</p> <p><i>Conclusion:</i></p> <p>In computing the financial indicator (which in project IRR in this case), interest has been added back to the net profit after taxes. Hence, the cash inflow includes profit after tax, interest and depreciation. Project IRR calculation conforms to the guidance given vide Annex 58, EB 51.</p>	/IRR/ /PDD-T/	OK	OK
B.4.4.13. In cases where a post-tax benchmark is applied please ensure that actual interest payable is taken into account in the calculation of income tax. (EB 51 Annex 58 §11)	<p><i>Description:</i></p> <p>Project's additionality is demonstrated through post tax financial indicator and hence post tax benchmark. Therefore, in computing the financial indicator, actual interest has been taken into consideration in the calculation of Income tax</p>	/IRR/ /PDD-T/	CAP-B16 CL-B29-30	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<i>As per the guidance it is recommended to select a pre tax benchmark in order to Describe the steps taken in assessing this requirement.</i>	<p><i>Justification of evidence:</i></p> <p>Excel worksheet providing detailed calculations of investment analysis, Annex 58, EB 51 and Annex 1, EB 55</p> <p><i>Conclusion:</i></p> <p>Tax calculations take into account actual interest payable and therefore conform to Annex 58, EB 51. In this context, please see findings under CAR B8 and CL B9.</p>			
<p>B.4.4.14. In case of equity IRR: Is the part of the investment costs, which is financed by equity considered as net cash outflow and is the part financed by debt excluded in net cash outflow?</p> <p>(EB 55 Annex 1, §108; EB 51 Annex 58 §10)</p>	<p><i>Description:</i></p> <p>Not applicable, as additionality is demonstrated through project IRR</p> <p><i>Justification of evidence:</i></p> <p>Not applicable</p> <p><i>Conclusion:</i></p> <p>Not applicable</p>	/IRR /PDD-T/	NA	NA
<p>B.4.4.15. Is the type of benchmark chosen appropriate for the type of IRR calculated (e.g. local commercial lending rates or weighted average costs of capital for project IRR; required/expected returns on equity for equity IRR)?</p> <p>(EB 55 Annex 1, § 110; EB 51 Annex 58 §12 – 15)</p> <p><i>In case risk premiums are applied precisely describe its suitability to reflect the risks associated with the project activity, considering the project type and market situation.</i></p>	<p><i>Description :</i></p> <p>WACC has been chosen as the benchmark. Since Project IRR has been chosen as the financial indicator, the benchmark is appropriate.</p> <p><i>Justification of evidence</i></p> <p>Excel worksheet providing detailed calculations of investment analysis, Annex 58, EB 51 and Annex 1, EB 55</p> <p><i>Conclusion:</i></p> <p>Project developer has chosen WACC as the benchmark, which is in</p>	/IRR/ /PDD-T/	CAR B24	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	conformity with the paragraphs 12 and 13 of Annex 58, EB 51. In this context, please see findings under CAR B8 and CL B9			
<p>B.4.4.16. Is the benchmark value suitable for the project activity and is it reasonable to assume that no investment would be made at a rate of a lower return than the benchmark?</p> <p>(EB 55 Annex 1, §110; EB 51 Annex 58 §13 – 15) Describe whether it is reasonable to assume that a lower rate of return would consequently result in the baseline scenario.</p>	<p><i>Description:</i></p> <p>Yes, the benchmark value is suitable for the project activity and investment would not have been made at a rate lower than the benchmark</p> <p><i>Justification of evidence</i></p> <p>Minutes of the Board Meeting, Excel worksheet and PDD.</p> <p><i>Conclusion:</i></p> <p>Minutes of the Board meeting reveal that the CDM benefits are imperative for the project to become investment worthy. Moreover, as the financial indicator with CDM benefits cross the benchmark, it is reasonable to conclude that the investment would not have taken place without CDM benefits, which shows that benchmark value considered is suitable for the project.</p>	/MD/ /IRR/ /PDD-T/	OK	OK
<p>B.4.4.17. Is it ensured that the project cannot be developed by other developers than the PP?</p> <p>(EB 55 Annex 1, §110; EB 51 Annex 58 §13 – 14) Describe why the benchmark does not include the subjective profitability expectations or risk profile of the project developer. If applicable assess the past financial behaviour of the entity during at least the last 3 years in relation to similar projects.</p>	<p><i>Description:</i></p> <p>The project can be developed by other developers also</p> <p><i>Justification of evidence:</i></p> <p>Not applicable</p> <p><i>Conclusion:</i></p> <p>Since it is a green-field project, it can be developed by other developers also and accordingly the benchmark is based on publically available information and does not include the subjective profitability expectations or risk profile of the project developer.</p>	/PDD1/ /PDD-T/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
B.4.4.18. Was the benchmark consistently used in the past for similar projects with similar risks? (EB 55 Annex 1, §110)	<p><i>Description:</i></p> <p>Not applicable as internal benchmark has not been used</p> <p><i>Justification of evidence:</i></p> <p>Not applicable</p> <p><i>Conclusion:</i></p> <p>Since internal benchmark has not been used, the question is not applicable</p>	/PDD-T/	NA	NA
<p>B.4.4.19. Does the PDD and related spreadsheets contain a sensitivity analysis and does the same contain variation of parameters which may vary throughout the project lifetime,</p> <p>(EB 55 Annex 1, §§110, 111 (e); EB 51 Annex 58 §17 – 18)</p> <p><i>Describe relevance of parameters used in the sensitivity analysis as well as their likeliness to vary during the project's lifetime. Parameters which are fixed on the basis of contracts, PPAs etc. may not be subject to variation and not adequate.</i></p>	<p><i>Description:</i></p> <p>The PDD and related spreadsheets contain sensitivity analysis, which also contain variation in parameters which may vary throughout the project lifetime</p> <p><i>Justification of evidence:</i></p> <p>Excel worksheet providing detailed calculations of investment analysis, Annex 58, EB 51 and Annex 1, EB 55</p> <p><i>Conclusion:</i></p> <p>Sensitivity analysis has been conducted by varying project cost, generation, O&M cost, merchant power tariff to 10% variation on either side and the return on equity to a 10% increase. The sensitivity analysis is in conformity with guidance 17 and 18 of Annex 58, EB 51. In this context, please see findings under CAR B8.</p>	/IRR/ /PDD-T/	CAR B25	OK
B.4.4.20. Were only variables that constitute more than 20% of either total project costs or	<p><i>Description:</i></p> <p>No variable except O&M cost that constitute less than 20% of total</p>	/IRR/ /PDD-T/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p>total project revenues subjected to reasonable variation?</p> <p>(EB 55 Annex 1, §108; EB 51 Annex 58 §17)</p>	<p>project revenue or project cost were subjected to reasonable variation. All the parameters, variation of which can affect the project IRR significantly are included in the sensitivity analysis. No variable parameters are left out from assessment under sensitivity analysis which constitute more than 20% of either total project costs or total project revenues</p> <p><i>Justification of evidence</i></p> <p>Excel worksheet providing detailed calculations of investment analysis, Annex 58, EB 51 and Annex 3, EB 51</p> <p><i>Conclusion:</i></p> <p>O&M cost, which accounts for less than 20% of total project revenue has also been subjected to sensitivity analysis as O&M cost is the only stand-alone item of expenditure in the projections.</p>			
<p>B.4.4.21. Have parameters, constituting less than 20% of total project costs or revenues, been identified with potential material impact on the financial parameter?</p> <p>(EB 55 Annex 1, §108; EB 51 Annex 58 §17)</p> <p><i>Describe whether those parameters are considered in the sensitivity analysis?</i></p>	<p><i>Description:</i></p> <p>Yes. Variable that constitute less than 20% of total project revenue was also subjected to reasonable variation</p> <p><i>Justification of evidence</i></p> <p>Excel worksheet providing detailed calculations of investment analysis, Annex 58, EB 51 and Annex 1, EB 55</p> <p><i>Conclusion:</i></p> <p>O&M cost, which accounts for less than 20% of total project revenue has also been subjected to sensitivity analysis as O&M cost is the only stand-alone item of expenditure in the projections</p>	<p>/IRR/ /PDD-T/</p>	<p>CAR B25</p>	<p>OK</p>
<p>B.4.4.22. Is the range of variation reasonable in the</p>	<p><i>Description:</i></p>	<p>/IRR/</p>	<p>OK</p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p>specific context of the project activity, taking into consideration historic trends in the business sector?</p> <p>(EB 55 Annex 1, §108; EB 51 Annex 58 §18)</p> <p><i>Describe whether the range of variation is appropriate with focus on historic developments, e.g. price of oil / labour etc., energy potential in the region in question.</i></p>	<p>Range of variation considered is reasonable for the project activity considering the historic trends</p> <p>Justification of evidence:</p> <p>Excel worksheet providing detailed calculations of investment analysis, Annex 58, EB 51 and Annex 1, EB 55</p> <p>Conclusion:</p> <p>Considering the fact that the PLF is based on hydrological study and project cost has already experienced cost overrun (information available on the web reveals that the cost has gone up substantially) and the annual inflation averaging 5%, the variation considered is appropriate for the business sector.</p>	<p>/PDD-T/ /jaypee/</p>		
B.4.5. Barrier analysis Step 3 or SSC additionality assessment				
<p>B.4.5.1. Are there any barriers given which have a clear and direct impact on the financial returns of the project?</p> <p>(EB 55 Annex 1, §§ 116, 135, 138)</p> <p><i>In case of LSC projects those issues cannot be considered as barriers and shall be assessed in the investment analysis. In case of SSC projects the same fundamentals as for LSC projects shall apply, i.e. the assessment of the investment barrier according to EB 51 Annex 58.</i></p>	<p>Description:</p> <p>Project developer has given technological barrier. Though this has impact on the financial returns on the project, the impact cannot be assessed with any degree of certainty</p> <p>Justification of evidence:</p> <p>Project developer has removed the barrier analysis.</p> <p>Conclusion:</p> <p>Barrier analysis has been removed.</p>	<p>/PDD1/ /PDD-T/</p>	<p>CAR B7-B10</p>	OK
<p>B.4.5.2. Are the barriers described risk related (e.g technology failure, other performance</p>	<p>Description:</p> <p>The barrier analysis has been removed.</p>	<p>/PDD1/ /PDD-T/</p>	<p>CAR B7-B10</p>	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
related risks)? (EB 55 Annex 1 , §§ 117, 135, 138) <i>Are there other barriers or barriers due to prevailing practice existent which would have led to higher emissions?</i>	<i>Justification of evidence:</i> Project developer has removed the barrier analysis. <i>Conclusion:</i> Barrier analysis has not been used for demonstration of additionality.			
B.4.5.3. Has the unavailability of means of finance for the project been described and adequately substantiated? Do evidences doubtlessly prove that the financing of the project was assured only due to the benefit of the CDM? (EB 55 Annex 1 , §§ 117, 138, EB 50 Annex 13, §9)	<i>Description:</i> No, Project developer has not used unavailability of finance barrier <i>Justification of evidence:</i> PP has not used this barrier to demonstrate project's additionality. Hence, this is not applicable <i>Conclusion:</i> Since the project developer has not used unavailability of finance as barrier, this question is not applicable	/PDD1/ /PDD-T/	NA	NA
B.4.5.4. How is it justified and evidenced that the barriers given in the PDD are real? (EB 55 Annex 1, § 117 (a))	<i>Description:</i> The barrier analysis has been removed in the final PDD. <i>Justification of evidence:</i> Project developer has removed the barrier analysis. <i>Conclusion:</i> Barrier analysis has not been used for demonstration of additionality.	/PDD1/ /PDD-T/	CAR B7-B10	OK
B.4.5.5. How is it justified that one or a set of real	<i>Description:</i>	/PDD1/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
barriers prevent(s) the implementation of the project activity and do not prevent the implementation of at least one of the alternatives? (EB 55 Annex 1 , § 117 (b))	The barrier analysis has been removed in the final PDD. <i>Justification of evidence:</i> Project developer has removed the barrier analysis. <i>Conclusion:</i> Barrier analysis has not been used for demonstration of additioanlity.	/PDD-T/		
B.4.5.6. Does the review of relevant background information on the nature of the company(ies) and entity(ies) involved in the financing and implementation of the project sufficiently justify that the barriers related to the lack of access to capital, technologies and skilled labour are real? (EB 50 Annex 13, §4)	<i>Description:</i> The barrier analysis has been removed in the final PDD. <i>Justification of evidence:</i> Project developer has removed the barrier analysis. <i>Conclusion:</i> Barrier analysis has not been used for demonstration of additioanlity.	/PDD1/ /PDD-T/	NA	NA
B.4.5.7. Has it been demonstrated in an objective way how the CDM alleviates each of the identified barriers to a level that the project is not prevented anymore from occurring by any of the barriers? (EB 50 Annex 13, §5)	<i>Description:</i> The barrier analysis has been removed in the final PDD. <i>Justification of evidence:</i> Project developer has removed the barrier analysis. <i>Conclusion:</i> Barrier analysis has not been used for demonstration of additioanlity.	/PDD1/ /PDD-T/	OK	OK
B.4.5.8. Would provision of additional financial	<i>Description:</i>	/PDD1/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p>means lead to the mitigation of the barrier(s) demonstrated?</p> <p>(EB 50 Annex 13, §7)</p> <p><i>Describe why provision of additional financial means would not lead to mitigation of the barrier(s) demonstrated and hence analysing the project's additionality within the framework of an investment analysis is inappropriate. .</i></p>	<p>The barrier analysis has been removed in the final PDD.</p> <p><i>Justification of evidence:</i></p> <p>Project developer has removed the barrier analysis.</p> <p><i>Conclusion:</i></p> <p>Barrier analysis has not been used for demonstration of additionality.</p>	/PDD-T/		
<p>B.4.6. Common practice analysis Step 4 (in case of SSC projects skip this step)</p>				
<p>B.4.6.1. Is the defined region for the common practice analysis appropriate for the technology/industry type?</p> <p>(EB 55 Annex 1 , § 121 (a))</p> <p><i>Describe why the project activity is not common practice in a transparent and unambiguous manner. If a region other than the entire host country is chosen, describe why this region is more appropriate.</i></p>	<p><i>Description:</i></p> <p>Project developer has taken the entire country as the geographical region</p> <p><i>Justification of evidence:</i></p> <p>This is checked and found appropriate by the validation team members having host country competence.</p> <p><i>Conclusion:</i></p> <p>Project developer has taken the entire country as the geographical region, which is appropriate and is in conformity with step 4 of Additionality Tool and also paragraph 121 of Annex 1, EB 55. In this context, please see findings to CAR B11-12</p>	<p>/PDD1/ /PDD-T/</p>	<p>CAR B11-12</p>	OK
<p>B.4.6.2. To what extent similar projects have been</p>	<p><i>Description:</i></p>	/PDD1/	CAR	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
undertaken in the relevant region? (EB 55 Annex 1 , § 121 (b))	<p>Large scale hydroelectric projects have been undertaken in the selected region. But, as per the definition given in step 4 of Additionality Tool, they cannot be classified as 'Similar projects'</p> <p><i>Justification of evidence:</i></p> <p>Tool for demonstration and assessment of additioanality has been checked by the validation team.</p> <p><i>Conclusion:</i></p> <p>There were 89 large scale hydro electric projects with a capacity of over 125 MW as on May 2010</p>	/PDD-T/ /cea/	B11-12	
B.4.6.3. In case similar projects are identified, are there any key differences between the proposed project and existing or ongoing projects and what kind of differences are observed? (EB 55 Annex 1 , § 121 (c))	<p><i>Description:</i></p> <p>Large scale hydroelectric projects have been undertaken in the selected region. But, as per the definition given in step 4 of Additionality Tool, they cannot be classified as 'Similar projects'</p> <p><i>Justification of evidence:</i></p> <p>Tool for demonstration and assessment of additioanality has been checked by the validation team.</p> <p><i>Conclusion:</i></p> <p>Of 89 hydro power projects with an installed capacity of more than 125 MW, 21 were under implementation and 68 were under operation. Of the 68 projects under operation, 65 were in the public sector. Of the remaining 3, one project was set up before the Electricity Act was passed and Kyoto Protocol was ratified by the Indian Government. Other two projects have sought VCS benefits. Hence, there were no 'similar projects' in the region.</p>	/PDD1/ /PDD-T/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
B.5. Ex-Ante Calculation of GHG Emission Reductions <i>It is assessed whether the ex-ante calculations of project emissions, baseline emissions, leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified. Furthermore calculation of emission reductions shall be assessed.</i>				
<p>B.5.1. Are the equations applied correctly according to the applied approved methodology? (EB 55 Annex 1 §§67 (c), 89, 90, 92)</p> <p><i>Describe clearly the steps taken to assess whether the methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions. Further take into consideration that all estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.</i></p>	<p><input checked="" type="checkbox"/> The equations applied for calculation are correctly applied according to the approved methodology. <input type="checkbox"/> The following mistakes have been identified in this context:</p> <p><i>Description:</i> Yes, all the necessary equations required for the calculation of baseline emissions have been provided in section B.6.1 of the PDD^{/PDD1//PDD-T/}. Also as per section Baseline emission of the applied methodology ACM0002, version 12.1 and Tool to calculate the emission factor for an electricity system” Version 2 the explanation and calculations of the emission factor also has been transparently described in section B.6.1 and Annex 3 of the PDD^{/PDD1//PDD-T/}.</p> <p><i>Justification of evidences:</i> All necessary equations are assessed as per section Baseline emission of the applied methodology ACM0002, version 11 and Tool to calculate the emission factor for an electricity system” Version 2 and found correctly applied.</p>	<p>/PDD-T/ /unfccc/ /TOOL/</p>	<p>CAR B1</p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<i>Conclusion:</i> All the equations as required by the methodology for ex-post emission reduction calculation been described clearly and are in line with the applied methodology i.e. ACM0002, version 12.1.			
<p>B.5.2. In case the methodology allows for different methodological choices, are the equations applied properly justified and have they been used reflecting the other methodological choices (i.e. baseline identification)?</p> <p>(EB 55 Annex 1 §§ 90, 91)</p> <p><i>Assess the correct selection and application of methodological choices. Describe whether proper justification has been provided (based on the choice of the baseline scenario, context of the project activity and other evidence provided) and whether the correct equations have been used reflecting the relevant methodological choices.</i></p>	<p><i>Description:</i> Applied, approved CDM methodology is ACM0002, version 12.1 and all equations applied are properly justified in the PDD^{/PDD1//PDD-T/}. Moreover the emission factor as referred by the applied methodology has been used as per the latest version of tool to calculate emission factor for an electricity system i.e. 'Tool to calculate the emission factor for an electricity system', Version 2,.</p> <p><i>Justification of evidences:</i> It is checked by Validation team during the desk review that equations are applied as per approved CDM methodology is ACM0002, version 12.1 and referred tools thereof.</p> <p><i>Conclusion:</i> All equations are correct and properly justified in accordance to the applied methodology.</p>	<p>/PDD1/ /PDD-T/ /ACM000 2/ /TOOL/</p>	OK	OK
<p>B.5.3. Have conservative assumptions been used when calculating the project emissions?</p> <p>(EB 55 Annex 1 §§ 90, 91)</p> <p><i>Describe clearly the steps taken to assess whether all the assumptions and data used by the PP are listed in the PDD including references and sources and are conservatively interpreted in the PDD.</i></p>	<p><i>Description:</i> Yes, all the parameters, equations particularly ex-ante fixed parameter i.e. emission factor of the connected grid are thoroughly checked and found derived based on conservative assumptions. Other parameters related to project emission are also assessed and found to be considered conservative.</p> <p><i>Justification of evidences:</i> The section B.6 and B.7 of the PDD^{/PDD-T/} has been assessed against the applied methodology and tools referred therein.</p> <p><i>Conclusion:</i> All the assumptions used are conservative in nature.</p>	<p>/PDD-T/ /ACM000 2/ /TOOL/</p>	OK	OK
B.5.4. Does the implementation of the project activity	<i>Description:</i> No, The DOE has assessed all aspects of project	/PDD-T/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p>lead to GHG emissions within the project boundary which are expected to contribute more than 1% of the overall expected average annual emission reductions, which are not addressed by the methodology?</p> <p>(EB 55 Annex 1 , §77)</p>	<p>implementation during the site visit and desk review and thus found that the proposed project activity implementation does not lead to GHG emission within the project boundary which are expected to contribute more than 1% of the overall expected average annual emission reductions, which are not addressed by the methodology.</p> <p><i>Justification of evidences:</i> The site visit observation has been assessed against the methodological requirements and tools referred therein.</p> <p><i>Conclusion:</i> All the possible sources of GHG emissions are assessed and accounted in the project description.</p>	<p>/ACM000 2/ /IM01/</p>		
<p>B.5.4.1. Has a plant load factor (PLF) been defined ex-ante and considered for determination of baseline emissions?</p> <p>(EB 48 Annex 11, §§ 1, 3, 4)</p> <p><i>Describe why the PLF is conservative in the framework of calculating emissions reductions and whether the PLF is the same in the framework of demonstrating additionality by applying the investment analysis. Note, in order to be conservative in both cases the PLF may be different.</i></p>	<p><i>Description:</i> The plant load factor is calculated based on the energy generation in 90% Dependable Year (1993-94) and 95% machine availability.</p> <p>A CAR B30 has been raised:</p> <p>The conformity of PLF to Annex 11 of EB 48 should be explained and appropriate documentary evidence should be submitted.</p> <p>The annual expected energy generation from the project activity is provided in the 'Energy' worksheet in the IRR calculation sheet^{/IRR2/}.</p> <p>As per the paragraph 3 of Annex 11 of EB 48, <i>The defined ex-ante plant load factor (PLF) 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;</i></p>	<p>/IRR/ /ICICI/</p>	<p>CAR B30</p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>Thus in conformity with paragraph 3 of Annex 11 of EB 48, the PP has submitted a letter from the ICICI Bank which confirms that same PLF is considered for financial appraisal of the project activity.</p> <p><i>Justification of evidences:</i> The original letter from ICICI bank^{/PLF/} is verified by the DOE.</p> <p><i>Conclusion:</i> PLF value applied is complying to EB 48 Annex 11.</p>			
<p>B.5.5. Are all data sources and assumptions appropriate and parameters which remain fixed throughout the crediting period correct, applicable to the project and will lead to a conservative estimation of emission reductions?</p> <p>(EB 55 Annex 1 , § 91) Describe clearly the steps taken to assess whether the values used for the fixed parameters are considered reasonable, correct and applicable in the context of the project activity. Check esp. chapter 6.2 of the PDD.</p>	<p><i>Description:</i> All the parameters, equations particularly ex-ante fixed parameter i.e. emission factor of the connected grid are thoroughly checked and found derived based on conservative assumptions. The emission factor is calculated based on the data from CEA version 03.</p> <p>However a CAR B13 had been raised:</p> <p>The data used to estimate the baseline emissions and selection of simple OM approach is to be updated as per the latest CEA baseline data version 04 in sections B.6.1, B.6.2, B.6.3 and B.6.4 of the PDD.</p> <p>For the baseline establishment, CEA data base version 4 has been applied in the webhosted PDD^{/PDD1/} Thus as per Annex 12, EB 35, PP need not to revise the baseline as per latest CEA baseline data version 04. Moreover, operating margin (OM) calculations have</p>	<p>/PDD-T/ /IRR/ /cea/ /unfccc/</p>	<p>CAR B13</p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>now been revised based on 3-year generation-weighted average and thus complies with the applied tool "Tool to calculate the emission factor for an electricity system" version 2.2.</p> <p>Since the PP has revised the OM calculations based on the Annex 12, EB 61 and the project complies with the requirements of the Annex 12, EB 35, thus the raised CAR B13 is closed.</p> <p><i>Justification of evidences:</i> The section B.6 and B.7 of the PDD^{/PDD-T/} has been assessed against the applied methodology and tools referred therein. CEA data base is publically available data which is issued by government and thus considered authentic.</p> <p><i>Conclusion:</i> All the ex-ante data and assumptions used are conservative in nature and hence found to be appropriate.</p>			
<p>B.5.6. Are all ex-ante calculation values for monitoring parameters (as defined as per chapter B.7.1) reasonable?</p> <p>(EB 55 Annex 1 , § 91)</p> <p><i>Describe clearly the steps taken to assess whether the values used for the monitoring parameters are considered reasonable, applicable and conservative in the context of the project activity</i></p>	<p><input checked="" type="checkbox"/> All "Values of data to be applied for the purpose of calculating expected emissions reductions" are considered to be reasonable, applicable and conservative.</p> <p><input type="checkbox"/> The following mistakes have been identified in this context:</p>	/IRR/	OK	OK
<p>B.5.7. Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change.</p> <p><i>Describe the steps taken to validate this issue.</i></p>	<p><i>Description:</i> The validation team has done complete assessment of project activity, assessed each source and sink relevant to the project activity. Further, validation team has carried out the site visit and interviews and based on above assessment and site visit observations, validation team has of the opinion that emission</p>	<p>/PDD-T/ /IRR/ /XLS2/ /IM01/</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>reductions resulting from proposed project activity would be real, measurable and give long-term benefits related to the mitigation of climate change</p> <p><i>Justification of evidences:</i> The whole project description and ER calculations are assessed against the VVM, applied methodology and tools requirements.</p> <p><i>Conclusion:</i> Emission reductions from proposed project will be real, measurable and give long-term benefits related to the mitigation of climate change.</p>			
B.6. Monitoring of Emission Reductions <i>It is assessed whether the monitoring plan is appropriate for the project activity and in line with the applied methodology.</i>				
<p>B.6.1. Are all monitoring parameters required by the applied methodology contained in the monitoring plan?</p> <p>(EB 55 Annex 1 , §§ 67 (e), 122, 124 (a) , 125)</p> <p><i>Assess whether all applicable parameters listed in the methodology are included in the monitoring plan.</i></p> <p><i>Pl. check further whether the selection of parameters not to be monitored (section B.6.2) is appropriate and in line with</i></p>	<p><i>Description:</i> As per section III “monitoring methodology” of the applied methodology ACM0002, version 12.1, relevant project activity monitoring parameter shall consist of following:</p> <ul style="list-style-type: none"> • $EG_{\text{facility},y}$ (Quantity of net electricity generation supplied by the project plant/unit to the grid in year y) • TEG_y (Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y) • Cap_{PJ} (Installed capacity of the hydro power plant after the implementation of the project activity) 	<p>/PDD1/ /PDD-T/ /IM02/ /ACM000 2/</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p><i>the applied methodology.</i></p> <p><i>In case of different approaches can be chosen acc. to the methodology assess whether the selection of parameters is justified and correct.</i></p>	<ul style="list-style-type: none"> • A_{PJ} (Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full). <p>As per section B.7.1 of the PDD^{/PDD1//PDD-T/}, all the above said monitoring parameter are described properly and transparently. However, the parameter $EF_{grid,CM,y}$ is kept as a <i>ex-ante</i> fixed parameter in the whole crediting period and not to be monitored.</p> <p>Thus required monitoring parameters as per the applied methodology have been mentioned in the Section B.7.1 of the PDD. Also PP has defined the parameter which are not monitored i.e. $EF_{grid,CM,y}$ (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) in section B.6.2 of the PDD^{/PDD1//PDD-T/}.</p> <p><i>Justification of evidences:</i> Validation team has assessed the section B.7.1 of the PDD^{/PDD1/} and found that all the required monitoring parameters as per the applied methodology have been mentioned in the Section B.7.1 of the PDD^{/PDD1//PDD-T/}.</p> <p><i>Conclusion:</i> All the required monitoring parameters as per the applied methodology have been mentioned in the Section B.7.1 of the PDD^{/PDD1//PDD-T/}.</p>			
<p>B.6.2. Are the means of monitoring of all parameters contained in the monitoring plan feasible and in accordance with the requirements of the applied methodology?</p> <p>(EB 55 Annex 1 , § 124 (a), 124 (b), 125)</p>	<p><i>Description:</i> Yes, all the monitoring parameters mentioned in the monitoring plan are feasible and described as per the requirements of the applied methodology and CDM-PDD; version version 07, Annex 12, EB 41.</p> <p><i>Justification of evidences:</i> The means of monitoring of the parameters are clearly and transparently described. The parameter</p>	/PDD1/ /PDD-T/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p><i>Assess whether the provided information for all parameters w.r.t.</i></p> <ul style="list-style-type: none"> a) <i>Label (name of the data / parameter)</i> b) <i>data unit</i> c) <i>description</i> d) <i>source of data</i> e) <i>measurement equipment / method / procedure</i> f) <i>monitoring frequency</i> g) <i>QA/QC procedures</i> <p><i>are appropriately described and in compliance with the requirements of the methodology..</i></p>	<p>EG_{facility y} and TEG_y are properly described in B.7.1 of the PDD^{/PDD1//PDD-T/}.</p> <p>Validation team has checked the completeness of the section B.7.1 of the PDD^{/PDD1/} against the requirement of PDD guideline i.e. CDM-PDD, version 07 and all the monitoring parameters are found to be described as CDM-PDD, version 07, Annex 12, EB 41.</p> <p><i>Conclusion:</i> All the monitoring parameters mentioned in the monitoring plan are feasible and described as per the requirements of the applied methodology and latest CDM-PDD guidelines; version version 07, Annex 12, EB 41.</p>			
<p>B.6.3. Have all means of implementing the monitoring plan, e.g. equations necessary for ex-post emission reduction calculation, been described clearly and in line with the methodology?</p> <p>(EB 55 Annex 1 124 (b), 125)</p> <p><i>Check whether all necessary equations have been provided in the PDD. Pl. consider that ex-post and ex-ante calculations might be different.</i></p> <p><i>Please consider that additional equations might be necessary to calculate auxiliary parameters.</i></p>	<p><i>Description:</i> Yes, all the means of implementing the monitoring plan have been included in the PDD^{/PDD-T/}.</p> <p>Necessary equations required for the calculation of baseline emissions have been provided in section B.6.1 of the PDD^{/PDD1//PDD-T/}. Also as per paragraph section II of the applied methodology ACM0002, version 12.1, the explanation and calculations of the emission factor also has been transparently described in section B.6.1 and Annex 3 of the PDD^{/PDD1//PDD-T/}.</p> <p><i>Justification of evidences:</i> All necessary equations are assessed against section II and equation 6 of the applied methodology ACM0002, version 12.1 and found correctly applied.</p> <p><i>Conclusion:</i> Yes, means of implementation of the monitoring plan, e.g. equations as required by the methodology for ex-post emission</p>	<p>/PDD1/ /PDD-T/ /ACM000 2/</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	reduction calculation been described clearly and are in line with the applied methodology i.e. ACM0002, version 11.			
<p>B.6.4. Is it likely that the monitoring arrangements described in the PDD can properly be implemented in the context of the project activity?</p> <p>(EB 55 Annex 1 124 (c))</p> <p><i>Assess whether the described monitoring arrangements are sufficient and realistic to enable a thorough monitoring. Pl. consider also special monitoring conditions, e.g. downtimes of monitoring equipment etc.</i></p>	<p><i>Description:</i> Yes, the section B.7.2 and Annex 4 of PDD^{/PDD-T/} has addressed the provision made for implementing and monitoring of the data from the project activity. As per the site visit discussions with the project proponent^{/IM01/}, Monitoring of the project activity parameters as described in the PDD^{/PDD-T/} will be implemented properly. Also a CDM manual has been prepared outlining all the responsibilities and procedures related to monitoring of emission reductions in the CDM project activity.</p> <p><i>Justification of evidences:</i> Validation team has undergone through the Interview with project proponent^{/IM01/} and assessed the CDM manual and thus found that the complete monitoring will be done as per the section B.7 and Annex 4 of the PDD^{/PDD-T/} and the applied methodology ACM0002.</p> <p><i>Conclusion:</i> Monitoring of the project activity parameters as described in section B.7 and Annex 4 of the PDD^{/PDD-T/} implemented properly.</p>	<p>/PDD1/ /PDD-T/ /IM01/ /ACM0002/ / O & M /</p>	OK	OK
<p>B.6.5. Are the QA/QC procedures appropriate sufficient to ensure the emission reductions achieved from the project activity can be reported ex-post and verified?</p> <p>(EB 55 Annex 1 124 (b))</p> <p><i>Please consider the description given in section B.7.2. Describe which QA/QC provisions are considered. Address Quality Management System provisions, calibration and maintenance of equipment. Address further any review</i></p>	<p><i>Description:</i> Yes, the section B.7.1, B.7.2 and Annex 4 of the PDD^{/PDD-T/} has addressed QA/QC procedure in order to achieve the verified emission reductions.</p> <p>The QA/QC procedures described are in accordance to common industry practice and the power purchase agreements between Jaypee Karcham Hydro Corporation Limited and respective state authority. Moreover testing and calibration of the Main Meters and Check Meters will be planned to carried out at least once in two (2) Tariff years, or at any time when the difference between the readings of the Main Meter and the corresponding Check Meter is</p>	<p>/PDD-T/ /IM01/ /PPA/</p>	CAR B14	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<i>procedures.</i>	<p>found to exceed zero point four percent (0.4%).</p> <p>However, a CAR B14 is raised:</p> <p>The monitoring plan contains all necessary parameters, and the means of the monitoring is described and complies with requirements of the methodology.</p> <p>However Organogram and the link with annex-4 was found missing in section B.7.2 of the web hosted PDD.</p> <p>The O&M structure for the CDM project activity is now included in the form of organogram in section B.7.2 of the revised PDD^{/PDD-T/} and for detailed description of the monitoring plan, Annex-4 of the PDD^{/PDD-T/} is now clearly referenced in section B.7.2 of the revised PDD^{/PDD-T/}.</p> <p>Since, appropriate action is taken in the form of revised PDD^{/PDD-T/}, the raised CAR B14 is closed out.</p> <p><i>Justification of evidence:</i> All QA/QC provisions related to operation, maintainance, data quality control, calibrations etc. are discussed with the project proponent^{/IM01/} and found to be implemented as per section B.7.1, B.7.2 and Annex 4 of the PDD^{/PDD-T/}.</p> <p><i>Conclusion:</i> DOE has come to the conclusion that QA/QC procedures are appropriate and sufficient and thereby it will ensure that emission reductions achieved from the project activity can be reported ex-post and verified. CAR B14 is successfully closed.</p>			
<p>B.6.6. Are procedures identified for data management?</p> <p>(EB 55 Annex 1 124 (b))</p>	<p><i>Description:</i> Yes, section B.7.1, B.7.2 and Annex 4 of the PDD^{/PDD-T/} has mentioned the data collection and archiving procedures.</p> <p>Procedures for data management are described in the section B.7.2 of the PDD^{/PDD-T/} clearly. All the monitoring data which are</p>	<p>/PDD-T/ /IM01/ /IM02/</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p><i>Check whether appropriate provisions are considered for data management including responsibilities, what records to keep, storage area of records and how to process performance documentation</i></p> <p><i>Check further the data archiving provisions for the project activity and ensure that provisions are made to archive data for the whole crediting period + 2 years.</i></p>	<p>mentioned in the PDD^{/PDD-T/} will be recorded and archived by the CDM monitoring team and on a weekly basis, the monitoring reports will be checked and discussed by the seniors CDM team members/managers. In case of any irregularity observed by any of the CDM team member, it is informed to the concerned person for necessary actions.</p> <p>Energy generation data at the project site will be recorded in electronic form in hourly and monthly basis in electronic and paper formats and the same will be cross verified by the invoices. Also, the project proponent will maintain complete and accurate records of all the data as a part of monitoring for at least a period of 2 years after the end of the crediting period.</p> <p><i>Justification of evidences:</i> Data archiving procedure is discussed with the project proponent^{/IM01/} at the project activity site and found to be implemented as per section B.7.1 & B.7.2 of the PDD^{/PDD1/}.</p> <p><i>Conclusion:</i></p> <p>As per site visit interviews^{/IM01//IM02/}, appropriate provisions are considered for data management including responsibilities, data archiving provisions etc. are clearly mentioned in section B.7.1, B.7.2 & Annex 4 of the PDD^{/PDD-T/} and said procedures are as per the site visit observations.</p>			
<p>C. Duration of the Project/ Crediting Period</p> <p><i>It is assessed whether the temporary boundaries of the project are clearly defined.</i></p>				

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p>C.1. Is the project's starting date clearly defined and evidenced?</p> <p>(EB 55 Annex 1 , § 99)</p> <p><i>Check whether the starting date is correct. Apply the definition of the project starting date as per the "Glossary of CDM terms".</i></p>	<p><i>Description:</i> Yes, the start date of the project activity is clearly and transparently defined and evidenced in section C.1.1 of the PDD^{/PDD-T/}.</p> <p>However, a CAR B17 is raised:</p> <p>The starting date of the project activity is stated as 18 November 2005. However, the justification for the chosen start date as per § 67 EB 41 is to be provided in section C.1.1 of the PDD. Cp PDD Guidelines.</p> <p>7.1.1</p> <p>The justification for the chosen start date of the project activity is provided in section C.1.1 of the PDD^{/PDD-T/}.</p> <p>The start date of the project activity is thus accordingly been chosen as the date on which the owner's notice to proceed with the construction of the project activity was provided to the EPC contractor M/s Jaiprakash Associates Limited dated 2005-11-17. The letter i.e. owner's notice to proceed (reff. No.: JKHCL/EPC-JAL/05) clearly mentioned the starting date as 2005-11-18. The project implementation or construction activities began on 2005-11-18 from this letter.</p> <p>Since a proper justification has been provided with supportive evidences, the raised CAR C1 is closed out.</p> <p><i>Justification of evidences:</i> The CDM EB "CDM glossary of terms (CDM-Glos-05)" has defined "The starting date of a CDM project activity is the earliest date at which either the implementation or construction or real action of a project activity begins".</p> <p>The start date of the project activity is thus accordingly been</p>	<p>/PDD-T/ /SD/ /CM/ /FSR/ /ICICI/ /LCEA/ /CEA/ /AGMT/</p>	<p>CAR B17</p>	<p>OK</p>



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>chosen as the date on which the owner's notice to proceed with the construction of the project activity was provided to the EPC contractor M/s Jaiprakash Associates Limited dated 2005-11-17. The letter i.e. owner's notice to proceed (reff. No.: JKHCL/EPC-JAL/05) clearly mentioned the starting date as 2005-11-18. The project implementation or construction activities began on 2005-11-18.</p> <p><i>Conclusion:</i> The start date of the project activity is clearly and transparently defined and evidenced in section C.1.1 of the PDD^{PDD-T/}.</p>			

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p>C.2. Is the project's operational lifetime clearly defined and evidenced?</p> <p><i>Check whether the project lifetime is correctly defined. Consider the guidance on the assessment of investment analysis (annex to the additionality tool).</i></p> <p><i>Check in case of phased implementation this has been reflected throughout the whole PDD incl. the financial assessment, if applicable.</i></p>	<p><i>Description:</i> Yes, the operational life time of project activity is clearly defined in section C.1.2 of the PDD in terms of useful life of electro mechanical equipment (Plant & Machinery) of the project activity and same are substantiated by CERC (Terms and Conditions of Tariff) Regulations, 2004, Appendix 2.</p> <p><i>Justification of evidences:</i> The CERC (Terms and Conditions of Tariff) Regulations, 2004, Appendix 2 is assessed and also the personnel from operation and maintenance and project proponent were interviewed.</p> <p>DOE has also applied the professional experience to assess the life time of WTGs and found appropriate.</p> <p><i>Conclusion:</i> The operational life time of project activity is clearly defined and evidenced in section C.1.2 of the PDD^{/PDD-T/}.</p>	<p>/PDD-T/ /TD/ /cerc/ /IM01/ /IM02/</p>	OK	OK
<p>C.3. Is the start of the crediting period clearly defined and reasonable?</p> <p><i>Check whether the envisaged starting date of the crediting period is realistic, taking into consideration the times needed for validation and registration.</i></p>	<p><i>Description:</i> Yes, the start date of the crediting period is mentioned as 2011-08-15 and clearly mentioned that crediting period will not commence prior to the date of registration, which is appropriate and reasonable.</p> <p><i>Justification of evidences:</i> The validation and registration process time have been considered while assessing this project activity</p> <p><i>Conclusion:</i> The start of the crediting period is reasonable and appropriate.</p>	/PDD-T/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
D. Environmental Impacts <i>Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the DOE.</i>				
D.1.1. Are there any Host Party requirements for an Environmental Impact Assessment (EIA)? (EB 55 Annex 1 , §§ 132 – 134) <i>Check the host party regulations, regarding EIA.</i>	<p><i>Description:</i> The validation team has checked the host country requirement for environment impact assessment through EIA notification by the MoEF, India, S.O. 1533(E) dated 14/09/2006 and draft environment impact assessment notification vide S.O. 195(E) dated 19 January 2009, and found that as per the schedule of the S.O. 1533(E), large scale hydro power projects requires environmental clearance (EIA).</p> <p><i>Justification of evidences:</i> DOE has cross checked with EIA notification available on the MOEF website⁴¹</p> <p><i>Conclusion:</i> Validation team cross checked with Host Party applicable regulations and found that project required Environmental Impact Assessment.</p>	/PDD1/ /PDD-T/ /moef/	OK	OK
D.1.2. In case an Environmental Impact Assessment (EIA) is requested by the host party, has it been carried out and if applicable duly approved? (EB 55 Annex 1 , §§ 132 – 134) <i>Check the EIA and its approval, if applicable.</i>	<p><i>Description:</i> Yes, as per Host Party applicable regulations i.e. EIA Notification S.O. 1533(E) dated 14/09/2006, large scale hydro power projects requires environmental clearance (EIA).</p> <p>PP has carried out the detailed Environment Impact Assessment (EIA) for the project activity by environment research institute - National Environmental Engineering Research Institute (NEERI), Nagpur, India and the EIA has been approved by H.P. State Environmental Protection & Pollution control board as well as</p>	/neeri/ /SC/ /mh/ /iep/	OK	OK

⁴¹ <http://moef.nic.in/index.php>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>Ministry of Environment and forests, Govt. of India.</p> <p><i>Justification of evidences:</i></p> <p>The EIA has been approved by the H.P. State Environmental Protection & Pollution control board in terms of consent to establish the project activity (4x250 MW hydro project) through a letter wide no. HP SEP & PCB/J.P.Karcham Wangtoo HEP Kinnaur/2005-9127-34 dated 2005-08-08. The same also have been approved by Ministry of Environment and forests, Govt. of India in terms of environmental clearance wide letter No. J 12011/47/2005-IA..I dated 2005-11-09.</p> <p><i>Conclusion:</i> Environment Impact Assessment (EIA) for the project activity was carried out by environment research institute - National Environmental Engineering Research Institute (NEERI), Nagpur, India and the EIA has been approved by H.P. State Environmental Protection & Pollution control board as well as Ministry of Environment and forests, Govt. of India.</p>			
<p>D.1.3. Has an analysis of the environmental impacts of the project activity been sufficiently described and in line with the host party environmental legislation?</p> <p>(EB 55 Annex 1 , §§ 130 – 133)</p> <p><i>Check the PDD (section D). Check whether the project will create any adverse environmental effects.</i></p> <p><i>Check the relevant national environmental legislation.</i></p>	<p><i>Description:</i> An analysis of the environmental impacts of the project activity and the environmental management plan has been clearly described in section D.1 & D.2 of the PDD^{/PDD-T/} and are in line with the host party environmental legislation i.e. EIA Notification S.O. 1533(E).</p> <p>Following plausible environmental impacts of the project activity are identified as mentioned in section D.1 of the PDD^{/PDD-T/} or the EIA report:</p> <ul style="list-style-type: none"> Air and Noise Environment 	<p>/PDD-T/ /SC/ /moef/ /mh/ /iep/</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<ul style="list-style-type: none"> • Water Environment • Impact on landuse pattern and land availability • Soil erosion • Accumulation of silt • Land Environment • Biological Environment • Socio-economic Environment <p><i>Justification of evidences:</i> Validation team has assessed the EIA report and found that the EIA has been carried out appropriately and complies with the host country requirements.</p> <p><i>Conclusion:</i> A complete analysis of the environmental impacts of the project activity been sufficiently described and are in line with the host party environmental legislation</p>			
<p>D.1.4. Are transboundary environmental impacts considered in the analysis?</p> <p>(EB 55 Annex 1, §§ 132 – 134)</p> <p><i>Check the documents and local official sources / expertise regarding transboundary environmental impacts.</i></p>	<p><i>Description:</i> Yes, PP has conducted a complete environmental impact analysis considering the core zone and buffer zone, based on regulatory requirement of the MoEF i.e. EIA notification by the MoEF, India, S.O. 1533(E) dated 14/09/2006 and draft environment impact assessment notification vide S.O. 195(E) dated 19 January 2009 and thus considered all possible transboundary environmental impacts of the project activity and concluded no transboundary impacts therein.</p>	<p>/EIA/ /SC/ /mh/ /iep/</p>	<p>OK</p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p><i>Justification of evidences:</i> Validation team has checked the detailed Environment Impact Assessment (EIA) for the project activity conducted by environment research institute - National Environmental Engineering Research Institute (NEERI), Nagpur, India and the Environmental clearance by H.P. State Environmental Protection & Pollution control board as well as Ministry of Environment and forests, Govt. of India.</p> <p><i>Conclusion:</i> PP has conducted a complete environmental impact analysis based on regulatory requirement and considered all possible transboundary environmental impacts of the project activity.</p>			
<p>E. Stakeholder Comments</p> <p><i>The DOE should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.</i></p>				
<p>E.1. Have relevant local stakeholders been invited to consultation prior to the publication of the PDD?</p> <p>(EB 55 Annex 1 , § 129)</p> <p><i>Check by means of document review and interviews with local stakeholders if and when a local stakeholder consultation process has been carried out.</i></p>	<p><i>Description:</i> As per section E of the web hosted PDD^{/PDD1/} and subsequent discussions with the representative of the project proponent^{/IM01/}, A detailed study on the views of the local stakeholders on the project activity was carried out during January 2008 by the project proponent through an independent third party, Sharnam Sewa Samiti (SSS), Lucknow before the publication of the PDD for global stakeholder consultation.</p> <p>The study was designed in view of the World Commission on Dams guidelines. The different group of stakeholders were identified for the proposed project. Thus the stakeholder Consultation process</p>	<p>/PDD-T/ /LSC/ /mh/ /iep/ /drp/ /tt/</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>primarily dealt with socio-economic impact of the project activity and provided an opportunity for the local population to express their viewpoints and comments with respect to the project activity. Various issues like rehabilitation and compensation, Impact on livelihoods and apple production, Improvement in local infrastructure, Status of compliance of CAT, DMP and RRP etc. have been discussed during the stakeholder process.</p> <p><i>Justification of evidences:</i> Validation team have reviewed the stakeholder consultation report prepared by Sharnam Seva samiti, Lucknow (an independent NGO) in January 2008 and also assessed various corporate social responsibility (CSR) activities by the project proponent at Kafnu, Kilwas and Sapni through the NOCs from various Panchayats etc.</p> <p><i>Conclusion:</i> Proper local consultation processes have been followed by the project proponent prior to the webhosting of the PDD for global stakeholder consultation process.</p>			
<p>E.2. Can the local stakeholder consultation process be assessed as adequate?</p> <p>(EB 55 Annex 1, § 130 (a) – 130 (b))</p> <p><i>Describe what assessment steps have been undertaken to assess the adequacy of the stakeholder consultation process. Give a final opinion on the adequacy.</i></p> <p><i>Please consider the following requirements in this context:</i></p> <p><i>(a) Comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity,</i></p>	<p><i>Description:</i> As discussed, the project has been found to be described properly in the stakeholder process by the project proponent and NGO.</p> <p>Though the stakeholder consultation is carried out in line with the VVM it has been recognised that stakeholder raised objections against the project during gatherings. By webresearch also negative impacts caused by the project activity have been identified^{/drp/mh/}. However, the PP clarified that all efforts have been made to take adequate account of the stakeholder concerns. This is clear from the extensive stakeholder consultation study undertaken for CDM as well as the Environmental clearance accorded to the project by the Ministry of Environment and Forests.</p>	<p>/LSC/ /PDD-T/ /IM01/ /IM02/ /mh/ /iep/ /drp/ /tt/ 8</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p><i>have been invited;</i></p> <p><i>(b) The summary of the comments received as provided in the PDD is complete;</i></p> <p><i>(c) The project participants have taken due account of any comments received and have described this process in the PDD.</i></p> <p>7.1.2</p> <p>7.1.3</p>	<p>The PP carried out stakeholder consultations as described in section E.1 and E.2 of the PDD. PP has provided a clear and transparent description of the Local stake holder consultation process carried out by independent third party i.e. Sharnam Seva samiti, Lucknow (an independent NGO) in January 2008.</p> <p>During the stake holder consultation process, different group of stakeholders were identified for the proposed project.</p> <p>The Stakeholders Consultation was conducted using a process providing the stakeholders with an opportunity to understand the project activity and give their comments on the impacts on the livelihood of the stakeholders and PP has provided proper responses on the issues raised during the process.</p> <p>JKHCL has undertaken various voluntary initiatives like construction of roads, bus stands, temple renovations, irrigation pipe lines, schools and medical facilities etc. along the complying with mandatory requirements i.e. various water shed development activities, environmental management plan etc. for the project and has sought to address all the concerns of the stakeholders and minimizing the adverse impacts of the project activity on them.</p> <p>Thus, an adequate descriptions Local stake holder consultation process, comments by the stake holders, responses and due account of comments received are provided in section E.1, E.2 and E.3 of the PDD^{/PDD-T/} and the same are reviewed from the stakeholder reports.</p> <p><i>Justification of evidences:</i> The validation team has reviewed the Stakeholder consultation report prepared by Sharnam Seva samiti, Lucknow (an independent NGO) in January 2008 and also</p>			



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>assessed various corporate social responsibility (CSR) activities by the project proponent at Kafnu, Kilwas and Sapni from various Panchayats etc. thus found that a proper consultation process along with the various voluntary initiatives have been planned and under implementations by the project proponent^{/IM01/}. Also a stakeholder meeting was carried out during site visit by validation team to confirm the same.</p> <p><i>Conclusion:</i> local stakeholder consultation process is described adequately in section E of the PDD^{/PDD-T/} and assessed properly by the validation team through site visit interviews of the project proponent and local stake holders as well from the local stakeholder consultation report submitted by independent third party i.e. Sharnam Seva samiti, Lucknow (an independent NGO).</p>			

ANNEX 2: ASSESSMENT OF BASELINE IDENTIFICATION

Table A-2: Assessment of Baseline Identification (EB 55 Annex 1 , §§ 83 – 86)

<input type="checkbox"/>	Baseline is not identified
<input checked="" type="checkbox"/>	Assessment of baseline see below

Baseline Alternatives identified	Inline with the Methodology ?	Eliminated	Reasons for elimination / non-elimination from list of alternatives	Evidence used	DOE Assessment	
					Appropriateness of elimination	Assessment of validation team (results and means of assessment)
The proposed project activity not undertaken as a CDM project activity	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Proposed project activity is not attractive option without CDM revenue as concluded by investment analysis in section B.5 of PDD.	/IRR/	<input checked="" type="checkbox"/>	The investment analysis has been assessed by the validation team and found appropriate in the context of the proposed project activity.
Continuation of the current situation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	This alternative is not facing any type of barrier.	/ADD/	<input checked="" type="checkbox"/>	Continuation of the current situation i.e. import of power from the Northern grid in the absence of the proposed project activity is the only baseline scenario applicable as per the applied methodology.

ANNEX 3: ASSESSMENT OF FINANCIAL PARAMETERS

Table A-3: Assessment of Financial Parameters (EB 55 Annex 1 , §§112, 113, 114/ in case financial parameters stem from FSR §113,)

<input type="checkbox"/>	No financial parameters are used for additionality justification						
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below						
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT		
					Correctness of value applied	Appropriateness of information source	Comment
Plant Capacity	1000	MW	Techno Economic Clearance CEA (page 1)	/CEA/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Plant capacity is based on the Techno economic clearance given by CEA. The validation team checked the CEA approval and found the value to be correct. The installed capacity is also evidenced by PPA signed with PTC India and the financial closure letter issued by ICICI Bank. The value applied is correct and appropriate for the project activity.
Plant Load Factor	50.96	%	Hydrology Study forming part of DPR, ICICI Bank letter dated 2009-12-31.	/DPR/ /CEA/ /ICICI/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	PLF is based on detailed hydrology study forming part of DPR, which formed the basis for the techno economic clearance accorded by the CEA. CEA in its Techno Economic Clearance to the Project during March 2003 had estimated the total generation at 4559.77 GWh based on 0.17 cumec



							<p>environmental release (for aquatic life) from the dam. However, MoE&F while according environment and forest clearance in November 2005, stipulated release of 6.80 cumec instead of 0.17 cumec of water from the dam on environmental considerations. The energy generation after considering 6.80 cumec environmental release, works out to 4463.88 Gwh as per CEA guidelines keeping all other parameters of TEC unchanged. The ICICI Bank, the lead manager for loan syndication has considered generation of only 4463.88 Gwh in the appraisal.</p> <p>Validation team compared the PLF assumed with other projects in Himachal Pradesh and observed that the PLF assumed by the project range between 40% and 51%⁴². Therefore, the PLF assumed by the project is considered reasonable. Hence, this value is correct and appropriate for the project activity</p>
Auxiliary consumption and losses	1.2	percent	CERC tariff order (pg. 33)	/CERC/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>This provision includes auxiliary consumption of 0.7% and transformation loss of 0.5% of the energy generated. Since this project is underground hydro electric power generating stations with static</p>

⁴² PLF assumed by projects registered/validation in Himachal Pradesh are as follows:

92 MW Allain Duhangan HEP at Himachal Pradesh	- 40.3%
100 MW Malana II HEP at Himachal Pradesh	- 48.9%
70 MW Budhi HEP at Himachal Pradesh	- 51.1%
111 MW Sawra Kuddu HEP at Himachal Pradesh	- 33.8%
412 MW SJVNL HEP at Himachal Pradesh	- 49.0%
Candidate project (1000 MW at Himachal Pradesh)	- 50.1%

The PLF has been computed from the PDDs published in the UNFCCC website

							excitation system the auxiliary consumption has been estimated at 0.7% of energy generated by the CERC tariff order. Besides, the order also provided 0.5% for transformation losses, i.e., from generation voltage to transmission voltage. [paragraph 32 (ii) (d) and (e)]. The values are therefore considered correct and appropriate for the project activity.
Free power to HP Govt - First 12 yrs - Next 18 yrs (as percent of net generation)	12 18	Percent Percent	Implementation Agreement (page 13)	/AGMT/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	As per the implementation agreement signed by the project developer with the State Government, 12% of the total generation has to be provided to the State free of cost in the first 12 years and 18% of power generation in the next 18 years. Validation team checked the agreement and found the value correct. Therefore, the input parameter used is correct and appropriate.
Power sold to grid (as percent of net generation)	70.4	Percent	PPA entered with PTC	/PPA/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	As per the approval accorded by CEA and the PPA entered into with PTC, project developer has to sell 70.4% of total generation to PTC at a price to be determined by CERC. The input value is in accordance with the PPA and hence the value is correct and appropriate
Merchant power sale (as percent of net generation) - First 12 years - Next 18 years	17.6 9 11.6	Percent 10 Percent	PPA entered into with PTC and Implementation agreement	/PPA/ /AGMT/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Project developer is allowed to sell the power after providing 12% of net generation in the first 12 years (18% in the next 18 years) to State Govt. and sell 70.4% of net generation to PTC. The value is resultant surplus available for merchant sale and in accordance with PPA and implementation read together and hence correct and appropriate

10.1.1	10.1.2	10.1.3			10.1.4	10.1.5	
Estimated Project Cost	56,000	INR Mn.	ICICI Letter on financial closure (page 2)	/ICICI/	☒	☒	The cost of the project was estimated at Rs.59,096 mn. by the CEA at the time of according Techno Economic clearance. However, subsequently at the time of financial closure, the project cost was revised to Rs.56,000 mn. based on which the investment decision was taken on 26 th October 2005. Validation team compared the cost with other similar large scale hydroelectric projects available in the public domain and observed that the cost varies from \$1.14 mn/MW to \$2.95 mn./MW ⁴³ . (with the exception of Allain Duhangan HEP where the cost is \$1 mn., as it is a old project). This cost is lower than the cost considered by CEA, compares well with other hydroelectric projects being set up in the country and the cost has been approved

⁴³ 92 MW Allain Duhangan HEP at Himachal Pradesh
 100 MW Malana II HEP at Himachal Pradesh
 96 MW Jorethang Loop HEP at Sikkim
 70 MW Budhi HEP at Himachal Pradesh
 99 MW Chuzachen HEP at Sikkim
 1200 MW Teesta Stage III HEP at Sikkim
 111 MW Sawra Kuddu HEP at Himachal Pradesh
 330 MW RoR project at Uttarakhand at Alakananda
 412 MW SJVNL HEP at Himachal Pradesh
 84 MW Myntdu Leshka HEP at Meghalay
 300 MW RoR HEP on Alakananda river at Uttarakhand
 500 MW Teesta Stage VI HEP at Sikkim
Candidate project (1000 MW at Himachal Pradesh)

- \$ 1.00 mn.
 - \$ 1.44 mn.
 - \$ 2.95 mn.
 - \$ 1.44 mn.
 - \$ 1.58 mn.
 - \$ 1.14 mn.
 - \$ 1.41 mn.
 - \$ 1.21 mn.
 - \$ 1.20 mn.
 - \$ 1.92 mn.
 - \$ 1.26 mn.
 - \$ 1.44 mn.
- \$ 1.17 mn.

Project cost of candidate project has been converted at Rs.48/USD. The information given above are available at the website <http://uneprisoe.org/> (CDM Pipeline overview) except 92 MW Allain Duhangan where the cost has been sourced from PDD/worksheet (USD converted at Rs.48/\$)

							by the financial institutions. Therefore, the project cost of Rs.56,000 mn. ⁴⁴ is considered correct and appropriate to the project activity
Land cost	251.8	INR Mn.	ICICI Letter on financial closure (page 2)	/ICICI/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	This cost was sourced from ICICI letter dated 2009-01-05, which confirms that the same cost was concluded and taken into account while concluding the total cost of 56000 INR mn. The same was available with PP on the date of investment decision as confirmed by letter from ICICI dated 2009-12-31. Since the cost was assessed and approved by lead banker, the same was accepted by the DOE.
Building and civil works	31,193.1	INR Mn.	ICICI Letter on financial closure (page 2)	/ICICI/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	This cost was sourced from ICICI letter dated 2009-01-05, which confirms that the same cost was concluded and taken into account while concluding the total cost of 56000 INR mn. The same was available with PP on the date of investment decision as confirmed by letter from ICICI dated 2009-12-31. Since the cost was assessed and approved by lead banker, the same was accepted by the DOE.
Plant and machinery	10,192.41	INR Mn.	ICICI Letter on financial closure (page 2)	/ICICI/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	This cost was sourced from ICICI letter dated 2009-01-05, which confirms that the same cost was concluded and taken into account while concluding the total cost of 56000 INR mn. The same was available with PP on the date of investment decision as

⁴⁴ It may be observed that the project seems to have experienced an over run and the present cost is estimated at Rs.70803 mn. Please see <http://www.cercind.gov.in/2009/October09/Signed-Petition-No-153-2009.pdf>

							confirmed by letter from ICICI dated 2009-12-31. Since the cost was assessed and approved by lead banker, the same was accepted by the DOE.
Tools and plants	58.8	INR Mn.	ICICI Letter on financial closure (page 2)	/ICICI/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	This cost was sourced from ICICI letter dated 2009-01-05, which confirms that the same cost was concluded and taken into account while concluding the total cost of 56000 INR mn. The same was available with PP on the date of investment decision as confirmed by letter from ICICI dated 2009-12-31. Since the cost was assessed and approved by lead banker, the same was accepted by the DOE.
Environmental cost	635.9	INR Mn.	ICICI Letter on financial closure (page 2)	/ICICI/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	This cost was sourced from ICICI letter dated 2009-01-05, which confirms that the same cost was concluded and taken into account while concluding the total cost of 56000 INR mn. The same was available with PP on the date of investment decision as confirmed by letter from ICICI dated 2009-12-31. Since the cost was assessed and approved by lead banker, the same was accepted by the DOE.
Establishment charges	644.4	INR Mn.	ICICI Letter on financial closure (page 2)	/ICICI/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	This cost was sourced from ICICI letter dated 2009-01-05, which confirms that the same cost was concluded and taken into account while concluding the total cost of 56000 INR mn. The same was available with PP on the date of investment decision as confirmed by letter from ICICI dated 2009-12-31. Since the cost was assessed and

							approved by lead banker, the same was accepted by the DOE.
Insurance	300	INR Mn.	ICICI Letter on financial closure (page 2)	/ICICI/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	This cost was sourced from ICICI letter dated 2009-01-05, which confirms that the same cost was concluded and taken into account while concluding the total cost of 56000 INR mn. The same was available with PP on the date of investment decision as confirmed by letter from ICICI dated 2009-12-31. Since the cost was assessed and approved by lead banker, the same was accepted by the DOE.
Financing charges and interest during construction	9,885	INR Mn.	ICICI Letter on financial closure (page 2)	/ICICI/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	This cost was sourced from ICICI letter dated 2009-01-05, which confirms that the same cost was concluded and taken into account while concluding the total cost of 56000 INR mn. The same was available with PP on the date of investment decision as confirmed by letter from ICICI dated 2009-12-31. Since the cost was assessed and approved by lead banker, the same was accepted by the DOE.
Pre-operative expenses	300	INR Mn.	ICICI Letter on financial closure (page 2)	/ICICI/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	This cost was sourced from ICICI letter dated 2009-01-05, which confirms that the same cost was concluded and taken into account while concluding the total cost of 56000 INR mn. The same was available with PP on the date of investment decision as confirmed by letter from ICICI dated 2009-12-31. Since the cost was assessed and approved by lead banker, the same was accepted by the DOE.

Margin money for working capital	465.3	INR Mn.	ICICI Letter on financial closure (page 2)	/ICICI/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	This cost was sourced from ICICI letter dated 2009-01-05, which confirms that the same cost was concluded and taken into account while concluding the total cost of 56000 INR mn. The same was available with PP on the date of investment decision as confirmed by letter from ICICI dated 2009-12-31. Since the cost was assessed and approved by lead banker, the same was accepted by the DOE.
Contingencies	2073.3	INR Mn.	ICICI Letter on financial closure (page 2)	/ICICI/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	This cost was sourced from ICICI letter dated 2009-01-05, which confirms that the same cost was concluded and taken into account while concluding the total cost of 56000 INR mn. The same was available with PP on the date of investment decision as confirmed by letter from ICICI dated 2009-12-31. Since the cost was assessed and approved by lead banker, the same was accepted by the DOE.
Loan Amount	39,200	INR mn.	ICICI Bank letter	/ICICI/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The loan amount is based on the ICICI Bank – the lead manger of loan syndication letter. This yields a debt equity ratio of 70:30, which is the gearing permitted for all infrastructure projects. The same debt equity ratio has been considered by the CEA also while according techno economic clearance. The value is therefore considered correct and appropriate.
Equity Amount	16,800	INR MN	Computed (Total Capital Cost less Total Debt amount)	/ICICI/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Equity represents the total cost less loan component. The ratio of equity to total project cost is evidenced by the loan



							sanction letter as well as CEA's techno economic clearance. Hence, the value is correct and appropriate
Power Tariff (sale to grid)	2.91 going down to 1.42	INR/kWh	CERC formula (page 33-41)	/PPA/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>The tariff has not yet been fixed. It will be fixed only before the project is ready to commence generation by the CERC. PPA states that the Tariff determination would be subject to approval by the Appropriate Commission. A petition for approval of Tariff for sale of generated power would be filed by the company with the Appropriate Commission and the Tariff as approved by such Appropriate Commission will be applicable. As per CERC Tariff Order of 26/03/2004, the tariff is determined on cost plus basis, wherein the cost includes O&M cost, interest on term loan, working capital, depreciation, income tax and return on equity at 14%. Tariff has been computed by incorporating all the above costs. The details of tariff estimation forms part of the worksheet. Therefore the tariff computation is in conformity with CERC prescribed norms. It is not possible to compare the tariff of other projects as the tariff for each project is governed by its accepted capitalization and interest rate. The tariff computed, however, is in accordance with the CERC formula and therefore the value is considered correct and appropriate for the project activity.</p> <p>Utility tariff has been computed as per the methodology prescribed by Central Electricity Regulatory Commission</p>



							<p>(CERC) (Terms and Conditions of Tariff) Regulations, 2004. This order dated 26 March 2004 was available at the time of investment decision. PP has to follow the methodology prescribed by CERC for utility power tariff determination as Article 3 (xiii) of the Techno-Economic clearance granted to the project by Central Electricity Authority on 31 March 2003 states, <i>'Tariff shall be decided by Central Electricity Regulatory Commission'</i>. Further, the use of this order is also in conformity with Schedule E of the PPA which states:</p> <p><i>'PTC shall pay Tariff to the Company based on the Capital Cost and means of financing thereof, as approved by CEA/ CERC on completion of the Project, in proportion to the ratio of Contracted Power to the Rated Capacity, such Rated Capacity being adjusted for Free Power. The Tariff will be payable by PTC in accordance with the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2004'</i></p> <p>Further, the authority for the CERC to determine tariff in such a manner is granted by Section 79 (b) of the Indian Electricity Act, 2003 dated 26 May 2003 which states <i>'The Central Commission shall discharge the following functions, namely (b) to regulate</i></p>
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						<p><i>the tariff of generating companies other than those owned or controlled by the Central Government specified in clause (a), if such generating companies enter into or otherwise have a composite scheme for generating and sale of electricity in more than one State;'. Since the project is selling power to more than one state hence the tariff for the same would be determined by CERC. Thus, Utility Tariff computed is in accordance with applicable regulations available at the time of investment decision as well as the PPA for the project.</i></p> <p>The tariff is determined on yearly basis as per the conditions in the Schedule E of the PPA which states for Tariff Computation; <i>'Tariff shall be computed by the Company thirty (30) days prior to each Tariff Year commencing from the COD of the first unit'.</i> Hence, fluctuating tariff is calculated each Tariff Year based on the operating cash flows after commissioning of the project. The process followed for tariff determination is project specific as it takes into account individual project capital costs, financing arrangements and operating cash flows.</p> <p>Therefore, where the tariff is fixed by CERC, the fluctuation in tariff is inevitable. Such fluctuation in tariff can be observed in registered projects Run of the River Hydroelectric Power Project in Uttarakhand by Alakananda Hydro Power Company Ltd.</p>
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							<p>(Reg. No. 4776) vide row 41 of Appendix 2 of 'Tariff' worksheet and Allain Duhangan Hydro Electric Project (Reg. No. 0862) vide row 42 and 54 of 'Tariff' worksheet. Unfortunately, the worksheet relating to Hydroelectric Power Project by SJVNL in Himachal Pradesh (Reg. No. 4568) is not available in the UNFCCC website. However, PDD states, "Rs. 2.39/ kWh-first year and calculated as per CERC norms for rest of the years".</p> <p>DOE also confirms that the signed PPA does not indicate any estimated tariff as the tariff will be determined each Tariff Year in accordance with the provisions listed in the PPA.</p>
Incentive for excess generation	Formula	N.A.	CERC Tariff order (40-42)	/CERC/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>Generation in excess of normative capacity index is computed based on CERC tariff order formula (paragraph 40) wherein the incentive is 65% of the annual fixed charge times the difference between capacity index achieved and normative capacity index. The normative capacity index for purely run-of-the-river project has been fixed at 90% by CERC tariff order (paragraph 40). Since annual fixed charge includes interest on loan and taxation, it varies from year to year and hence a formula has been used in calculation, in conformity with CERC tariff order. The value applied, therefore, is correct and appropriate.</p>

Return on Equity	14.00	Percent	CERC tariff order (38)	/CERC/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Return on equity at 14% is considered as the fixed charge in fixing the tariff in respect of the power supplied to PTC. This rate is based on CERC tariff order [paragraph 38(iii)]. The value is correct and appropriate.
Tariff for merchant power sale (levelised)	3.27	INR/kWh	Computed	..	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>Tariff for merchant power sale has been computed based on the weighted average sale price of electricity traded by trading licensees in 2004-05 escalated by 6.07%⁴⁵ per annum to arrive at the selling price in 2012, when the project will commence generation. From the price transmission cost and trading margin cost has been deducted to arrive at the net selling price realizable by the company. Calculations form part of the worksheet. The calculations are correct and the tariff appears reasonable having regard to the fact that it yields a levelized tariff of 3.27/kWh for the operating life of the project in contrast to Rs.2.31/kWh for the power sold to PTC under PPA. In the above background, the tariff is reasonable and appropriate for the project activity.</p> <p>It is stated that in the webhosted PDD, PP did not consider the merchant power sale. Since during the review of publicly available information, validation team came across a reference to merchant power sale in the Draft Red Herring Prospectus and hence raised the issue of reckoning it as it impacts additionality. Accordingly, PP has reckoned</p>

⁴⁵ Represents the average growth rate of Power Index between 1995-095 and 2005-06

							<p>the merchant power sale in the financial indicator calculation. The tariff considered for sale of merchant Power is based on the sale rate of electricity traded by trading licensees as published by the CERC⁴⁶. The sale price, weighted against volume, was used to arrive at the weighted average rate (2.42 Rs/KWh)⁴⁷ and escalated by Electricity Index (of Whole Sale Price Index published by the Office of the Economic Advisor, Govt. of India)⁴⁸ to arrive at the projected tariff in 2011-12, the year in which the project is expected to commence generation. The transmission charges and trading margin were deducted from the projected sale rate to arrive at the Ex-bus tariff of 3.37 Rs./KWh. Since power trading in India had begun only in 2004 with the granting of first trading license on 9th June 2004⁴⁹, this was the most comprehensive data available on the date of investment decision. The merchant power sale, thus computed, has been accounted in the revised worksheet and the tariff has been computed based on the tariff prevailing at the time of decision making. The levelized (at 10% discount rate)⁵⁰ tariff works out to Rs.3.27/kWh in the case of merchant power sale in contrast to</p>
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⁴⁶ <http://cercind.gov.in/Electric-Trading/priceanalysis.pdf>

⁴⁷ Merchant power tariff, estimation of transmission cost and trading margin calculations form part of worksheet – Please see rows 174 – 196 of 'Assu' worksheet

⁴⁸ This has been done using the wholesale price index for Electricity as published by the 'Office of the Economic Adviser to the Government of India, Ministry of Commerce and Industry'. The average escalation over a 10 year period from 1995-96 to 2004-05, which was available at the time of investment decision was considered for the determination of escalation

⁴⁹ <http://tatapowertrading.com/about-us/introduction.php>

⁵⁰ The discount rate will not affect the conclusion as the same discount rate has been applied to both sale to Utility and the merchant power sale.

							Rs.2.31/kWh in the case of Utility. Removal of merchant power sale will only make the project all the more additional as the grid tariff is less than merchant power tariff. In the lght of the above, validation team accepted the tariff and calculation.										
Escalation in tariff	Nil	--	☒	☒	<p>While the tariff for sale to grid is determined by CERC formula, which has been used in the tariff calculation, merchant power tariff has not been subjected to escalation due to uncertainty in the price trend in the Merchant Power markets. Merchant power tariff has not been subjected to escalation due to uncertainty in the price trend in the Merchant Power markets. This has been the actual case in India with average price for power transacted through trading licensees varying drastically each year as can be seen from the data below⁵¹:</p> <table><tr><td>Year</td><td>2007</td><td>2008</td><td>2009</td><td>2010-11</td></tr><tr><td>Av. price</td><td>4.16</td><td>7.04</td><td>6.41</td><td>3,47</td></tr></table> <p>Moreover, the tariff may go down in future because of the shrinking gap between demand and supply of power. The combined effect of reduction in peak power demand gap and increasing power capacity addition</p>	Year	2007	2008	2009	2010-11	Av. price	4.16	7.04	6.41	3,47
Year	2007	2008	2009	2010-11													
Av. price	4.16	7.04	6.41	3,47													

⁵¹ Data for 2007, 2008, 2009: Page 8, CERC Annual Report – Short term Power Market in India 2009 (http://www.cercind.gov.in/2010/MMC/MMC_Annual_Report_2009_dated_28.4.pdf). For 2010-11, page 13 of CERC Annual Report – Short term Power Market in India, 2010-11 (http://www.cercind.gov.in/2011/MMC/Report_on_power_market_2010-11_dated_28.7.2011.pdf)

							<p>is likely to cause a downfall in merchant power tariff. It is predicted that the demand-supply gap will reduce by half to four to five per cent in 2014-15 from 10 per cent in 2009-10⁵². Further the launch of Ultra Mega Power Projects through competitive bidding is also expected to substantially reduce power shortage in future⁵³. The cheaper power has been secured by Ministry of Power in India through development of large size power projects using latest super critical technologies. Considering this reduction in power shortage most of the distribution licensees are planning to cut down its electricity purchase prices⁵⁴. As per Central Electricity Regulatory Commission (CERC), the country's power regulatory agency, the electricity prices are declining, but still it is in higher side as compared to international electricity price⁵⁵. Therefore, CERC is proposing to cap electricity price to ensure a reasonable electricity rate. In the above background, PP pointed out that any increase in tariff unaccompanied by increase in generation cost is ruled out.</p>
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⁵² "Merchant Power Prices may fall in five years" published in "Business Standard" dated October 12, 2010. <http://www.business-standard.com/india/news/merchant-power-prices-may-fall-in-five-years/411211/>

⁵³ "Development of Ultra Mega Power Projects" Provisions of Electricity Act, 2003 and various policies pronounced under the Act. http://powermin.nic.in/whats_new/pdf/development_of_project.pdf

⁵⁴ "Rlnfra plans to cut power tariff in 5 years" published in "Hindustan Times" dated June 9, 2011. <http://epaper.hindustantimes.com/PUBLICATIONS/HT/HM/2011/06/09/ArticleHtmls/Rlnfra-plans-to-cut-power-tariff-in-5-09062011007003.shtml?Mode=1>

⁵⁵ "Power utilities, exchanges against capping of electricity prices" published in "Business Standard" dated July 25, 2010. <http://www.business-standard.com/india/news/power-utilities-exchanges-against-capping-electricity-prices/402396/>

							Due to the foregoing, no escalation was provided in merchant power tariff. The sensitivity analysis, in which merchant power tariff has been subjected to variation, reveals that even if the merchant power tariff is subjected to 10% escalation, i.e., Rs.3.60/kwh, the project does not lose its additionality.
Annual Operation and Maintenance Cost	1.5	Percent	CERC Order (39)	/CERC/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Operation and maintenance cost is based on the CERC notification dated March 26, 2004 (Para 38(iv)-c). Since the O&M cost is based on the CERC recommendation, the value is considered correct and appropriate for the project activity.
Annual escalation of O&M cost	4.00	%	CERC tariff order (39) dated 26 th March 2004.	/CERC/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Escalation is based on the CERC tariff order dated 26 th March 2004 (paragraph 38 (iv)-c). Since the escalation is based on the CERC recommendation, the value is considered correct and appropriate.
Average Loan Interest Rate	10.50	%	PLR prevailing at the time of decision making (http://rbidocs.rbi.org.in/rdocs/Wss/PDFs/66854.pdf)	/RBI/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The weighted average rate of interest at which the loans were sanctioned (based on the Draft Red Herring Prospectus) works out to 10.07%. However, at that point of time the PLR was 10.25% to 10.75% ⁵⁶ and the project developer had projected this rate in the web hosted PDD. Hence, the rate of interest has been taken at 10.5%, which is conservative. Interest computations form part of worksheet. The value is correct and appropriate for the project activity.

⁵⁶ <http://rbidocs.rbi.org.in/rdocs/Wss/PDFs/66854.pdf>



Loan Repayment Period	15	Years	ICICI Bank Loan sanction Letter	/ICICI/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Repayment period is based on loan sanction letters. As per the letter, the repayment will start from June 15 th 2012 and end in October 15, 2026. The repayment period is correct and appropriate.
Working capital - O&M exp - Receivables - Spares (of capital cost) - Escalation of spares cost	1.00 2.00 1.00 6.00	Month Month Percent Percent	CERC tariff order	/CERC/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Working capital computation is based on CERC tariff order. The values are correct and appropriate.
Working capital interest	11.00	Percent	Assumed at 0.5% more than the term loan interest Weekly statistical supplement 2005-10-21	/RBI/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Working capital carries a higher interest rate than term loan. Hence, the interest on working capital has been taken 0.5% more than the term loan interest rate, which appears reasonable The value is acceptable and appropriate
Book Depreciation - Plant & machinery - Civil works	2.57 1.80	Percent	CERC tariff order (Appendix II)	/CERC/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The book depreciation rates are based on CERC recommended rates. However, this does not affect additionality. The values applied and the calculations are correct and appropriate
Depreciable value	90	Percent	CERC tariff order (Appendix II)	/CERC/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Assets have been depreciated upto 90% of its value, based on the CERC order. This does not affect additionality. However, the values applied and the calculations are correct.
Income Tax depreciation - Plant &	15.00	Percent	Income Tax Rules (Appendix I)	/IT/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The depreciation rates are based on Appendix I of Income Tax Rules. IT adopts written down value method of depreciation



machinery - Civil works	10.00						and the calculation is in accordance with the method prescribed by the IT Act and Rules. The rates have been checked and found to be correct.
Income Tax - Regular tax rate - MAT	33.66 8.415	Percent	Finance Act 2005-06	/IT/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The regular tax rate and MAT were the rates prevailing at the time of decision making. The values are correct and appropriate
Tax holiday (consecutive years out of first 15 years)	10	Years	Income Tax Act	/IT/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Sec. 80IA of Income Tax Act provides for exemption of income from <i>eligible business</i> for any 10 consecutive years out of first 15 years. However, this is subject to MAT. In the income tax computation, tax holiday has been reckoned for 10 consecutive financial years after the carry forward loss has been fully absorbed. The value taken is correct and appropriate
Salvage Value	10.00	percent	Assumed as 10% of the asset value	/IRR/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Residual value has been taken at 10% of the depreciable cost and cost of land, which is in conformity with the best international practices. Considering the fact that the assets are almost fully written off as per IT Act depreciation, the salvage value provided therefore represents the book value and potential profit at the life of the operating period. The value is therefore, considered appropriate.
Primary Energy rate	0.7379	Rs/kWh	Letter from Northern Region Electricity Board dated 29 th July 2005	/IRR/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	As per CERC tariff order primary energy rate should be lowest variable charges of the central sector thermal power generating station of the concerned region. Since this value is sourced from the government

							published document, it was also available on the investment decision date, DOE has accepted the value.
Transmission charge	0.33	Rs/kWh	Letter from JP Power Grid date 2011-08-02	/IRR/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The letter from JP Power grid confirms that the transmission charges of 0.33 Rs/kWh has been estimated based on CERC tariff regulation 2004 using parameters available at the time of investment decision and the same was informed to JKHCL. Since the value is confirmed by the third party document the same has been accepted by the DOE after through assessment of the same.

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ANNEX 4: ASSESSMENT OF BARRIER ANALYSIS

Table A-4: Assessment of Barrier Analysis (EB 55 Annex 1 , § 114 (d), 119)

<input checked="" type="checkbox"/>		No barrier parameters are used for additionality justification		
<input type="checkbox"/>		Assessment of barriers see below		
Kind of Barrier (invest, tech, other)	Description of Barrier	Evidence used	Assessment of validation team	
			Appropriateness of information source	Explanation of final result

ANNEX 5: OUTCOME OF THE GSCP

Table A-5: Outcome of the Global Stakeholder Consultation Process

(§§ 41, 42 VVM Version 1.2)

<input checked="" type="checkbox"/>	No comments were received during the global stakeholder consultation period					
<input type="checkbox"/>	Comments were received during the global stakeholder consultation period. The comments (in unedited form) and the consideration/response of the validation team are presented below:					
Comment No.:	Comment by:	Inserted on:	Subject	Comment ^{*)}	Action taken by the validation team to take due account on the comment ^{*)}	Conclusion (incl. CARs CLs or FARs)

^{*)} In case clarifications have been requested by the validation team corresponding rows shall be added



ANNEX 6: STATEMENTS OF COMPETENCE OF TEAM MEMBERS



CERTIFICATE OF APPOINTMENT

Mr. Archak Pattanaik

born on 1976-06-10

satisfies the requirements as specified in the TÜV NORD
JI/CDM CP directives and is hereby appointed as

TÜV NORD CDM Lead Assessor

The present appointment will terminate on 2012-12-21
Certification registration No. 09 12 04 – 72 rev1

Essen, 2009-12-22

Head of TÜV NORD JI/CDM Certification Program
of TÜV NORD CERT GmbH



CERTIFICATE OF APPOINTMENT

Mr. Abhishek Kumar Srivastava

born on 1984-03-26

satisfies the requirements as specified in the TÜV NORD
JI/CDM CP directives and is hereby appointed as

TÜV NORD CDM Lead Assessor

The present appointment will terminate on 2014-02-06
Certification registration No. 11 02 07 – 83 rev1

Essen, 2011-02-07

Head of TÜV NORD JI/CDM Certification Program
of TÜV NORD CERT GmbH



CERTIFICATE OF APPOINTMENT

Mr. Vishnu Patidar

born on 1985-08-24

satisfies the requirements as specified in the TÜV NORD
JI/CDM CP directives and is hereby appointed as

TÜV NORD CDM Assessor

The present appointment will terminate on 2014-02-01
Certification registration No. 11 02 01 – 158 rev1

Essen, 2011-02-02

Head of TÜV NORD JI/CDM Certification Program
of TÜV NORD CERT GmbH



CERTIFICATE OF APPOINTMENT

Mr. Ma Paa Puratchikkanal

born on 1971-09-21

satisfies the requirements as specified in the TÜV NORD
JI/CDM CP directives and is hereby appointed as

TÜV NORD CDM Senior Assessor

The present appointment will terminate on 2013-09-09
Certification registration No. 10 09 03 – 79

Essen, 2010-09-10


Head of TÜV NORD JI/CDM Certification Program
of TÜV NORD CERT GmbH



CERTIFICATE OF APPOINTMENT

Mr. Dipl.-Ing. Rainer Winter

born on 1963-02-21

satisfies the requirements as specified in the TÜV NORD
JI/CDM CP directives and is hereby re-appointed as

TÜV NORD JI/CDM Senior Assessor

The present appointment will terminate on 2013-07-03
Certification registration No. 04 02 154-03
Initial appointment Assessor: 2004-03-01
Senior Assessor: 2007-07-07

Essen, 2010-07-04


Deputy of TÜV NORD JI/CDM Certification Program
of TÜV NORD CERT GmbH



CERTIFICATE OF APPOINTMENT

Mr. Dipl.-Ing. Eric Krupp

born on 1971-06-25

satisfies the requirements as specified in the TÜV NORD
JI/CDM CP directives and is hereby re-appointed as

TÜV NORD JI/CDM Senior Assessor

The present appointment will terminate on 2013-07-05
Certification registration No. 06 05 01 – 017
Initial appointment on 2007-07-06

Essen, 2010-11-29


Head of TÜV NORD JI/CDM Certification Program
of TÜV NORD CERT GmbH



CERTIFICATE OF APPOINTMENT

Mr. Alexander Richter

born on 1983-01-25

satisfies the requirements as specified in the TÜV NORD
JI/CDM CP directives and is hereby appointed as

TÜV NORD CDM Lead Assessor

The present appointment will terminate on 2014-03-13
Certification registration No. 11 03 03 – 136 rev1

Essen, 2011-03-14


Head of TÜV NORD JI/CDM Certification Program
of TÜV NORD CERT GmbH

CERTIFICATE OF APPOINTMENT

Mr. Rami Kunal

born on 1976-10-15

satisfies the requirements as specified in the TÜV NORD
JI/CDM CP directives and is hereby appointed as

TÜV NORD CDM Assessor

The present appointment will terminate on 2014-03-15
Certification registration No. 11 03 02 – 224

Essen, 2011-03-16


Head of TÜV NORD JI/CDM Certification Program
of TÜV NORD CERT GmbH